AMERICAN TOWER®
CORPORATION

To whom it may concern,

ATC Site: 36075 – Lee s Summit #1B, MO (2200 Lowenstein, Lees Summit, MO, 64081)

Subject: Review of Tower Inspection and Summary of Remediation

The above tower has been inspected by Trylon on July 29, 2017. The purpose of this inspection was to observe and record the physical state of the tower structure. Results of this inspection are attached following this report. Summaries of the individually noted issues called out by the team are listed below along with what has been or will be done to correct them.

- 20' Leg A,B,C Rust Spots

  This is surface in nature and is not considered to be an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- 40' Leg C Rust Spots

  This is surface in nature and is not considered to be an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- 60' Leg B,C Rust Spots

  This is surface in nature and is not considered to be an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- 100' Leg B Rust Spots

  This is surface in nature and is not considered to be an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- 120' Leg C Rust Spots

  This is surface in nature and is not considered to be an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- 120’ Leg A Loose Bolt Unable to Turn, could not tighten on site

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- 140’ No Threads Above Nut A,B,C

This was reviewed and not considered an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- No rain cap

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- Safety Climb Tagged Out Due to Deflections, Obstructions and Rubbing Over Sharp Edges

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- 333’ Safety Climb Obstructions

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- 380’ – 420’ Safety Climb Obstructed, Rubbing, Over Sharp Edges

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- 434’ Safety Climb Rubbing

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- Anchor AA Guy Wire Ground Broken, Missing Clamp

This is a maintenance issue that should have been corrected by the FOT during a subsequent site visit. Additionally, the anchor heads are grounded per photos so the broken ground wires on the guy wires are considered redundant and not an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- Anchor CC Guy Wire Ground Broken

This is a maintenance issue that should have been corrected by the FOT during a subsequent site visit. Additionally, the anchor heads are grounded per photos so the broken ground wires on the guy wires are considered redundant and not an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- 486' Lightning Rod Broken/Hanging from Mast

The lightning rod is pointing down, but securely fastened to the tower. Additionally, the pole it is fastened to can function as a lightning rod. We will review again in the next TIA inspection, and remediate as needed at this time.

- Anchor A, AA, C Safety Wire Improperly Ran with Single Crosby Clamp

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- Anchor A, C and BB Rust on Anchor Shaft

This is surface in nature and is not considered to be an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- Anchor A Roots Growing Around Shaft

This was reviewed and not considered an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

- Anchor B Trees and Vegetation Growing Infront of Compound, Cannot Access and Obstructing Guy Path

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- Anchor B Safety Wire Improperly Ran with Single Crosby Clamp

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

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- Anchor BB Safety Wire with Single Crosby Clamp

This was corrected per ATC Project 12141861_N3_01, dated September 6, 2017.

- Guy level 1 does not have mousing

This was reviewed and not considered an issue at this time. We will review again in the next TIA inspection, and remediate as needed at this time.

The above issues determined to be structural or maintenance concerns were corrected per ATC Project 12141861_N3_01, dated September 6, 2017. Any issues that were deemed to not currently need remediation will be reviewed again in the next TIA inspection, and remediated as needed at that time.

Please contact the undersigned with any questions regarding this report at 919.466.5007.

Christopher L. Jolly
Structural Engineer III

Michael Deese, PE
Senior Manager, Operations Engineering

AMERICAN TOWER®

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PHONE: (919) 468-0112
COA: 2006031326

36075 - LEE S SUMMIT #1B, MISSOURI

480 FT GUYED TOWER MODIFICATIONS

AS-BUILT SIGN-OFF

DESCRIPTION	SIGNATURE	DATE
CONTRACTOR NAME		
CONTRACTOR REPRESENTATIVE (PRINT NAME)		
CONTRACTOR REPRESENTATIVE (SIGNATURE)		
REDEVELOPMENT P.M. (PRINT NAME)		
REDEVELOPMENT P.M. (SIGNATURE)		

PROJECT SUMMARY

ATC PROJECT NUMBER: 12141861_N3_01

CUSTOMER: OPERATIONS

CUSTOMER SITE NAME: N/A

CUSTOMER SITE NUMBER: N/A

SITE ADDRESS: 2200 LOWENSTEIN
LEES SUMMIT, MO 64081

DATE: 09/06/17

GEOGRAPHIC COORDINATES: 38.93324444
-94.41758056

PROJECT DESCRIPTION

THE MODIFICATIONS PRESENTED ON THESE DRAWINGS ARE BASED ON ATC ENGINEER RECOMMENDATIONS DATED 08/10/17.

CATEGORY 1

CATEGORY 1 SOW	CATEGORY 2 SOW	CATEGORY 3 SOW
☐ MISSING MEMBER	☑ PLUMB & TENSION	☐ GROUNDING
☐ MISSING BOLTS	☐ ANCHOR REPAIR	☑ TYPICAL MAINTENANCE ITEMS
☐ MISSING HARDWARE	☐ RELOCATE / REPLACE GUYS	☐ EQUIPMENT REMOVAL
☐ CRACK WELD	☑ HARDWARE REPLACEMENT	
☐ CRACK MEMBER	☐ LOOSE BOLTS	
☐ VISIBLE LEANING TOWER	☐ BENT MEMBERS	
☐ SEVERELY CORRODED ANCHOR ROD	☐ CORROSION REPAIR	
☐ SEVERELY DAMAGED / CORRODED MEMBER	☑ VEGETATION	
☑ SAFETY CLIMB REPAIR	☐ FENCE REPAIR	
	☑ CLEAR PATH	
	☐ MEMBER REPLACEMENT	

SHEET	SHEET TITLE	REV.
B-1	BILL OF MATERIALS	0
IGN	IBC GENERAL NOTES	0
A-1	MODIFICATION DETAILS	0
A-2	GUY WIRE TENSION CHART	0
A-3	GUY WIRE RETENSIONING AND STANDARD SAFETY WIRE DETAILS	0

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	09/06/17

ATC SITE NUMBER:
36075

ATC SITE NAME:
LEE S SUMMIT #1B

MISSOURI

SITE ADDRESS:
2200 LOWENSTEIN
LEES SUMMIT, MO 64081

DRAWN BY:	LPG
APPROVED BY:	NMH
DATE DRAWN:	09/06/17
ATC JOB NO:	12141861_N3_01

COVER

SHEET NUMBER:	REVISION:
COVER	0

BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PART WEIGHT	WEIGHT (lb)	NOTES
			FLANGE BOLTS					
1	2	----	BOLT, 5/8"Ø ASTM A325	2 3/4"	----	----	----	HHN / GALVANIZED
1	2	----	FLAT WASHER, 5/8"Ø ASTM F436	----	----	----	----	GALVANIZED
1	2	----	DTI SQUIRTER WASHER, 5/8"Ø	----	----	----	----	GALVANIZED
			SAFETY CLIMB					
1	1	----	SAFETY CLIMB CABLE, 3/8" EHS	480'-0"	----	----	----	GALVANIZED

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BILL OF MATERIALS

SHEET NUMBER:	REVISION:
B-1	0

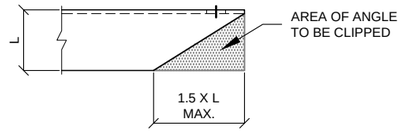
GENERAL

1. ALL WORK TO BE COMPLETED PER APPLICABLE LOCAL, STATE AND FEDERAL CODES AND ORDINANCES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND ABIDING BY ALL REQUIRED PERMITS.
2. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
4. ANY SUBSTITUTIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
5. ANY MANUFACTURED DESIGN ELEMENTS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER ANSI/TIA-322 AND ANSI/ASSE A10.48, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
8. CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

STRUCTURAL STEEL

1. ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
2. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
3. ALL U-BOLTS SHALL BE ASTM A36 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.
4. FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.
5. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
6. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.

MAXIMUM ALLOWABLE ANGLE CLIP



PAINT

1. AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1K.

WELDING

1. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
2. ALL WELDS SHALL BE INSPECTED VISUALLY. IF DIRECTED BY ENGINEER OF RECORD, 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
3. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
4. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
5. ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70XX ELECTRODES. ALL WELDING ON POLE STRUCTURES SHALL BE DONE WITH E80XX ELECTRODES UNLESS NOTED OTHERWISE.
6. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

BOLT TIGHTENING PROCEDURE

1. STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
2. FLANGE BOLTS SHALL BE INSTALLED AND TIGHTENED USING DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS. DTI SQUIRTER WASHERS ARE TO BE INSTALLED AGAINST THE BOLT HEAD AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
3. IN LIEU OF USING DTI SQUIRTER WASHERS, FLANGE BOLTS MAY BE TIGHTENED USING AISC / RCSC "TURN-OF-THE-NUT" METHOD, PENDING APPROVAL BY THE ENGINEER OF RECORD (EOR). TIGHTEN FLANGE BOLTS USING THE CHART BELOW:

BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS

1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIAMETERS BUT NOT EXCEEDING EIGHT DIAMETERS

1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS 5.75 TO 11.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

4. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS", LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

   FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

   8.2.1 TURN-OF-NUT PRETENSIONING
   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

5. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

   ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

APPLICABLE CODES AND STANDARDS

1. ANSI/TIA-222-G-4: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANNEX J.
2. ANSI/TIA-322: LOADING CRITERIA, ANALYSIS AND DESIGN RELATED TO THE INSTALLATION ALTERATION AND MAINTENNANCE OF COMMUNICATION STRUCTURES.
3. ANSI/ASSE A10.48: CRITERIA FOR SAFETY PRACTICES WITH THE CONSTRUCTION, DEMOLITION, MODIFICATION AND MAINTENNANCE OF COMMUNICATION STRUCTURES, LATEST EDITION.
4. AMERICAN TOWER MASTER SPECIFICATION: STANDARD SPECIFICATIONS FOR WIRELESS TOWER SITES, LATEST EDITION.
5. AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
6. AWS: AMERICAN WELDING SOCIETY D1.1, STRUCTURAL WELDING CODE, LATEST EDITION.
7. RCSC: RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS, SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS, LATEST EDITION.

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	09/06/17

ATC SITE NUMBER:
36075

ATC SITE NAME:
LEE S SUMMIT #1B

MISSOURI

SITE ADDRESS:
2200 LOWENSTEIN
LEES SUMMIT, MO 64081

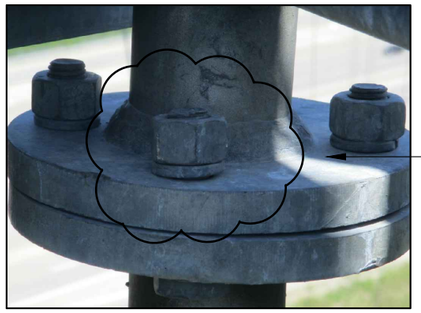
DRAWN BY:	LPG
APPROVED BY:	NMH
DATE DRAWN:	09/06/17
ATC JOB NO:	12141861_N3_01

IBC GENERAL NOTES

SHEET NUMBER:	REVISION:
IGN	0

ADDITIONAL STRUCTURAL WORK REQUIRED:

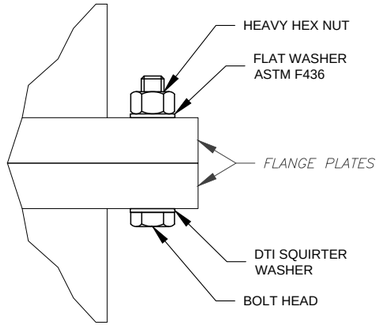
1. PLUMB AND TENSION TOWER AS SPECIFIED. SEE SHEET A-2 FOR NOTES AND REQUIRED INITIAL TENSIONS.



REPLACE (1) SEIZED 5/8"Ø FLANGE BOLT WITH NEW 5/8"Ø X 2 3/4" A325 BOLT W/ NUT-FW & DTI SQUIRTER WASHER EA. **[CONTRACTOR TO FIELD VERIFY BOLT SIZE AND LENGTH. SEE FIELD NOTE FOR SPECIFICATIONS.]**

NORTHEAST TOWER LEG
EL: 120'-0"

FIELD NOTE:
BOLT LENGTHS ARE TO BE DETERMINED SO THAT NO BOLT THREADS ARE LOCATED IN THE SHEAR PLANE AND SO THAT NO BOLTS ARE RECESSED ONCE NUT AND LOCK WASHER ARE INSTALLED.

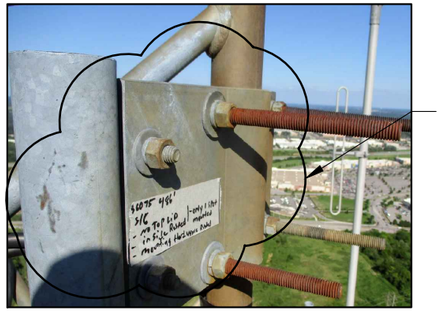


FLANGE BOLT INSTALLATION
TYPICAL DETAIL

1. ALL FLANGE BOLTS SHALL BE TIGHTENED USING DTI SQUIRTER WASHERS FOR TENSION VERIFICATION. SEE SHEET IGN FOR DETAILS.
2. PROPER TORQUE GENERATING EQUIPMENT, WHICH MAY INCLUDE IMPACT WRENCHES, IS REQUIRED IN ORDER TO ACHIEVE DTI COMPRESSION WITH SQUIRT INDICATION. MANUFACTURER GUIDLINES FOR DTI INSTALLATION ARE TO BE FOLLOWED.

REMOVE ANY VEGETATION THAT INTERFERES WITH ALL GUY WIRES FOR GUY PATH AND CLEAR VEGETATION FROM GUY ANCHOR COMPOUND.

OUTER SOUTH GUY PATH & GUY ANCHOR COMPOUND
VEGETATION INTERFERENCE



REMOVE EXISTING SAFETY CLIMB CABLE AND ASSOCIATED HARDWARE / MOUNTS. INSTALL NEW ATC-APPROVED SAFETY CLIMB SYSTEM WITH NEW 3/8" SAFETY CLIMB CABLE. ENSURE 100% TIE-OFF IS MAINTAINED AND CABLE IS FREE OF ALL OBSTRUCTIONS. INSTALL ADDITIONAL CABLE GUIDES AS NEEDED TO PREVENT CABLE FROM RUBBING ON OBSTRUCTIONS FROM EL: 380'-0"± TO 420'-0"±. **[CONTRACTOR SHALL INSTALL THE SAFETY CLIMB IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.]**

SAFETY CLIMB CABLE
EL: 0'-0"± TO 480'-0"±

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MODIFICATION DETAILS

SHEET NUMBER:	REVISION:
A-1	0

GUY WIRE TENSION CHART FOR NORTHEAST GUY ANCHOR "A"

GUY WIRE DATA						MEASURED GUY WIRE TENSION IN POUNDS																			
GUY WIRE SIZE	GUY ELEV. (FT)	GUY ANCHOR RADIUS (FT)	GUY ANCHOR DROP (+/- FT)	GUY ANCHOR DROP LEG	INITIAL TENSION %	TENSION DELTA DUE TO TEMP. (LBS/DEG)	0° F LBS	5° F LBS	10° F LBS	15° F LBS	20° F LBS	25° F LBS	30° F LBS	35° F LBS	40° F LBS	45° F LBS	50° F LBS	55° F LBS	60° F LBS	65° F LBS	70° F LBS	75° F LBS	80° F LBS	85° F LBS	90° F LBS	95° F LBS	100° F LBS	105° F LBS
3/4" BS	460.0	299.0	-24.0	A	10 %	15.66	**7740**	7661	**7583**	7505	**7426**	7348	**7270**	7192	**7113**	7035	**6957**	6878	**6800**	6722	**6643**	6565	**6487**	6408	**6330**	6252	**6174**	6095
3/4" BS	380.0	299.0	-24.0	A	10 %	20.16	**8010**	7909	**7808**	7707	**7606**	7506	**7405**	7304	**7203**	7102	**7002**	6901	**6800**	6699	**6598**	6498	**6397**	6296	**6195**	6094	**5994**	5893
5/8" EHS	300.0	299.0	-24.0	A	10 %	19.63	**5418**	5320	**5221**	5123	**5025**	4927	**4829**	4731	**4633**	4534	**4436**	4338	**4240**	4142	**4044**	3946	**3847**	3749	**3651**	3553	**3455**	3357
9/16" EHS	220.0	143.0	-16.0	A	10 %	9.54	**4072**	4025	**3977**	3929	**3881**	3834	**3786**	3738	**3691**	3643	**3595**	3548	**3500**	3452	**3405**	3357	**3309**	3262	**3214**	3166	**3119**	3071
9/16" EHS	140.0	143.0	-16.0	A	10 %	16.40	**4484**	4402	**4320**	4238	**4156**	4074	**3992**	3910	**3828**	3746	**3664**	3582	**3500**	3418	**3336**	3254	**3172**	3090	**3008**	2926	**2844**	2762
1/2" EHS	70.0	143.0	-16.0	A	10 %	20.34	**3911**	3809	**3707**	3606	**3504**	3402	**3300**	3199	**3097**	2995	**2893**	2792	**2690**	2588	**2487**	2385	**2283**	2181	**2080**	1978	**1876**	1774

GUY WIRE TENSION CHART FOR SOUTH GUY ANCHOR "B"

GUY WIRE DATA						MEASURED GUY WIRE TENSION IN POUNDS																			
GUY WIRE SIZE	GUY ELEV. (FT)	GUY ANCHOR RADIUS (FT)	GUY ANCHOR DROP (+/- FT)	GUY ANCHOR DROP LEG	INITIAL TENSION %	TENSION DELTA DUE TO TEMP. (LBS/DEG)	0° F LBS	5° F LBS	10° F LBS	15° F LBS	20° F LBS	25° F LBS	30° F LBS	35° F LBS	40° F LBS	45° F LBS	50° F LBS	55° F LBS	60° F LBS	65° F LBS	70° F LBS	75° F LBS	80° F LBS	85° F LBS	90° F LBS	95° F LBS	100° F LBS	105° F LBS
3/4" BS	460.0	299.0	-11.0	B	10 %	15.66	**7740**	7661	**7583**	7505	**7426**	7348	**7270**	7192	**7113**	7035	**6957**	6878	**6800**	6722	**6643**	6565	**6487**	6408	**6330**	6252	**6174**	6095
3/4" BS	380.0	299.0	-11.0	B	10 %	20.16	**8010**	7909	**7808**	7707	**7606**	7506	**7405**	7304	**7203**	7102	**7002**	6901	**6800**	6699	**6598**	6498	**6397**	6296	**6195**	6094	**5994**	5893
5/8" EHS	300.0	299.0	-11.0	B	10 %	19.63	**5418**	5320	**5221**	5123	**5025**	4927	**4829**	4731	**4633**	4534	**4436**	4338	**4240**	4142	**4044**	3946	**3847**	3749	**3651**	3553	**3455**	3357
9/16" EHS	220.0	143.0	-9.0	B	10 %	9.54	**4072**	4025	**3977**	3929	**3881**	3834	**3786**	3738	**3691**	3643	**3595**	3548	**3500**	3452	**3405**	3357	**3309**	3262	**3214**	3166	**3119**	3071
9/16" EHS	140.0	143.0	-9.0	B	10 %	16.40	**4484**	4402	**4320**	4238	**4156**	4074	**3992**	3910	**3828**	3746	**3664**	3582	**3500**	3418	**3336**	3254	**3172**	3090	**3008**	2926	**2844**	2762
1/2" EHS	70.0	143.0	-9.0	B	10 %	20.34	**3911**	3809	**3707**	3606	**3504**	3402	**3300**	3199	**3097**	2995	**2893**	2792	**2690**	2588	**2487**	2385	**2283**	2181	**2080**	1978	**1876**	1774

GUY WIRE TENSION CHART FOR NORTHWEST GUY ANCHOR "C"

GUY WIRE DATA						MEASURED GUY WIRE TENSION IN POUNDS																			
GUY WIRE SIZE	GUY ELEV. (FT)	GUY ANCHOR RADIUS (FT)	GUY ANCHOR DROP (+/- FT)	GUY ANCHOR DROP LEG	INITIAL TENSION %	TENSION DELTA DUE TO TEMP. (LBS/DEG)	0° F LBS	5° F LBS	10° F LBS	15° F LBS	20° F LBS	25° F LBS	30° F LBS	35° F LBS	40° F LBS	45° F LBS	50° F LBS	55° F LBS	60° F LBS	65° F LBS	70° F LBS	75° F LBS	80° F LBS	85° F LBS	90° F LBS	95° F LBS	100° F LBS	105° F LBS
3/4" BS	460.0	299.0	-5.0	C	10 %	15.66	**7740**	7661	**7583**	7505	**7426**	7348	**7270**	7192	**7113**	7035	**6957**	6878	**6800**	6722	**6643**	6565	**6487**	6408	**6330**	6252	**6174**	6095
3/4" BS	380.0	299.0	-5.0	C	10 %	20.16	**8010**	7909	**7808**	7707	**7606**	7506	**7405**	7304	**7203**	7102	**7002**	6901	**6800**	6699	**6598**	6498	**6397**	6296	**6195**	6094	**5994**	5893
5/8" EHS	300.0	299.0	-5.0	C	10 %	19.63	**5418**	5320	**5221**	5123	**5025**	4927	**4829**	4731	**4633**	4534	**4436**	4338	**4240**	4142	**4044**	3946	**3847**	3749	**3651**	3553	**3455**	3357
9/16" EHS	220.0	143.0	-3.0	C	10 %	9.54	**4072**	4025	**3977**	3929	**3881**	3834	**3786**	3738	**3691**	3643	**3595**	3548	**3500**	3452	**3405**	3357	**3309**	3262	**3214**	3166	**3119**	3071
9/16" EHS	140.0	143.0	-3.0	C	10 %	16.40	**4484**	4402	**4320**	4238	**4156**	4074	**3992**	3910	**3828**	3746	**3664**	3582	**3500**	3418	**3336**	3254	**3172**	3090	**3008**	2926	**2844**	2762
1/2" EHS	70.0	143.0	-3.0	C	10 %	20.34	**3911**	3809	**3707**	3606	**3504**	3402	**3300**	3199	**3097**	2995	**2893**	2792	**2690**	2588	**2487**	2385	**2283**	2181	**2080**	1978	**1876**	1774

PLUMB AND TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON THE COMPLETION OF ANY OTHER REQUIRED STRUCTURAL MODIFICATIONS DETAILED IN THE MODIFICATION PACKAGE. REFER TO GUY WIRE TENSION CHART FOR REQUIRED GUY WIRE TENSION VALUES.
2. NOTIFY ATC ENGINEERING PRIOR TO RETENSIONING IF THE GUY ANCHOR DROP, RISE OR RADIUS EXCEEDS 15 FT AT ANY GUY ANCHOR LOCATION OR IF ANY GUY WIRE SIZE DIFFERS FROM THOSE STATED IN THESE DRAWINGS.
3. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND THE GUY WIRES.
4. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN THE TWO ELEVATIONS (EXAMPLE, NOT TO EXCEED 0.6 INCHES FOR 20 FEET VERTICAL DISTANCE).
5. THE TWIST BETWEEN ANY TWO ELEVATIONS SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.
6. SEE "GUY WIRE RETENSIONING AND STANDARD SAFETY WIRE DETAILS" SHEET FOR ACCEPTABLE GUY WIRE TERMINATION EXTENSION, IF REQUIRED.
7. INSTALL / REINSTALL THE GUY ANCHOR SAFETY WIRE AS SHOWN ON THE "GUY WIRE RETENSIONING AND STANDARD SAFETY WIRE DETAILS" SHEET.
8. FOR GUY WIRE REPLACEMENT, PROVIDE TEMPORARY GUYING TO SECURE TOWER. CONTRACTOR TO ONLY REPLACE (1) GUY WIRE AT A TIME.

NOTES:
THE MAXIMUM DEVIATION FROM THE DESIGN INITIAL TENSIONS ARE:
1. ±10% FOR GUYS < 1" DIAMETER, OF THE INITIAL TENSIONS SPECIFIED ON THIS TEMPERATURE/TENSION CHART.
2. ±5% FOR GUYS > 1" DIAMETER, OF THE INITIAL TENSIONS SPECIFIED ON THIS TEMPERATURE/TENSION CHART.

AMERICAN TOWER®
ATC TOWER SERVICES
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: 2006031326

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	09/06/17

ATC SITE NUMBER:
36075

ATC SITE NAME:
LEE S SUMMIT #1B

MISSOURI

SITE ADDRESS:
2200 LOWENSTEIN
LEES SUMMIT, MO 64081

DRAWN BY:	LPG
APPROVED BY:	NMH
DATE DRAWN:	09/06/17
ATC JOB NO:	12141861_N3_01

GUY WIRE TENSION CHART

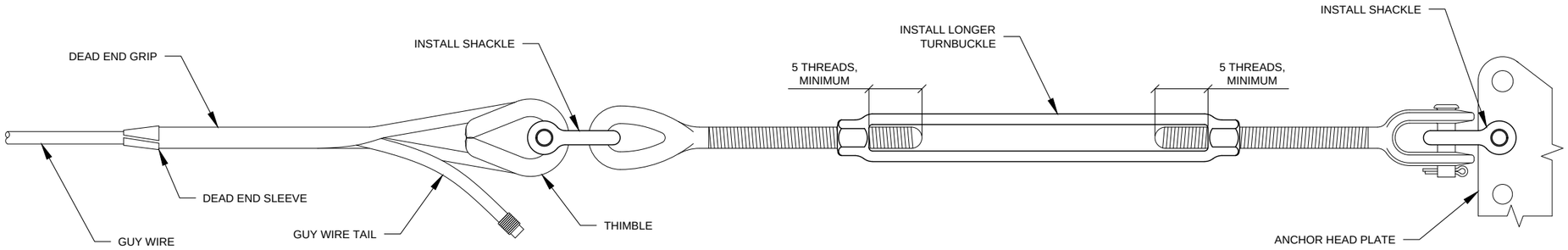
SHEET NUMBER:	REVISION:
A-2	0

STANDARD GUY WIRE HARDWARE

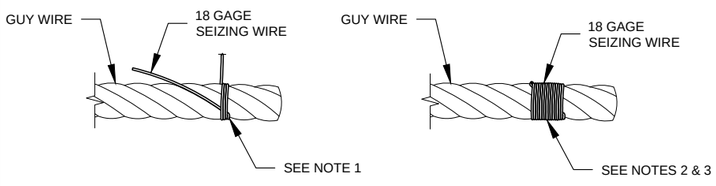
HARDWARE	GUY WIRE			JAW & EYE TURNBUCKLE Van Beest Green Pin® G-6315 OR Crosby® HG-227		DEAD END GRIP PREFORMED®	DEAD END SLEEVE PREFORMED®	THIMBLE Van Beest® E-6120 OR Crosby® G-414	SHACKLE Van Beest Green Pin® G-5263 OR Crosby® G-2130A	
	SIZE	U.T.S.	W.L.	SIZE	PIN Ø	SIZE	SIZE	SIZE	SIZE	PIN Ø
	1/2" EHS	26.9 K	13.5 K	7/8 X 18	5/8"	1/2"	1/2"	5/8" HVY	5/8"	3/4"
	9/16" EHS	35.0 K	17.5 K	7/8 X 18	3/4"	9/16"	9/16"	3/4" HVY	5/8"	3/4"
	5/8" EHS	42.4 K	21.2 K	1 X 24	7/8"	5/8"	5/8"	3/4" HVY	3/4"	7/8"
	3/4" BS	68.0 K	34.0 K	1 1/4 X 24	1 1/8"	3/4"	3/4"	1" HVY	3/4"	7/8"

NOTE:

1. TO OBTAIN CORRECT GUY WIRE TENSIONS, IT MAY BE NECESSARY TO REPLACE THE DEAD END GRIP (PREFORM) OF SOME GUY WIRES DUE TO EXISTING OVER-CONTRACTED TURNBUCKLES.
2. IF EXISTING TURNBUCKLE IS ALREADY FULLY EXTENDED, THE COMBINATION OF SHACKLES AND A LONGER TURNBUCKLE AS SHOWN MAY BE USED TO PROVIDE REQUIRED ADJUSTMENT. ALTERNATIVELY, IF THE EXISTING GUY WIRE TAIL IS LONG ENOUGH, THE DEAD END GRIP (PREFORM) MAY BE REINSTALLED TO INCREASE THE OVERALL LENGTH OF THE GUY WIRE.
3. IF REMOVAL OF EXISTING DEAD END GRIP (PREFORM) IS REQUIRED, IT CANNOT BE REUSED.
4. IF EXISTING GUY WIRE GROUNDING IS REMOVED DURING MODIFICATION INSTALLATION, IT MUST BE RECONNECTED AFTER THE COMPLETION OF THE TOWER MODIFICATIONS. IF ORIGINAL GROUNDING IS BROKEN OR DAMAGED AND CANNOT BE RECONNECTED, GUY WIRE GROUNDING IS TO BE REPAIRED OR REPLACED.



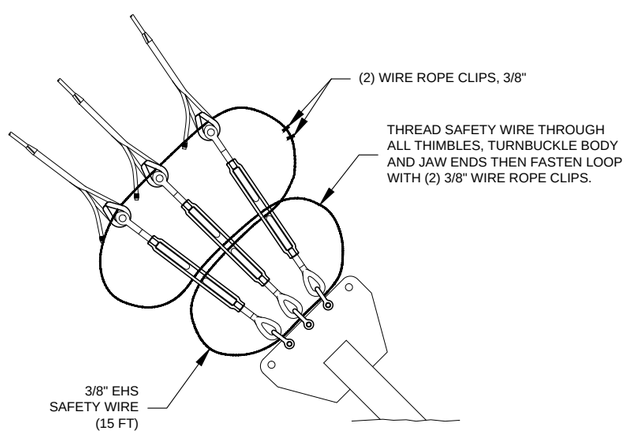
ALLOWED GUY WIRE TERMINATION MODIFICATION TO RETENSION GUY WIRES



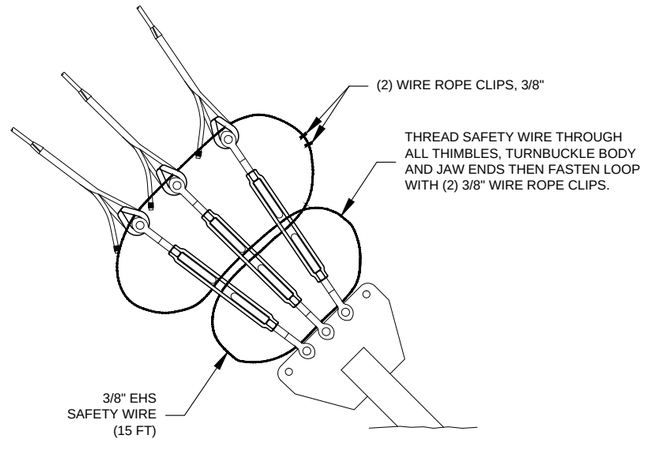
SEIZING WIRE INSTALLATION
TYPICAL DETAIL

SEIZING WIRE INSTALLATION:

1. LAY ONE END OF THE SEIZING WIRE IN THE GROOVE BETWEEN TWO STRANDS IN THE GUY WIRE AND WRAP THE OTHER END TIGHTLY OVER THE PORTION IN THE GROOVE.
2. CONTINUE TWISTING WITH PLIERS TO TAKE UP SLACK AND TIGHTEN. WRAP SEIZING WIRE AROUND GUY WIRE FOR A WIDTH EQUAL TO THE GUY WIRE DIAMETER.
3. WRAP SEIZING WIRE TIGHTLY AGAINST SERVING, WINDING TWISTED WIRE INTO KNOT BEFORE CUTTING OFF ENDS OF THE WIRE. POUND KNOT SNUGLY AGAINST THE GUY WIRE.



TYPICAL SAFETY WIRE INSTALLATION
DETAIL W/ SHACKLES



TYPICAL SAFETY WIRE INSTALLATION
DETAIL W/O SHACKLES

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GUY WIRE RETENSIONING AND STANDARD SAFETY WIRE DETAILS

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