C. Ryan Maloney
Partner
Florida Bar Board Certified in
Construction Law

JB JIMERSON BIRR

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August 8, 2022

VIA ELECTRONIC MAIL
(SChampion@HernandoCounty.us)
(JAllocco@HernandoCounty.us)
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Hernando County Board of County Commissioners
Attn: Steve Champion
John Allocco
Elizabeth Narverud
Wayne Dukes
Jeff Holcomb
15470 Flight Path Dr.
Brooksville, FL 34606

Re: Rezoning Petition - Application H-22-10
Public Service Facility Overlay District for a Communication Tower

Dear Commissioners:

This letter is written on behalf of SBA Monarch Towers III, LLC ("SBA") in opposition to the Rezoning Petition for Public Service Facility Overlay District for a Communication Tower, submitted by James Johnston with Shutts & Bowen LLP, on behalf of Temple Beth David Jewish Center (the "Applicant"), to rezone property and allow for construction of a new 160-foot monopole communication tower, antenna array, and associated operational equipment ("Proposed Tower"), under Application File Number H-22-10 (the "Application"). The Application was recommended for approval by the Planning & Zoning Commission 4-1 on May 9, 2022, and is being considered by the Board of County Commissioners ("Board") at its upcoming meeting on August 9, 2022, at 9:00 a.m.

As described in more detail below and in SBA's prior Opposition, dated June 13, 2022, which is in the Agenda Packet, the Board should deny the Application because the Applicant fails to meet several of the required criteria listed in Appendix A, Article IV, Section 11(B)(6) of the Hernando County Code of Ordinance (the "Code") to obtain approval of a Public Service Facility Overlay District for a communication tower site.

Specifically, the Applicant:

(1) Fails to demonstrate that the Proposed Tower meets the minimum setback requirements, as required by Appendix A, Article IV, Section 11(B)(6)(a), and the Applicant did not properly request a variance of the setback requirement;

(2) Fails to provide evidence that SBA's existing tower, which is **less than 0.16 miles or 886 feet**, from the Proposed Tower's location, is not available for collocation, as required by Appendix A, Article IV, Section 11(B)(6)(b)(5);

(3) Fails to demonstrate that there are no alternative locations available, as required by Article IV, Appendix A, Article IV, Section 11(B)(6)(c); and

(4) Fails to provide options for viable alternatives for camouflage techniques, as required by Appendix A, Article IV, Section 11(B)(6)(b)(7).

The Proposed Tower Does Not Meet the Minimum Setback Requirements

The Application should be denied because the Proposed Tower does not comply with the setback requirements of the Code. Specifically, the Proposed Tower is required to be set back at least 125%, or 200 feet, from any residentially zoned property. See Appendix A, Article IV, Section 11(B)(6)(a) and Appendix A, Article II, Section 2(F)(7) of the Code. However, the Proposed Tower is set back **only 106 feet from the residentially zoned property to the West**.

Importantly, the Applicant did not: (1) submit a completed application for variance or otherwise comply with the variance procedure, as required by Appendix A, Article V, Section 3(E) of the Code; (2) meet the variance criteria provided in Section 3(C); or (3) provide the required notice of variance, as required by Section 3(H) of the Code, to deviate from the strict application of the setback provisions of the Code. A copy of Appendix A, Article V, Section 3 of the Code is attached as **Exhibit A**.

Because there has been no variance application, the Board simply does not have authority to grant a variance from the setback requirements at its August 9, 2022, public hearing under the Code. Accordingly, the Board **must** deny the Application for failing to meet the minimum setback requirements.

The Applicant Fails to Provide Evidence That the SBA Tower is Not Available for Collocation, or That There Are No Alternative Locations Available

For the Application to be approved, the Applicant must provide evidence that the SBA Tower is not available to T-Mobile for purposes of collocation, and that there are no alternative locations available. See Appendix A, Article IV, Section 11(B)(6)(b)(5) of the Code. In its Application, the Applicant argues that the SBA Tower cannot accommodate T-Mobile's proposed 5G equipment.

However, as the Affidavit of Chiyu Zhang, P.E., a structural engineer licensed with the State of Florida, attached as **Exhibit B** ("Zhang Affidavit"), confirms, the SBA Tower is technologically and structurally suitable to accommodate additional antenna and equipment, including T-Mobile's 5G equipment, on the exterior of the SBA Tower. To accommodate T-Mobile's 5G equipment, straightforward modifications to the SBA Tower are required to essentially remove the canister shrouds to allow 5G equipment to be placed on the outside and top of the SBA Tower (the "Modifications"). As the Zhang Affidavit further confirms, the SBA Tower

and its foundation are structurally capable to safely support 5G equipment, in addition to the equipment currently installed, with the Modifications.

Further, the Modifications to the SBA Tower would be completed well before the Proposed Tower could be completed. SBA already has engineering construction drawings of the Modifications prepared (attached to the Zhang Affidavit as Exhibit 1), as well as an engineering Structural Analysis, which analyzes the structural capacity of the SBA Tower with the Modifications, prepared (attached to the Zhang Affidavit as Exhibit 2).

As set forth in the Affidavit of Brooke Irby, the Site Marking Manager for SBA, attached as **Exhibit C**, SBA has already requested a pre-application meeting with the County's planning staff to allow SBA to make the Modifications to the SBA Tower. The pre-application meeting is scheduled to occur on August 25, 2022, at 9 a.m. Once construction is commenced, the Modifications to the SBA Tower could be fully completed in approximately three (3) months, whereas construction of the Proposed Tower could take at least a year to complete. See the Affidavit of Chiya Zhang, P.E. (Exhibit B).

In addition, as set forth in the Declaration of Sanjay Dhawan, attached as **Exhibit D**, and the RF Coverage Plot Analysis and the RF Coverage Plots (attached to the Dhawan Affidavit as Exhibit 1), the Proposed Tower will not appreciably expand the scope or strength of available coverage in the area. Rather, the Proposed Tower will provide duplicative or overlapping coverage with the SBA Tower, and installation of additional antennas on the Proposed Tower would be considered an "overbuild" or impractical given the coverage overlap with the SBA Tower.

Accordingly, the Board should deny the Application because the Applicant fails to provide evidence that the SBA Tower is not available for collocation, or that there are no alternate locations available, when in fact, the SBA Tower is available for collocation with straightforward modifications and is located within T-Mobile's search ring.

The Applicant Fails to Provide Options for Viable Camouflage Techniques

For the Application to be approved, the Applicant must provide a "description of viable alternatives for utilizing camouflage techniques." See Appendix A, Article IV, Section 11(B)(6)(b)(7). However, although it is the responsibility of the Applicant to provide options for viable camouflage techniques, none have been provided by the Applicant.

Importantly, one of the County's staff recommendations for conditions of approval of the Proposed Tower is for it to be constructed as a monopine, *i.e.*, for it to be camouflaged to look like a pine tree. However, as depicted in the engineering site plans included with the Application, the Proposed Tower is not designed as a monopine. The Applicant has not submitted any engineering evidence that the Proposed Tower can be constructed or is structurally capable to safely support the proposed equipment if constructed in a camouflaged monopine design. Accordingly, the Board should deny the Application because the Applicant fails to provide any evidence that the Proposed Tower can be safely constructed in a camouflaged monopine design.

Conclusion

In sum, the Applicant fails to meet several of the required criteria listed in Appendix A, Article IV, Section 11(B)(6) of the Code. As stated in the Code, the Applicant must meet each of the listed criteria "**prior to the approval of a Public Service Facility Overlay District (PSFOD) for a communication tower site**." Because the Applicant has failed to do so, the Board should deny, or at a minimum, defer the Application.

Sincerely,

C. Ryan Maloney

CRM/mgm
Enclosures: (Exhibits A-D)

cc: Client (via email w/enclosures)
File

EXHIBIT A

Section 3. Appeals and variances.

A. *Authority of the governing body.* The governing body shall have the following powers and duties:

(1) The governing body shall hear and decide appeals when it is alleged there is an error in any order, requirement, decision, or determination made by the administrative official in the enforcement of the zoning ordinance. The governing body may, upon appeal and in conformity with provisions of this part, reverse or affirm, wholly or partly, or may modify the order, requirement, decision, or determination made by the administrative official in the enforcement of the zoning ordinance. In making any necessary order, requirement, decision, or determination, the governing body shall have all the powers of the administrative official from whose decision the appeal is taken.

(2) The governing body may authorize upon appeal a variance from the terms of the ordinance that will not be contrary to the public interest when due to special conditions, a literal enforcement of the provisions of the ordinance would result in unnecessary and undue hardship. In order to authorize any variance from the terms of the ordinance, the governing body shall consider:

(a) That special conditions and circumstances exist which are peculiar to the land, structure, or building involved and which are not applicable to other lands, structures, or buildings in the same zoning district;

(b) That the special conditions and circumstances do not result from the actions of the applicant;

(c) That granting the variance requested will not confer on the applicant any special privilege that is denied by this ordinance to other lands, buildings, or structures in the same zoning district;

(d) That literal interpretation of the provisions of the ordinance would deprive the applicant of rights commonly enjoyed by other properties in the same zoning district under the terms of the ordinance and would work unnecessary and undue hardship on the applicant;

(e) That the variance granted is the minimum variance that will make possible the reasonable use of the land, building or structure;

(f) That the granting of the variance will be in harmony with the general intent and purpose of the land development regulations and that such variance will not be injurious to the area involved or otherwise detrimental to the public welfare.

(3) The governing body may prescribe appropriate conditions and safeguards in conformity with the land development regulations. Violation of such conditions and safeguards, when made a part of the terms under which the variance is granted, shall be deemed a violation of the ordinance.

(4) The governing body may prescribe a reasonable time limit within which the action for which the variance is required shall be begun or completed or both.

B. *Authority of the administrative official:* The administrative official shall have the following duties:

(1) The administrative official shall interpret the zoning ordinance and make determinations of appropriate uses within a zoning district.

(2) The administrative official shall review and grant or deny variances. to the zoning ordinance.

C. *[Review criteria.]* The administrative official shall review all variances based on the criteria listed below:

(1) Special conditions and circumstances exist which are peculiar to the land, structure, or building involved and which are not applicable to other lands, structures, or buildings in the same zoning district

(2) The special conditions and circumstances do not result from the actions of the applicant.

(3) The requested variance will not be detrimental to the development pattern in the neighborhood.

(4) The requested variance will enable the petitioner to avoid building in the flood plain.

(5) The requested variance will enable the petitioner to protect one or more specimen trees.

(6) The requested variance is the result of a development plan proposing a more efficient and safe design through an access management plan approved by the development review committee.

(7) The requested variance is for a front yard corner lot and will not have any adverse impact on the established development pattern of the adjacent lots.

(8) The requested variance is for an addition for a building with an existing portion already encroaching into the yard and will not extend past a line established by the existing encroachment running parallel to the lot line.

(9) The requested variance will further the reconstruction, rehabilitation, or restoration of structures listed in or classified as contributing to a district listed in the National Register of Historic Places, the Local Register of Historic Places, or the State Inventory of Historic Places.

D. *Variances:*

(1) *Dimensional variance runs with the land:* A dimensional variance applies to the property for which it is granted, and not to the individual who applies for it. A dimensional variance is transferable to any future owner of the land, but it cannot be transferred by the applicant to a different site.

(2) *Findings maintained by the administrative official:* All findings necessary for the granting of a dimensional variance, along with any imposed conditions or restrictions, shall be maintained by the administrative official. These findings shall be issued in written form to the applicant to constitute proof of the dimensional variance.

(3) *[Uses not otherwise permitted.]* A variance shall not be granted to allow a use not otherwise permitted in the zoning district.

E. *Variance procedure:*

(1) The administrative official shall, following the receipt of the completed application for a variance, review the application and, within fifteen (15) days, issue a notice of intent, for either the approval or the denial of the variance.

(a) If the notice of intent is to approve the variance, a mailing shall be issued to the property owners within five hundred (500) feet of the property under consideration for the variance. This notice shall indicate that it is the administrative official's intent to approve the requested variance fifteen (15) days after the date of the mailing if no appeal is filed. The notice of intent shall be forwarded to the board of county commissioners.

(b) If no appeal is filed within fifteen (15) days objecting to the administrative official's decision to approve the variance, the decision shall stand. If an appeal is filed by 5:00 p.m. on the fifteenth day, the administrative official shall schedule a public hearing for the governing body to hear the application for the variance.

(c) If the administrative official's intent is to deny the requested variance, the administrative official shall send notification letters to the applicant and the property owners within two hundred fifty (250) feet of the property under consideration for the variance, indicating the administrative official's intent to deny the variance. The notice of intent shall be forwarded to the board of county commissioners.

(d) If no appeal is filed within fifteen (15) days objecting to the administrative official's decision to deny the variance, the decision shall stand. If an appeal is filed by 5:00 p.m. on the fifteenth day,

the administrative official shall schedule a public hearing for the governing body to hear the application for the variance.

F. *Appeal procedure:*

(1) *For administrative decisions:* Appeals to the governing body for an administrative decision may be taken by any person aggrieved or by any officer, board, or bureau of the governing body affected by the decision of the administrative official. Such appeal shall be taken within thirty (30) days after rendition of the order, requirement, decision, or determination appealed by filing with the administrative official from whom the appeal is taken and with the governing body an application of appeal specifying the grounds thereof. Upon a hearing, any party may appear in person, by agent, or by attorney.

G. *Application for variance appeal:* The application for the appeal of the administrative official's intent to either approve or deny a variance shall be in the form prescribed by the governing body. Such an application shall be included with the administrative official's letter of intent which is mailed to adjacent property owners. The individual filing an appeal shall include any additional data supporting the appeal at the time of filing.

H. *Required notice for appeals and variances:*

(1) *Notice in newspaper:* The administrative official shall cause a notice of the time, place, and purpose of such hearing to be published in a newspaper of general circulation in the county at least ten (10) days prior to the hearing.

(2) *Mail notice:*

(a) The administrative official shall mail notices setting forth the time, place and purpose of the hearing to the parties in interest when a specific parcel is involved. The administrative official shall also mail notices to the owner of every parcel of land within a distance of two hundred fifty (250) feet in any direction from the property line of the land in question when the hearing involves a specific parcel of land.

(b) Notice shall be mailed to the owner's current address of record maintained by the assessor of taxes of the governing body and shall be postmarked no later than ten (10) days prior to the scheduled hearing date. The administrative official shall present an affidavit or mailing certification certifying compliance with the notice requirement of this section, along with a list of the persons and addresses to which notices were mailed, at the time of the hearing.

(3) *Sign posting:* The applicant shall, upon the setting of the hearing on a proposed variance, and not less than fifteen (15) days prior to the date set for the public hearing, post sign(s) on the parcel of land for which the variance is proposed.

(a) Such sign shall have the size, shape, design and color determined by the administrative official. The following information shall be printed or otherwise made to appear on the sign:

PUBLIC NOTICE
VARIANCE HEARING
BOARD OF COUNTY COMMISSIONERS
HERNANDO COUNTY, FLORIDA
(insert date, meeting time, and location)
PROPOSED VARIANCE
(description of variance)

(b) The sign(s) furnished by the county shall be posted by the applicant along each front lot line with the bottom of the sign at least three (3) feet above grade on the property being considered for a variance. The sign cards shall be posted at the outer property line along the road or street frontage and shall be clearly visible. If the frontage is in excess of three hundred (300) feet,

posting of the signs shall be determined by the county. `qIn cases where the property does not have frontage on a road, the sign cards shall be posted at the property corners, and where the access road intersects with the nearest county road.

(c) After the signs are posted, the petitioner shall prepare an affidavit certifying that the required signs were posted, including a description of the parcel of land on which the signs were placed. This affidavit must be filed with the County Administrator or designee prior to the public hearing. The County shall make affidavit forms available for use by the applicant. It is the responsibility of the petitioner to ensure that the sign(s) are appropriately posted and remain on the property during the public hearing process in a legible condition. If the condition of the sign(s) deteriorate through the process, it shall be the responsibility of the petitioner to repost the property at no cost to the county. Failure to maintain the signs in accordance with this section may result in a delay to the public hearing process. The petitioner shall be responsible for removal of the sign(s) within 10 days of the date the decision on the petitioner's application becomes final or the date of appeal of a commission or governing body decision for judicial determination, whichever comes first. Failure to timely remove any such sign(s) is prohibited.

(4) *Public inquiry workshop.* Upon determination of need by the administrative official based upon the number of public inquiries or the size, location or complexity of the proposed project, the applicant shall be required to conduct a public inquiry workshop prior to the scheduling of a public hearing on the application at a location convenient to the site in question and appropriate for public assembly in Hernando County as follows:

(a) The applicant shall provide sign notice by posting the property a minimum of ten (10) days prior to the scheduled workshop with a public inquiry workshop notice sign as supplied by the zoning department. The sign notice hereunder shall be in addition to all other sign notice requirements under this article.

(b) The applicant shall provide mail notice a minimum of ten (10) days prior to the scheduled public inquiry workshop giving the time, place and purpose of the meeting to each property owner within one thousand (1,000) feet of the parcel covered by the application based on the mail list generated by the property appraiser's office. The applicant shall provide the zoning department a copy of the mail list and a notarized affidavit indicating that said notice was mailed. The mail notice hereunder shall be in addition to all other mail notice provisions under this article.

(c) The applicant shall provide a citizen sign-in sheet and executive summary explaining what information was provided to the public at the meeting to the administrative official accompanied by a notarized affidavit indicating that the list is an official record of attendance at the meeting. The citizen sign-in sheet and executive summary will become a part of the official application.

I. *Fees:* The applicant shall pay all costs and expenses in connection with public notice of such hearing and related notices in addition to any other fee required for administration.

J. *Review by circuit court:* An aggrieved party may appeal a final administrative order of the governing body to the circuit court. Such an appeal shall not be a hearing de novo but shall be limited to appellate review of the record created before the governing body. An appeal shall be filed within thirty (30) days of the execution of the order to be appealed.

(Ord. No. 74-8, § 9, 10-15-74; Ord. No. 78-4, § 7, 5-16-78; Ord. No. 86-18, § 2, 8-5-86; Ord. No. 88-8, § 1, 4-6-88; Ord. No. 91-13, § 7, 7-2-91; Ord. No. 96-19, § 18, 9-10-96; Ord. No. 97-3, § 7, 3-4-97; Ord. No. 99-14, § 15, 7-6-99; Ord. No. 2004-11, § 16, 8-3-04; Ord. No. 2005-01, § 4, 2-8-05; Ord. No. 2016-18, §§ I, II, 11-8-16)

EXHIBIT B

Board of County Commissioners
Hernando County
Attn: Steve Champion
John Allocco
Beth Narverud
Wayne Dukes
Jeff Holcomb
15470 Flight Path Dr.
Brooksville, FL 34606

RE: Application H-22-10

AFFIDAVIT OF CHIYU ZHANG, P.E.

STATE OF TEXAS
COUNTY OF DALLAS

Before me the undersigned authority personally appeared Chiyu Zhang, P.E., who, after being duly sworn, deposes and states as follows:

1. I am a Structural Engineer for Allpro Consulting Group, Inc. ("Allpro") in Florida.

2. I am a licensed Professional Engineer with the State of Florida, License No. 86873.

3. I make this Affidavit with the understanding that it is to be used in opposition to the Zoning Amendment Petition for Public Service Facility Overlay District for a Communication Tower, submitted on behalf of Temple Beth David Jewish Center, under Application No. H-22-10 (the "Application"). All statements contained in this affidavit are based upon my personal knowledge and documents provided by SBA Monarch Towers III, LLC ("SBA"). I am over the age of eighteen and I am fully competent to testify to the facts recited herein.

4. I understand that the Application is seeking to construct a 160' communication tower on property located at 13764 Linden Drive, Spring Hill, Florida (the "Proposed Tower") to house 5G equipment.

5. SBA owns a 155' communication tower in Hernando County, Florida, on property located at 13764 Linden Drive, Spring Hill, Florida 32223 (the "Existing SBA Tower").

6. The Existing SBA Tower is located approximately 0.16 miles or 886 feet from the Proposed Tower.

7. SBA hired Allpro to review Engineering Modification Drawings, attached to this affidavit as **Exhibit 1**, and a Structural Analysis Report, attached to this affidavit as **Exhibit 2**, regarding certain modifications to the Existing SBA Tower, and provide a professional engineering opinion on whether the Existing SBA Tower with the modifications is technologically and structurally suitable to accommodate additional antennae and equipment, including 5G equipment, on the exterior of the Existing SBA Tower.

8. Having reviewed the Engineering Modifications Drawings, and based on my experience and training as an engineer, I can confirm that the Engineering Modifications Drawings are an accurate depiction of modifications which would allow accommodation of 5G equipment on the exterior of the Existing SBA Tower. Those modifications consist of replacing the spine from 115' to 155' with (2) 20' x 24" diameter with 0.375" thickness pole sections, and installing (3) 2.25" anchor bolts with brackets (the "Planned Modifications").

9. Further, having reviewed the Structural Analysis Report, and based on my experience and training as an engineer, I agree with and adopt the finding in the Structural Analysis Report, that the Existing SBA Tower and its foundation are structurally capable to safely support 5G equipment, in addition to the equipment currently installed, with the Planned Modifications.

10. I have experience with similar modifications for SBA and other companies, and modifications as may be needed to accommodate equipment at higher height or for more/larger equipment are common practice in the telecommunications industry.

11. Based on my experience and training, and my review of the Engineering Modifications Drawings, I estimate that once commenced, the Planned Modifications could be

fully completed in approximately three months. In contrast, construction of an entirely new tower would be estimated to take a least a year from the start of construction.

12. When the Planned Modifications to the Existing SBA Tower are complete, I can confirm that the Existing SBA Tower will offer the same structural capacity to accommodate 5G equipment as the Proposed Tower could.

13. Further, I can confirm that the Existing SBA Tower is available to site 5G antennas on the exterior of the Existing SBA Tower with the Planned Modifications.

[*Affiant's signature follows on next page*]

FURTHER AFFIANT SAYETH NOT

Affiant: Chiyu Zhang, P.E.

STATE OF TEXAS
COUNTY OF DALLAS

Sworn to and subscribed before me by means of ☑ physical presence or ☐ online notarization, this 8 day of August, 2022. Such person did take an oath and:

(Notary must check applicable box).

☐ is/are personally known to me.
☐ produced a current _____ driver's license as identification.
☑ produced Driver License. as identification.

{Notary Seal must be affixed}

ROSA LOPEZ
Notary ID #10690353
My Commission Expires
December 1, 2024

SIGNATURE OF NOTARY

Rosa Lopez
Name of Notary *(Typed, Printed or Stamped)*

EXHIBIT 1

DESIGN CRITERIA:	
WIND SPEED USED IN THE ANALYSIS:	139.0 MPH (3-SEC. GUST) (ULTIMATE WIND SPEED)
WIND SPEED WITH ICE:	N/A
SERVICE LOAD WIND SPEED:	60 MPH + 0" RADIAL ICE
STANDARD/CODES:	TIA-222-H / 2018 IBC / FLORIDA BUILDING CODE, 7TH EDITION (2020)
EXPOSURE CATEGORY:	C
RISK CATEGORY:	II
TOPOGRAPHIC CATEGORY:	1
CREST HEIGHT:	0 FT
SEISMIC PARAMETERS:	S_s = 0.058, S_1 = 0.033

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 155' DAVINCI MONOPOLE TOWER

SITE: FL40914-T-SBA / JOHN & MARIA FERRARA

COORDINATES (LATITUDE: 28.464292°, LONGITUDE: -82.510186°)

CONSTRUCTION CLASS

THE RIGGING PLAN FOR THIS SITE WOULD BE A MINIMUM OF A CLASS **IV** AND THE CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-1A	TAPERED CAMEL INSTALLATION DETAILS	0
A-2	INSTALLATION OF NEW ANCHOR ROD DETAILS	0
A-3	MONOPOLE SECTION INSTALLATION DETAILS	0
A-4	MONOPOLE SECTION INSTALLATION DETAILS	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **SBA** EMAIL REQUEST, DATED **07/06/2022**.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0601

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

131282

FL40914-T-SBA
CUSTOMER SITE NAME
JOHN & MARIA FERRARA
13764 LINDEN DRIVE
SPRING HILL, FL 34609

JARRYD COLE TIBBETTS LICENSE No 85109 STATE OF FLORIDA PROFESSIONAL ENGINEER

DRAWN BY: DCR | CHECKED BY: SS/AD

REV	DESCRIPTION	BY	DATE
0	FINAL ISSUE	DCR	07/11/22

SHEET TITLE
TITLE SHEET

SHEET NUMBER	REV #
T-1	0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
3	3	APL-6X100-B2	6" x 1.00" Flat Bar, 5.5" offset, anchor bolt bracket	2'-10"	A-2	APL-6X100-B2	145.9	437.7	Galvanized
3	3	R71-14	Williams 1 3/4" Dia. All-thread Rod (150 ksi) X 12 Ft. Long	12.0)	A-2	---	108.7	326.2	Galvanized
6	6	R73-14	Williams 1 3/4" Dia. R73 Hex Nuts	---	A-2	---	---		Galvanized
6	6	PLW-2	PL 1 1/4" X 3 1/2" FLAT WASHER, A572 Grade 65	---	A-2	F-A	2.3	13.5	Galvanized
36	41	HB16-2	Lindapter 5/8" Type HB Hollo-Bolt (HCF, M16x100)	---	A-2	---	---	---	Galvanized
151	156	STEP BOLT	Step Bolt 5/8" Dia x 7 1/2" Long	---	A-1A, A-3, A-4	F-C	0.0	0.0	w/ (2) Nut-LKW ea. (Galvanized)
			Following Items are Non-standard Parts						
1	1	MPE-24-20A	MONOPOLE SECTION WELDMENT PIPE HSS 24.000X0.375 X 20'-0" A500 GR. B (42KSI)	20'-0"	A-3	F-1	2361.1	2361.1	Galvanized
1	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-2" DIA A572-50	---	A-3	F-4	304.2	304.2	Galvanized
36	40	---	BOLT 1" X 4 3/4" A325	---	A-3, A-4	---	1.8	72.0	w/ (1) HHN-FW ea. (Galvanized)
2	2	115-303	SAFETY CLIMB CABLE GUIDE L-STYLE (TUF-TUG OR EQUIV.)	---	A-3, A-4	---		0.0	Galvanized
1	1	MPE-24-20B	MONOPOLE SECTION WELDMENT PIPE HSS 24.000X0.375 X 20'-0" A500 GR. B (42KSI)	20'-0"	A-4	F-2	2304.1	2304.1	Galvanized
1	1	CPL-24	TOP CAP PLATE PL 3/16" X 2'-6 1/2" DIA A36	---	A-4	F-4	41.0	41.0	Galvanized
2	3	---	BOLT 1" X 3 1/2" A325	---	A-4	---	1.52	4.6	w/ (1) HHN-FW ea. (Galvanized)
1	1	MP-10BST-WA	PL 1/2" X 2" X 10'-0" A572-50 WITH STEP BOLT BRACKETS	---	A-1A	F-7	38.9	38.9	Galvanized
19	19	MP-10BST-WB	PL 1/2" X 2" X 10'-0" A572-50 WITH STEP BOLT BRACKETS	---	A-1A	F-7	38.2	725.8	Galvanized
66	74	HB12-1	LINDAPTER 1/2" TYPE HB HOLLO-BOLT (HCF)	---	A-1A	---	---	---	Galvanized
1	1	TTCSCS-150-MP-SSC	TUF-TUG MONOPOLE SAFETY CLIMB SYSTEM W/STAINLESS STEEL CLIMB CABLE (150FT)	---	A-1A	---	---	---	Galvanized
1	1	SCBRK-1	L 3 1/2" X 3" X 3/8" X 3" A36	---	A-1A	F-6	1.1	1.1	Galvanized
4	4	SCGB-1	L 3" X 3" X 1/4" X 3" A36	---	A-1A	F-6	2.1	8.4	Galvanized
5	6	HB16-1	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)	---	A-1A	---	---	---	Galvanized
1	1	115-345/144	TUF-TUG HEAD EXTENSION KIT CHANNEL MOUNT	---	A-1A	---	---	---	Galvanized
1	1	MP-8BST-WB	PL 1/2" X 2" X 7'-7 1/2" A572-50 WITH STEP BOLT BRACKETS	---	A-1A	F-8	30.3	30.3	Galvanized
1	1	MP-8BST-WA	PL 1/2" X 2" X 7'-7 1/2" A572-50 WITH STEP BOLT BRACKETS	---	A-1A	F-8	30.3	30.3	Galvanized
1	1	C30-086-006	5/8" DIA X 6'-0" COPPER-CLAD LIGHTNING ROD (SABRE OR EQUIV.)	---	A-1	---			
2	2	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)	---	A-1	---			Provided by Contractor
4	6	2RCNGM20212A	ALLFASTENERS M20 X 3/4 X 2 1/2" STEP BOLT ADAPTER ASSEMBLY	---	A-1A	---	---	---	Galvanized
4	6	2NG2032	M20 X 75 NEXGEN2 BLIND BOLT ASSEMBLY	---	A-1A	---	---	---	Galvanized

ALL APLXXXX, LPXXXX AND RLPXXXX ARE PATENTED PRODUCTS AND CANNOT BE FABRICATED BY THIRD PARTIES. THESE PARTS ARE AVAILABLE FROM:

METROSITE, LLC.
180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

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

TOTAL WEIGHT (LBS) = **6699.1**

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(800)-487-SITE

TES JOB NO:
131282

CUSTOMER SITE NO:
FL40914-T-SBA

CUSTOMER SITE NAME:
JOHN & MARIA FERRARA

13764 LINDEN DRIVE
SPRING HILL, FL 34609

JARRYD COLE TIBBETTS, P.E.
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FL ENG NO. 85109

DRAWN BY: DCR | CHECKED BY: SS/AD

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:

BILL OF MATERIALS

SHEET NUMBER: BOM | REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-H, ANSI/ASSP A10.48, FLORIDA BUILDING CODE 7TH EDITION (2020) AND ANY OTHER GOVERNING 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 ANSI/ASSP A10.48, 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 ZINGA 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 ZINGA 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-2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

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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TES JOB NO:
131282

CUSTOMER SITE NO:
FL40914-T-SBA

CUSTOMER SITE NAME:
JOHN & MARIA FERRARA

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SPRING HILL, FL 34609

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TX FIRM NO. 15109

DRAWN BY: DCR | CHECKED BY: SS/AD

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

NOTES:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. **THE SUCCESSFUL BIDDERS WILL BE ALLOWED TO BID DIRECTLY TO T-MOBILE FOR THE REMOVAL OF THE TEMPORARY ANTENNAS AND LINES, AND THEN INSTALL NEW ANTENNAS AND OTHER EQUIPMENT DIRECTLY TO THE NEW PIPE SECTION.**
3. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS TO ALL FIELD CUT AND DRILLED AREAS.

SCOPE OF WORK

1. INSTALL (3) NEW ANCHOR BOLT REINFORCEMENTS. SEE SHEET A-2 FOR DETAILS.
   NOTE: CONTRACTOR TO PAINT NEW MEMBERS TO MATCH EXISTING TOWER COLOR.
2. A. REMOVE EXISTING CANISTER SPINE AND SHROUDS FROM ±115'-0" TO ±155'-0" ELEV.
   NOTE: EXISTING ANTENNA MOUNT AT ±150'-0" ELEV. TO BE RELOCATED TO BELOW THE EXISTING FLANGE AT ±115'-0" ELEV. BY T-MOBILE PRIOR TO INSTALLATION OF NEW PIPE SECTIONS. CONTRACTOR TO COORDINATE THE RELOCATION WORKS WITH T-MOBILE PRIOR TO CONSTRUCTION.
   B. CUT OFF EXISTING SPOKED FLANGE AT ±115'-0" ELEV. PRIOR TO INSTALLATION OF NEW FLANGE PLATE.
   C. INSTALL NEW FLANGE PLATE FOR NEW POLE SECTION AT ±115'-0" ELEV. SEE SHEET A-3 FOR DETAILS.
   D. INSTALL NEW 24" O.D. X 20'-0" (3/8" THICK) POLE SECTION FROM ±115'-0" TO ±135'-0" ELEV. SEE SHEET A-3 FOR DETAILS.
   NOTE: NEW POLE SECTION COLOR SHOULD MATCH EXISTING TOWER COLOR.
3. INSTALL NEW 24" O.D. X 20'-0" (3/8" THICK) POLE SECTION FROM ±135'-0" TO ±155'-0" ELEV. SEE SHEET A-4 FOR DETAILS.
   NOTE: NEW POLE SECTION COLOR SHOULD MATCH EXISTING TOWER COLOR.
4. A. INSTALL NEW (22) PLATE WELDMENTS WITH STEP BOLTS FROM ±7'-3" TO ±115'-0" ELEV. SEE SHEET A-1A FOR DETAILS.
   NOTE: CONTRACTOR TO PAINT NEW MEMBERS TO MATCH EXISTING TOWER COLOR.
   B. INSTALL NEW SAFETY CLIMB SYSTEM. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
5. INSTALL NEW LIGHTNING ROD AT TOP OF THE NEW POLE SECTION AND FIELD CUT IT DOWN TO MEET FAA HEIGHT APPROVAL. SEE DETAIL 2.
6. APPLY FOUNDATION COATING.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

INSTALLATION NOTE:

VERTICAL ALIGNMENT IS REQUIRED FOR ALL THE EXTENSION PROJECTS, TOWERS OR POLES

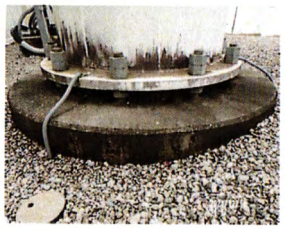


PHOTO 1

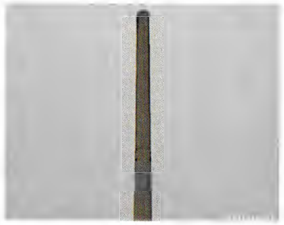
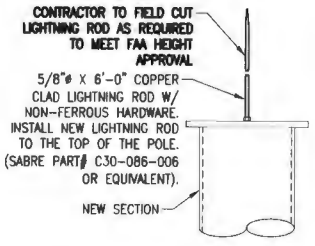


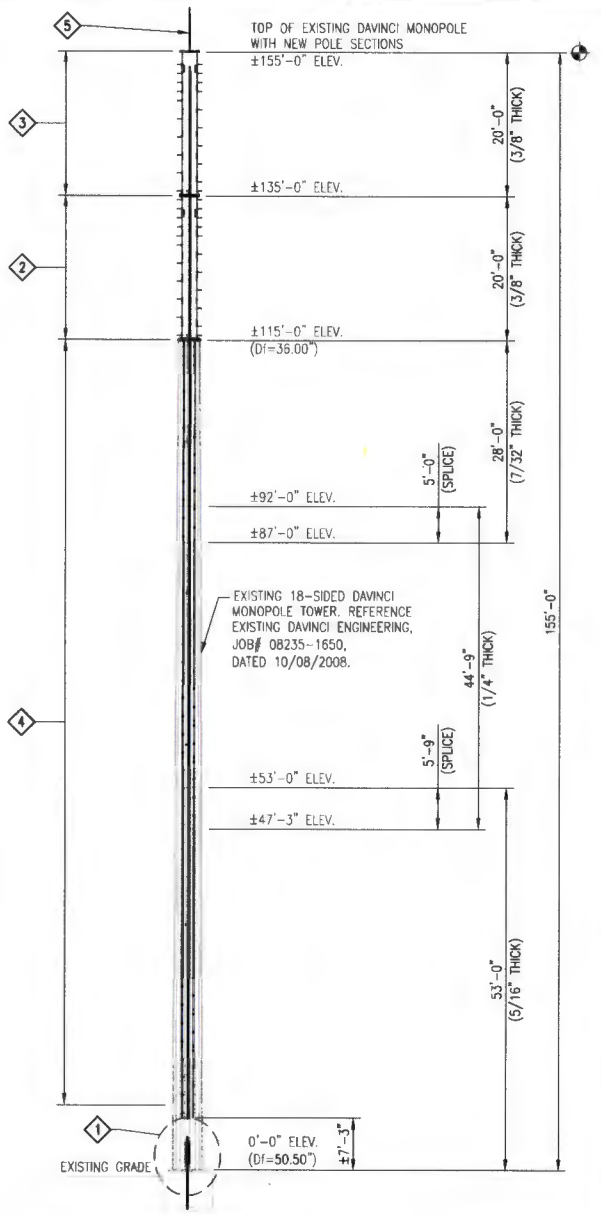
PHOTO 2

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.
6. APPLY COLD GALVANIZE AT LEAST 2'-3' ABOVE FOUNDATION.



DETAIL 2



ELEVATION VIEW

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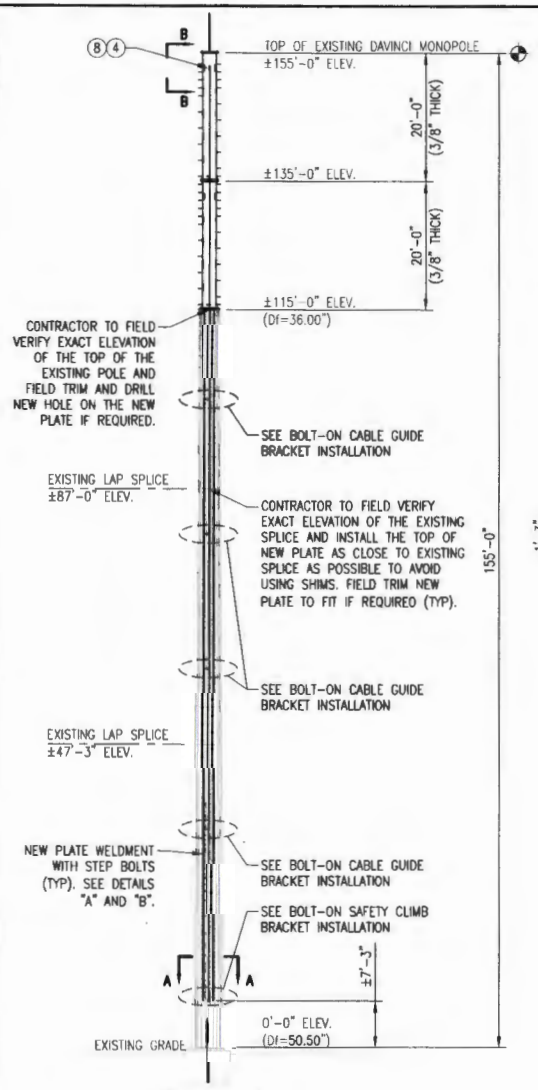
REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:

TOWER PROFILE

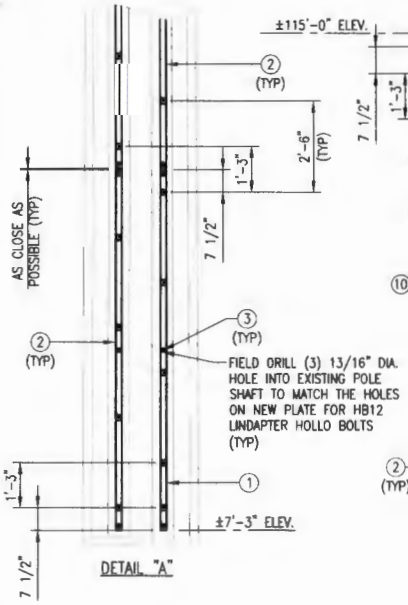
SHEET NUMBER: A-1 | REV #: 0



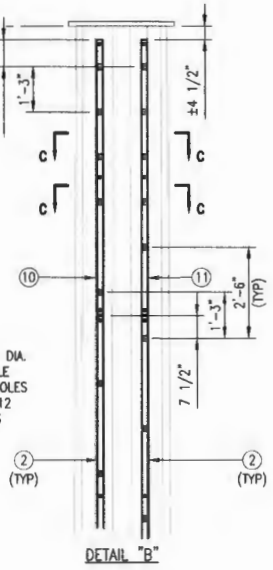
ELEVATION VIEW

NOTES:

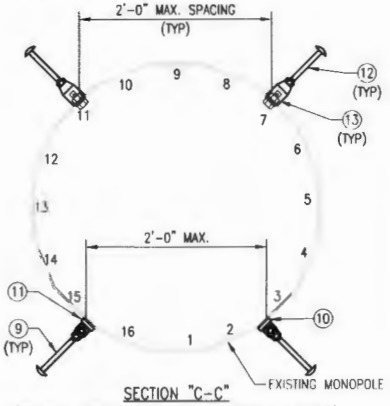
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER MANUFACTURER'S SPECIFICATIONS, TO ALL FIELD CUT/DRILLED AND EXPOSED AREAS.
3. REFER TO GN-1 SHEET FOR STEP BOLT INSTALLATION REQUIREMENTS.
4. INSTALLATION DETAILS FOR NEXGEN2 BOLTS - SEE SHEETS SPEC-1 & SPEC-2. IT IS REQUIRED THAT THE CONTRACTOR TAKE PHOTOS OF THE INSTALLED TORQUE FOR VERIFICATION OF PROPER INSTALLATION.



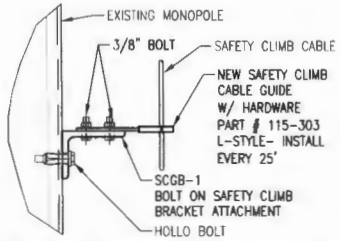
DETAIL "A"



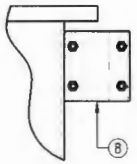
DETAIL "B"



SECTION "C-C"
(TYPICAL WORKING STEP BOLTS ON 2 LEVELS)



BOLT ON CABLE GUIDE BRACKET INSTALLATION



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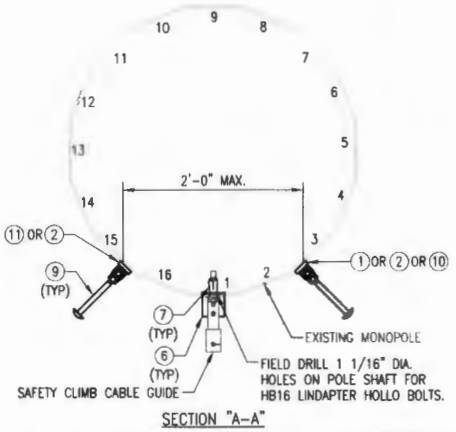
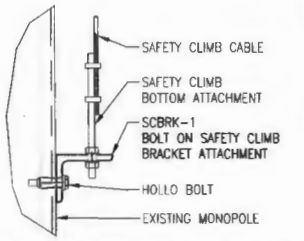


SECTION "A-A"



BOLT ON SAFETY CLIMB BRACKET INSTALLATION

ITEM NO.	QTY.	PART NO.	DESCRIPTION
13	4	2NG2032	M20 X 75 NEXGEN2 BLIND BOLT ASSEMBLY
12	4	2RCNGM20212A	ALLFASTENERS M20 X 3/4 X 2 1/2" STEP BOLT ADAPTER ASSEMBLY
11	1	MP-8BST-WA	PL 1/2" X 2" X 7'-7 1/2" A572 50 WITH STEP BOLT BRACKETS
10	1	MP-8BST-WB	PL 1/2" X 2" X 7'-7 1/2" A572-50 WITH STEP BOLT BRACKETS
9	91	STEP BOLT	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-1KW EA.
8	1	115-345/144	TUF-TUG HEAD EXTENSION KIT CHANNEL MOUNT
7	5	HB16 1	LINDAPTER 5/8" TYPE HB HOLLO BOLT (HCF)
6	4	SCGB-1	L 3" X 3" X 1/4" X 3" A36
5	1	SCBRK-1	L 3 1/2" X 3" X 3/8" X 3" A36
4	1	TTCSCS-150-MP-SSC	TUF-TUG MONOPOLE SAFETY CLIMB SYSTEM W/STAINLESS STEEL CLIMB CABLE (150FT)
3	66	HB12-1	LINDAPTER 1/2" TYPE HB HOLLO-BOLT (HCF)
2	19	MP-10BST-WB	PL 1/2" X 2" X 10'-0" A572-50 WITH STEP BOLT BRACKETS
1	1	MP-10BST-WA	PL 1/2" X 2" X 10'-0" A572-50 WITH STEP BOLT BRACKETS

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(800)-487-SITE

TES JOB NO:
131282

CUSTOMER SITE NO:
FL40914-T-SBA

CUSTOMER SITE NAME:
JOHN & MARIA FERRARA

13764 LINDEN DRIVE
SPRING HILL, FL 34609

JARRYD COLE TIBBETS, P.E.
TOWER ENGINEERING SOLUTIONS
1320 GREENWAY DRIVE SUITE 800
IRVING, TX 75038
FL ENG NO 85109

DRAWN BY: DCR | CHECKED BY: SS/AD

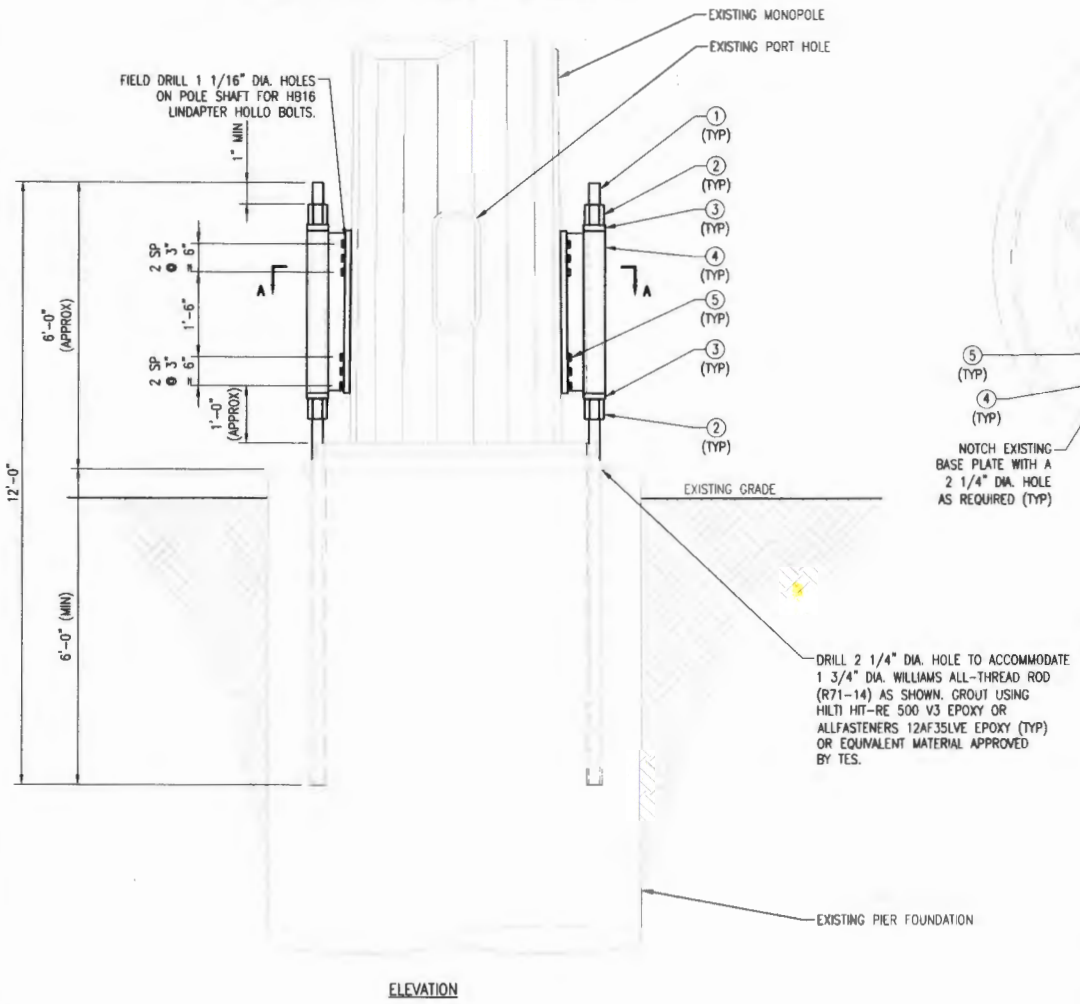
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:

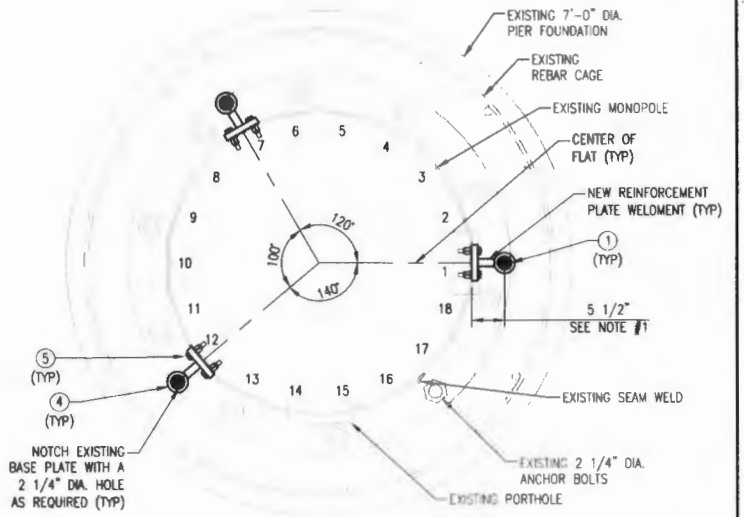
SAFETY CLIMB INSTALLATION DETAILS

SHEET NUMBER: A-1A | REV #: 0

US PATENT 9,714,520 B1



ELEVATION



SECTION "A-A"

INSTALLATION NOTES:

1. USE WELDED REINFORCEMENT BRACKET ASSEMBLY TO SET THE POSITION OF THE ALL-THREAD ROD.
2. DRILL NEW 2 1/4" DIA. HOLES INTO EXISTING FOUNDATION FOR ALL-THREAD ROD.
3. INSTALL REINFORCEMENT BRACKET AND CONFIRM FIT WITH MONOPOLE REINFORCEMENT PLATES.
4. TIGHTEN NUTS ON THE ALL-THREAD ROD LOCKING IT INTO POSITION.
5. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS TO ALL FIELD CUT AND EXPOSED AREAS.
6. DRILLING CONTRACTOR TO EXERCISE EXTREME CARE TO AVOID DAMAGING THE EXISTING REINFORCING TIES IN THE CONCRETE PIER. IF REBAR IS ENCOUNTERED IN THE CONCRETE WHILE DRILLING, CONTRACTOR TO STOP DRILLING AND INFORM TES FOR SOLUTION.
7. CONTRACTOR PLEASE NOTE-WHILE DRILLING PREPARE TO DRILL THROUGH ANCHOR BOLT TEMPLATE.
8. INSTALLATION TORQUE FOR HOLLO BOLTS-SEE SHEET GN-1. IT IS REQUIRED THAT THE CONTRACTOR TAKE PHOTOS OF THE INSTALLED TORQUE FOR VERIFICATION OF PROPER INSTALLATION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	R71-14	12'-0" WILLIAMS 1 3/4" DIA. ALL-THREAD ROD (150 KSI)
2	6	R73-14	1 3/4" NUT (WILLIAMS R73-14) (TYP)
3	6	PLW-2	PL 1 1/4" X 3 1/2" FLAT WASHER, A572-65
4	3	APL-6X100-B2	ANCHOR REINFORCEMENT WELDMENT
5	36	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)

NOTE:
SEE NOTES ON SHEET GN-1 FOR POST-INSTALLED EPOXY INJECTED ANCHOR BOLTS

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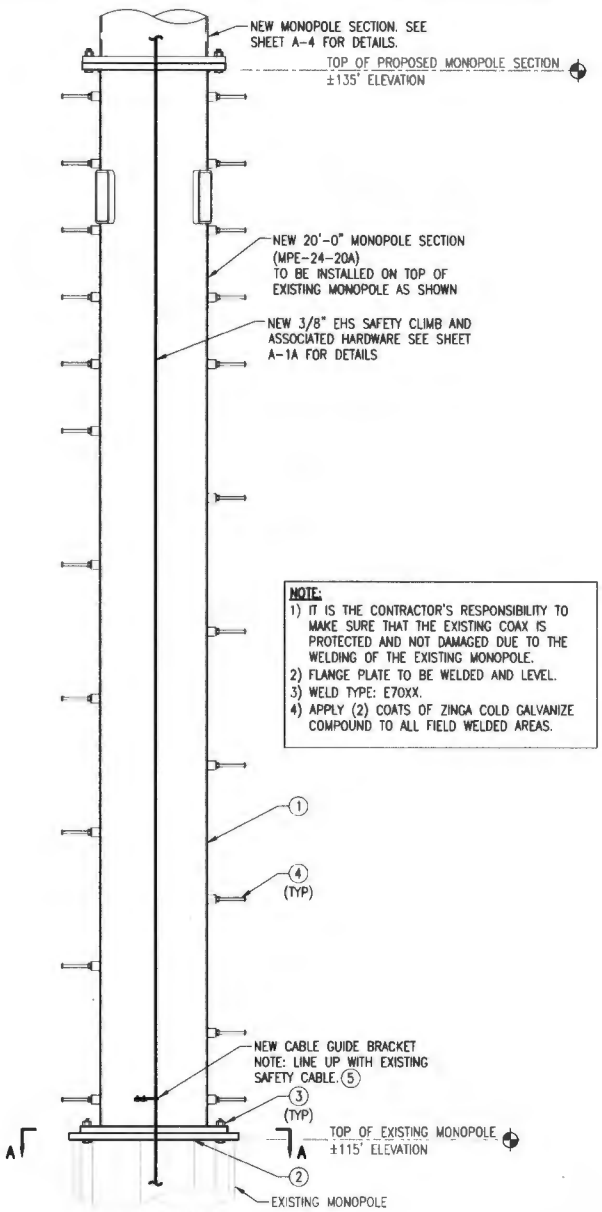
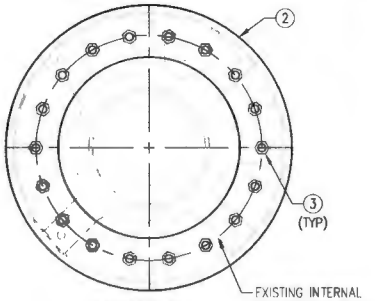
REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:
INSTALLATION OF NEW ANCHOR ROD DETAILS

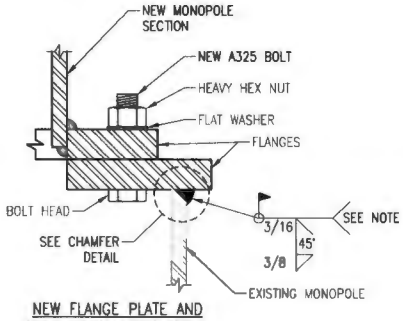
SHEET NUMBER: A-2 | REV #: 0



ELEVATION VIEW



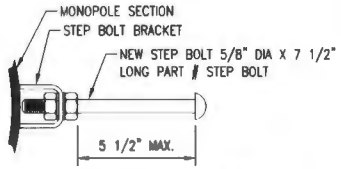
SECTION A-A



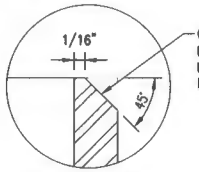
NEW FLANGE PLATE AND BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH THIS CONNECTION.



STEP BOLT INSTALLATION DETAIL



CHAMFER DETAIL

NOTES:

1. REFER TO "FIELD HOT WORK PLAN NOTES" ON SHEET GN-1 PRIOR TO ANY FIELD WELDING, CUTTING, ETC.
2. WELD TYPE: E70XX U.N.O

ITEM NO.	QTY.	PART NO.	DESCRIPTION
5	1	115-303	SAFETY CLIMB CABLE GUIDE L-STYLE (TUF-TUG OR EQUIV.)
4	32	STEP BOLT	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
3	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-2" DIA A572-50
1	1	MPE-24-20A	MONOPOLE SECTION WELDMENT PIPE HSS 24.000X0.375 X 20' 0" A500 GR. B (42KSI)

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FL ENG NO. 85109

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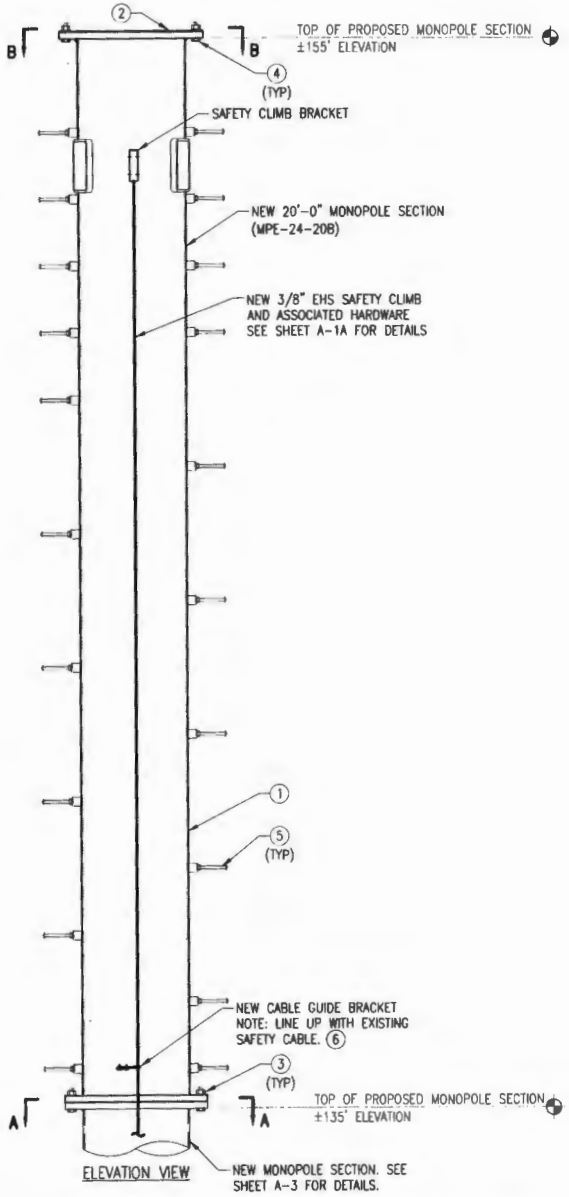
REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	DCR	07/11/22

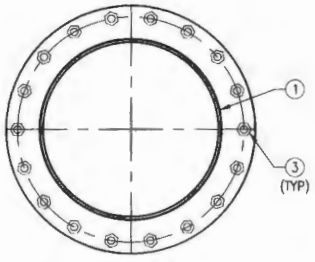
SHEET TITLE:

MONOPOLE SECTION INSTALLATION DETAILS

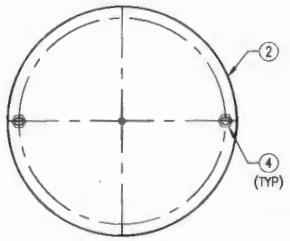
SHEET NUMBER: A-3 | REV #: 0



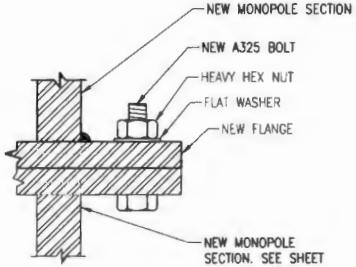
ELEVATION VIEW



SECTION A-A



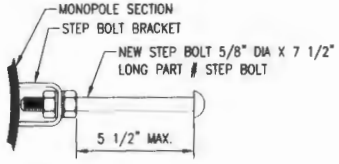
SECTION B-B



NEW FLANGE PLATE AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.



STEP BOLT INSTALLATION DETAIL

NOTES:

1. REFER TO "FIELD HOT WORK PLAN NOTES" ON SHEET GN-1 PRIOR TO ANY FIELD WELDING, CUTTING, ETC.
2. WELD TYPE: E70XX U.N.O

ITEM NO.	QTY.	PART NO.	DESCRIPTION
6	1	115-303	SAFETY CLIMB CABLE GUIDE L-STYLE (TUF TUG OR EQUIV.)
5	28	STEP BOLT	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
4	2	---	BOLT 1" X 3 1/2" A325 W/ NUT-FW EA.
3	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	CPL-24	TOP CAP PLATE PL 3/16" X 2'-6 1/2" DIA A36
1	1	MPE-24-208	MONOPOLE SECTION WELDMENT PIPE HSS 24.000X0.375 X 20'-0" A500 GR. B (42KSI)

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TES JOB NO:
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FL ENG NO 85109

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:

MONOPOLE SECTION
INSTALLATION DETAILS

SHEET NUMBER: A-4 | REV #: 0

NEXGEN2 BLIND BOLT ASSEMBLY

INSTALLATION GUIDE

PRE-INSTALL BOLT ON INSTALL TOOL:

1 Thread the installation tool tip into the splined end of the bolt.

2 Remove the nut, the face washer and the spring shear sleeve and slide along the handle of the tool.

3 Move the collapsible washer to the correct location on the tool and fold in place.

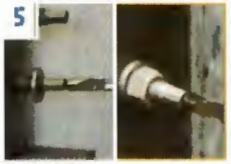
INSTALLATION:

1 Install the bolt into the hole followed by the collapsible washer.

2 Rotate the tool 180°.

3 Pulling back, rock the tool side-to-side to engage the collapsible washer.

4 Engage the spring shear sleeve into the shear plane.

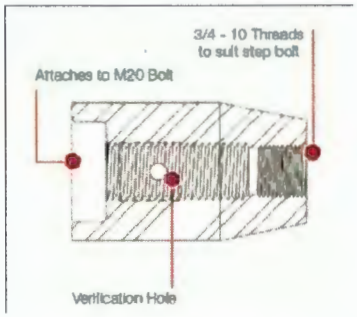


5 Slide the face washer forward and move the nut up to fasten to the bolt. Tighten the nut snug tight at this point.

6 Remove the tool by unscrewing it from bolt (counterclockwise).

7 Using the shear wrench engage the outer socket with the splined end of the bolt. Press the trigger until correct tension has been achieved (the bolt spline separates from the bolt).

8 Press the small trigger on the shear wrench to eject the bolt spline. The application is now complete.



STEP COLLAR SECTION

THIS INSTALLATION GUIDE WAS CREATED BY ALLFASTENERS.
IT WAS ATTACHED FOR REFERENCE ONLY.

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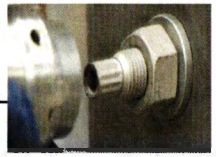
FL ENG NO 85109

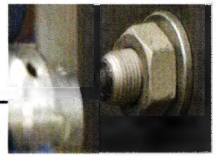
DRAWN BY: DCR | CHECKED BY: SS/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	DCR	07/11/22

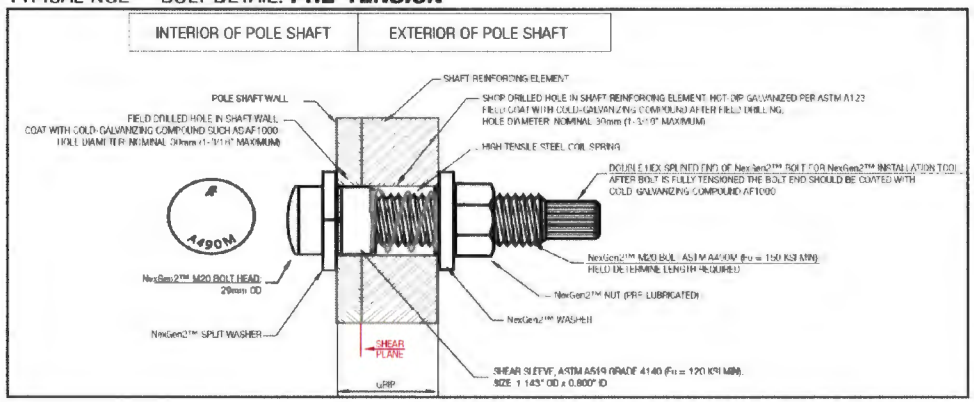
SHEET TITLE:
NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE

SHEET NUMBER: SPEC-1
REV #: 0

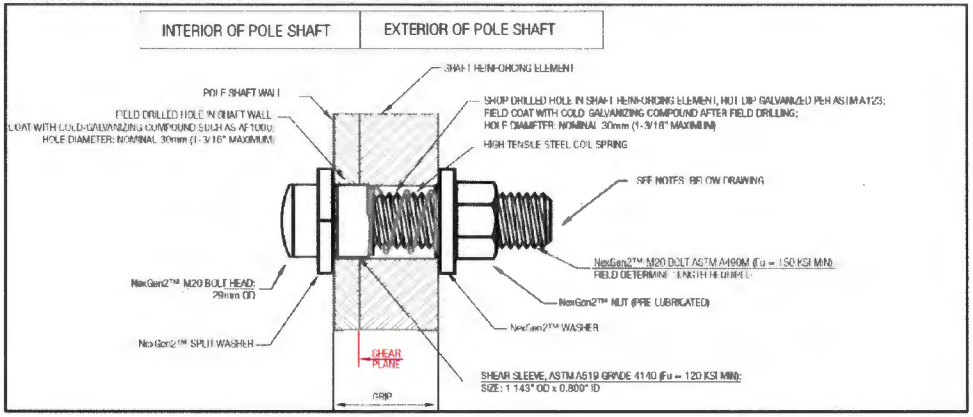




TYPICAL NG2™ BOLT DETAIL: ***PRE-TENSION***



TYPICAL NG2™ BOLT DETAIL: ***POST-TENSION***



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1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
FL ENG. NO. 85108

DRAWN BY: DCR	CHECKED BY: SS/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	DCR	07/11/22

SHEET TITLE:
NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE

SHEET NUMBER:	REV #
SPEC-2	0

EXHIBIT 2

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Structural Analysis Report

Existing 155 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: FL40914-T

Customer Site Name: John & Maria Ferrara

Carrier Name: T-Mobile

Carrier Site ID / Name: A2G0804A / John & Maria Ferrara

Site Location: 13764 Linden Drive

Spring Hill, Florida

Hernando County

Latitude: 28.464292

Longitude: -82.510186

Analysis Result:

Max Structural Usage: 100.8% [Pass]

Max Foundation Usage: 68.0% [Pass]

Report Prepared By: Ikram Efaz

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Post-Mod Structural Analysis Report

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Spring Hill, Florida

Hernando County

Latitude: 28.464292

Longitude: -82.510186

Analysis Result:

Max Structural Usage: 100.8% [Pass]

Max Foundation Usage: 68.0% [Pass]

Report Prepared By: Ikram Efaz

Introduction

The purpose of this report is to summarize the analysis results on the 155 ft Monopole 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	Davinci Engineering, INC., Job #08235-1650, dated 10/08/2008
Foundation Drawing	Davinci Engineering, INC., Job #08235-1650, dated 10/08/2008
Geotechnical Report	Tierra Project # 6511-08-172, dated 08/22/2008
Mount Analysis	N/A
Existing Modification	N/A
Proposed Modification	TES Job # 131282

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H. In accordance with this standard, the structure was analyzed using **TESPoles,** 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:	139.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	N/A
Service Load Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-H / 2018 IBC / Florida Building Code, 7th Edition (2020)
Exposure Category:	C
Risk Category:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.058$, $S_1 = 0.033$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

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
-	150.0	1	Generic	Generic	(24) 7/8"	T-Mobile

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
1	150.0	1	*Generic	*Generic	(24) 7/8"	T-Mobile

*A CaAa of 150 square feet was assumed for the generic loading (Antenna+ Mount) as the proposed loading.

See the attached coax layout for the line placement considered in the analysis.

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:

	Pole shafts	Anchor Bolts	Base Plate	Flange
Max. Usage:	**100.8%**	**84.8%**	**67.5%**	**75.8%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3214.9	31.3	28.4

The foundation has been investigated using the supplied documents and soils report and was found 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 TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.1006 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 TIA-222-H Standard after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 131282

Pre-Mod Installation Determination

Considering the current circumstances, it was concluded that the Carrier cannot install their proposed loading prior to the mods' completion.

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 structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. 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 and/or 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.

4. 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.

5. 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.

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

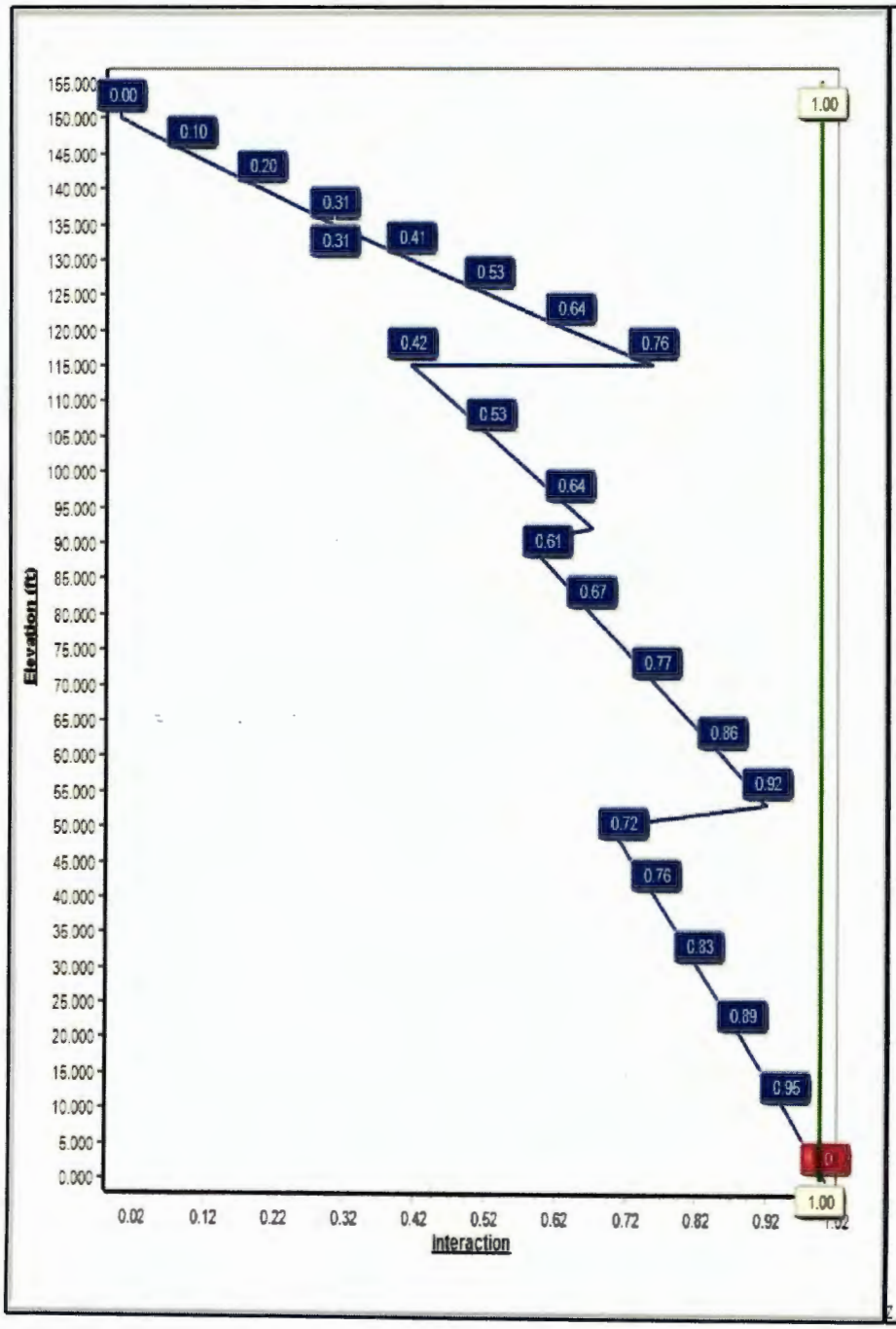
Usage Diagram - Max Ratio 100.80% at 0.0ft

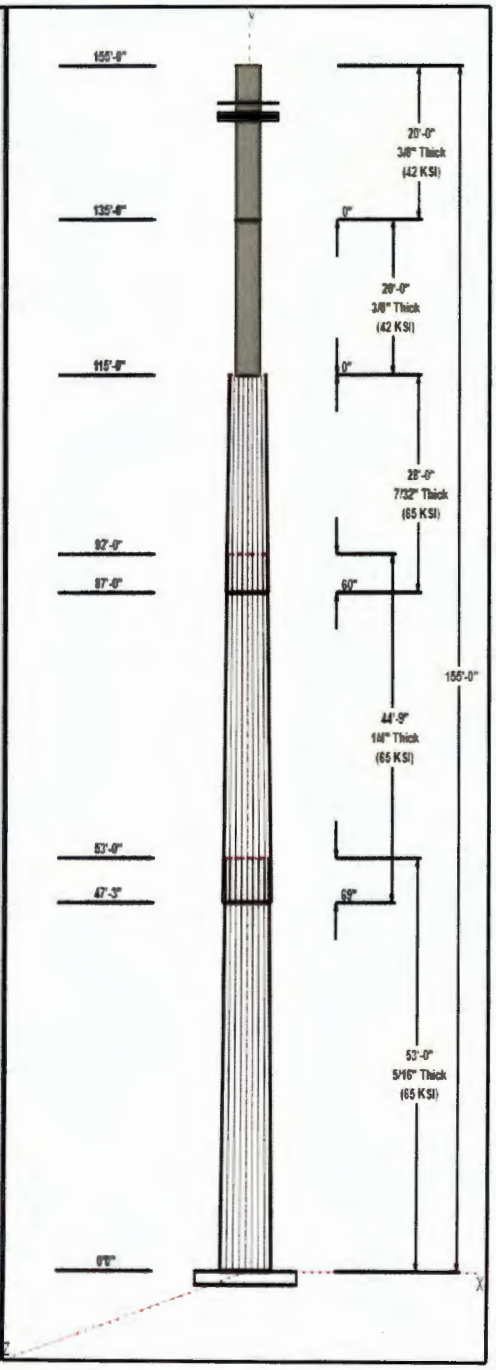
Structure:	FL40914-T-SBA	**Code:**	EIA/TIA-222-H	7/11/2022
Site Name:	John & Maria Ferrara	**Exposure:**	C	
Height:	155.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	25
Wind Load Factor:	1.00		

Load Case : 1.2D + 1.0W 139 mph Wind





Structure: FL40914-T-SBA

Type:	Custom	**Base Shape:**	18 Sided	7/11/2022
Site Name:	John & Maria Ferrara	**Taper:**	0.13424	
Height:	155.00 (ft)			
Base Elev:	0.00 (ft)			Page: 2

TES Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	43.39	50.50	0.313		0.13424	65
2	44.75	38.65	44.66	0.250	Slip	0.13424	65
3	28.00	36.00	39.76	0.219	Slip	0.13424	65
4	20.00	24.00	24.00	0.375	Butt	0.00000	42
5	20.00	24.00	24.00	0.375	Butt	0.00000	42

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
150.00	150.00	1	Assumed 150 sq. ft.	T-Mobile

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	150.00	Inside	7/8" Coax	T-Mobile

Anchor Bolts

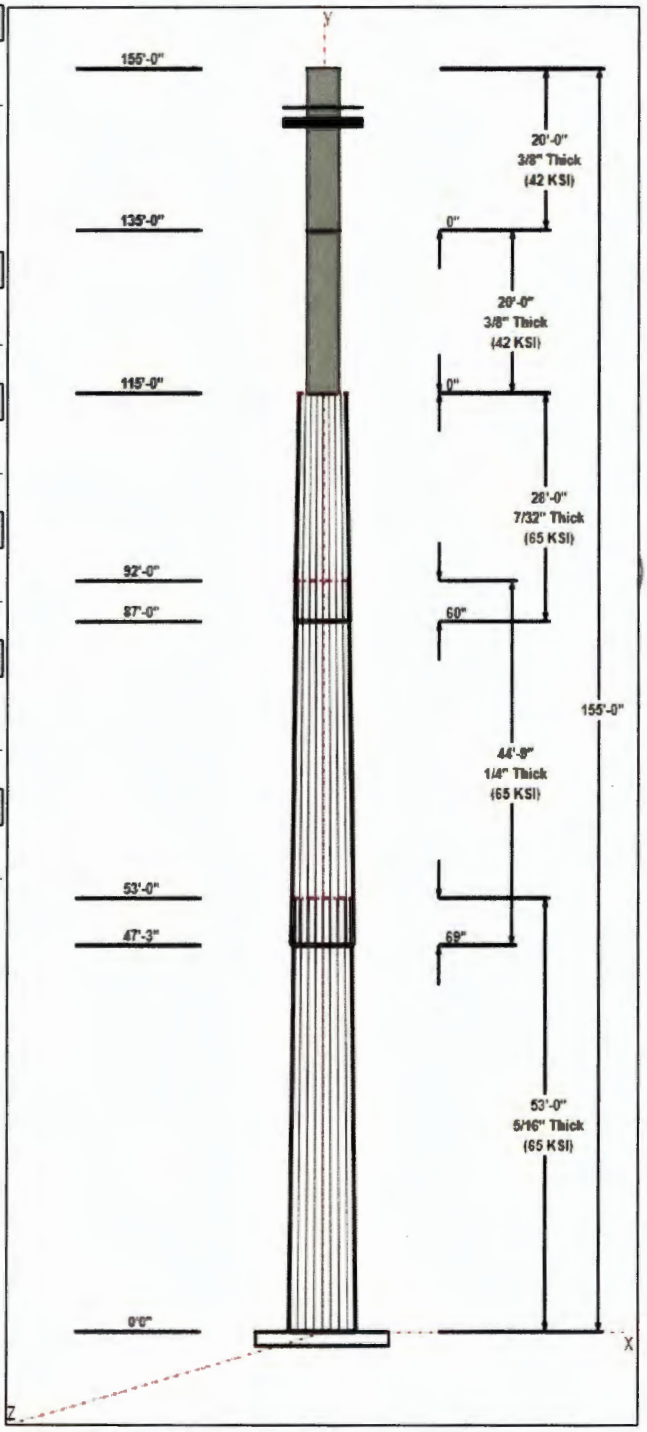
Qty	Specifications	Grade (ksi)	Arrangement
10	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	63.5	60.0	Round

Reactions

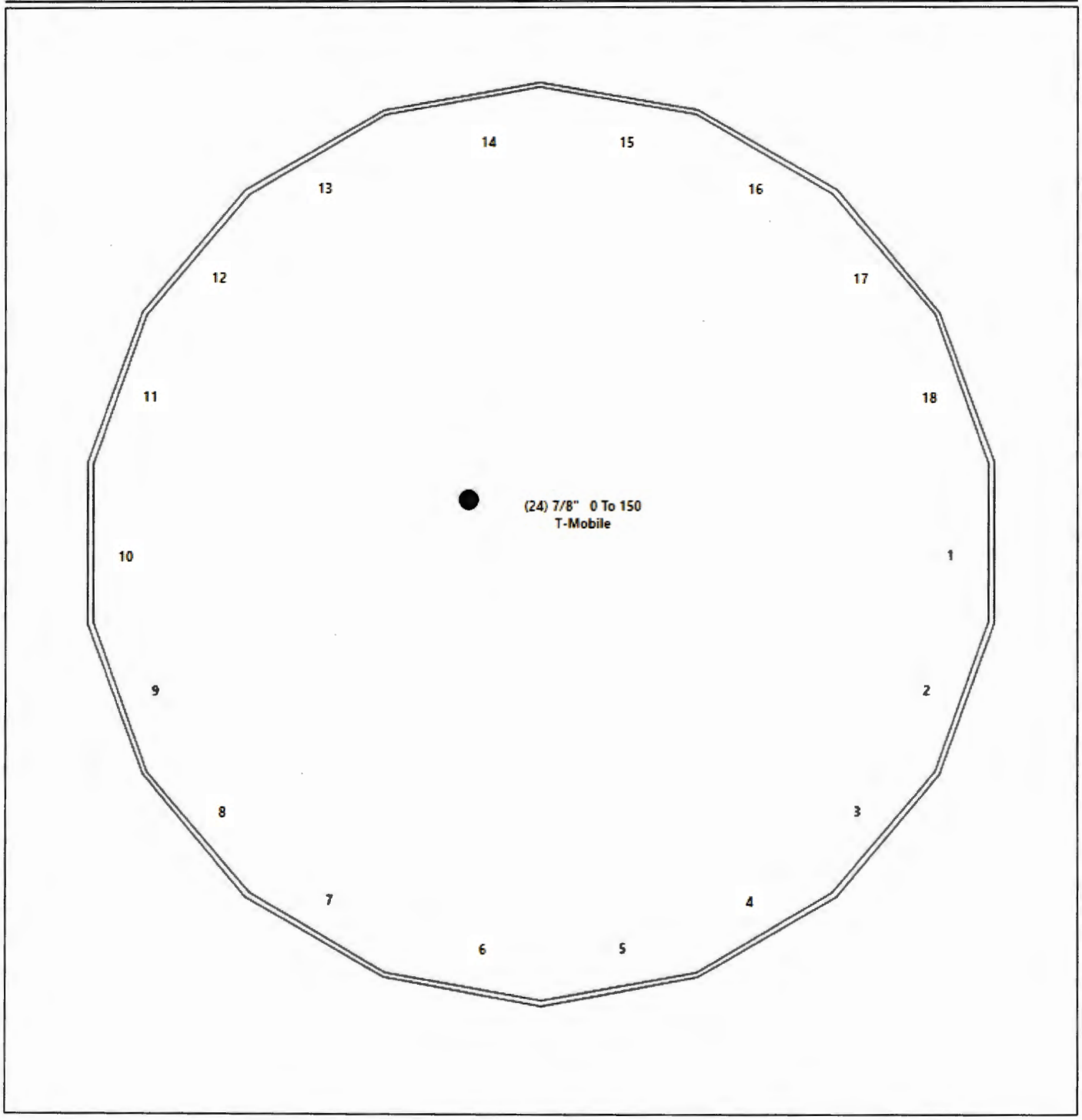
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.0D + 1.0W 60 mph Wind	533.9	5.2	23.7



Structure: FL40914-T-SBA - Coax Line Placement

Type: Monopole
Site Name: John & Maria Ferrara
Height: 155.00 (ft)

7/11/2022



Shaft Properties

Structure:	FL40914-T-SBA		**Code:**	TIA-222-H	7/11/2022
Site Name:	John & Maria Ferrara		**Exposure:**	C	
Height:	155.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 4

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.000	0.3125	65		0.00	8,341
2	18	44.750	0.2500	65	Slip	69.00	5,003
3	18	28.000	0.2188	65	Slip	60.00	2,492
4	R	20.000	0.3750	42	Flange	0.00	1,894
5	R	20.000	0.3750	42	Flange	0.00	1,894
					Total Shaft Weight:		**19,624**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	50.50	0.00	49.78	15840.94	27.08	161.60	43.39	53.00	42.72	10013.9	23.07	138.8	0.134240
2	44.66	47.25	35.24	8778.97	30.09	178.63	38.65	92.00	30.47	5676.43	25.85	154.6	0.134240
3	39.76	87.00	27.46	5423.74	30.63	181.71	36.00	115.00	24.85	4019.36	27.60	164.5	0.134240
4	24.00	115.0	27.83	1943.30	0.00	64.00	24.00	135.00	27.83	1943.30	0.00	64.00	0.000000
5	24.00	135.0	27.83	1943.30	0.00	64.00	24.00	155.00	27.83	1943.30	0.00	64.00	0.000000

Load Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	150.00	Assumed 150 sq. ft.	1	2250.00	150.00	1.00	2825.00	00.000	1.00	0.00	0.00
		Totals:	**1**	**2,250.00**			**2,825.00**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	150.00	(24) 7/8" Coax	0.00	Inside

Shaft Section Properties

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	50.500	49.778	15840.9	27.08	161.60	69.5	617.8	0.0
5.00		0.3125	49.829	49.112	15213.8	26.71	159.45	70.0	601.4	841.3
10.00		0.3125	49.158	48.446	14603.5	26.33	157.30	70.4	585.1	829.9
15.00		0.3125	48.486	47.781	14009.7	25.95	155.16	70.9	569.1	818.6
20.00		0.3125	47.815	47.115	13432.3	25.57	153.01	71.3	553.3	807.3
25.00		0.3125	47.144	46.449	12870.9	25.19	150.86	71.8	537.7	795.9
30.00		0.3125	46.473	45.784	12325.4	24.81	148.71	72.2	522.4	784.6
35.00		0.3125	45.802	45.118	11795.5	24.43	146.57	72.7	507.2	773.3
40.00		0.3125	45.130	44.452	11281.0	24.05	144.42	73.1	492.3	762.0
45.00		0.3125	44.459	43.786	10781.7	23.68	142.27	73.6	477.6	750.6
47.25	Bot - Section 2	0.3125	44.157	43.487	10562.0	23.50	141.30	73.8	471.1	334.1
50.00		0.3125	43.788	43.121	10297.4	23.30	140.12	74.0	463.2	733.6
53.00	Top - Section 1	0.2500	43.885	34.623	8329.1	29.54	175.54	0.0	0.0	793.2
55.00		0.2500	43.617	34.410	8176.3	29.35	174.47	66.9	369.2	234.9
60.00		0.2500	42.946	33.878	7802.5	28.88	171.78	67.4	357.8	580.9
65.00		0.2500	42.274	33.345	7440.3	28.41	169.10	68.0	346.7	571.9
70.00		0.2500	41.603	32.813	7089.4	27.93	166.41	68.5	335.6	562.8
75.00		0.2500	40.932	32.280	6749.8	27.46	163.73	69.1	324.8	553.7
80.00		0.2500	40.261	31.747	6421.2	26.99	161.04	69.7	314.1	544.7
85.00		0.2500	39.590	31.215	6103.4	26.51	158.36	70.2	303.7	535.6
87.00	Bot - Section 3	0.2500	39.321	31.002	5979.3	26.32	157.28	70.4	299.5	211.7
90.00		0.2500	38.918	30.682	5796.3	26.04	155.67	70.8	293.3	593.7
92.00	Top - Section 2	0.2188	39.088	26.992	5152.2	30.09	178.64	0.0	0.0	392.4
95.00		0.2188	38.685	26.713	4993.7	29.76	176.80	66.4	254.3	274.1
100.00		0.2188	38.014	26.246	4736.8	29.22	173.74	67.0	245.4	450.5
105.00		0.2188	37.342	25.780	4488.9	28.68	170.67	67.7	236.8	442.6
110.00		0.2188	36.671	25.314	4249.8	28.14	167.60	68.3	228.3	434.7
115.00	Top - Section 3	0.2188	36.000	24.848	4019.4	27.60	164.53	68.9	219.9	426.7
115.00	Bot - Section 4	0.3750	24.000	27.833	1943.3	16.10	96.00	42.0	161.9	
120.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
125.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
130.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
135.00	Top - Section 4	0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
135.00	Bot - Section 5	0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	
140.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
145.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
150.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
155.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
										19623.7

Wind Loading - Shaft

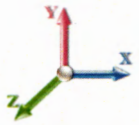
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	39.851	43.84	547.01	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	39.851	43.84	539.74	0.730	0.000	5.00	21.224	15.49	679.2	0.0	1009.5
10.00		1.00	0.85	39.851	43.84	532.47	0.730	0.000	5.00	20.940	15.29	670.1	0.0	995.9
15.00		1.00	0.85	39.851	43.84	525.20	0.730	0.000	5.00	20.656	15.08	661.0	0.0	982.3
20.00		1.00	0.90	42.284	46.51	533.50	0.730	0.000	5.00	20.372	14.87	691.7	0.0	968.7
25.00		1.00	0.95	44.318	48.75	538.52	0.730	0.000	5.00	20.088	14.66	714.9	0.0	955.1
30.00		1.00	0.98	46.052	50.66	541.14	0.730	0.000	5.00	19.804	14.46	732.4	0.0	941.5
35.00		1.00	1.01	47.571	52.33	542.05	0.730	0.000	5.00	19.520	14.25	745.7	0.0	928.0
40.00		1.00	1.04	48.927	53.82	541.66	0.730	0.000	5.00	19.236	14.04	755.8	0.0	914.4
45.00		1.00	1.07	50.155	55.17	540.26	0.730	0.000	5.00	18.952	13.84	763.3	0.0	900.8
47.25	Bot - Section 2	1.00	1.08	50.673	55.74	539.36	0.730	0.000	2.25	8.436	6.16	343.3	0.0	400.9
50.00		1.00	1.09	51.280	56.41	538.04	0.730	0.000	2.75	10.349	7.55	426.1	0.0	880.3
53.00	Top - Section 1	1.00	1.11	51.913	57.10	536.37	0.730	0.000	3.00	11.192	8.17	466.5	0.0	951.9
55.00		1.00	1.12	52.320	57.55	541.34	0.730	0.000	2.00	7.404	5.41	311.1	0.0	281.9
60.00		1.00	1.14	53.287	58.62	537.92	0.730	0.000	5.00	18.312	13.37	783.6	0.0	697.1
65.00		1.00	1.16	54.192	59.61	533.99	0.730	0.000	5.00	18.028	13.16	784.5	0.0	686.2
70.00		1.00	1.17	55.045	60.55	529.63	0.730	0.000	5.00	17.744	12.95	784.3	0.0	675.4
75.00		1.00	1.19	55.850	61.43	524.88	0.730	0.000	5.00	17.460	12.75	783.0	0.0	664.5
80.00		1.00	1.21	56.614	62.28	519.79	0.730	0.000	5.00	17.176	12.54	780.8	0.0	653.6
85.00		1.00	1.22	57.341	63.08	514.40	0.730	0.000	5.00	16.892	12.33	777.8	0.0	642.7
87.00	Bot - Section 3	1.00	1.23	57.623	63.38	512.16	0.730	0.000	2.00	6.677	4.87	309.0	0.0	254.1
90.00		1.00	1.24	58.035	63.84	508.73	0.730	0.000	3.00	10.042	7.33	468.0	0.0	712.5
92.00	Top - Section 2	1.00	1.24	58.304	64.13	506.39	0.730	0.000	2.00	6.638	4.85	310.8	0.0	470.9
95.00		1.00	1.25	58.700	64.57	508.56	0.730	0.000	3.00	9.872	7.21	465.3	0.0	328.9
100.00		1.00	1.27	59.337	65.27	502.44	0.730	0.000	5.00	16.225	11.84	773.1	0.0	540.6
105.00		1.00	1.28	59.950	65.94	496.11	0.730	0.000	5.00	15.941	11.64	767.4	0.0	531.1
110.00		1.00	1.29	60.540	66.59	489.59	0.730	0.000	5.00	15.657	11.43	761.2	0.0	521.6
115.00	Top - Section 3	1.00	1.30	61.109	67.22	482.88	0.730	0.000	5.00	15.373	11.22	754.4	0.0	512.1
120.00		1.00	1.32	61.659	67.82	318.45	0.600	0.000	5.00	10.000	6.00	406.9	0.0	568.2
125.00		1.00	1.33	62.191	68.41	319.82	0.600	0.000	5.00	10.000	6.00	410.5	0.0	568.2
130.00		1.00	1.34	62.707	68.98	321.15	0.600	0.000	5.00	10.000	6.00	413.9	0.0	568.2
135.00	Top - Section 4	1.00	1.35	63.207	69.53	322.43	0.600	0.000	5.00	10.000	6.00	417.2	0.0	568.2
140.00		1.00	1.36	63.693	70.06	323.66	0.600	0.000	5.00	10.000	6.00	420.4	0.0	568.2
145.00		1.00	1.37	64.165	70.58	324.86	0.600	0.000	5.00	10.000	6.00	423.5	0.0	568.2
150.00	Appurtenance(s)	1.00	1.38	64.625	71.09	326.02	0.600	0.000	5.00	10.000	6.00	426.5	0.0	568.2
155.00		1.00	1.39	65.072	71.58	327.15	0.600	0.000	5.00	10.000	6.00	429.5	0.0	568.2
								Totals:	**155.00**			**20,612.4**		**23,548.5**

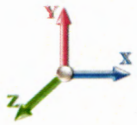
Discrete Appurtenance Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Assumed 150 sq. ft.	1	64.625	71.087	1.00	1.00	150.00	2700.00	0.000	0.000	10663.04	0.00	0.00
							Totals:		**2,700.00**			**10,663.04**		

Total Applied Force Summary

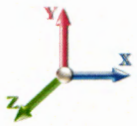
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		679.19	1084.38	0.00	0.00
10.00		670.10	1070.79	0.00	0.00
15.00		661.01	1057.20	0.00	0.00
20.00		691.72	1043.61	0.00	0.00
25.00		714.88	1030.02	0.00	0.00
30.00		732.36	1016.42	0.00	0.00
35.00		745.67	1002.83	0.00	0.00
40.00		755.77	989.24	0.00	0.00
45.00		763.30	975.65	0.00	0.00
47.25		343.26	434.61	0.00	0.00
50.00		426.15	921.47	0.00	0.00
53.00		466.54	996.80	0.00	0.00
55.00		311.08	311.84	0.00	0.00
60.00		783.56	771.99	0.00	0.00
65.00		784.52	761.11	0.00	0.00
70.00		784.30	750.24	0.00	0.00
75.00		783.04	739.37	0.00	0.00
80.00		780.84	728.49	0.00	0.00
85.00		777.80	717.62	0.00	0.00
87.00		308.97	284.00	0.00	0.00
90.00		467.98	757.39	0.00	0.00
92.00		310.77	500.85	0.00	0.00
95.00		465.30	373.87	0.00	0.00
100.00		773.10	615.50	0.00	0.00
105.00		767.41	605.99	0.00	0.00
110.00		761.16	596.47	0.00	0.00
115.00		754.38	586.95	0.00	0.00
120.00		406.95	643.13	0.00	0.00
125.00		410.46	643.13	0.00	0.00
130.00		413.86	643.13	0.00	0.00
135.00		417.17	643.13	0.00	0.00
140.00		420.37	643.13	0.00	0.00
145.00		423.49	643.13	0.00	0.00
150.00	(1) attachments	11089.56	3343.13	0.00	0.00
155.00		429.48	568.25	0.00	0.00
	Totals:	**31,275.48**	**28,494.87**	**0.00**	**0.00**

Calculated Forces

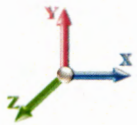
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

TES Tower Engineering Solutions

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.42	-31.35	0.00	-3214.9	0.00	3214.95	3115.65	873.60	3637.68	3222.56	0.00	0.000	0.000	1.008
5.00	-27.18	-30.80	0.00	-3058.2	0.00	3058.21	3093.67	861.92	3541.03	3156.77	0.15	-0.282	0.000	0.979
10.00	-25.97	-30.25	0.00	-2904.2	0.00	2904.23	3071.15	850.24	3445.68	3091.05	0.60	-0.560	0.000	0.949
15.00	-24.78	-29.69	0.00	-2753.0	0.00	2753.00	3048.11	838.55	3351.63	3025.43	1.33	-0.836	0.000	0.919
20.00	-23.61	-29.09	0.00	-2604.5	0.00	2604.54	3024.52	826.87	3258.89	2959.93	2.35	-1.108	0.000	0.889
25.00	-22.47	-28.46	0.00	-2459.0	0.00	2459.08	3000.41	815.19	3167.45	2894.57	3.66	-1.376	0.000	0.858
30.00	-21.34	-27.80	0.00	-2316.7	0.00	2316.78	2975.76	803.50	3077.30	2829.37	5.24	-1.640	0.000	0.827
35.00	-20.24	-27.11	0.00	-2177.7	0.00	2177.78	2950.58	791.82	2988.46	2764.36	7.10	-1.899	0.000	0.796
40.00	-19.16	-26.41	0.00	-2042.2	0.00	2042.21	2924.86	780.14	2900.92	2699.56	9.22	-2.154	0.000	0.764
45.00	-18.14	-25.66	0.00	-1910.1	0.00	1910.17	2898.61	768.45	2814.68	2634.99	11.61	-2.403	0.000	0.732
47.25	-17.67	-25.34	0.00	-1852.4	0.00	1852.43	2886.63	763.19	2776.30	2606.01	12.77	-2.515	0.000	0.718
50.00	-16.70	-24.91	0.00	-1782.7	0.00	1782.74	2871.83	756.77	2729.75	2570.67	14.26	-2.649	0.000	0.700
53.00	-15.68	-24.43	0.00	-1708.0	0.00	1708.00	2077.01	607.64	2199.88	1868.74	15.97	-2.794	0.000	0.923
55.00	-15.30	-24.16	0.00	-1659.1	0.00	1659.14	2071.13	603.90	2172.89	1851.92	17.16	-2.890	0.000	0.905
60.00	-14.46	-23.40	0.00	-1538.3	0.00	1538.35	2056.05	594.55	2106.15	1809.82	20.34	-3.168	0.000	0.859
65.00	-13.64	-22.64	0.00	-1421.3	0.00	1421.33	2040.44	585.21	2040.45	1767.68	23.80	-3.438	0.000	0.812
70.00	-12.85	-21.87	0.00	-1308.1	0.00	1308.13	2024.29	575.86	1975.79	1725.51	27.54	-3.699	0.000	0.766
75.00	-12.07	-21.09	0.00	-1198.7	0.00	1198.79	2007.61	566.51	1912.17	1683.35	31.54	-3.950	0.000	0.720
80.00	-11.31	-20.31	0.00	-1093.3	0.00	1093.35	1990.40	557.17	1849.60	1641.22	35.81	-4.192	0.000	0.673
85.00	-10.60	-19.51	0.00	-991.82	0.00	991.82	1972.65	547.82	1788.06	1599.12	40.32	-4.423	0.000	0.627
87.00	-10.31	-19.20	0.00	-952.81	0.00	952.81	1965.40	544.08	1763.74	1582.31	42.19	-4.513	0.000	0.609
90.00	-9.55	-18.69	0.00	-895.22	0.00	895.22	1954.37	538.47	1727.57	1557.10	45.06	-4.645	0.000	0.581
92.00	-9.05	-18.35	0.00	-857.84	0.00	857.84	1603.59	473.71	1527.67	1285.32	47.03	-4.731	0.000	0.675
95.00	-8.66	-17.88	0.00	-802.79	0.00	802.79	1596.16	468.81	1496.18	1266.03	50.04	-4.856	0.000	0.641
100.00	-8.05	-17.09	0.00	-713.37	0.00	713.37	1583.33	460.63	1444.42	1233.82	55.23	-5.072	0.000	0.585
105.00	-7.46	-16.30	0.00	-627.92	0.00	627.92	1569.98	452.45	1393.58	1201.56	60.65	-5.273	0.000	0.529
110.00	-6.89	-15.50	0.00	-546.43	0.00	546.43	1556.08	444.26	1343.64	1169.27	66.26	-5.459	0.000	0.473
115.00	-6.34	-14.71	0.00	-468.91	0.00	468.91	1541.66	436.08	1294.61	1136.97	72.07	-5.629	0.000	0.418
115.00	-6.34	-14.71	0.00	-468.91	0.00	468.91	1052.07	315.62	43240.3	624.04	72.07	-5.629	0.000	0.760
120.00	-5.69	-14.27	0.00	-395.34	0.00	395.34	1052.07	315.62	43240.3	624.04	78.04	-5.782	0.000	0.641
125.00	-5.03	-13.81	0.00	-324.01	0.00	324.01	1052.07	315.62	43240.3	624.04	84.22	-6.046	0.000	0.526
130.00	-4.39	-13.35	0.00	-254.94	0.00	254.94	1052.07	315.62	43240.3	624.04	90.66	-6.257	0.000	0.414
135.00	-3.77	-12.87	0.00	-188.20	0.00	188.20	1052.07	315.62	43240.3	624.04	97.29	-6.420	0.000	0.307
135.00	-3.77	-12.87	0.00	-188.20	0.00	188.20	1052.07	315.62	43240.3	624.04	97.29	-6.420	0.000	0.307
140.00	-3.16	-12.39	0.00	-123.85	0.00	123.85	1052.07	315.62	43240.3	624.04	104.06	-6.534	0.000	0.203
145.00	-2.56	-11.89	0.00	-61.93	0.00	61.93	1052.07	315.62	43240.3	624.04	110.93	-6.602	0.000	0.103
150.00	-0.51	-0.49	0.00	-2.46	0.00	2.46	1052.07	315.62	43240.3	624.04	117.85	-6.625	0.000	0.004
155.00	0.00	-0.43	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04	124.77	-6.626	0.000	0.000

Wind Loading - Shaft

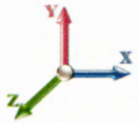
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	39.851	43.84	547.01	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	39.851	43.84	539.74	0.730	0.000	5.00	21.224	15.49	679.2	0.0	757.1
10.00		1.00	0.85	39.851	43.84	532.47	0.730	0.000	5.00	20.940	15.29	670.1	0.0	746.9
15.00		1.00	0.85	39.851	43.84	525.20	0.730	0.000	5.00	20.656	15.08	661.0	0.0	736.7
20.00		1.00	0.90	42.284	46.51	533.50	0.730	0.000	5.00	20.372	14.87	691.7	0.0	726.5
25.00		1.00	0.95	44.318	48.75	538.52	0.730	0.000	5.00	20.088	14.66	714.9	0.0	716.4
30.00		1.00	0.98	46.052	50.66	541.14	0.730	0.000	5.00	19.804	14.46	732.4	0.0	706.2
35.00		1.00	1.01	47.571	52.33	542.05	0.730	0.000	5.00	19.520	14.25	745.7	0.0	696.0
40.00		1.00	1.04	48.927	53.82	541.66	0.730	0.000	5.00	19.236	14.04	755.8	0.0	685.8
45.00		1.00	1.07	50.155	55.17	540.26	0.730	0.000	5.00	18.952	13.84	763.3	0.0	675.6
47.25	Bot - Section 2	1.00	1.08	50.673	55.74	539.36	0.730	0.000	2.25	8.436	6.16	343.3	0.0	300.7
50.00		1.00	1.09	51.280	56.41	538.04	0.730	0.000	2.75	10.349	7.55	426.1	0.0	660.2
53.00	Top - Section 1	1.00	1.11	51.913	57.10	536.37	0.730	0.000	3.00	11.192	8.17	466.5	0.0	713.9
55.00		1.00	1.12	52.320	57.55	541.34	0.730	0.000	2.00	7.404	5.41	311.1	0.0	211.4
60.00		1.00	1.14	53.287	58.62	537.92	0.730	0.000	5.00	18.312	13.37	783.6	0.0	522.8
65.00		1.00	1.16	54.192	59.61	533.99	0.730	0.000	5.00	18.028	13.16	784.5	0.0	514.7
70.00		1.00	1.17	55.045	60.55	529.63	0.730	0.000	5.00	17.744	12.95	784.3	0.0	506.5
75.00		1.00	1.19	55.850	61.43	524.88	0.730	0.000	5.00	17.460	12.75	783.0	0.0	498.4
80.00		1.00	1.21	56.614	62.28	519.79	0.730	0.000	5.00	17.176	12.54	780.8	0.0	490.2
85.00		1.00	1.22	57.341	63.08	514.40	0.730	0.000	5.00	16.892	12.33	777.8	0.0	482.1
87.00	Bot - Section 3	1.00	1.23	57.623	63.38	512.16	0.730	0.000	2.00	6.677	4.87	309.0	0.0	190.5
90.00		1.00	1.24	58.035	63.84	508.73	0.730	0.000	3.00	10.042	7.33	468.0	0.0	534.4
92.00	Top - Section 2	1.00	1.24	58.304	64.13	506.39	0.730	0.000	2.00	6.638	4.85	310.8	0.0	353.2
95.00		1.00	1.25	58.700	64.57	508.56	0.730	0.000	3.00	9.872	7.21	465.3	0.0	246.7
100.00		1.00	1.27	59.337	65.27	502.44	0.730	0.000	5.00	16.225	11.84	773.1	0.0	405.5
105.00		1.00	1.28	59.950	65.94	496.11	0.730	0.000	5.00	15.941	11.64	767.4	0.0	398.3
110.00		1.00	1.29	60.540	66.59	489.59	0.730	0.000	5.00	15.657	11.43	761.2	0.0	391.2
115.00	Top - Section 3	1.00	1.30	61.109	67.22	482.88	0.730	0.000	5.00	15.373	11.22	754.4	0.0	384.1
120.00		1.00	1.32	61.659	67.82	318.45	0.600	0.000	5.00	10.000	6.00	406.9	0.0	426.2
125.00		1.00	1.33	62.191	68.41	319.82	0.600	0.000	5.00	10.000	6.00	410.5	0.0	426.2
130.00		1.00	1.34	62.707	68.98	321.15	0.600	0.000	5.00	10.000	6.00	413.9	0.0	426.2
135.00	Top - Section 4	1.00	1.35	63.207	69.53	322.43	0.600	0.000	5.00	10.000	6.00	417.2	0.0	426.2
140.00		1.00	1.36	63.693	70.06	323.66	0.600	0.000	5.00	10.000	6.00	420.4	0.0	426.2
145.00		1.00	1.37	64.165	70.58	324.86	0.600	0.000	5.00	10.000	6.00	423.5	0.0	426.2
150.00	Appurtenance(s)	1.00	1.38	64.625	71.09	326.02	0.600	0.000	5.00	10.000	6.00	426.5	0.0	426.2
155.00		1.00	1.39	65.072	71.58	327.15	0.600	0.000	5.00	10.000	6.00	429.5	0.0	426.2
								Totals:	**155.00**			**20,612.4**		**17,661.4**

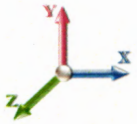
Discrete Appurtenance Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Assumed 150 sq. ft.	1	64.625	71.087	1.00	1.00	150.00	2025.00	0.000	0.000	10663.04	0.00	0.00
							Totals:		**2,025.00**			**10,663.04**		

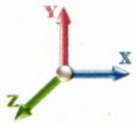
Total Applied Force Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		679.19	813.29	0.00	0.00
10.00		670.10	803.09	0.00	0.00
15.00		661.01	792.90	0.00	0.00
20.00		691.72	782.71	0.00	0.00
25.00		714.88	772.51	0.00	0.00
30.00		732.36	762.32	0.00	0.00
35.00		745.67	752.12	0.00	0.00
40.00		755.77	741.93	0.00	0.00
45.00		763.30	731.74	0.00	0.00
47.25		343.26	325.96	0.00	0.00
50.00		426.15	691.11	0.00	0.00
53.00		466.54	747.60	0.00	0.00
55.00		311.08	233.88	0.00	0.00
60.00		783.56	578.99	0.00	0.00
65.00		784.52	570.84	0.00	0.00
70.00		784.30	562.68	0.00	0.00
75.00		783.04	554.53	0.00	0.00
80.00		780.84	546.37	0.00	0.00
85.00		777.80	538.21	0.00	0.00
87.00		308.97	213.00	0.00	0.00
90.00		467.98	568.05	0.00	0.00
92.00		310.77	375.64	0.00	0.00
95.00		465.30	280.40	0.00	0.00
100.00		773.10	461.63	0.00	0.00
105.00		767.41	454.49	0.00	0.00
110.00		761.16	447.35	0.00	0.00
115.00		754.38	440.22	0.00	0.00
120.00		406.95	482.35	0.00	0.00
125.00		410.46	482.35	0.00	0.00
130.00		413.86	482.35	0.00	0.00
135.00		417.17	482.35	0.00	0.00
140.00		420.37	482.35	0.00	0.00
145.00		423.49	482.35	0.00	0.00
150.00	(1) attachments	11089.56	2507.35	0.00	0.00
155.00		429.48	426.19	0.00	0.00
	Totals:	**31,275.48**	**21,371.15**	**0.00**	**0.00**

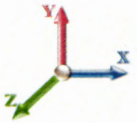
Calculated Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-21.29	-31.33	0.00	-3187.5	0.00	3187.51	3115.65	873.60	3637.68	3222.56	0.00	0.000	0.000	0.997
5.00	-20.33	-30.75	0.00	-3030.8	0.00	3030.87	3093.67	861.92	3541.03	3156.77	0.15	-0.279	0.000	0.968
10.00	-19.39	-30.16	0.00	-2877.1	0.00	2877.14	3071.15	850.24	3445.68	3091.05	0.59	-0.555	0.000	0.938
15.00	-18.47	-29.58	0.00	-2726.3	0.00	2726.33	3048.11	838.55	3351.63	3025.43	1.32	-0.828	0.000	0.908
20.00	-17.56	-28.96	0.00	-2578.4	0.00	2578.43	3024.52	826.87	3258.89	2959.93	2.33	-1.098	0.000	0.878
25.00	-16.67	-28.30	0.00	-2433.6	0.00	2433.64	3000.41	815.19	3167.45	2894.57	3.62	-1.363	0.000	0.848
30.00	-15.81	-27.62	0.00	-2292.1	0.00	2292.12	2975.76	803.50	3077.30	2829.37	5.19	-1.624	0.000	0.817
35.00	-14.96	-26.92	0.00	-2154.0	0.00	2154.01	2950.58	791.82	2988.46	2764.36	7.03	-1.881	0.000	0.785
40.00	-14.13	-26.20	0.00	-2019.4	0.00	2019.40	2924.86	780.14	2900.92	2699.56	9.13	-2.132	0.000	0.754
45.00	-13.35	-25.45	0.00	-1888.3	0.00	1888.39	2898.61	768.45	2814.68	2634.99	11.50	-2.379	0.000	0.722
47.25	-12.98	-25.12	0.00	-1831.1	0.00	1831.13	2886.63	763.19	2776.30	2606.01	12.65	-2.489	0.000	0.708
50.00	-12.25	-24.70	0.00	-1762.0	0.00	1762.04	2871.83	756.77	2729.75	2570.67	14.12	-2.622	0.000	0.691
53.00	-11.48	-24.22	0.00	-1687.9	0.00	1687.95	2077.01	607.64	2199.88	1868.74	15.81	-2.765	0.000	0.910
55.00	-11.18	-23.93	0.00	-1639.5	0.00	1639.52	2071.13	603.90	2172.89	1851.92	16.99	-2.860	0.000	0.892
60.00	-10.54	-23.17	0.00	-1519.8	0.00	1519.86	2056.05	594.55	2106.15	1809.82	20.14	-3.135	0.000	0.846
65.00	-9.91	-22.40	0.00	-1404.0	0.00	1404.01	2040.44	585.21	2040.45	1767.68	23.56	-3.401	0.000	0.801
70.00	-9.30	-21.62	0.00	-1292.0	0.00	1292.01	2024.29	575.86	1975.79	1725.51	27.26	-3.659	0.000	0.755
75.00	-8.71	-20.84	0.00	-1183.9	0.00	1183.90	2007.61	566.51	1912.17	1683.35	31.22	-3.907	0.000	0.709
80.00	-8.14	-20.06	0.00	-1079.6	0.00	1079.69	1990.40	557.17	1849.60	1641.22	35.44	-4.146	0.000	0.663
85.00	-7.61	-19.26	0.00	-979.39	0.00	979.39	1972.65	547.82	1788.06	1599.12	39.90	-4.374	0.000	0.618
87.00	-7.38	-18.95	0.00	-940.87	0.00	940.87	1965.40	544.08	1763.74	1582.31	41.75	-4.463	0.000	0.600
90.00	-6.82	-18.46	0.00	-884.01	0.00	884.01	1954.37	538.47	1727.57	1557.10	44.60	-4.594	0.000	0.572
92.00	-6.43	-18.13	0.00	-847.10	0.00	847.10	1603.59	473.71	1527.67	1285.32	46.54	-4.679	0.000	0.665
95.00	-6.14	-17.66	0.00	-792.72	0.00	792.72	1596.16	468.81	1496.18	1266.03	49.51	-4.802	0.000	0.631
100.00	-5.69	-16.87	0.00	-704.43	0.00	704.43	1583.33	460.63	1444.42	1233.82	54.65	-5.015	0.000	0.576
105.00	-5.25	-16.08	0.00	-620.08	0.00	620.08	1569.98	452.45	1393.58	1201.56	60.01	-5.214	0.000	0.521
110.00	-4.83	-15.30	0.00	-539.68	0.00	539.68	1556.08	444.26	1343.64	1169.27	65.56	-5.398	0.000	0.466
115.00	-4.42	-14.52	0.00	-463.19	0.00	463.19	1541.66	436.08	1294.61	1136.97	71.30	-5.566	0.000	0.411
115.00	-4.42	-14.52	0.00	-463.19	0.00	463.19	1052.07	315.62	43240.3	624.04	71.30	-5.566	0.000	0.749
120.00	-3.93	-14.08	0.00	-390.61	0.00	390.61	1052.07	315.62	43240.3	624.04	77.20	-5.717	0.000	0.632
125.00	-3.44	-13.64	0.00	-320.22	0.00	320.22	1052.07	315.62	43240.3	624.04	83.32	-5.977	0.000	0.518
130.00	-2.96	-13.18	0.00	-252.04	0.00	252.04	1052.07	315.62	43240.3	624.04	89.68	-6.186	0.000	0.408
135.00	-2.49	-12.72	0.00	-186.13	0.00	186.13	1052.07	315.62	43240.3	624.04	96.24	-6.347	0.000	0.302
135.00	-2.49	-12.72	0.00	-186.13	0.00	186.13	1052.07	315.62	43240.3	624.04	96.24	-6.347	0.000	0.302
140.00	-2.04	-12.25	0.00	-122.53	0.00	122.53	1052.07	315.62	43240.3	624.04	102.93	-6.460	0.000	0.200
145.00	-1.60	-11.78	0.00	-61.27	0.00	61.27	1052.07	315.62	43240.3	624.04	109.72	-6.527	0.000	0.101
150.00	-0.37	-0.48	0.00	-2.38	0.00	2.38	1052.07	315.62	43240.3	624.04	116.56	-6.550	0.000	0.004
155.00	0.00	-0.43	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04	123.41	-6.551	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.06			**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.05			**Ss**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02	**Seismic Importance Factor**	1.00	**S1**	0.03

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		916.13	2.50	11.34	0.01	
10.00		904.81	7.50	11.20	0.07	
15.00		893.48	12.50	11.06	0.18	
20.00		882.15	17.50	10.92	0.35	
25.00		870.83	22.50	10.78	0.55	
30.00		859.50	27.50	10.63	0.80	
35.00		848.17	32.50	10.49	1.08	
40.00		836.85	37.50	10.35	1.39	
45.00		825.52	42.50	10.21	1.73	
47.25	Bot - Section 2	367.79	46.13	4.55	0.42	
50.00		774.76	48.63	9.59	1.99	
53.00	Top - Section 1	838.16	51.50	10.37	2.60	
55.00		264.86	54.00	3.28	0.30	
60.00		655.80	57.50	8.11	1.99	
65.00		646.74	62.50	8.00	2.28	
70.00		637.68	67.50	7.89	2.58	
75.00		628.62	72.50	7.78	2.89	
80.00		619.56	77.50	7.67	3.20	
85.00		610.50	82.50	7.55	3.52	
87.00	Bot - Section 3	241.66	86.00	2.99	0.62	
90.00		638.65	88.50	7.90	4.41	
92.00	Top - Section 2	422.37	91.00	5.23	2.07	
95.00		319.05	93.50	3.95	1.26	
100.00		525.40	97.50	6.50	3.63	
105.00		517.47	102.50	6.40	3.89	
110.00		509.54	107.50	6.30	4.14	
115.00	Top - Section 3	501.61	112.50	6.21	4.39	
120.00		548.42	117.50	6.79	5.70	
125.00		548.42	122.50	6.79	6.18	
130.00		548.42	127.50	6.79	6.69	
135.00	Top - Section 4	548.42	132.50	6.79	7.21	
140.00		548.42	137.50	6.79	7.75	
145.00		548.42	142.50	6.79	8.32	
150.00	Appurtenance(s)	2798.4	147.50	34.63	216.93	
155.00		473.54	152.50	5.86	7.12	
	Totals:	**24,120.1**		**298.4**	**318.3**	**Total Wind:** 31,275.5

Calculated Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

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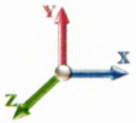
Load Case: 1.2D + 1.0Ev + 1.0Eh



Gust Response Factor	1.10			**Sds**	0.06	**Iterations**	21		
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.05	**Ss**	0.06		
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02	**S1**	0.03	**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.79	-0.32	0.00	-45.07	0.00	45.07	3115.65	873.60	3637.68	3222.56		0.00	0.00	0.023
5.00	-27.70	-0.32	0.00	-43.47	0.00	43.47	3093.67	861.92	3541.03	3156.77		0.00	0.00	0.023
10.00	-26.62	-0.32	0.00	-41.87	0.00	41.87	3071.15	850.24	3445.68	3091.05		0.01	-0.01	0.022
15.00	-25.55	-0.32	0.00	-40.26	0.00	40.26	3048.11	838.55	3351.63	3025.43		0.02	-0.01	0.022
20.00	-24.49	-0.32	0.00	-38.64	0.00	38.64	3024.52	826.87	3258.89	2959.93		0.03	-0.02	0.021
25.00	-23.45	-0.33	0.00	-37.02	0.00	37.02	3000.41	815.19	3167.45	2894.57		0.05	-0.02	0.021
30.00	-22.42	-0.33	0.00	-35.39	0.00	35.39	2975.76	803.50	3077.30	2829.37		0.08	-0.02	0.020
35.00	-21.41	-0.33	0.00	-33.76	0.00	33.76	2950.58	791.82	2988.46	2764.36		0.10	-0.03	0.019
40.00	-20.41	-0.33	0.00	-32.13	0.00	32.13	2924.86	780.14	2900.92	2699.56		0.13	-0.03	0.019
45.00	-19.43	-0.32	0.00	-30.51	0.00	30.51	2898.61	768.45	2814.68	2634.99		0.17	-0.04	0.018
47.25	-18.99	-0.32	0.00	-29.78	0.00	29.78	2886.63	763.19	2776.30	2606.01		0.19	-0.04	0.018
50.00	-18.06	-0.32	0.00	-28.89	0.00	28.89	2871.83	756.77	2729.75	2570.67		0.21	-0.04	0.018
53.00	-17.05	-0.32	0.00	-27.92	0.00	27.92	2077.01	607.64	2199.88	1868.74		0.24	-0.04	0.023
55.00	-16.73	-0.32	0.00	-27.28	0.00	27.28	2071.13	603.90	2172.89	1851.92		0.25	-0.04	0.023
60.00	-15.95	-0.32	0.00	-25.68	0.00	25.68	2056.05	594.55	2106.15	1809.82		0.30	-0.05	0.022
65.00	-15.18	-0.32	0.00	-24.09	0.00	24.09	2040.44	585.21	2040.45	1767.68		0.35	-0.05	0.021
70.00	-14.43	-0.31	0.00	-22.51	0.00	22.51	2024.29	575.86	1975.79	1725.51		0.41	-0.06	0.020
75.00	-13.68	-0.31	0.00	-20.94	0.00	20.94	2007.61	566.51	1912.17	1683.35		0.47	-0.06	0.019
80.00	-12.94	-0.31	0.00	-19.38	0.00	19.38	1990.40	557.17	1849.60	1641.22		0.54	-0.07	0.018
85.00	-12.22	-0.30	0.00	-17.84	0.00	17.84	1972.65	547.82	1788.06	1599.12		0.61	-0.07	0.017
87.00	-11.93	-0.30	0.00	-17.23	0.00	17.23	1965.40	544.08	1763.74	1582.31		0.64	-0.07	0.017
90.00	-11.17	-0.30	0.00	-16.31	0.00	16.31	1954.37	538.47	1727.57	1557.10		0.69	-0.07	0.016
92.00	-10.66	-0.30	0.00	-15.71	0.00	15.71	1603.59	473.71	1527.67	1285.32		0.72	-0.08	0.019
95.00	-10.28	-0.30	0.00	-14.82	0.00	14.82	1596.16	468.81	1496.18	1266.03		0.77	-0.08	0.018
100.00	-9.66	-0.29	0.00	-13.34	0.00	13.34	1583.33	460.63	1444.42	1233.82		0.85	-0.08	0.017
105.00	-9.05	-0.29	0.00	-11.88	0.00	11.88	1569.98	452.45	1393.58	1201.56		0.94	-0.09	0.016
110.00	-8.44	-0.28	0.00	-10.44	0.00	10.44	1556.08	444.26	1343.64	1169.27		1.03	-0.09	0.014
115.00	-7.85	-0.28	0.00	-9.03	0.00	9.03	1541.66	436.08	1294.61	1136.97		1.13	-0.09	0.013
115.00	-7.85	-0.28	0.00	-9.03	0.00	9.03	1052.07	315.62	43240.3	624.04		1.13	-0.09	0.022
120.00	-7.20	-0.27	0.00	-7.63	0.00	7.63	1052.07	315.62	43240.3	624.04		1.23	-0.10	0.019
125.00	-6.55	-0.27	0.00	-6.27	0.00	6.27	1052.07	315.62	43240.3	624.04		1.33	-0.10	0.016
130.00	-5.90	-0.26	0.00	-4.94	0.00	4.94	1052.07	315.62	43240.3	624.04		1.44	-0.10	0.014
135.00	-5.25	-0.25	0.00	-3.65	0.00	3.65	1052.07	315.62	43240.3	624.04		1.55	-0.11	0.011
135.00	-5.25	-0.25	0.00	-3.65	0.00	3.65	1052.07	315.62	43240.3	624.04		1.55	-0.11	0.011
140.00	-4.60	-0.24	0.00	-2.40	0.00	2.40	1052.07	315.62	43240.3	624.04		1.66	-0.11	0.008
145.00	-3.95	-0.23	0.00	-1.20	0.00	1.20	1052.07	315.62	43240.3	624.04		1.78	-0.11	0.006
150.00	-0.57	-0.01	0.00	-0.04	0.00	0.04	1052.07	315.62	43240.3	624.04		1.90	-0.11	0.001
155.00	0.00	-0.01	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04		2.01	-0.11	0.000

Seismic Segment Forces (Factored)

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

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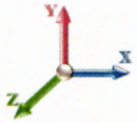
Load Case: 0.9D + 1.0Ev + 1.0Eh

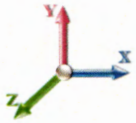


Gust Response Factor	1.10			**Sds**	0.06			**Iterations**	21
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.05			**Ss**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02			**S1**	0.03
								Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		897.41	2.50	11.10	0.01	
10.00		886.09	7.50	10.96	0.07	
15.00		874.76	12.50	10.82	0.18	
20.00		863.43	17.50	10.68	0.34	
25.00		852.11	22.50	10.54	0.54	
30.00		840.78	27.50	10.40	0.79	
35.00		829.45	32.50	10.26	1.06	
40.00		818.13	37.50	10.12	1.37	
45.00		806.80	42.50	9.98	1.70	
47.25	Bot - Section 2	359.37	46.13	4.45	0.41	
50.00		764.46	48.63	9.46	1.99	
53.00	Top - Section 1	826.93	51.50	10.23	2.60	
55.00		257.37	54.00	3.18	0.29	
60.00		637.08	57.50	7.88	1.94	
65.00		628.02	62.50	7.77	2.22	
70.00		618.96	67.50	7.66	2.50	
75.00		609.90	72.50	7.55	2.80	
80.00		600.84	77.50	7.43	3.10	
85.00		591.78	82.50	7.32	3.40	
87.00	Bot - Section 3	234.17	86.00	2.90	0.60	
90.00		627.42	88.50	7.76	4.37	
92.00	Top - Section 2	414.88	91.00	5.13	2.05	
95.00		307.81	93.50	3.81	1.21	
100.00		506.68	97.50	6.27	3.48	
105.00		498.75	102.50	6.17	3.72	
110.00		490.82	107.50	6.07	3.96	
115.00	Top - Section 3	482.89	112.50	5.97	4.19	
120.00		529.70	117.50	6.55	5.47	
125.00		529.70	122.50	6.55	5.93	
130.00		529.70	127.50	6.55	6.42	
135.00	Top - Section 4	529.70	132.50	6.55	6.92	
140.00		529.70	137.50	6.55	7.44	
145.00		529.70	142.50	6.55	7.98	
150.00	Appurtenance(s)	2779.7	147.50	34.39	219.91	
155.00		473.54	152.50	5.86	7.32	
	Totals:	**23,558.5**		**291.5**	**318.3**	**Total Wind:** **31,275.5**

Calculated Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	



Load Case:	0.9D + 1.0Ev + 1.0Eh						**Iterations**	21	
Gust Response Factor	1.10			**Sds**	0.06		**Ss**	0.06	
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.05		**S1**	0.03	
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02	**Seismic Importance Factor**		1.00	

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-21.66	-0.32	0.00	-44.76	0.00	44.76	3115.65	873.60	3637.68	3222.56		0.00	0.00	0.021
5.00	-20.84	-0.32	0.00	-43.17	0.00	43.17	3093.67	861.92	3541.03	3156.77		0.00	0.00	0.020
10.00	-20.02	-0.32	0.00	-41.57	0.00	41.57	3071.15	850.24	3445.68	3091.05		0.01	-0.01	0.020
15.00	-19.22	-0.32	0.00	-39.97	0.00	39.97	3048.11	838.55	3351.63	3025.43		0.02	-0.01	0.020
20.00	-18.43	-0.32	0.00	-38.36	0.00	38.36	3024.52	826.87	3258.89	2959.93		0.03	-0.02	0.019
25.00	-17.64	-0.32	0.00	-36.74	0.00	36.74	3000.41	815.19	3167.45	2894.57		0.05	-0.02	0.019
30.00	-16.87	-0.32	0.00	-35.13	0.00	35.13	2975.76	803.50	3077.30	2829.37		0.07	-0.02	0.018
35.00	-16.11	-0.32	0.00	-33.51	0.00	33.51	2950.58	791.82	2988.46	2764.36		0.10	-0.03	0.018
40.00	-15.36	-0.32	0.00	-31.89	0.00	31.89	2924.86	780.14	2900.92	2699.56		0.13	-0.03	0.017
45.00	-14.61	-0.32	0.00	-30.28	0.00	30.28	2898.61	768.45	2814.68	2634.99		0.17	-0.04	0.017
47.25	-14.28	-0.32	0.00	-29.56	0.00	29.56	2886.63	763.19	2776.30	2606.01		0.19	-0.04	0.016
50.00	-13.58	-0.32	0.00	-28.68	0.00	28.68	2871.83	756.77	2729.75	2570.67		0.21	-0.04	0.016
53.00	-12.83	-0.32	0.00	-27.72	0.00	27.72	2077.01	607.64	2199.88	1868.74		0.23	-0.04	0.021
55.00	-12.59	-0.32	0.00	-27.09	0.00	27.09	2071.13	603.90	2172.89	1851.92		0.25	-0.04	0.021
60.00	-12.00	-0.32	0.00	-25.51	0.00	25.51	2056.05	594.55	2106.15	1809.82		0.30	-0.05	0.020
65.00	-11.42	-0.31	0.00	-23.93	0.00	23.93	2040.44	585.21	2040.45	1767.68		0.35	-0.05	0.019
70.00	-10.85	-0.31	0.00	-22.37	0.00	22.37	2024.29	575.86	1975.79	1725.51		0.41	-0.06	0.018
75.00	-10.29	-0.31	0.00	-20.81	0.00	20.81	2007.61	566.51	1912.17	1683.35		0.47	-0.06	0.017
80.00	-9.74	-0.31	0.00	-19.27	0.00	19.27	1990.40	557.17	1849.60	1641.22		0.54	-0.07	0.017
85.00	-9.19	-0.30	0.00	-17.74	0.00	17.74	1972.65	547.82	1788.06	1599.12		0.61	-0.07	0.016
87.00	-8.98	-0.30	0.00	-17.14	0.00	17.14	1965.40	544.08	1763.74	1582.31		0.64	-0.07	0.015
90.00	-8.40	-0.30	0.00	-16.23	0.00	16.23	1954.37	538.47	1727.57	1557.10		0.68	-0.07	0.015
92.00	-8.02	-0.29	0.00	-15.64	0.00	15.64	1603.59	473.71	1527.67	1285.32		0.72	-0.08	0.017
95.00	-7.73	-0.29	0.00	-14.76	0.00	14.76	1596.16	468.81	1496.18	1266.03		0.76	-0.08	0.017
100.00	-7.27	-0.29	0.00	-13.29	0.00	13.29	1583.33	460.63	1444.42	1233.82		0.85	-0.08	0.015
105.00	-6.81	-0.29	0.00	-11.85	0.00	11.85	1569.98	452.45	1393.58	1201.56		0.93	-0.09	0.014
110.00	-6.35	-0.28	0.00	-10.42	0.00	10.42	1556.08	444.26	1343.64	1169.27		1.02	-0.09	0.013
115.00	-5.91	-0.28	0.00	-9.01	0.00	9.01	1541.66	436.08	1294.61	1136.97		1.12	-0.09	0.012
115.00	-5.91	-0.28	0.00	-9.01	0.00	9.01	1052.07	315.62	43240.3	624.04		1.12	-0.09	0.020
120.00	-5.42	-0.27	0.00	-7.63	0.00	7.63	1052.07	315.62	43240.3	624.04		1.22	-0.09	0.017
125.00	-4.93	-0.26	0.00	-6.27	0.00	6.27	1052.07	315.62	43240.3	624.04		1.32	-0.10	0.015
130.00	-4.44	-0.26	0.00	-4.95	0.00	4.95	1052.07	315.62	43240.3	624.04		1.43	-0.10	0.012
135.00	-3.95	-0.25	0.00	-3.66	0.00	3.66	1052.07	315.62	43240.3	624.04		1.54	-0.11	0.010
135.00	-3.95	-0.25	0.00	-3.66	0.00	3.66	1052.07	315.62	43240.3	624.04		1.54	-0.11	0.010
140.00	-3.46	-0.24	0.00	-2.41	0.00	2.41	1052.07	315.62	43240.3	624.04		1.65	-0.11	0.007
145.00	-2.97	-0.23	0.00	-1.21	0.00	1.21	1052.07	315.62	43240.3	624.04		1.77	-0.11	0.005
150.00	-0.43	-0.01	0.00	-0.04	0.00	0.04	1052.07	315.62	43240.3	624.04		1.88	-0.11	0.000
155.00	0.00	-0.01	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04		2.00	-0.11	0.000

Wind Loading - Shaft

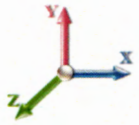
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	6.644	7.31	236.12	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.644	7.31	232.98	0.730	0.000	5.00	21.224	15.49	113.2	0.0	841.3
10.00		1.00	0.85	6.644	7.31	229.84	0.730	0.000	5.00	20.940	15.29	111.7	0.0	829.9
15.00		1.00	0.85	6.644	7.31	226.71	0.730	0.000	5.00	20.656	15.08	110.2	0.0	818.6
20.00		1.00	0.90	7.049	7.75	230.29	0.730	0.000	5.00	20.372	14.87	115.3	0.0	807.3
25.00		1.00	0.95	7.388	8.13	232.45	0.730	0.000	5.00	20.088	14.66	119.2	0.0	795.9
30.00		1.00	0.98	7.677	8.45	233.58	0.730	0.000	5.00	19.804	14.46	122.1	0.0	784.6
35.00		1.00	1.01	7.931	8.72	233.98	0.730	0.000	5.00	19.520	14.25	124.3	0.0	773.3
40.00		1.00	1.04	8.157	8.97	233.81	0.730	0.000	5.00	19.236	14.04	126.0	0.0	762.0
45.00		1.00	1.07	8.362	9.20	233.21	0.730	0.000	5.00	18.952	13.84	127.3	0.0	750.6
47.25	Bot - Section 2	1.00	1.08	8.448	9.29	232.82	0.730	0.000	2.25	8.436	6.16	57.2	0.0	334.1
50.00		1.00	1.09	8.549	9.40	232.25	0.730	0.000	2.75	10.349	7.55	71.0	0.0	733.6
53.00	Top - Section 1	1.00	1.11	8.655	9.52	231.53	0.730	0.000	3.00	11.192	8.17	77.8	0.0	793.2
55.00		1.00	1.12	8.722	9.59	233.67	0.730	0.000	2.00	7.404	5.41	51.9	0.0	234.9
60.00		1.00	1.14	8.884	9.77	232.19	0.730	0.000	5.00	18.312	13.37	130.6	0.0	580.9
65.00		1.00	1.16	9.035	9.94	230.50	0.730	0.000	5.00	18.028	13.16	130.8	0.0	571.9
70.00		1.00	1.17	9.177	10.09	228.62	0.730	0.000	5.00	17.744	12.95	130.8	0.0	562.8
75.00		1.00	1.19	9.311	10.24	226.57	0.730	0.000	5.00	17.460	12.75	130.5	0.0	553.7
80.00		1.00	1.21	9.438	10.38	224.37	0.730	0.000	5.00	17.176	12.54	130.2	0.0	544.7
85.00		1.00	1.22	9.559	10.52	222.04	0.730	0.000	5.00	16.892	12.33	129.7	0.0	535.6
87.00	Bot - Section 3	1.00	1.23	9.606	10.57	221.08	0.730	0.000	2.00	6.677	4.87	51.5	0.0	211.7
90.00		1.00	1.24	9.675	10.64	219.60	0.730	0.000	3.00	10.042	7.33	78.0	0.0	593.7
92.00	Top - Section 2	1.00	1.24	9.720	10.69	218.59	0.730	0.000	2.00	6.638	4.85	51.8	0.0	392.4
95.00		1.00	1.25	9.786	10.76	219.52	0.730	0.000	3.00	9.872	7.21	77.6	0.0	274.1
100.00		1.00	1.27	9.892	10.88	216.88	0.730	0.000	5.00	16.225	11.84	128.9	0.0	450.5
105.00		1.00	1.28	9.994	10.99	214.15	0.730	0.000	5.00	15.941	11.64	127.9	0.0	442.6
110.00		1.00	1.29	10.093	11.10	211.33	0.730	0.000	5.00	15.657	11.43	126.9	0.0	434.7
115.00	Top - Section 3	1.00	1.30	10.188	11.21	208.44	0.730	0.000	5.00	15.373	11.22	125.8	0.0	426.7
120.00		1.00	1.32	10.279	11.31	137.46	0.600	0.000	5.00	10.000	6.00	67.8	0.0	473.5
125.00		1.00	1.33	10.368	11.40	138.05	0.600	0.000	5.00	10.000	6.00	68.4	0.0	473.5
130.00		1.00	1.34	10.454	11.50	138.62	0.600	0.000	5.00	10.000	6.00	69.0	0.0	473.5
135.00	Top - Section 4	1.00	1.35	10.537	11.59	139.18	0.600	0.000	5.00	10.000	6.00	69.5	0.0	473.5
140.00		1.00	1.36	10.618	11.68	139.71	0.600	0.000	5.00	10.000	6.00	70.1	0.0	473.5
145.00		1.00	1.37	10.697	11.77	140.23	0.600	0.000	5.00	10.000	6.00	70.6	0.0	473.5
150.00	Appurtenance(s)	1.00	1.38	10.774	11.85	140.73	0.600	0.000	5.00	10.000	6.00	71.1	0.0	473.5
155.00		1.00	1.39	10.848	11.93	141.22	0.600	0.000	5.00	10.000	6.00	71.6	0.0	473.5
								Totals:	**155.00**			**3,436.4**		**19,623.7**

Discrete Appurtenance Forces

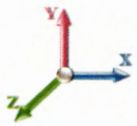
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

TES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Assumed 150 sq. ft.	1	10.774	11.851	1.00	1.00	150.00	2250.00	0.000	0.000	1777.66	0.00	0.00
							Totals:		**2,250.00**			**1,777.66**		

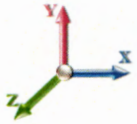
Total Applied Force Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		113.23	903.65	0.00	0.00
10.00		111.71	892.33	0.00	0.00
15.00		110.20	881.00	0.00	0.00
20.00		115.32	869.67	0.00	0.00
25.00		119.18	858.35	0.00	0.00
30.00		122.09	847.02	0.00	0.00
35.00		124.31	835.69	0.00	0.00
40.00		126.00	824.37	0.00	0.00
45.00		127.25	813.04	0.00	0.00
47.25		57.23	362.17	0.00	0.00
50.00		71.04	767.89	0.00	0.00
53.00		77.78	830.67	0.00	0.00
55.00		51.86	259.87	0.00	0.00
60.00		130.63	643.32	0.00	0.00
65.00		130.79	634.26	0.00	0.00
70.00		130.75	625.20	0.00	0.00
75.00		130.54	616.14	0.00	0.00
80.00		130.18	607.08	0.00	0.00
85.00		129.67	598.02	0.00	0.00
87.00		51.51	236.67	0.00	0.00
90.00		78.02	631.16	0.00	0.00
92.00		51.81	417.38	0.00	0.00
95.00		77.57	311.56	0.00	0.00
100.00		128.89	512.92	0.00	0.00
105.00		127.94	504.99	0.00	0.00
110.00		126.89	497.06	0.00	0.00
115.00		125.76	489.13	0.00	0.00
120.00		67.84	535.94	0.00	0.00
125.00		68.43	535.94	0.00	0.00
130.00		69.00	535.94	0.00	0.00
135.00		69.55	535.94	0.00	0.00
140.00		70.08	535.94	0.00	0.00
145.00		70.60	535.94	0.00	0.00
150.00	(1) attachments	1848.77	2785.94	0.00	0.00
155.00		71.60	473.54	0.00	0.00
	Totals:	**5,214.01**	**23,745.72**	**0.00**	**0.00**

Calculated Forces

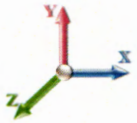
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

TES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-23.74	-5.22	0.00	-533.95	0.00	533.95	3115.65	873.60	3637.68	3222.56	0.00	0.000	0.000	0.173
5.00	-22.84	-5.13	0.00	-507.83	0.00	507.83	3093.67	861.92	3541.03	3156.77	0.03	-0.047	0.000	0.168
10.00	-21.94	-5.03	0.00	-482.19	0.00	482.19	3071.15	850.24	3445.68	3091.05	0.10	-0.093	0.000	0.163
15.00	-21.05	-4.94	0.00	-457.03	0.00	457.03	3048.11	838.55	3351.63	3025.43	0.22	-0.139	0.000	0.158
20.00	-20.18	-4.84	0.00	-432.34	0.00	432.34	3024.52	826.87	3258.89	2959.93	0.39	-0.184	0.000	0.153
25.00	-19.32	-4.73	0.00	-408.16	0.00	408.16	3000.41	815.19	3167.45	2894.57	0.61	-0.228	0.000	0.147
30.00	-18.47	-4.62	0.00	-384.52	0.00	384.52	2975.76	803.50	3077.30	2829.37	0.87	-0.272	0.000	0.142
35.00	-17.63	-4.50	0.00	-361.43	0.00	361.43	2950.58	791.82	2988.46	2764.36	1.18	-0.315	0.000	0.137
40.00	-16.81	-4.38	0.00	-338.93	0.00	338.93	2924.86	780.14	2900.92	2699.56	1.53	-0.358	0.000	0.131
45.00	-15.99	-4.26	0.00	-317.02	0.00	317.02	2898.61	768.45	2814.68	2634.99	1.93	-0.399	0.000	0.126
47.25	-15.63	-4.20	0.00	-307.44	0.00	307.44	2886.63	763.19	2776.30	2606.01	2.12	-0.417	0.000	0.123
50.00	-14.86	-4.13	0.00	-295.88	0.00	295.88	2871.83	756.77	2729.75	2570.67	2.37	-0.440	0.000	0.120
53.00	-14.03	-4.05	0.00	-283.48	0.00	283.48	2077.01	607.64	2199.88	1868.74	2.65	-0.464	0.000	0.158
55.00	-13.77	-4.01	0.00	-275.37	0.00	275.37	2071.13	603.90	2172.89	1851.92	2.85	-0.480	0.000	0.155
60.00	-13.12	-3.88	0.00	-255.33	0.00	255.33	2056.05	594.55	2106.15	1809.82	3.38	-0.526	0.000	0.148
65.00	-12.48	-3.75	0.00	-235.92	0.00	235.92	2040.44	585.21	2040.45	1767.68	3.95	-0.571	0.000	0.140
70.00	-11.86	-3.63	0.00	-217.15	0.00	217.15	2024.29	575.86	1975.79	1725.51	4.57	-0.614	0.000	0.132
75.00	-11.24	-3.50	0.00	-199.02	0.00	199.02	2007.61	566.51	1912.17	1683.35	5.24	-0.656	0.000	0.124
80.00	-10.63	-3.37	0.00	-181.54	0.00	181.54	1990.40	557.17	1849.60	1641.22	5.95	-0.696	0.000	0.116
85.00	-10.03	-3.23	0.00	-164.71	0.00	164.71	1972.65	547.82	1788.06	1599.12	6.70	-0.734	0.000	0.108
87.00	-9.80	-3.18	0.00	-158.24	0.00	158.24	1965.40	544.08	1763.74	1582.31	7.01	-0.749	0.000	0.105
90.00	-9.17	-3.10	0.00	-148.69	0.00	148.69	1954.37	538.47	1727.57	1557.10	7.48	-0.771	0.000	0.100
92.00	-8.75	-3.04	0.00	-142.50	0.00	142.50	1603.59	473.71	1527.67	1285.32	7.81	-0.785	0.000	0.116
95.00	-8.44	-2.97	0.00	-133.36	0.00	133.36	1596.16	468.81	1496.18	1266.03	8.31	-0.806	0.000	0.111
100.00	-7.92	-2.84	0.00	-118.53	0.00	118.53	1583.33	460.63	1444.42	1233.82	9.18	-0.842	0.000	0.101
105.00	-7.42	-2.70	0.00	-104.35	0.00	104.35	1569.98	452.45	1393.58	1201.56	10.08	-0.875	0.000	0.092
110.00	-6.92	-2.57	0.00	-90.84	0.00	90.84	1556.08	444.26	1343.64	1169.27	11.01	-0.906	0.000	0.082
115.00	-6.44	-2.44	0.00	-77.97	0.00	77.97	1541.66	436.08	1294.61	1136.97	11.97	-0.935	0.000	0.073
115.00	-6.44	-2.44	0.00	-77.97	0.00	77.97	1052.07	315.62	43240.3	624.04	11.97	-0.935	0.000	0.131
120.00	-5.90	-2.37	0.00	-65.76	0.00	65.76	1052.07	315.62	43240.3	624.04	12.97	-0.960	0.000	0.111
125.00	-5.36	-2.30	0.00	-53.91	0.00	53.91	1052.07	315.62	43240.3	624.04	14.00	-1.004	0.000	0.092
130.00	-4.83	-2.22	0.00	-42.44	0.00	42.44	1052.07	315.62	43240.3	624.04	15.07	-1.039	0.000	0.073
135.00	-4.29	-2.14	0.00	-31.34	0.00	31.34	1052.07	315.62	43240.3	624.04	16.17	-1.066	0.000	0.054
135.00	-4.29	-2.14	0.00	-31.34	0.00	31.34	1052.07	315.62	43240.3	624.04	16.17	-1.066	0.000	0.054
140.00	-3.76	-2.06	0.00	-20.63	0.00	20.63	1052.07	315.62	43240.3	624.04	17.30	-1.085	0.000	0.037
145.00	-3.22	-1.98	0.00	-10.32	0.00	10.32	1052.07	315.62	43240.3	624.04	18.44	-1.097	0.000	0.020
150.00	-0.47	-0.08	0.00	-0.40	0.00	0.40	1052.07	315.62	43240.3	624.04	19.59	-1.100	0.000	0.001
155.00	0.00	-0.07	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04	20.74	-1.101	0.000	0.000

Final Analysis Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 139 mph Wind	31.3	0.00	28.42	0.00	0.00	3214.95
0.9D + 1.0W 139 mph Wind	31.3	0.00	21.29	0.00	0.00	3187.51
1.2D + 1.0Ev + 1.0Eh	0.3	0.00	28.79	0.00	0.00	45.07
0.9D + 1.0Ev + 1.0Eh	0.3	0.00	21.66	0.00	0.00	44.76
1.0D + 1.0W 60 mph Wind	5.2	0.00	23.74	0.00	0.00	533.95

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 139 mph Wind	-28.42	-31.35	0.00	-3214.9	0.00	-3214.9	3115.65	873.60	3637.68	3222.56	0.00	1.008
0.9D + 1.0W 139 mph Wind	-21.29	-31.33	0.00	-3187.5	0.00	-3187.5	3115.65	873.60	3637.68	3222.56	0.00	0.997
1.2D + 1.0Ev + 1.0Eh	-28.79	-0.32	0.00	-45.07	0.00	-45.07	3115.65	873.60	3637.68	3222.56	0.00	0.023
0.9D + 1.0Ev + 1.0Eh	-12.83	-0.32	0.00	-27.72	0.00	-27.72	2077.01	607.64	2199.88	1868.74	53.00	0.021
1.0D + 1.0W 60 mph Wind	-23.74	-5.22	0.00	-533.95	0.00	-533.95	3115.65	873.60	3637.68	3222.56	0.00	0.173

Base Plate Summary

Structure:	FL40914-T-SB	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	60.00	**Bolt Circle:**	57.50
Moment (kip-ft):	2384.00	**Width (in):**	63.50	**Number Bolts:**	10.00
Axial (kip):	27.00	**Style:**	Round	**Bolt Type:**	2.25" 18J
Shear (kip):	28.00	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	2.25
		Clip Length (in):	0.00	**Yield (ksi):**	75.00
Analysis (1.2D + 1.0W)				**Ultimate (ksi):**	100.00
Moment (kip-ft):	3214.95	**Effective Len (in):**	26.06	**Arrangement:**	Radial
Axial (kip):	28.42	**Moment (kip-in):**	949.27	**Cluster Dist (in):**	0.00
Shear (kip):	31.35	**Allow Stress (ksi):**	81.00	**Start Angle (deg):**	0.00
		Applied Stress (ksi):	54.27	Compression	
		Stress Ratio:	0.67	**Force (kip):**	212.19
				Allowable (kip):	268.39
				Ratio:	0.79
				Tension	
				Force (kip):	206.51
				Allowable (kip):	243.75
				Ratio:	0.85

Pier Foundation Design For Monopole

				Date
				7/11/2022
	Customer Name:	SBA	EIA/TIA Standard:	TIA-222-H
	Site Name:		Structure Height (Ft.):	155
	Site Number:	FL40914-T-SBA	Engineer Name:	I. Hasan Efaz
	Engr. Number:	131282	Engineer Login ID:	

Tower Engineering Solutions

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	28.4	Shear Force (Kips):	31.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3214.9

Foundation Geometries:

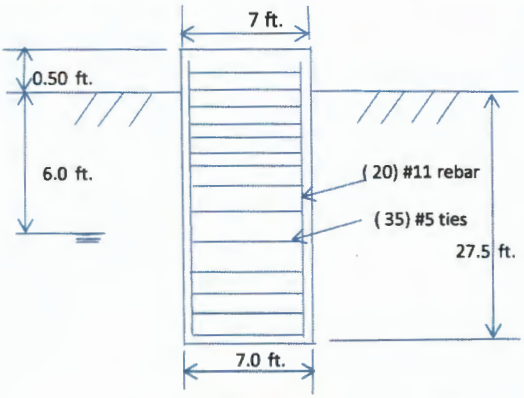
Diameter of Pier (ft.):	7.0	Depth of Base B. G. S. :	27.5	ft.
Pier Height A. G. (ft.):	0.50			

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	20	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	6.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:		Soil Report		



Monopole Pier Foundation

Depth of Layers (ft) Top	Depth of Layers (ft) Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types
0.0	3.0	100					
3.0	4.0	100	28	0			
4.0	13.0	105	29	0			
13.0	23.0	110	30	0			
23.0	33.0	110	30	0			
33.0	43.0	110	30	0			
43.0	50.0	110	30	0			
50.0	55.0						

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.):	5637	Dry Soil Weight from Conical Failure:	573	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	6404	Buoyant Soil Weight from Conical Failure (Ki	323	Kips
Total Dry Concrete Volume (cu. Ft.):	250	Total Dry Concrete Weight:	37.5	Kips
Total Buoyant Concrete Volume (cu. Ft.):	827.4	Total Buoyant Concrete Weight:	72.48	Kips
Total Effective Concrete Weight (Kips):	110.0	Total Effective Soil Weight:	895.7	Kips
Total Effective Vertical Load on Base (Kips):	73.3			

TES Engr. Number: 131282 Page 2/2 Date: 7/11/2022

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	5582.1	>	Design Factored Moment (kips-ft):	3791	0.68	OK!
Factor of Safety of Passive Soil Resistance against Moment:	1.47	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):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	5244.8	>	Design Factored Moment (Mu, K-Ft):	3356.1	0.64	OK!
Calculated Shear Capacity (Kips):	1087.5	>	Design Factored Shear (Kips):	301.5	0.28	OK!
Calculated Tension Capacity (Tn, Kips):	1684.8	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9743	>	Design Factored Axial Load (Pu Kips):	28.4	0.00	OK!
Moment & Axial Strength Combination:	0.64	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.006	Reinforcement Ratio is satisfied per ACI				

EXHIBIT C

Board of County Commissioners
Hernando County
Attn: Steve Champion
John Allocco
Beth Narverud
Wayne Dukes
Jeff Holcomb
15470 Flight Path Dr.
Brooksville, FL 34606

RE: Application H-22-10

AFFIDAVIT OF BROOKE IRBY

STATE OF GEORGIA
COUNTY OF WHITE

Before me the undersigned authority personally appeared Brooke Irby, who, after being duly sworn, deposes and states as follows:

1. I am the Site Marketing Manager for SBA Monarch Towers III, LLC ("SBA") in Florida.

2. I make this Affidavit with the understanding that it is to be used in opposition to the Rezoning Petition for Public Service Facility Overlay District for a Communication Tower, submitted on behalf of Temple Beth David Jewish Center, under Application No. H-22-10 (the "Application"). All statements contained in this affidavit are based upon my personal knowledge or my personal knowledge of the business records of SBA. I am over the age of eighteen and I am fully competent to testify to the facts recited herein.

3. In my capacity working for SBA, I am one of the primary custodians of the organizational documents, files, applications, letters, correspondence, reports, and other paperwork transmitted or received in connection with the dealings with T-Mobile in Florida (the "Records"). SBA's files contain documents which were made and/or kept as part of the Records, contemporaneously at or near the time of the events so memorialized herein, by or from information transmitted by SBA's employees and personnel who had knowledge of the facts set

forth in such documents. The Records are kept in the course of a regularly conducted business activity and for each such document contained in the Records, it was the regular practice of business activity to make or retain such document. To the extent that I refer to any such document other than those made or received by me personally, such document is one of SBA's Records.

4. As the Site Marketing Manager with SBA, it is my job to interact with carriers, such as T-Mobile, who have located, or are interested in locating, onto an SBA communications tower in Florida.

5. I maintain an open line of communication with the carriers to discuss tenant issues, including but not limited to, collocation, new equipment, centerline placement of equipment onto SBA communications towers, and other related matters. This would include the 155' communication tower SBA has owned and operated in Hernando County, Florida, since 2012, on property located at 13764 Linden Drive, Spring Hill, Florida 32223 (the "Existing SBA Tower").

6. The Existing SBA Tower is located approximately 0.16 miles or 886 feet from the proposed 160' communication tower in the Application, which would be located at 13764 Linden Drive, Spring Hill, Florida (the "Proposed Tower").

7. T-Mobile currently leases space and maintains its communications equipment on the Existing SBA Tower. T-Mobile has collocated on the Existing SBA Tower since 2014.

8. As the Site Marketing Manager with SBA, I regularly communicate with T-Mobile, and was involved in communications with T-Mobile regarding the Existing SBA Tower in order to accommodate T-Mobile's proposed 5G equipment.

9. To accommodate additional antennas and equipment, including T-Mobile's 5G equipment, on the Existing SBA Tower, a modification to the Existing SBA Tower is required.

Modifications as may be needed to accommodate T-Mobile at a higher height or for more/larger equipment are common practice in the telecommunications industry.

10. SBA is in the process of gathering all of the necessary documentation to apply to the County to make these modifications to the Existing SBA Tower. As part of this process, I have requested of Hernando County staff in the Planning Department a pre-application meeting regarding SBA's application for zoning modification to allow it to make these modifications to the Existing SBA Tower, and I am awaiting a meeting date from the County.

11. Also, as part of this process, SBA engaged a vendor to prepare engineering modification drawings which depict the modifications to be made to the Existing SBA Tower ("Drawings"), as well as a structural analysis report regarding the structural capability of the Existing SBA Tower to handle the modifications from a structural standpoint ("Structural Analysis"). The Drawings and Structural Analysis are Records of SBA, and a true and correct copy of the Drawings is attached as **Exhibit 1**, and a true and correct copy of the Structural Analysis is attached as **Exhibit 2**.

12. Once the zoning modification is approved, SBA would commence with these modifications to the Existing SBA Tower within approximately 90 days.

FURTHER AFFIANT SAYETH NOT

Affiant: Brooke Irby

STATE OF GEORGIA
COUNTY OF WHITE

Sworn to and subscribed before me by means of ☒ physical presence or ☐ online notarization, this 5th day of August, 2022. Such person did take an oath and:

(Notary must check applicable box).

☒ is/are personally known to me.
☐ produced a current _____ driver's license as identification.
☐ produced _____ as identification.

{Notary Seal must be affixed}

SIGNATURE OF NOTARY

ZACHARY DAVID BARKER
NOTARY PUBLIC
WHITE CO., GEORGIA
MY COMMISSION EXPIRES SEPT. 25 2022

ZACHARY DAVID BARKER
Name of Notary *(Typed, Printed or Stamped)*

EXHIBIT 2

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Structural Analysis Report

Existing 155 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: FL40914-T

Customer Site Name: John & Maria Ferrara

Carrier Name: T-Mobile

Carrier Site ID / Name: A2G0804A / John & Maria Ferrara

Site Location: 13764 Linden Drive

Spring Hill, Florida

Hernando County

Latitude: 28.464292

Longitude: -82.510186

Analysis Result:

Max Structural Usage: 100.8% [Pass]

Max Foundation Usage: 68.0% [Pass]

Report Prepared By: Ikram Efaz

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Spring Hill, Florida

Hernando County

Latitude: 28.464292

Longitude: -82.510186

Analysis Result:

Max Structural Usage: 100.8% [Pass]

Max Foundation Usage: 68.0% [Pass]

Report Prepared By: Ikram Efaz

Introduction

The purpose of this report is to summarize the analysis results on the 155 ft Monopole 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	Davinci Engineering, INC., Job #08235-1650, dated 10/08/2008
Foundation Drawing	Davinci Engineering, INC., Job #08235-1650, dated 10/08/2008
Geotechnical Report	Tierra Project # 6511-08-172, dated 08/22/2008
Mount Analysis	N/A
Existing Modification	N/A
Proposed Modification	TES Job # 131282

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H. In accordance with this standard, the structure was analyzed using **TESPoles,** 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:	139.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	N/A
Service Load Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-H / 2018 IBC / Florida Building Code, 7th Edition (2020)
Exposure Category:	C
Risk Category:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.058$, $S_1 = 0.033$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

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
-	150.0	1	Generic	Generic	(24) 7/8"	T-Mobile

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
1	150.0	1	*Generic	*Generic	(24) 7/8"	T-Mobile

*A CaAa of 150 square feet was assumed for the generic loading (Antenna+ Mount) as the proposed loading.

See the attached coax layout for the line placement considered in the analysis.

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:

	Pole shafts	Anchor Bolts	Base Plate	Flange
Max. Usage:	**100.8%**	**84.8%**	**67.5%**	**75.8%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3214.9	31.3	28.4

The foundation has been investigated using the supplied documents and soils report and was found 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 TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.1006 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 TIA-222-H Standard after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 131282

Pre-Mod Installation Determination

Considering the current circumstances, it was concluded that the Carrier cannot install their proposed loading prior to the mods' completion.

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 structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. 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 and/or 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.

4. 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.

5. 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.

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

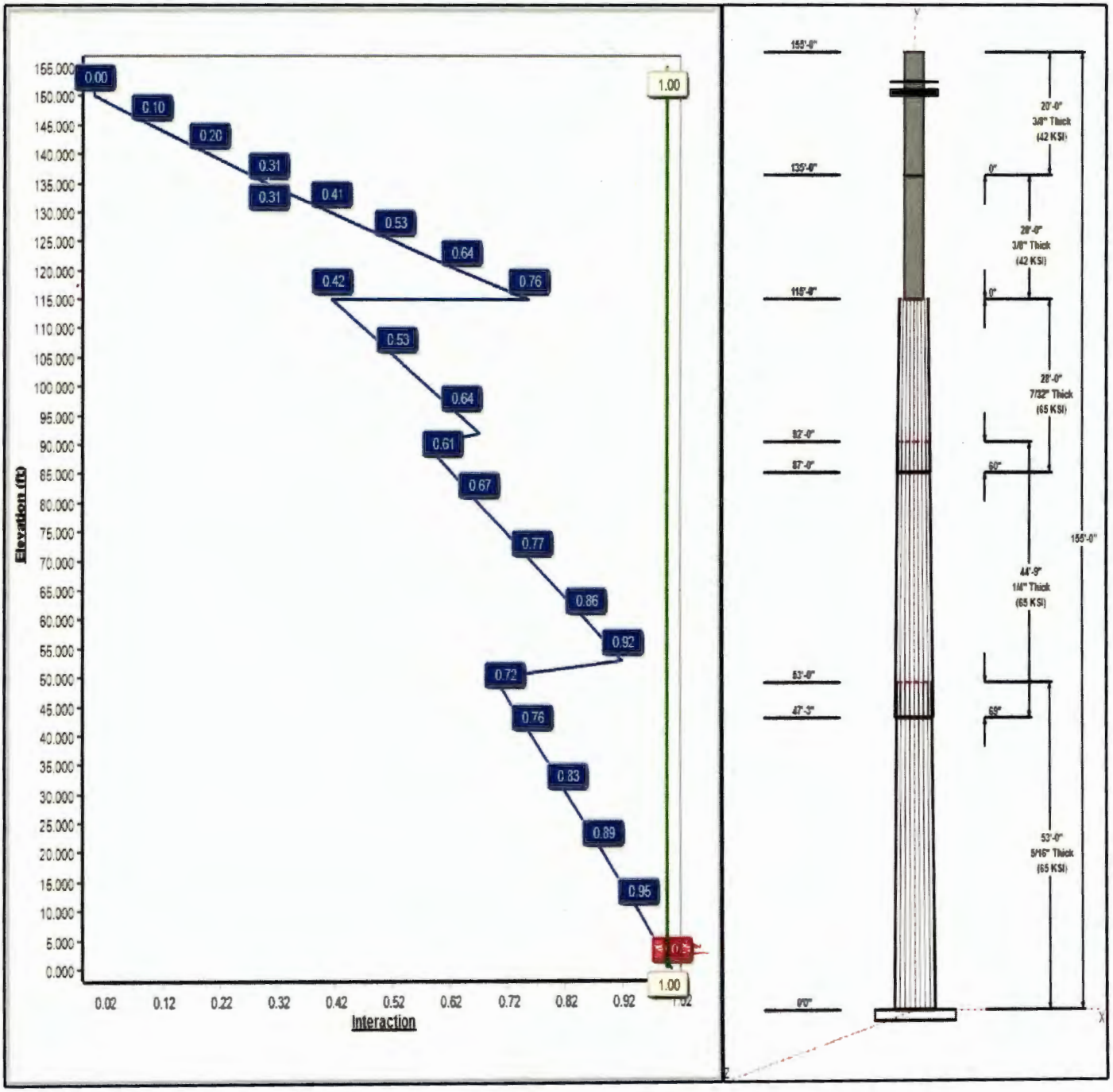
Usage Diagram - Max Ratio 100.80% at 0.0ft

Structure:	FL40914-T-SBA	**Code:**	EIA/TIA-222-H	7/11/2022
Site Name:	John & Maria Ferrara	**Exposure:**	C	
Height:	155.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

TES Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	25
Wind Load Factor:	1.00		

Load Case : 1.2D + 1.0W 139 mph Wind



Structure: FL40914-T-SBA

Type: Custom
Site Name: John & Maria Ferrara
Height: 155.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.13424

7/11/2022

TES Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	43.39	50.50	0.313		0.13424	65
2	44.75	38.65	44.66	0.250	Slip	0.13424	65
3	28.00	36.00	39.76	0.219	Slip	0.13424	65
4	20.00	24.00	24.00	0.375	Butt	0.00000	42
5	20.00	24.00	24.00	0.375	Butt	0.00000	42

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
150.00	150.00	1	Assumed 150 sq. ft.	T-Mobile

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	150.00	Inside	7/8" Coax	T-Mobile

Anchor Bolts

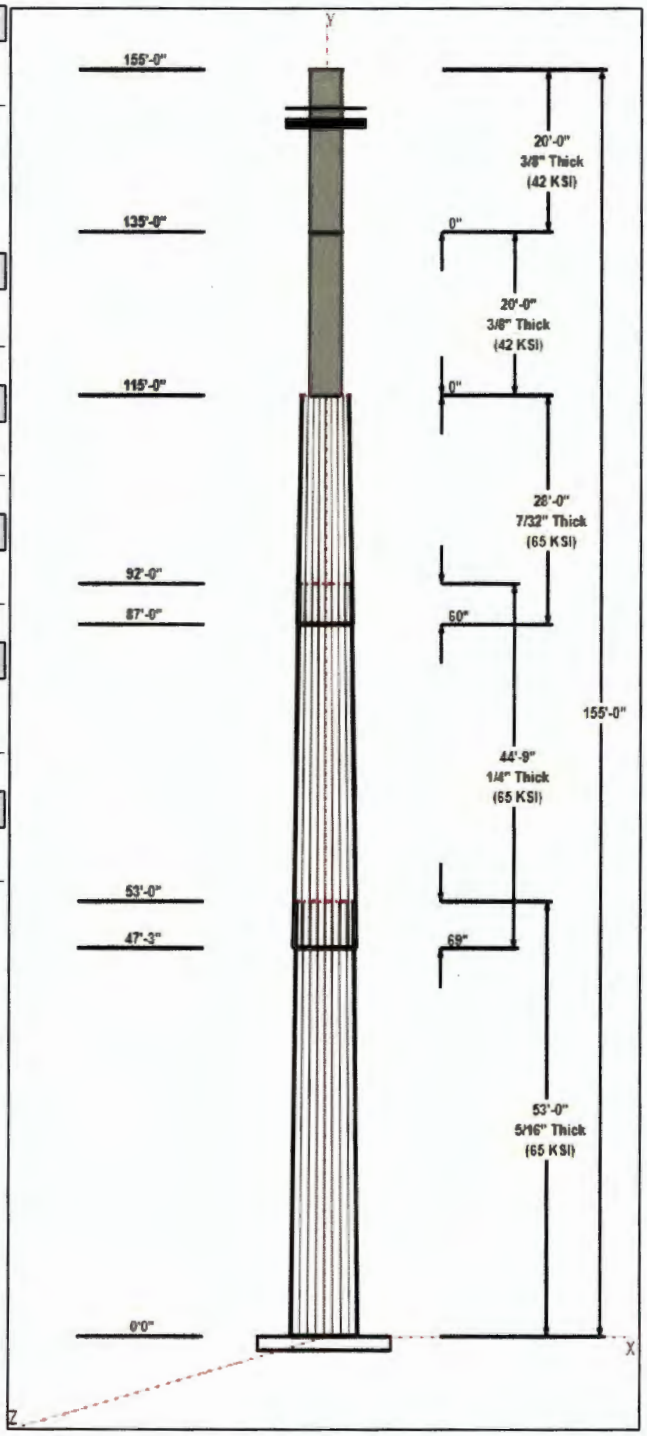
Qty	Specifications	Grade (ksi)	Arrangement
10	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	63.5	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.0D + 1.0W 60 mph Wind	533.9	5.2	23.7

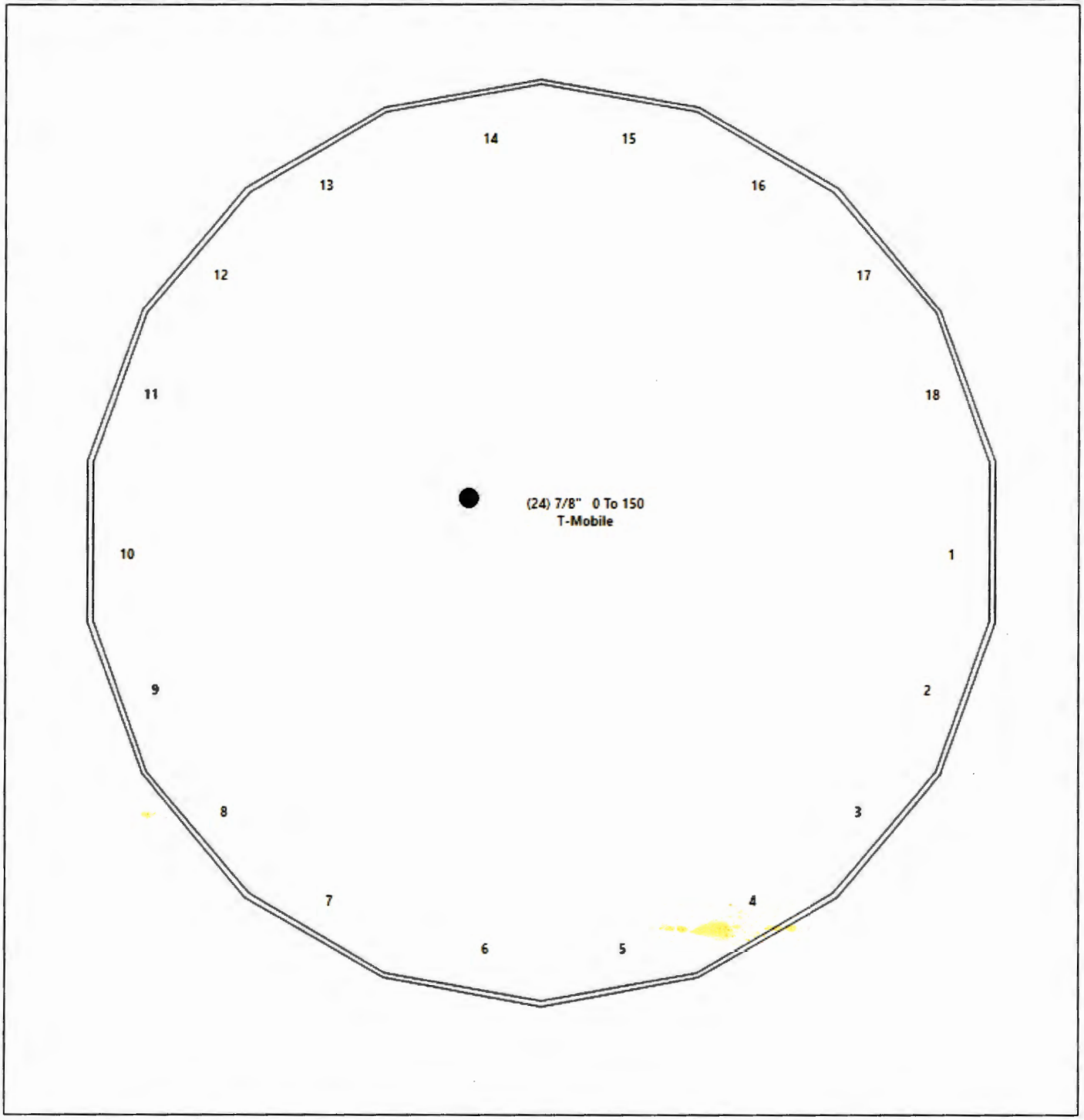


Structure: FL40914-T-SBA - Coax Line Placement

Type: Monopole
Site Name: John & Maria Ferrara
Height: 155.00 (ft)

7/11/2022

TES
Tower Engineering Solutions



Shaft Properties

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 4	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.000	0.3125	65		0.00	8,341
2	18	44.750	0.2500	65	Slip	69.00	5,003
3	18	28.000	0.2188	65	Slip	60.00	2,492
4	R	20.000	0.3750	42	Flange	0.00	1,894
5	R	20.000	0.3750	42	Flange	0.00	1,894
					Total Shaft Weight:		**19,624**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	50.50	0.00	49.78	15840.94	27.08	161.60	43.39	53.00	42.72	10013.9	23.07	138.8	0.134240
2	44.66	47.25	35.24	8778.97	30.09	178.63	38.65	92.00	30.47	5676.43	25.85	154.6	0.134240
3	39.76	87.00	27.46	5423.74	30.63	181.71	36.00	115.00	24.85	4019.36	27.60	164.5	0.134240
4	24.00	115.0	27.83	1943.30	0.00	64.00	24.00	135.00	27.83	1943.30	0.00	64.00	0.000000
5	24.00	135.0	27.83	1943.30	0.00	64.00	24.00	155.00	27.83	1943.30	0.00	64.00	0.000000

Load Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	150.00	Assumed 150 sq. ft.	1	2250.00	150.00	1.00	2825.00	00.000	1.00	0.00	0.00
		Totals:	**1**	**2,250.00**			**2,825.00**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	150.00	(24) 7/8" Coax	0.00	Inside

Shaft Section Properties

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	50.500	49.778	15840.9	27.08	161.60	69.5	617.8	0.0
5.00		0.3125	49.829	49.112	15213.8	26.71	159.45	70.0	601.4	841.3
10.00		0.3125	49.158	48.446	14603.5	26.33	157.30	70.4	585.1	829.9
15.00		0.3125	48.486	47.781	14009.7	25.95	155.16	70.9	569.1	818.6
20.00		0.3125	47.815	47.115	13432.3	25.57	153.01	71.3	553.3	807.3
25.00		0.3125	47.144	46.449	12870.9	25.19	150.86	71.8	537.7	795.9
30.00		0.3125	46.473	45.784	12325.4	24.81	148.71	72.2	522.4	784.6
35.00		0.3125	45.802	45.118	11795.5	24.43	146.57	72.7	507.2	773.3
40.00		0.3125	45.130	44.452	11281.0	24.05	144.42	73.1	492.3	762.0
45.00		0.3125	44.459	43.786	10781.7	23.68	142.27	73.6	477.6	750.6
47.25	Bot - Section 2	0.3125	44.157	43.487	10562.0	23.50	141.30	73.8	471.1	334.1
50.00		0.3125	43.788	43.121	10297.4	23.30	140.12	74.0	463.2	733.6
53.00	Top - Section 1	0.2500	43.885	34.623	8329.1	29.54	175.54	0.0	0.0	793.2
55.00		0.2500	43.617	34.410	8176.3	29.35	174.47	66.9	369.2	234.9
60.00		0.2500	42.946	33.878	7802.5	28.88	171.78	67.4	357.8	580.9
65.00		0.2500	42.274	33.345	7440.3	28.41	169.10	68.0	346.7	571.9
70.00		0.2500	41.603	32.813	7089.4	27.93	166.41	68.5	335.6	562.8
75.00		0.2500	40.932	32.280	6749.8	27.46	163.73	69.1	324.8	553.7
80.00		0.2500	40.261	31.747	6421.2	26.99	161.04	69.7	314.1	544.7
85.00		0.2500	39.590	31.215	6103.4	26.51	158.36	70.2	303.7	535.6
87.00	Bot - Section 3	0.2500	39.321	31.002	5979.3	26.32	157.28	70.4	299.5	211.7
90.00		0.2500	38.918	30.682	5796.3	26.04	155.67	70.8	293.3	593.7
92.00	Top - Section 2	0.2188	39.088	26.992	5152.2	30.09	178.64	0.0	0.0	392.4
95.00		0.2188	38.685	26.713	4993.7	29.76	176.80	66.4	254.3	274.1
100.00		0.2188	38.014	26.246	4736.8	29.22	173.74	67.0	245.4	450.5
105.00		0.2188	37.342	25.780	4488.9	28.68	170.67	67.7	236.8	442.6
110.00		0.2188	36.671	25.314	4249.8	28.14	167.60	68.3	228.3	434.7
115.00	Top - Section 3	0.2188	36.000	24.848	4019.4	27.60	164.53	68.9	219.9	426.7
115.00	Bot - Section 4	0.3750	24.000	27.833	1943.3	16.10	96.00	42.0	161.9	
120.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
125.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
130.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
135.00	Top - Section 4	0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
135.00	Bot - Section 5	0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	
140.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
145.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
150.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
155.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
										19623.7

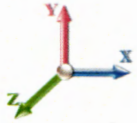
Wind Loading - Shaft

Structure:	FL40914-1-SBA	**Code:**	TIA 222 H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	39.851	43.84	547.01	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	39.851	43.84	539.74	0.730	0.000	5.00	21.224	15.49	679.2	0.0	1009.5
10.00		1.00	0.85	39.851	43.84	532.47	0.730	0.000	5.00	20.940	15.29	670.1	0.0	995.9
15.00		1.00	0.85	39.851	43.84	525.20	0.730	0.000	5.00	20.656	15.08	661.0	0.0	982.3
20.00		1.00	0.90	42.284	46.51	533.50	0.730	0.000	5.00	20.372	14.87	691.7	0.0	968.7
25.00		1.00	0.95	44.318	48.75	538.52	0.730	0.000	5.00	20.088	14.66	714.9	0.0	955.1
30.00		1.00	0.98	46.052	50.66	541.14	0.730	0.000	5.00	19.804	14.46	732.4	0.0	941.5
35.00		1.00	1.01	47.571	52.33	542.05	0.730	0.000	5.00	19.520	14.25	745.7	0.0	928.0
40.00		1.00	1.04	48.927	53.82	541.66	0.730	0.000	5.00	19.236	14.04	755.8	0.0	914.4
45.00		1.00	1.07	50.155	55.17	540.26	0.730	0.000	5.00	18.952	13.84	763.3	0.0	900.8
47.25	Bot - Section 2	1.00	1.08	50.673	55.74	539.36	0.730	0.000	2.25	8.436	6.16	343.3	0.0	400.9
50.00		1.00	1.09	51.280	56.41	538.04	0.730	0.000	2.75	10.349	7.55	426.1	0.0	880.3
53.00	Top - Section 1	1.00	1.11	51.913	57.10	536.37	0.730	0.000	3.00	11.192	8.17	466.5	0.0	951.9
55.00		1.00	1.12	52.320	57.55	541.34	0.730	0.000	2.00	7.404	5.41	311.1	0.0	281.9
60.00		1.00	1.14	53.287	58.62	537.92	0.730	0.000	5.00	18.312	13.37	783.6	0.0	697.1
65.00		1.00	1.16	54.192	59.61	533.99	0.730	0.000	5.00	18.028	13.16	784.5	0.0	686.2
70.00		1.00	1.17	55.045	60.55	529.63	0.730	0.000	5.00	17.744	12.95	784.3	0.0	675.4
75.00		1.00	1.19	55.850	61.43	524.88	0.730	0.000	5.00	17.460	12.75	783.0	0.0	664.5
80.00		1.00	1.21	56.614	62.28	519.79	0.730	0.000	5.00	17.176	12.54	780.8	0.0	653.6
85.00		1.00	1.22	57.341	63.08	514.40	0.730	0.000	5.00	16.892	12.33	777.8	0.0	642.7
87.00	Bot - Section 3	1.00	1.23	57.623	63.38	512.16	0.730	0.000	2.00	6.677	4.87	309.0	0.0	254.1
90.00		1.00	1.24	58.035	63.84	508.73	0.730	0.000	3.00	10.042	7.33	468.0	0.0	712.5
92.00	Top - Section 2	1.00	1.24	58.304	64.13	506.39	0.730	0.000	2.00	6.638	4.85	310.8	0.0	470.9
95.00		1.00	1.25	58.700	64.57	508.56	0.730	0.000	3.00	9.872	7.21	465.3	0.0	328.9
100.00		1.00	1.27	59.337	65.27	502.44	0.730	0.000	5.00	16.225	11.84	773.1	0.0	540.6
105.00		1.00	1.28	59.950	65.94	496.11	0.730	0.000	5.00	15.941	11.64	767.4	0.0	531.1
110.00		1.00	1.29	60.540	66.59	489.59	0.730	0.000	5.00	15.657	11.43	761.2	0.0	521.6
115.00	Top - Section 3	1.00	1.30	61.109	67.22	482.88	0.730	0.000	5.00	15.373	11.22	754.4	0.0	512.1
120.00		1.00	1.32	61.659	67.82	318.45	0.600	0.000	5.00	10.000	6.00	406.9	0.0	568.2
125.00		1.00	1.33	62.191	68.41	319.82	0.600	0.000	5.00	10.000	6.00	410.5	0.0	568.2
130.00		1.00	1.34	62.707	68.98	321.15	0.600	0.000	5.00	10.000	6.00	413.9	0.0	568.2
135.00	Top - Section 4	1.00	1.35	63.207	69.53	322.43	0.600	0.000	5.00	10.000	6.00	417.2	0.0	568.2
140.00		1.00	1.36	63.693	70.06	323.66	0.600	0.000	5.00	10.000	6.00	420.4	0.0	568.2
145.00		1.00	1.37	64.165	70.58	324.86	0.600	0.000	5.00	10.000	6.00	423.5	0.0	568.2
150.00	Appurtenance(s)	1.00	1.38	64.625	71.09	326.02	0.600	0.000	5.00	10.000	6.00	426.5	0.0	568.2
155.00		1.00	1.39	65.072	71.58	327.15	0.600	0.000	5.00	10.000	6.00	429.5	0.0	568.2
								Totals:	**155.00**			**20,612.4**		**23,548.5**

Discrete Appurtenance Forces

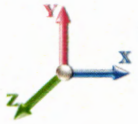
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Assumed 150 sq. ft.	1	64.625	71.087	1.00	1.00	150.00	2700.00	0.000	0.000	10663.04	0.00	0.00
							Totals:		**2,700.00**			**10,663.04**		

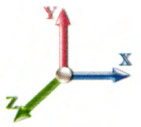
Total Applied Force Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		679.19	1084.38	0.00	0.00
10.00		670.10	1070.79	0.00	0.00
15.00		661.01	1057.20	0.00	0.00
20.00		691.72	1043.61	0.00	0.00
25.00		714.88	1030.02	0.00	0.00
30.00		732.36	1016.42	0.00	0.00
35.00		745.67	1002.83	0.00	0.00
40.00		755.77	989.24	0.00	0.00
45.00		763.30	975.65	0.00	0.00
47.25		343.26	434.61	0.00	0.00
50.00		426.15	921.47	0.00	0.00
53.00		466.54	996.80	0.00	0.00
55.00		311.08	311.84	0.00	0.00
60.00		783.56	771.99	0.00	0.00
65.00		784.52	761.11	0.00	0.00
70.00		784.30	750.24	0.00	0.00
75.00		783.04	739.37	0.00	0.00
80.00		780.84	728.49	0.00	0.00
85.00		777.80	717.62	0.00	0.00
87.00		308.97	284.00	0.00	0.00
90.00		467.98	757.39	0.00	0.00
92.00		310.77	500.85	0.00	0.00
95.00		465.30	373.87	0.00	0.00
100.00		773.10	615.50	0.00	0.00
105.00		767.41	605.99	0.00	0.00
110.00		761.16	596.47	0.00	0.00
115.00		754.38	586.95	0.00	0.00
120.00		406.95	643.13	0.00	0.00
125.00		410.46	643.13	0.00	0.00
130.00		413.86	643.13	0.00	0.00
135.00		417.17	643.13	0.00	0.00
140.00		420.37	643.13	0.00	0.00
145.00		423.49	643.13	0.00	0.00
150.00	(1) attachments	11089.56	3343.13	0.00	0.00
155.00		429.48	568.25	0.00	0.00
	Totals:	**31,275.48**	**28,494.87**	**0.00**	**0.00**

Calculated Forces

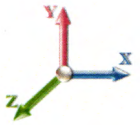
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 139 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.42	-31.35	0.00	-3214.9	0.00	3214.95	3115.65	873.60	3637.68	3222.56	0.00	0.000	0.000	1.008
5.00	-27.18	-30.80	0.00	-3058.2	0.00	3058.21	3093.67	861.92	3541.03	3156.77	0.15	-0.282	0.000	0.979
10.00	-25.97	-30.25	0.00	-2904.2	0.00	2904.23	3071.15	850.24	3445.68	3091.05	0.60	-0.560	0.000	0.949
15.00	-24.78	-29.69	0.00	-2753.0	0.00	2753.00	3048.11	838.55	3351.63	3025.43	1.33	-0.836	0.000	0.919
20.00	-23.61	-29.09	0.00	-2604.5	0.00	2604.54	3024.52	826.87	3258.89	2959.93	2.35	-1.108	0.000	0.889
25.00	-22.47	-28.46	0.00	-2459.0	0.00	2459.08	3000.41	815.19	3167.45	2894.57	3.66	-1.376	0.000	0.858
30.00	-21.34	-27.80	0.00	-2316.7	0.00	2316.78	2975.76	803.50	3077.30	2829.37	5.24	-1.640	0.000	0.827
35.00	-20.24	-27.11	0.00	-2177.7	0.00	2177.78	2950.58	791.82	2988.46	2764.36	7.10	-1.899	0.000	0.796
40.00	-19.16	-26.41	0.00	-2042.2	0.00	2042.21	2924.86	780.14	2900.92	2699.56	9.22	-2.154	0.000	0.764
45.00	-18.14	-25.66	0.00	-1910.1	0.00	1910.17	2898.61	768.45	2814.68	2634.99	11.61	-2.403	0.000	0.732
47.25	-17.67	-25.34	0.00	-1852.4	0.00	1852.43	2886.63	763.19	2776.30	2606.01	12.77	-2.515	0.000	0.718
50.00	-16.70	-24.91	0.00	-1782.7	0.00	1782.74	2871.83	756.77	2729.75	2570.67	14.26	-2.649	0.000	0.700
53.00	-15.68	-24.43	0.00	-1708.0	0.00	1708.00	2077.01	607.64	2199.88	1868.74	15.97	-2.794	0.000	0.923
55.00	-15.30	-24.16	0.00	-1659.1	0.00	1659.14	2071.13	603.90	2172.89	1851.92	17.16	-2.890	0.000	0.905
60.00	-14.46	-23.40	0.00	-1538.3	0.00	1538.35	2056.05	594.55	2106.15	1809.82	20.34	-3.168	0.000	0.859
65.00	-13.64	-22.64	0.00	-1421.3	0.00	1421.33	2040.44	585.21	2040.45	1767.68	23.80	-3.438	0.000	0.812
70.00	-12.85	-21.87	0.00	-1308.1	0.00	1308.13	2024.29	575.86	1975.79	1725.51	27.54	-3.699	0.000	0.766
75.00	-12.07	-21.09	0.00	-1198.7	0.00	1198.79	2007.61	566.51	1912.17	1683.35	31.54	-3.950	0.000	0.720
80.00	-11.31	-20.31	0.00	-1093.3	0.00	1093.35	1990.40	557.17	1849.60	1641.22	35.81	-4.192	0.000	0.673
85.00	-10.60	-19.51	0.00	-991.82	0.00	991.82	1972.65	547.82	1788.06	1599.12	40.32	-4.423	0.000	0.627
87.00	-10.31	-19.20	0.00	-952.81	0.00	952.81	1965.40	544.08	1763.74	1582.31	42.19	-4.513	0.000	0.609
90.00	-9.55	-18.69	0.00	-895.22	0.00	895.22	1954.37	538.47	1727.57	1557.10	45.06	-4.645	0.000	0.581
92.00	-9.05	-18.35	0.00	-857.84	0.00	857.84	1603.59	473.71	1527.67	1285.32	47.03	-4.731	0.000	0.675
95.00	-8.66	-17.88	0.00	-802.79	0.00	802.79	1596.16	468.81	1496.18	1266.03	50.04	-4.856	0.000	0.641
100.00	-8.05	-17.09	0.00	-713.37	0.00	713.37	1583.33	460.63	1444.42	1233.82	55.23	-5.072	0.000	0.585
105.00	-7.46	-16.30	0.00	-627.92	0.00	627.92	1569.98	452.45	1393.58	1201.56	60.65	-5.273	0.000	0.529
110.00	-6.89	-15.50	0.00	-546.43	0.00	546.43	1556.08	444.26	1343.64	1169.27	66.26	-5.459	0.000	0.473
115.00	-6.34	-14.71	0.00	-468.91	0.00	468.91	1541.66	436.08	1294.61	1136.97	72.07	-5.629	0.000	0.418
115.00	-6.34	-14.71	0.00	-468.91	0.00	468.91	1052.07	315.62	43240.3	624.04	72.07	-5.629	0.000	0.760
120.00	-5.69	-14.27	0.00	-395.34	0.00	395.34	1052.07	315.62	43240.3	624.04	78.04	-5.782	0.000	0.641
125.00	-5.03	-13.81	0.00	-324.01	0.00	324.01	1052.07	315.62	43240.3	624.04	84.22	-6.046	0.000	0.526
130.00	-4.39	-13.35	0.00	-254.94	0.00	254.94	1052.07	315.62	43240.3	624.04	90.66	-6.257	0.000	0.414
135.00	-3.77	-12.87	0.00	-188.20	0.00	188.20	1052.07	315.62	43240.3	624.04	97.29	-6.420	0.000	0.307
135.00	-3.77	-12.87	0.00	-188.20	0.00	188.20	1052.07	315.62	43240.3	624.04	97.29	-6.420	0.000	0.307
140.00	-3.16	-12.39	0.00	-123.85	0.00	123.85	1052.07	315.62	43240.3	624.04	104.06	-6.534	0.000	0.203
145.00	-2.56	-11.89	0.00	-61.93	0.00	61.93	1052.07	315.62	43240.3	624.04	110.93	-6.602	0.000	0.103
150.00	-0.51	-0.49	0.00	-2.46	0.00	2.46	1052.07	315.62	43240.3	624.04	117.85	-6.625	0.000	0.004
155.00	0.00	-0.43	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04	124.77	-6.626	0.000	0.000

Wind Loading - Shaft

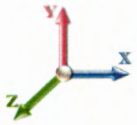
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	39.851	43.84	547.01	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	39.851	43.84	539.74	0.730	0.000	5.00	21.224	15.49	679.2	0.0	757.1
10.00		1.00	0.85	39.851	43.84	532.47	0.730	0.000	5.00	20.940	15.29	670.1	0.0	746.9
15.00		1.00	0.85	39.851	43.84	525.20	0.730	0.000	5.00	20.656	15.08	661.0	0.0	736.7
20.00		1.00	0.90	42.284	46.51	533.50	0.730	0.000	5.00	20.372	14.87	691.7	0.0	726.5
25.00		1.00	0.95	44.318	48.75	538.52	0.730	0.000	5.00	20.088	14.66	714.9	0.0	716.4
30.00		1.00	0.98	46.052	50.66	541.14	0.730	0.000	5.00	19.804	14.46	732.4	0.0	706.2
35.00		1.00	1.01	47.571	52.33	542.05	0.730	0.000	5.00	19.520	14.25	745.7	0.0	696.0
40.00		1.00	1.04	48.927	53.82	541.66	0.730	0.000	5.00	19.236	14.04	755.8	0.0	685.8
45.00		1.00	1.07	50.155	55.17	540.26	0.730	0.000	5.00	18.952	13.84	763.3	0.0	675.6
47.25	Bot - Section 2	1.00	1.08	50.673	55.74	539.36	0.730	0.000	2.25	8.436	6.16	343.3	0.0	300.7
50.00		1.00	1.09	51.280	56.41	538.04	0.730	0.000	2.75	10.349	7.55	426.1	0.0	660.2
53.00	Top - Section 1	1.00	1.11	51.913	57.10	536.37	0.730	0.000	3.00	11.192	8.17	466.5	0.0	713.9
55.00		1.00	1.12	52.320	57.55	541.34	0.730	0.000	2.00	7.404	5.41	311.1	0.0	211.4
60.00		1.00	1.14	53.287	58.62	537.92	0.730	0.000	5.00	18.312	13.37	783.6	0.0	522.8
65.00		1.00	1.16	54.192	59.61	533.99	0.730	0.000	5.00	18.028	13.16	784.5	0.0	514.7
70.00		1.00	1.17	55.045	60.55	529.63	0.730	0.000	5.00	17.744	12.95	784.3	0.0	506.5
75.00		1.00	1.19	55.850	61.43	524.88	0.730	0.000	5.00	17.460	12.75	783.0	0.0	498.4
80.00		1.00	1.21	56.614	62.28	519.79	0.730	0.000	5.00	17.176	12.54	780.8	0.0	490.2
85.00		1.00	1.22	57.341	63.08	514.40	0.730	0.000	5.00	16.892	12.33	777.8	0.0	482.1
87.00	Bot - Section 3	1.00	1.23	57.623	63.38	512.16	0.730	0.000	2.00	6.677	4.87	309.0	0.0	190.5
90.00		1.00	1.24	58.035	63.84	508.73	0.730	0.000	3.00	10.042	7.33	468.0	0.0	534.4
92.00	Top - Section 2	1.00	1.24	58.304	64.13	506.39	0.730	0.000	2.00	6.638	4.85	310.8	0.0	353.2
95.00		1.00	1.25	58.700	64.57	508.56	0.730	0.000	3.00	9.872	7.21	465.3	0.0	246.7
100.00		1.00	1.27	59.337	65.27	502.44	0.730	0.000	5.00	16.225	11.84	773.1	0.0	405.5
105.00		1.00	1.28	59.950	65.94	496.11	0.730	0.000	5.00	15.941	11.64	767.4	0.0	398.3
110.00		1.00	1.29	60.540	66.59	489.59	0.730	0.000	5.00	15.657	11.43	761.2	0.0	391.2
115.00	Top - Section 3	1.00	1.30	61.109	67.22	482.88	0.730	0.000	5.00	15.373	11.22	754.4	0.0	384.1
120.00		1.00	1.32	61.659	67.82	318.45	0.600	0.000	5.00	10.000	6.00	406.9	0.0	426.2
125.00		1.00	1.33	62.191	68.41	319.82	0.600	0.000	5.00	10.000	6.00	410.5	0.0	426.2
130.00		1.00	1.34	62.707	68.98	321.15	0.600	0.000	5.00	10.000	6.00	413.9	0.0	426.2
135.00	Top - Section 4	1.00	1.35	63.207	69.53	322.43	0.600	0.000	5.00	10.000	6.00	417.2	0.0	426.2
140.00		1.00	1.36	63.693	70.06	323.66	0.600	0.000	5.00	10.000	6.00	420.4	0.0	426.2
145.00		1.00	1.37	64.165	70.58	324.86	0.600	0.000	5.00	10.000	6.00	423.5	0.0	426.2
150.00	Appurtenance(s)	1.00	1.38	64.625	71.09	326.02	0.600	0.000	5.00	10.000	6.00	426.5	0.0	426.2
155.00		1.00	1.39	65.072	71.58	327.15	0.600	0.000	5.00	10.000	6.00	429.5	0.0	426.2
								Totals:	**155.00**			**20,612.4**		**17,661.4**

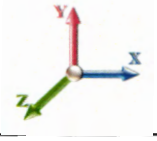
Discrete Appurtenance Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Assumed 150 sq. ft.	1	64.625	71.087	1.00	1.00	150.00	2025.00	0.000	0.000	10663.04	0.00	0.00
							Totals:		**2,025.00**			**10,663.04**		

Total Applied Force Summary

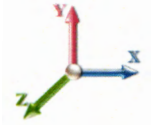
Structure:	FL40914-T-SBA		**Code:**	TIA-222-H	7/11/2022
Site Name:	John & Maria Ferrara		**Exposure:**	C	
Height:	155.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		679.19	813.29	0.00	0.00
10.00		670.10	803.09	0.00	0.00
15.00		661.01	792.90	0.00	0.00
20.00		691.72	782.71	0.00	0.00
25.00		714.88	772.51	0.00	0.00
30.00		732.36	762.32	0.00	0.00
35.00		745.67	752.12	0.00	0.00
40.00		755.77	741.93	0.00	0.00
45.00		763.30	731.74	0.00	0.00
47.25		343.26	325.96	0.00	0.00
50.00		426.15	691.11	0.00	0.00
53.00		466.54	747.60	0.00	0.00
55.00		311.08	233.88	0.00	0.00
60.00		783.56	578.99	0.00	0.00
65.00		784.52	570.84	0.00	0.00
70.00		784.30	562.68	0.00	0.00
75.00		783.04	554.53	0.00	0.00
80.00		780.84	546.37	0.00	0.00
85.00		777.80	538.21	0.00	0.00
87.00		308.97	213.00	0.00	0.00
90.00		467.98	568.05	0.00	0.00
92.00		310.77	375.64	0.00	0.00
95.00		465.30	280.40	0.00	0.00
100.00		773.10	461.63	0.00	0.00
105.00		767.41	454.49	0.00	0.00
110.00		761.16	447.35	0.00	0.00
115.00		754.38	440.22	0.00	0.00
120.00		406.95	482.35	0.00	0.00
125.00		410.46	482.35	0.00	0.00
130.00		413.86	482.35	0.00	0.00
135.00		417.17	482.35	0.00	0.00
140.00		420.37	482.35	0.00	0.00
145.00		423.49	482.35	0.00	0.00
150.00	(1) attachments	11089.56	2507.35	0.00	0.00
155.00		429.48	426.19	0.00	0.00
	Totals:	**31,275.48**	**21,371.15**	**0.00**	**0.00**

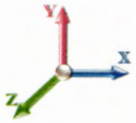
Calculated Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Load Case: 0.9D + 1.0W 139 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-21.29	-31.33	0.00	-3187.5	0.00	3187.51	3115.65	873.60	3637.68	3222.56	0.00	0.000	0.000	0.997
5.00	-20.33	-30.75	0.00	-3030.8	0.00	3030.87	3093.67	861.92	3541.03	3156.77	0.15	-0.279	0.000	0.968
10.00	-19.39	-30.16	0.00	-2877.1	0.00	2877.14	3071.15	850.24	3445.68	3091.05	0.59	-0.555	0.000	0.938
15.00	-18.47	-29.58	0.00	-2726.3	0.00	2726.33	3048.11	838.55	3351.63	3025.43	1.32	-0.828	0.000	0.908
20.00	-17.56	-28.96	0.00	-2578.4	0.00	2578.43	3024.52	826.87	3258.89	2959.93	2.33	-1.098	0.000	0.878
25.00	-16.67	-28.30	0.00	-2433.6	0.00	2433.64	3000.41	815.19	3167.45	2894.57	3.62	-1.363	0.000	0.848
30.00	-15.81	-27.62	0.00	-2292.1	0.00	2292.12	2975.76	803.50	3077.30	2829.37	5.19	-1.624	0.000	0.817
35.00	-14.96	-26.92	0.00	-2154.0	0.00	2154.01	2950.58	791.82	2988.46	2764.36	7.03	-1.881	0.000	0.785
40.00	-14.13	-26.20	0.00	-2019.4	0.00	2019.40	2924.86	780.14	2900.92	2699.56	9.13	-2.132	0.000	0.754
45.00	-13.35	-25.45	0.00	-1888.3	0.00	1888.39	2898.61	768.45	2814.68	2634.99	11.50	-2.379	0.000	0.722
47.25	-12.98	-25.12	0.00	-1831.1	0.00	1831.13	2886.63	763.19	2776.30	2606.01	12.65	-2.489	0.000	0.708
50.00	-12.25	-24.70	0.00	-1762.0	0.00	1762.04	2871.83	756.77	2729.75	2570.67	14.12	-2.622	0.000	0.691
53.00	-11.48	-24.22	0.00	-1687.9	0.00	1687.95	2077.01	607.64	2199.88	1868.74	15.81	-2.765	0.000	0.910
55.00	-11.18	-23.93	0.00	-1639.5	0.00	1639.52	2071.13	603.90	2172.89	1851.92	16.99	-2.860	0.000	0.892
60.00	-10.54	-23.17	0.00	-1519.8	0.00	1519.86	2056.05	594.55	2106.15	1809.82	20.14	-3.135	0.000	0.846
65.00	-9.91	-22.40	0.00	-1404.0	0.00	1404.01	2040.44	585.21	2040.45	1767.68	23.56	-3.401	0.000	0.801
70.00	-9.30	-21.62	0.00	-1292.0	0.00	1292.01	2024.29	575.86	1975.79	1725.51	27.26	-3.659	0.000	0.755
75.00	-8.71	-20.84	0.00	-1183.9	0.00	1183.90	2007.61	566.51	1912.17	1683.35	31.22	-3.907	0.000	0.709
80.00	-8.14	-20.06	0.00	-1079.6	0.00	1079.69	1990.40	557.17	1849.60	1641.22	35.44	-4.146	0.000	0.663
85.00	-7.61	-19.26	0.00	-979.39	0.00	979.39	1972.65	547.82	1788.06	1599.12	39.90	-4.374	0.000	0.618
87.00	-7.38	-18.95	0.00	-940.87	0.00	940.87	1965.40	544.08	1763.74	1582.31	41.75	-4.463	0.000	0.600
90.00	-6.82	-18.46	0.00	-884.01	0.00	884.01	1954.37	538.47	1727.57	1557.10	44.60	-4.594	0.000	0.572
92.00	-6.43	-18.13	0.00	-847.10	0.00	847.10	1603.59	473.71	1527.67	1285.32	46.54	-4.679	0.000	0.665
95.00	-6.14	-17.66	0.00	-792.72	0.00	792.72	1596.16	468.81	1496.18	1266.03	49.51	-4.802	0.000	0.631
100.00	-5.69	-16.87	0.00	-704.43	0.00	704.43	1583.33	460.63	1444.42	1233.82	54.65	-5.015	0.000	0.576
105.00	-5.25	-16.08	0.00	-620.08	0.00	620.08	1569.98	452.45	1393.58	1201.56	60.01	-5.214	0.000	0.521
110.00	-4.83	-15.30	0.00	-539.68	0.00	539.68	1556.08	444.26	1343.64	1169.27	65.56	-5.398	0.000	0.466
115.00	-4.42	-14.52	0.00	-463.19	0.00	463.19	1541.66	436.08	1294.61	1136.97	71.30	-5.566	0.000	0.411
115.00	-4.42	-14.52	0.00	-463.19	0.00	463.19	1052.07	315.62	43240.3	624.04	71.30	-5.566	0.000	0.749
120.00	-3.93	-14.08	0.00	-390.61	0.00	390.61	1052.07	315.62	43240.3	624.04	77.20	-5.717	0.000	0.632
125.00	-3.44	-13.64	0.00	-320.22	0.00	320.22	1052.07	315.62	43240.3	624.04	83.32	-5.977	0.000	0.518
130.00	-2.96	-13.18	0.00	-252.04	0.00	252.04	1052.07	315.62	43240.3	624.04	89.68	-6.186	0.000	0.408
135.00	-2.49	-12.72	0.00	-186.13	0.00	186.13	1052.07	315.62	43240.3	624.04	96.24	-6.347	0.000	0.302
135.00	-2.49	-12.72	0.00	-186.13	0.00	186.13	1052.07	315.62	43240.3	624.04	96.24	-6.347	0.000	0.302
140.00	-2.04	-12.25	0.00	-122.53	0.00	122.53	1052.07	315.62	43240.3	624.04	102.93	-6.460	0.000	0.200
145.00	-1.60	-11.78	0.00	-61.27	0.00	61.27	1052.07	315.62	43240.3	624.04	109.72	-6.527	0.000	0.101
150.00	-0.37	-0.48	0.00	-2.38	0.00	2.38	1052.07	315.62	43240.3	624.04	116.56	-6.550	0.000	0.004
155.00	0.00	-0.43	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04	123.41	-6.551	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

TES Tower Engineering Solutions

Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.06			**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.05			**Ss**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02			**S1**	0.03
								Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		916.13	2.50	11.34	0.01	
10.00		904.81	7.50	11.20	0.07	
15.00		893.48	12.50	11.06	0.18	
20.00		882.15	17.50	10.92	0.35	
25.00		870.83	22.50	10.78	0.55	
30.00		859.50	27.50	10.63	0.80	
35.00		848.17	32.50	10.49	1.08	
40.00		836.85	37.50	10.35	1.39	
45.00		825.52	42.50	10.21	1.73	
47.25	Bot - Section 2	367.79	46.13	4.55	0.42	
50.00		774.76	48.63	9.59	1.99	
53.00	Top - Section 1	838.16	51.50	10.37	2.60	
55.00		264.86	54.00	3.28	0.30	
60.00		655.80	57.50	8.11	1.99	
65.00		646.74	62.50	8.00	2.28	
70.00		637.68	67.50	7.89	2.58	
75.00		628.62	72.50	7.78	2.89	
80.00		619.56	77.50	7.67	3.20	
85.00		610.50	82.50	7.55	3.52	
87.00	Bot - Section 3	241.66	86.00	2.99	0.62	
90.00		638.65	88.50	7.90	4.41	
92.00	Top - Section 2	422.37	91.00	5.23	2.07	
95.00		319.05	93.50	3.95	1.26	
100.00		525.40	97.50	6.50	3.63	
105.00		517.47	102.50	6.40	3.89	
110.00		509.54	107.50	6.30	4.14	
115.00	Top - Section 3	501.61	112.50	6.21	4.39	
120.00		548.42	117.50	6.79	5.70	
125.00		548.42	122.50	6.79	6.18	
130.00		548.42	127.50	6.79	6.69	
135.00	Top - Section 4	548.42	132.50	6.79	7.21	
140.00		548.42	137.50	6.79	7.75	
145.00		548.42	142.50	6.79	8.32	
150.00	Appurtenance(s)	2798.4	147.50	34.63	216.93	
155.00		473.54	152.50	5.86	7.12	
	Totals:	**24,120.1**		**298.4**	**318.3**	**Total Wind:** **31,275.5**

Calculated Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.06			**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.05			**Ss**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02	**Seismic Importance Factor**	1.00	**S1**	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.79	-0.32	0.00	-45.07	0.00	45.07	3115.65	873.60	3637.68	3222.56		0.00	0.00	0.023
5.00	-27.70	-0.32	0.00	-43.47	0.00	43.47	3093.67	861.92	3541.03	3156.77		0.00	0.00	0.023
10.00	-26.62	-0.32	0.00	-41.87	0.00	41.87	3071.15	850.24	3445.68	3091.05		0.01	-0.01	0.022
15.00	-25.55	-0.32	0.00	-40.26	0.00	40.26	3048.11	838.55	3351.63	3025.43		0.02	-0.01	0.022
20.00	-24.49	-0.32	0.00	-38.64	0.00	38.64	3024.52	826.87	3258.89	2959.93		0.03	-0.02	0.021
25.00	-23.45	-0.33	0.00	-37.02	0.00	37.02	3000.41	815.19	3167.45	2894.57		0.05	-0.02	0.021
30.00	-22.42	-0.33	0.00	-35.39	0.00	35.39	2975.76	803.50	3077.30	2829.37		0.08	-0.02	0.020
35.00	-21.41	-0.33	0.00	-33.76	0.00	33.76	2950.58	791.82	2988.46	2764.36		0.10	-0.03	0.019
40.00	-20.41	-0.33	0.00	-32.13	0.00	32.13	2924.86	780.14	2900.92	2699.56		0.13	-0.03	0.019
45.00	-19.43	-0.32	0.00	-30.51	0.00	30.51	2898.61	768.45	2814.68	2634.99		0.17	-0.04	0.018
47.25	-18.99	-0.32	0.00	-29.78	0.00	29.78	2886.63	763.19	2776.30	2606.01		0.19	-0.04	0.018
50.00	-18.06	-0.32	0.00	-28.89	0.00	28.89	2871.83	756.77	2729.75	2570.67		0.21	-0.04	0.018
53.00	-17.05	-0.32	0.00	-27.92	0.00	27.92	2077.01	607.64	2199.88	1868.74		0.24	-0.04	0.023
55.00	-16.73	-0.32	0.00	-27.28	0.00	27.28	2071.13	603.90	2172.89	1851.92		0.25	-0.04	0.023
60.00	-15.95	-0.32	0.00	-25.68	0.00	25.68	2056.05	594.55	2106.15	1809.82		0.30	-0.05	0.022
65.00	-15.18	-0.32	0.00	-24.09	0.00	24.09	2040.44	585.21	2040.45	1767.68		0.35	-0.05	0.021
70.00	-14.43	-0.31	0.00	-22.51	0.00	22.51	2024.29	575.86	1975.79	1725.51		0.41	-0.06	0.020
75.00	-13.68	-0.31	0.00	-20.94	0.00	20.94	2007.61	566.51	1912.17	1683.35		0.47	-0.06	0.019
80.00	-12.94	-0.31	0.00	-19.38	0.00	19.38	1990.40	557.17	1849.60	1641.22		0.54	-0.07	0.018
85.00	-12.22	-0.30	0.00	-17.84	0.00	17.84	1972.65	547.82	1788.06	1599.12		0.61	-0.07	0.017
87.00	-11.93	-0.30	0.00	-17.23	0.00	17.23	1965.40	544.08	1763.74	1582.31		0.64	-0.07	0.017
90.00	-11.17	-0.30	0.00	-16.31	0.00	16.31	1954.37	538.47	1727.57	1557.10		0.69	-0.07	0.016
92.00	-10.66	-0.30	0.00	-15.71	0.00	15.71	1603.59	473.71	1527.67	1285.32		0.72	-0.08	0.019
95.00	-10.28	-0.30	0.00	-14.82	0.00	14.82	1596.16	468.81	1496.18	1266.03		0.77	-0.08	0.018
100.00	-9.66	-0.29	0.00	-13.34	0.00	13.34	1583.33	460.63	1444.42	1233.82		0.85	-0.08	0.017
105.00	-9.05	-0.29	0.00	-11.88	0.00	11.88	1569.98	452.45	1393.58	1201.56		0.94	-0.09	0.016
110.00	-8.44	-0.28	0.00	-10.44	0.00	10.44	1556.08	444.26	1343.64	1169.27		1.03	-0.09	0.014
115.00	-7.85	-0.28	0.00	-9.03	0.00	9.03	1541.66	436.08	1294.61	1136.97		1.13	-0.09	0.013
115.00	-7.85	-0.28	0.00	-9.03	0.00	9.03	1052.07	315.62	43240.3	624.04		1.13	-0.09	0.022
120.00	-7.20	-0.27	0.00	-7.63	0.00	7.63	1052.07	315.62	43240.3	624.04		1.23	-0.10	0.019
125.00	-6.55	-0.27	0.00	-6.27	0.00	6.27	1052.07	315.62	43240.3	624.04		1.33	-0.10	0.016
130.00	-5.90	-0.26	0.00	-4.94	0.00	4.94	1052.07	315.62	43240.3	624.04		1.44	-0.10	0.014
135.00	-5.25	-0.25	0.00	-3.65	0.00	3.65	1052.07	315.62	43240.3	624.04		1.55	-0.11	0.011
135.00	-5.25	-0.25	0.00	-3.65	0.00	3.65	1052.07	315.62	43240.3	624.04		1.55	-0.11	0.011
140.00	-4.60	-0.24	0.00	-2.40	0.00	2.40	1052.07	315.62	43240.3	624.04		1.66	-0.11	0.008
145.00	-3.95	-0.23	0.00	-1.20	0.00	1.20	1052.07	315.62	43240.3	624.04		1.78	-0.11	0.006
150.00	-0.57	-0.01	0.00	-0.04	0.00	0.04	1052.07	315.62	43240.3	624.04		1.90	-0.11	0.001
155.00	0.00	-0.01	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04		2.01	-0.11	0.000

Seismic Segment Forces (Factored)

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.06	**Iterations**	21
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.05	**Ss**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02	**S1**	0.03
						Seismic Importance Factor	1.00

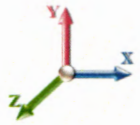
Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		897.41	2.50	11.10	0.01	
10.00		886.09	7.50	10.96	0.07	
15.00		874.76	12.50	10.82	0.18	
20.00		863.43	17.50	10.68	0.34	
25.00		852.11	22.50	10.54	0.54	
30.00		840.78	27.50	10.40	0.79	
35.00		829.45	32.50	10.26	1.06	
40.00		818.13	37.50	10.12	1.37	
45.00		806.80	42.50	9.98	1.70	
47.25	Bot - Section 2	359.37	46.13	4.45	0.41	
50.00		764.46	48.63	9.46	1.99	
53.00	Top - Section 1	826.93	51.50	10.23	2.60	
55.00		257.37	54.00	3.18	0.29	
60.00		637.08	57.50	7.88	1.94	
65.00		628.02	62.50	7.77	2.22	
70.00		618.96	67.50	7.66	2.50	
75.00		609.90	72.50	7.55	2.80	
80.00		600.84	77.50	7.43	3.10	
85.00		591.78	82.50	7.32	3.40	
87.00	Bot - Section 3	234.17	86.00	2.90	0.60	
90.00		627.42	88.50	7.76	4.37	
92.00	Top - Section 2	414.88	91.00	5.13	2.05	
95.00		307.81	93.50	3.81	1.21	
100.00		506.68	97.50	6.27	3.48	
105.00		498.75	102.50	6.17	3.72	
110.00		490.82	107.50	6.07	3.96	
115.00	Top - Section 3	482.89	112.50	5.97	4.19	
120.00		529.70	117.50	6.55	5.47	
125.00		529.70	122.50	6.55	5.93	
130.00		529.70	127.50	6.55	6.42	
135.00	Top - Section 4	529.70	132.50	6.55	6.92	
140.00		529.70	137.50	6.55	7.44	
145.00		529.70	142.50	6.55	7.98	
150.00	Appurtenance(s)	2779.7	147.50	34.39	219.91	
155.00		473.54	152.50	5.86	7.32	
	Totals:	**23,558.5**		**291.5**	**318.3**	**Total Wind:** 31,275.5

Calculated Forces

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh



Gust Response Factor	1.10			**Sds**	0.06			**Iterations**	21
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.05			**Ss**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.02	**Seismic Importance Factor**	1.00	**S1**	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-21.66	-0.32	0.00	-44.76	0.00	44.76	3115.65	873.60	3637.68	3222.56		0.00	0.00	0.021
5.00	-20.84	-0.32	0.00	-43.17	0.00	43.17	3093.67	861.92	3541.03	3156.77		0.00	0.00	0.020
10.00	-20.02	-0.32	0.00	-41.57	0.00	41.57	3071.15	850.24	3445.68	3091.05		0.01	-0.01	0.020
15.00	-19.22	-0.32	0.00	-39.97	0.00	39.97	3048.11	838.55	3351.63	3025.43		0.02	-0.01	0.020
20.00	-18.43	-0.32	0.00	-38.36	0.00	38.36	3024.52	826.87	3258.89	2959.93		0.03	-0.02	0.019
25.00	-17.64	-0.32	0.00	-36.74	0.00	36.74	3000.41	815.19	3167.45	2894.57		0.05	-0.02	0.019
30.00	-16.87	-0.32	0.00	-35.13	0.00	35.13	2975.76	803.50	3077.30	2829.37		0.07	-0.02	0.018
35.00	-16.11	-0.32	0.00	-33.51	0.00	33.51	2950.58	791.82	2988.46	2764.36		0.10	-0.03	0.018
40.00	-15.36	-0.32	0.00	-31.89	0.00	31.89	2924.86	780.14	2900.92	2699.56		0.13	-0.03	0.017
45.00	-14.61	-0.32	0.00	-30.28	0.00	30.28	2898.61	768.45	2814.68	2634.99		0.17	-0.04	0.017
47.25	-14.28	-0.32	0.00	-29.56	0.00	29.56	2886.63	763.19	2776.30	2606.01		0.19	-0.04	0.016
50.00	-13.58	-0.32	0.00	-28.68	0.00	28.68	2871.83	756.77	2729.75	2570.67		0.21	-0.04	0.016
53.00	-12.83	-0.32	0.00	-27.72	0.00	27.72	2077.01	607.64	2199.88	1868.74		0.23	-0.04	0.021
55.00	-12.59	-0.32	0.00	-27.09	0.00	27.09	2071.13	603.90	2172.89	1851.92		0.25	-0.04	0.021
60.00	-12.00	-0.32	0.00	-25.51	0.00	25.51	2056.05	594.55	2106.15	1809.82		0.30	-0.05	0.020
65.00	-11.42	-0.31	0.00	-23.93	0.00	23.93	2040.44	585.21	2040.45	1767.68		0.35	-0.05	0.019
70.00	-10.85	-0.31	0.00	-22.37	0.00	22.37	2024.29	575.86	1975.79	1725.51		0.41	-0.06	0.018
75.00	-10.29	-0.31	0.00	-20.81	0.00	20.81	2007.61	566.51	1912.17	1683.35		0.47	-0.06	0.017
80.00	-9.74	-0.31	0.00	-19.27	0.00	19.27	1990.40	557.17	1849.60	1641.22		0.54	-0.07	0.017
85.00	-9.19	-0.30	0.00	-17.74	0.00	17.74	1972.65	547.82	1788.06	1599.12		0.61	-0.07	0.016
87.00	-8.98	-0.30	0.00	-17.14	0.00	17.14	1965.40	544.08	1763.74	1582.31		0.64	-0.07	0.015
90.00	-8.40	-0.30	0.00	-16.23	0.00	16.23	1954.37	538.47	1727.57	1557.10		0.68	-0.07	0.015
92.00	-8.02	-0.29	0.00	-15.64	0.00	15.64	1603.59	473.71	1527.67	1285.32		0.72	-0.08	0.017
95.00	-7.73	-0.29	0.00	-14.76	0.00	14.76	1596.16	468.81	1496.18	1266.03		0.76	-0.08	0.017
100.00	-7.27	-0.29	0.00	-13.29	0.00	13.29	1583.33	460.63	1444.42	1233.82		0.85	-0.08	0.015
105.00	-6.81	-0.29	0.00	-11.85	0.00	11.85	1569.98	452.45	1393.58	1201.56		0.93	-0.09	0.014
110.00	-6.35	-0.28	0.00	-10.42	0.00	10.42	1556.08	444.26	1343.64	1169.27		1.02	-0.09	0.013
115.00	-5.91	-0.28	0.00	-9.01	0.00	9.01	1541.66	436.08	1294.61	1136.97		1.12	-0.09	0.012
115.00	-5.91	-0.28	0.00	-9.01	0.00	9.01	1052.07	315.62	43240.3	624.04		1.12	-0.09	0.020
120.00	-5.42	-0.27	0.00	-7.63	0.00	7.63	1052.07	315.62	43240.3	624.04		1.22	-0.09	0.017
125.00	-4.93	-0.26	0.00	-6.27	0.00	6.27	1052.07	315.62	43240.3	624.04		1.32	-0.10	0.015
130.00	-4.44	-0.26	0.00	-4.95	0.00	4.95	1052.07	315.62	43240.3	624.04		1.43	-0.10	0.012
135.00	-3.95	-0.25	0.00	-3.66	0.00	3.66	1052.07	315.62	43240.3	624.04		1.54	-0.11	0.010
135.00	-3.95	-0.25	0.00	-3.66	0.00	3.66	1052.07	315.62	43240.3	624.04		1.54	-0.11	0.010
140.00	-3.46	-0.24	0.00	-2.41	0.00	2.41	1052.07	315.62	43240.3	624.04		1.65	-0.11	0.007
145.00	-2.97	-0.23	0.00	-1.21	0.00	1.21	1052.07	315.62	43240.3	624.04		1.77	-0.11	0.005
150.00	-0.43	-0.01	0.00	-0.04	0.00	0.04	1052.07	315.62	43240.3	624.04		1.88	-0.11	0.000
155.00	0.00	-0.01	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04		2.00	-0.11	0.000

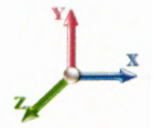
Wind Loading - Shaft

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	6.644	7.31	236.12	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.644	7.31	232.98	0.730	0.000	5.00	21.224	15.49	113.2	0.0	841.3
10.00		1.00	0.85	6.644	7.31	229.84	0.730	0.000	5.00	20.940	15.29	111.7	0.0	829.9
15.00		1.00	0.85	6.644	7.31	226.71	0.730	0.000	5.00	20.656	15.08	110.2	0.0	818.6
20.00		1.00	0.90	7.049	7.75	230.29	0.730	0.000	5.00	20.372	14.87	115.3	0.0	807.3
25.00		1.00	0.95	7.388	8.13	232.45	0.730	0.000	5.00	20.088	14.66	119.2	0.0	795.9
30.00		1.00	0.98	7.677	8.45	233.58	0.730	0.000	5.00	19.804	14.46	122.1	0.0	784.6
35.00		1.00	1.01	7.931	8.72	233.98	0.730	0.000	5.00	19.520	14.25	124.3	0.0	773.3
40.00		1.00	1.04	8.157	8.97	233.81	0.730	0.000	5.00	19.236	14.04	126.0	0.0	762.0
45.00		1.00	1.07	8.362	9.20	233.21	0.730	0.000	5.00	18.952	13.84	127.3	0.0	750.6
47.25	Bot - Section 2	1.00	1.08	8.448	9.29	232.82	0.730	0.000	2.25	8.436	6.16	57.2	0.0	334.1
50.00		1.00	1.09	8.549	9.40	232.25	0.730	0.000	2.75	10.349	7.55	71.0	0.0	733.6
53.00	Top - Section 1	1.00	1.11	8.655	9.52	231.53	0.730	0.000	3.00	11.192	8.17	77.8	0.0	793.2
55.00		1.00	1.12	8.722	9.59	233.67	0.730	0.000	2.00	7.404	5.41	51.9	0.0	234.9
60.00		1.00	1.14	8.884	9.77	232.19	0.730	0.000	5.00	18.312	13.37	130.6	0.0	580.9
65.00		1.00	1.16	9.035	9.94	230.50	0.730	0.000	5.00	18.028	13.16	130.8	0.0	571.9
70.00		1.00	1.17	9.177	10.09	228.62	0.730	0.000	5.00	17.744	12.95	130.8	0.0	562.8
75.00		1.00	1.19	9.311	10.24	226.57	0.730	0.000	5.00	17.460	12.75	130.5	0.0	553.7
80.00		1.00	1.21	9.438	10.38	224.37	0.730	0.000	5.00	17.176	12.54	130.2	0.0	544.7
85.00		1.00	1.22	9.559	10.52	222.04	0.730	0.000	5.00	16.892	12.33	129.7	0.0	535.6
87.00	Bot - Section 3	1.00	1.23	9.606	10.57	221.08	0.730	0.000	2.00	6.677	4.87	51.5	0.0	211.7
90.00		1.00	1.24	9.675	10.64	219.60	0.730	0.000	3.00	10.042	7.33	78.0	0.0	593.7
92.00	Top - Section 2	1.00	1.24	9.720	10.69	218.59	0.730	0.000	2.00	6.638	4.85	51.8	0.0	392.4
95.00		1.00	1.25	9.786	10.76	219.52	0.730	0.000	3.00	9.872	7.21	77.6	0.0	274.1
100.00		1.00	1.27	9.892	10.88	216.88	0.730	0.000	5.00	16.225	11.84	128.9	0.0	450.5
105.00		1.00	1.28	9.994	10.99	214.15	0.730	0.000	5.00	15.941	11.64	127.9	0.0	442.6
110.00		1.00	1.29	10.093	11.10	211.33	0.730	0.000	5.00	15.657	11.43	126.9	0.0	434.7
115.00	Top - Section 3	1.00	1.30	10.188	11.21	208.44	0.730	0.000	5.00	15.373	11.22	125.8	0.0	426.7
120.00		1.00	1.32	10.279	11.31	137.46	0.600	0.000	5.00	10.000	6.00	67.8	0.0	473.5
125.00		1.00	1.33	10.368	11.40	138.05	0.600	0.000	5.00	10.000	6.00	68.4	0.0	473.5
130.00		1.00	1.34	10.454	11.50	138.62	0.600	0.000	5.00	10.000	6.00	69.0	0.0	473.5
135.00	Top - Section 4	1.00	1.35	10.537	11.59	139.18	0.600	0.000	5.00	10.000	6.00	69.5	0.0	473.5
140.00		1.00	1.36	10.618	11.68	139.71	0.600	0.000	5.00	10.000	6.00	70.1	0.0	473.5
145.00		1.00	1.37	10.697	11.77	140.23	0.600	0.000	5.00	10.000	6.00	70.6	0.0	473.5
150.00	Appurtenance(s)	1.00	1.38	10.774	11.85	140.73	0.600	0.000	5.00	10.000	6.00	71.1	0.0	473.5
155.00		1.00	1.39	10.848	11.93	141.22	0.600	0.000	5.00	10.000	6.00	71.6	0.0	473.5
								Totals:	**155.00**			**3,436.4**		**19,623.7**

Discrete Appurtenance Forces

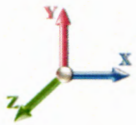
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Assumed 150 sq. ft.	1	10.774	11.851	1.00	1.00	150.00	2250.00	0.000	0.000	1777.66	0.00	0.00
							Totals:		**2,250.00**			**1,777.66**		

Total Applied Force Summary

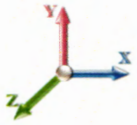
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		113.23	903.65	0.00	0.00
10.00		111.71	892.33	0.00	0.00
15.00		110.20	881.00	0.00	0.00
20.00		115.32	869.67	0.00	0.00
25.00		119.18	858.35	0.00	0.00
30.00		122.09	847.02	0.00	0.00
35.00		124.31	835.69	0.00	0.00
40.00		126.00	824.37	0.00	0.00
45.00		127.25	813.04	0.00	0.00
47.25		57.23	362.17	0.00	0.00
50.00		71.04	767.89	0.00	0.00
53.00		77.78	830.67	0.00	0.00
55.00		51.86	259.87	0.00	0.00
60.00		130.63	643.32	0.00	0.00
65.00		130.79	634.26	0.00	0.00
70.00		130.75	625.20	0.00	0.00
75.00		130.54	616.14	0.00	0.00
80.00		130.18	607.08	0.00	0.00
85.00		129.67	598.02	0.00	0.00
87.00		51.51	236.67	0.00	0.00
90.00		78.02	631.16	0.00	0.00
92.00		51.81	417.38	0.00	0.00
95.00		77.57	311.56	0.00	0.00
100.00		128.89	512.92	0.00	0.00
105.00		127.94	504.99	0.00	0.00
110.00		126.89	497.06	0.00	0.00
115.00		125.76	489.13	0.00	0.00
120.00		67.84	535.94	0.00	0.00
125.00		68.43	535.94	0.00	0.00
130.00		69.00	535.94	0.00	0.00
135.00		69.55	535.94	0.00	0.00
140.00		70.08	535.94	0.00	0.00
145.00		70.60	535.94	0.00	0.00
150.00	(1) attachments	1848.77	2785.94	0.00	0.00
155.00		71.60	473.54	0.00	0.00
	Totals:	**5,214.01**	**23,745.72**	**0.00**	**0.00**

Calculated Forces

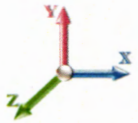
Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-23.74	-5.22	0.00	-533.95	0.00	533.95	3115.65	873.60	3637.68	3222.56	0.00	0.000	0.000	0.173
5.00	-22.84	-5.13	0.00	-507.83	0.00	507.83	3093.67	861.92	3541.03	3156.77	0.03	-0.047	0.000	0.168
10.00	-21.94	-5.03	0.00	-482.19	0.00	482.19	3071.15	850.24	3445.68	3091.05	0.10	-0.093	0.000	0.163
15.00	-21.05	-4.94	0.00	-457.03	0.00	457.03	3048.11	838.55	3351.63	3025.43	0.22	-0.139	0.000	0.158
20.00	-20.18	-4.84	0.00	-432.34	0.00	432.34	3024.52	826.87	3258.89	2959.93	0.39	-0.184	0.000	0.153
25.00	-19.32	-4.73	0.00	-408.16	0.00	408.16	3000.41	815.19	3167.45	2894.57	0.61	-0.228	0.000	0.147
30.00	-18.47	-4.62	0.00	-384.52	0.00	384.52	2975.76	803.50	3077.30	2829.37	0.87	-0.272	0.000	0.142
35.00	-17.63	-4.50	0.00	-361.43	0.00	361.43	2950.58	791.82	2988.46	2764.36	1.18	-0.315	0.000	0.137
40.00	-16.81	-4.38	0.00	-338.93	0.00	338.93	2924.86	780.14	2900.92	2699.56	1.53	-0.358	0.000	0.131
45.00	-15.99	-4.26	0.00	-317.02	0.00	317.02	2898.61	768.45	2814.68	2634.99	1.93	-0.399	0.000	0.126
47.25	-15.63	-4.20	0.00	-307.44	0.00	307.44	2886.63	763.19	2776.30	2606.01	2.12	-0.417	0.000	0.123
50.00	-14.86	-4.13	0.00	-295.88	0.00	295.88	2871.83	756.77	2729.75	2570.67	2.37	-0.440	0.000	0.120
53.00	-14.03	-4.05	0.00	-283.48	0.00	283.48	2077.01	607.64	2199.88	1868.74	2.65	-0.464	0.000	0.158
55.00	-13.77	-4.01	0.00	-275.37	0.00	275.37	2071.13	603.90	2172.89	1851.92	2.85	-0.480	0.000	0.155
60.00	-13.12	-3.88	0.00	-255.33	0.00	255.33	2056.05	594.55	2106.15	1809.82	3.38	-0.526	0.000	0.148
65.00	-12.48	-3.75	0.00	-235.92	0.00	235.92	2040.44	585.21	2040.45	1767.68	3.95	-0.571	0.000	0.140
70.00	-11.86	-3.63	0.00	-217.15	0.00	217.15	2024.29	575.86	1975.79	1725.51	4.57	-0.614	0.000	0.132
75.00	-11.24	-3.50	0.00	-199.02	0.00	199.02	2007.61	566.51	1912.17	1683.35	5.24	-0.656	0.000	0.124
80.00	-10.63	-3.37	0.00	-181.54	0.00	181.54	1990.40	557.17	1849.60	1641.22	5.95	-0.696	0.000	0.116
85.00	-10.03	-3.23	0.00	-164.71	0.00	164.71	1972.65	547.82	1788.06	1599.12	6.70	-0.734	0.000	0.108
87.00	-9.80	-3.18	0.00	-158.24	0.00	158.24	1965.40	544.08	1763.74	1582.31	7.01	-0.749	0.000	0.105
90.00	-9.17	-3.10	0.00	-148.69	0.00	148.69	1954.37	538.47	1727.57	1557.10	7.48	-0.771	0.000	0.100
92.00	-8.75	-3.04	0.00	-142.50	0.00	142.50	1603.59	473.71	1527.67	1285.32	7.81	-0.785	0.000	0.116
95.00	-8.44	-2.97	0.00	-133.36	0.00	133.36	1596.16	468.81	1496.18	1266.03	8.31	-0.806	0.000	0.111
100.00	-7.92	-2.84	0.00	-118.53	0.00	118.53	1583.33	460.63	1444.42	1233.82	9.18	-0.842	0.000	0.101
105.00	-7.42	-2.70	0.00	-104.35	0.00	104.35	1569.98	452.45	1393.58	1201.56	10.08	-0.875	0.000	0.092
110.00	-6.92	-2.57	0.00	-90.84	0.00	90.84	1556.08	444.26	1343.64	1169.27	11.01	-0.906	0.000	0.082
115.00	-6.44	-2.44	0.00	-77.97	0.00	77.97	1541.66	436.08	1294.61	1136.97	11.97	-0.935	0.000	0.073
115.00	-6.44	-2.44	0.00	-77.97	0.00	77.97	1052.07	315.62	43240.3	624.04	11.97	-0.935	0.000	0.131
120.00	-5.90	-2.37	0.00	-65.76	0.00	65.76	1052.07	315.62	43240.3	624.04	12.97	-0.960	0.000	0.111
125.00	-5.36	-2.30	0.00	-53.91	0.00	53.91	1052.07	315.62	43240.3	624.04	14.00	-1.004	0.000	0.092
130.00	-4.83	-2.22	0.00	-42.44	0.00	42.44	1052.07	315.62	43240.3	624.04	15.07	-1.039	0.000	0.073
135.00	-4.29	-2.14	0.00	-31.34	0.00	31.34	1052.07	315.62	43240.3	624.04	16.17	-1.066	0.000	0.054
135.00	-4.29	-2.14	0.00	-31.34	0.00	31.34	1052.07	315.62	43240.3	624.04	16.17	-1.066	0.000	0.054
140.00	-3.76	-2.06	0.00	-20.63	0.00	20.63	1052.07	315.62	43240.3	624.04	17.30	-1.085	0.000	0.037
145.00	-3.22	-1.98	0.00	-10.32	0.00	10.32	1052.07	315.62	43240.3	624.04	18.44	-1.097	0.000	0.020
150.00	-0.47	-0.08	0.00	-0.40	0.00	0.40	1052.07	315.62	43240.3	624.04	19.59	-1.100	0.000	0.001
155.00	0.00	-0.07	0.00	0.00	0.00	0.00	1052.07	315.62	43240.3	624.04	20.74	-1.101	0.000	0.000

Final Analysis Summary

Structure:	FL40914-T-SBA	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 139 mph Wind	31.3	0.00	28.42	0.00	0.00	3214.95
0.9D + 1.0W 139 mph Wind	31.3	0.00	21.29	0.00	0.00	3187.51
1.2D + 1.0Ev + 1.0Eh	0.3	0.00	28.79	0.00	0.00	45.07
0.9D + 1.0Ev + 1.0Eh	0.3	0.00	21.66	0.00	0.00	44.76
1.0D + 1.0W 60 mph Wind	5.2	0.00	23.74	0.00	0.00	533.95

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 139 mph Wind	-28.42	-31.35	0.00	-3214.9	0.00	-3214.9	3115.65	873.60	3637.68	3222.56	0.00	1.008
0.9D + 1.0W 139 mph Wind	-21.29	-31.33	0.00	-3187.5	0.00	-3187.5	3115.65	873.60	3637.68	3222.56	0.00	0.997
1.2D + 1.0Ev + 1.0Eh	-28.79	-0.32	0.00	-45.07	0.00	-45.07	3115.65	873.60	3637.68	3222.56	0.00	0.023
0.9D + 1.0Ev + 1.0Eh	-12.83	-0.32	0.00	-27.72	0.00	-27.72	2077.01	607.64	2199.88	1868.74	53.00	0.021
1.0D + 1.0W 60 mph Wind	-23.74	-5.22	0.00	-533.95	0.00	-533.95	3115.65	873.60	3637.68	3222.56	0.00	0.173

Base Plate Summary

Structure:	FL40914-T-SB	**Code:**	TIA-222-H	7/11/2022	
Site Name:	John & Maria Ferrara	**Exposure:**	C		
Height:	155.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	60.00	**Bolt Circle:**	57.50
Moment (kip-ft):	2384.00	**Width (in):**	63.50	**Number Bolts:**	10.00
Axial (kip):	27.00	**Style:**	Round	**Bolt Type:**	2.25" 18J
Shear (kip):	28.00	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	2.25
		Clip Length (in):	0.00	**Yield (ksi):**	75.00
Analysis (1.2D + 1.0W)				**Ultimate (ksi):**	100.00
Moment (kip-ft):	3214.95	**Effective Len (in):**	26.06	**Arrangement:**	Radial
Axial (kip):	28.42	**Moment (kip-in):**	949.27	**Cluster Dist (in):**	0.00
Shear (kip):	31.35	**Allow Stress (ksi):**	81.00	**Start Angle (deg):**	0.00
		Applied Stress (ksi):	54.27	Compression	
		Stress Ratio:	0.67	**Force (kip):**	212.19
				Allowable (kip):	268.39
				Ratio:	0.79
				Tension	
				Force (kip):	206.51
				Allowable (kip):	243.75
				Ratio:	0.85

Pier Foundation Design For Monopole

				Date
				7/11/2022
	Customer Name:	SBA	EIA/TIA Standard:	TIA-222-H
	Site Name:		Structure Height (Ft.):	155
	Site Number:	FL40914-T-SBA	Engineer Name:	I. Hasan Efaz
	Engr. Number:	131282	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

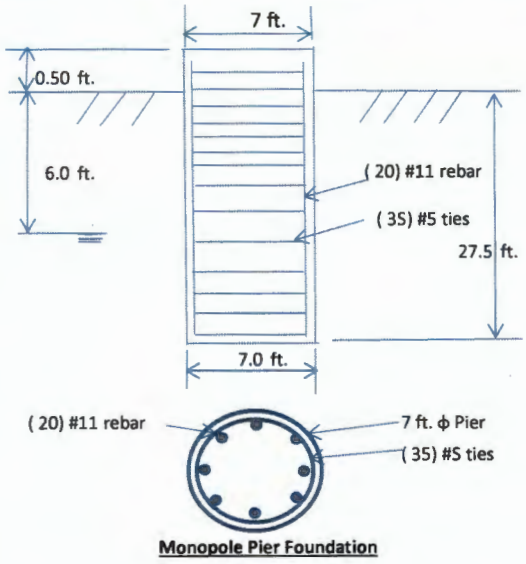
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	28.4	Shear Force (Kips):	31.3	
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3214.9	

Foundation Geometries:

Diameter of Pier (ft.):	7.0	Depth of Base B. G. S. :	27.5	ft.
Pier Height A. G. (ft.):	0.50			



Monopole Pier Foundation

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	S	
Qty. of Vertical Rebars:	20	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	6.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)

Skin Frictions are to be obtained from: Soil Report

Depth of Layers (ft) Top	Depth of Layers (ft) Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types					
0.0	3.0	100										
3.0	4.0	100	28	0								
4.0	13.0	105	29	0								
13.0	23.0	110	30	0								
23.0	33.0	110	30	0								
33.0	43.0	110	30	0								
43.0	50.0	110	30	0								
50.0	55.0											

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.):	5637	Dry Soil Weight from Conical Failure:	573	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	6404	Buoyant Soil Weight from Conical Failure (Ki	323	Kips
Total Dry Concrete Volume (cu. Ft.):	250	Total Dry Concrete Weight:	37.5	Kips
Total Buoyant Concrete Volume (cu. Ft.):	827.4	Total Buoyant Concrete Weight:	72.48	Kips
Total Effective Concrete Weight (Kips):	110.0	Total Effective Soil Weight:	895.7	Kips
Total Effective Vertical Load on Base (Kips):	73.3			

Check Soil Capacities:

					Usage	
Allowable Foundation Overturning Resistance (kips-ft.):	5582.1	>	Design Factored Moment (kips-ft):	3791	0.68	OK!
Factor of Safety of Passive Soil Resistance against Moment:	1.47	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):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	5244.8	>	Design Factored Moment (Mu, K-Ft):	3356.1	0.64	OK!
Calculated Shear Capacity (Kips):	1087.5	>	Design Factored Shear (Kips):	301.5	0.28	OK!
Calculated Tension Capacity (Tn, Kips):	1684.8	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9743	>	Design Factored Axial Load (Pu Kips):	28.4	0.00	OK!
Moment & Axial Strength Combination:	0.64	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.006	Reinforcement Ratio is satisfied per ACI				

EXHIBIT D

Board of County Commissioners
Hernando County
Attn: Steve Champion
John Allocco
Beth Narverud
Wayne Dukes
Jeff Holcomb
15470 Flight Path Dr.
Brooksville, FL 34606

RE: Application H-22-10

DECLARATION OF SANJAY DHAWAN

STATE OF FLORIDA
COUNTY OF PALM BEACH

I, Sanjay Dhawan, hereby certify and state as follows:

1. I am employed as the Vice President, New Business Technology and Operations for SBA Communications Corporation. I am providing this Declaration on behalf of SBA Monarch Towers III, LLC, a subsidiary of SBA Communications Corporation ("SBA").

2. I have thirty (30) years of wireless experience working in designing, deploying, and optimization of networks with wireless carriers. During my tenure in the wireless industry, I have worked with wireless carriers on multiple generations of deployment from 2G to 5G. Additionally, I manage a team of Radio Frequency ("RF") Engineers, who focus on wireless design and engineering, in and among other things.

3. I make this Declaration with the understanding that it is to be used in opposition to the Zoning Amendment Petition for Public Service Facility Overlay District for a Communication Tower, submitted on behalf of Temple Beth David Jewish Center, under Application No. H-22-10 (the "Application"). All statements contained in this Declaration are based upon my personal

knowledge or my personal knowledge of the business records of SBA. I am over the age of eighteen (18) and I am fully competent to testify to the facts recited herein.[1]

4. SBA has owned, operated, and maintained a 155' communication tower situated on property located at 13764 Linden Drive, Spring Hill, Florida 34609 since 2012 (the "Existing SBA Tower"). The Existing SBA Tower is located approximately 0.16 miles or 886 feet from the proposed 160' communication tower which is intended to be situated on property located at 13764 Linden Drive, Spring Hill, Florida (the "Proposed Tower").

5. The Existing SBA Tower is located within the search ring of T-Mobile, the proposed tenant for the Proposed Tower. T-Mobile is also currently a tenant of SBA's and has active cellular equipment installed on the Existing SBA Tower.

6. The SBA Records include an RF Coverage Plot Analysis and the RF Coverage Plots, which attached to this Declaration as **Exhibit "A"** (the "SBA RF Analysis").

7. I have reviewed the SBA RF Analysis, and based upon my education, training, and experience, I can confirm that the SBA RF Analysis is an accurate depiction and comparison of the RF coverage between the Existing SBA Tower and the Proposed Tower at varying frequencies.

8. Based upon my education, training, and experience, I agree with and adopt the findings in the SBA RF Analysis that the Proposed Tower would not appreciably expand the scope or strength of available coverage in the area, but would instead provide duplicative or overlapping

[1] In my capacity working for SBA, I am one of the primary custodians of the organizational documents, files, applications, letters, correspondence, reports, and other paperwork transmitted or received in connection with communication towers located in Florida (the "SBA Records"). SBA's files contain documents which were made and/or kept as part of the SBA Records, contemporaneously at or near the time of the events so memorialized herein, by or from information transmitted by SBA's employees and personnel who had knowledge of the facts set forth in such documents. The SBA Records are kept in the course of regularly conducted business activity and for each such document contained in the SBA Records, it is the regular practice of business activity to make or retain such documents. To the extent that I refer to any such document other than those made or received by me personally, such document is one of the SBA Records.

coverage provided by Existing SBA Tower. Further, the installation of additional antennas on the Proposed Tower would be considered "overbuild" or impractical given the coverage overlap with the Existing SBA Tower.

14. In comparing the Existing SBA Tower to the Proposed Tower, it is clear that from the SBA RF Analysis that the Proposed Tower would not appreciably expand the scope or strength of available coverage in the area but would instead provide duplicative or overlapping coverage with the Existing SBA Tower.

UNDER PENALTIES OF PERJURY, I DECLARE THAT I HAVE READ THE FOREGOING STATEMENTS, AND THAT THE FACTS STATED THEREIN ARE TRUE AND CORRECT.

Date: 08/08/2022

SANJAY DHAWAN

EXHIBIT "A"

SBA RF Analysis

EXHIBIT 1

TO: SBA

Subject: RF Coverage Plot Analysis: Hernando County, FL

Date: April 27, 2022

1. METHODOLOGY. The attached plots depict broadcast radio frequency (RF) coverage from the existing site to Hernando County, FL and a proposed site approximately 0.1585 miles to the Southeast. At each location, cellular industry typical LTE operating parameters were considered for omnidirectional antennas mounted at 150 feet above ground level at the existing site, and at 155 feet above ground level for the proposed site. Ground elevations are 62 and 63 feet above mean sea level, respectively.

Plots for both locations were generated for 700, 850, 1900 and 2100 MHz operations. The signal levels depicted are associated with LTE service reliability where the strong coverage levels in green and blue occur near the towers and decrease with distance from the sites and intervening terrain obstructions. Signal levels greater than -70 dBm shown as blue are associated with feasible coverage within buildings. Marginal coverage is provided in the regions depicted in yellow between -90 dBm and -80 dBm and signal levels between -100 dBm and -90 dBm shown as red represent poor coverage associated with call failures.

A comparison of coverage performance for each site is based on low band (700 and 850 MHz) and high band (1900 and 2100 MHz) prediction results. Radiowave propagation conditions between these bands differ because of terrain and ground clutter (e.g. vegetation) effects at different frequencies. Generally, low band operations provide greater area coverage. Therefore, high band operations provide additional customer traffic capacity closer to the cellular site.

2. COMPARISON. The sites considered in these coverage plots provide service to the depicted locations and roads leading to Hernando County, FL. For low band operations, the existing site provides strong coverage approximately 0.3 miles in all directions and to non-contiguous areas to 0.7 miles from the site. This includes 0.6 miles of Linden Dr. The proposed site provides strong coverage approximately 0.3 miles in all directions and to non-contiguous areas to 0.7 miles from the site. This includes 0.6 miles of Linden Dr.

For high band operations, both sites provide strong coverage to non-contiguous areas 0.4 miles in all directions.

3. CONCLUSION. Based on the coverage comparison presented above, the proposed site provides comparable coverage to Hernando County, FL due to its close proximity to the existing site. For wireless operators with antennas mounted on the existing site, the installation of additional antennas on the proposed site would be considered to be an "overbuild" or impractical given the coverage overlap.

Existing Site
700 MHz Coverage

Site Name	FL40914-T John & Maria Ferrara
Latitude:	N28.464292
Longitude:	W82.510186
Antenna:	15.15 dBi Omni
Alpha Rad Center (ft):	150
Azimuth (Deg):	0
ERP per RS (W):	2.0

RSRP:
< -100 dBm | >= -100 dBm | >= -90 dBm | >=-80 dBm | >=-70 dBm

Proposed Site
700 MHz Coverage

Site Name	Proposed
Latitude:	N28.463244
Longitude:	W82.507883

Antenna:	15.15 dBi Omni
Alpha Rad Center (ft):	155
Azimuth (Deg):	0
ERP per RS (W):	2.0

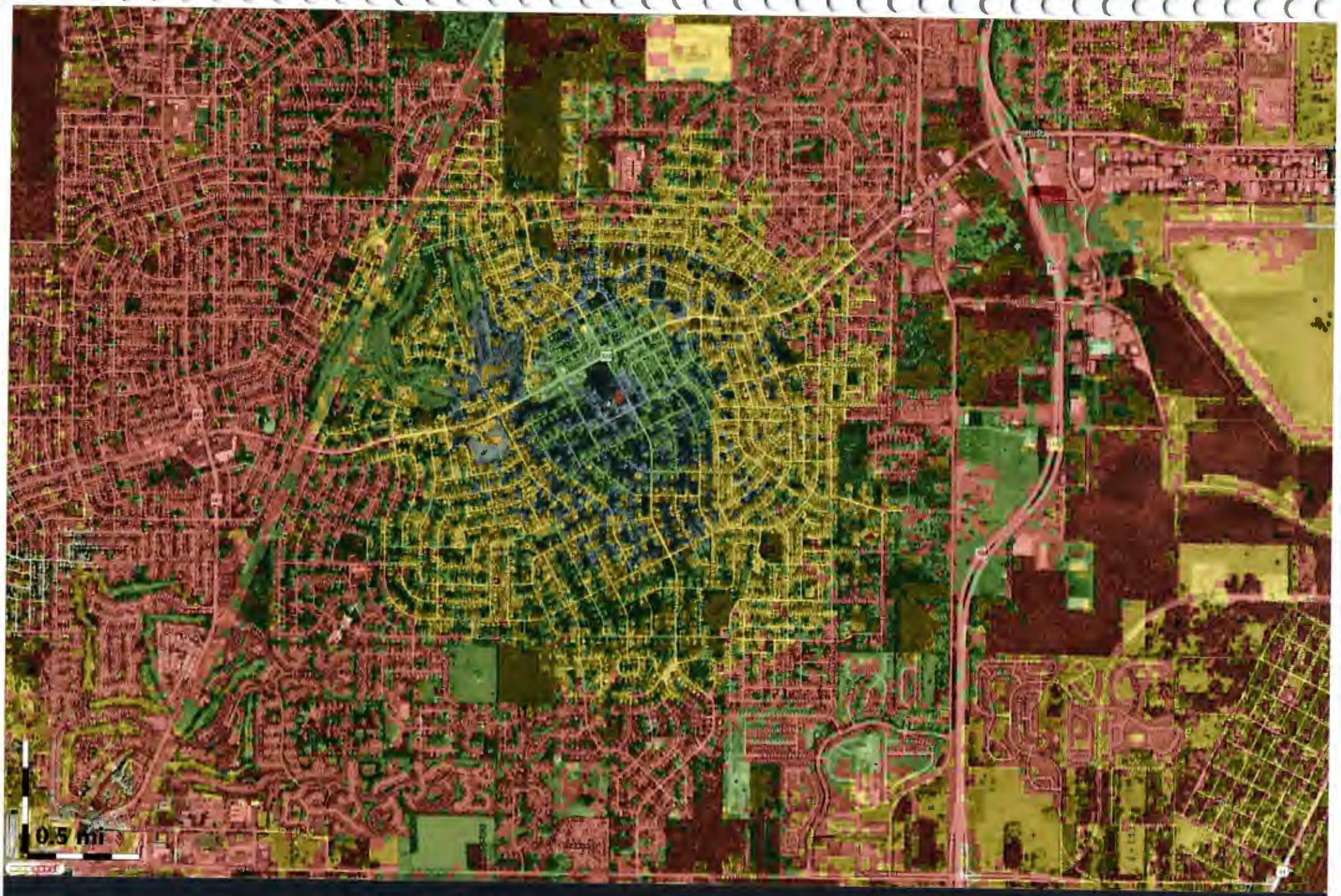
Existing Site
850 MHz Coverage

Site Name	FL40914-T John & Maria Ferrara
Latitude:	N28.464292
Longitude:	W82.510186
Antenna:	15.15 dBi Omni
Alpha Rad Center (ft):	150
Azimuth (Deg):	0
ERP per RS (W):	2.0

Proposed Site
850 MHz Coverage

Site Name	Proposed
Latitude:	N28.463244
Longitude:	W82.507883

Antenna:	15.15 dBi Omni
Alpha Rad Center (ft):	155
Azimuth (Deg):	0
ERP per RS (W):	2.0



Existing Site
1900 MHz Coverage

Site Name	FL40914-T John & Maria Ferrara
Latitude:	N28.464292
Longitude:	W82.510186

Antenna:	17.15 dBi Omni
Alpha Rad Center (ft):	150
Azimuth (Deg):	0
ERP per RS (W):	4.7

Proposed Site
1900 MHz Coverage

Site Name	Proposed
Latitude:	N28.463244
Longitude:	W82.507883

Antenna:	17.15 dBi Omni
Alpha Rad Center (ft):	155
Azimuth (Deg):	0
ERP per RS (W):	4.7

RSRP:
< -100 dBm | >= -100 dBm | >= -90 dBm | >=-80 dBm | >=-70 dBm

Existing Site
2100 MHz Coverage

	FL40914-T John & Maria
Site Name	Ferrara
Latitude:	N28.464292
Longitude:	W82.510186

Antenna:	17.15 dBi Omni
Alpha Rad Center (ft):	150
Azimuth (Deg):	0
ERP per RS (W):	4.7

Proposed Site
2100 MHz Coverage

Site Name	Proposed	Antenna:	17.15 dBi Omni
Latitude:	N28.463244	Alpha Rad Center (ft):	155
Longitude:	W82.507883	Azimuth (Deg):	0
		ERP per RS (W):	4.7

RSRP:
< -100 dBm | >= -100 dBm | >= -90 dBm | >=-80 dBm | >=-70 dBm