

September 8, 2021



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Subject: Maintenance and Condition Assessment Report

T-Mobile Designation: **Site Number:** A5C0335A
Site Name: Longview Farm Tank

Inspection Firm Designation: **TEP Project Number:** 591422.305839

Site Data: **499 Southwest Tower Park Drive**
Lee's Summit, MO 64081
Latitude N 38° 54' 33.00", Longitude W 94° 26' 53.99"
98± Foot – Water Tank

Dear Catalina Martinez,

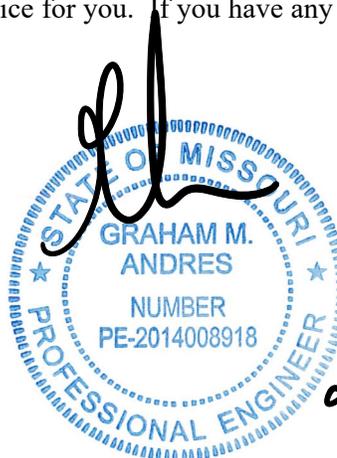
Tower Engineering Professionals (TEP) completed a periodic inspection for the above referenced site. The onsite investigation was performed by Cameron Connell, and Jimmy Amundson of TEP during the August 30, 2021 site visit.

Observations and recommendations are listed herein. The inspection included observation of tower members, bolted connections, and foundations above grade. For the purpose of this inspection, the tower legs were named by letter according to the magnetic azimuth defined by a line from the center of tower to the leg. "A" leg is the leg closest to magnetic north, followed clockwise by "B", "C", and "D."

Thank you for the opportunity to provide this service for you. If you have any questions or comments, please contact our office.

Sincerely,
Tower Engineering Professionals, Inc. (TEP)

Graham M. Andres, P.E., P.Eng.



9/8/21

EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Minor corrosion was observed throughout the inside of every tower leg.</p> <p>Recommendation: Monitor condition of the inside of each leg to ensure no material loss occurs. AWWA recommends regularly scheduled maintenance inspections every five years.</p>
	
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Corrosion was observed on the water tank horizontal bracings on legs A and B at elevation 30’.</p> <p>Recommendation: Use a wire brush to remove existing paint from vicinity of visible corrosion. Then thoroughly clean and apply two coats of a brush on cold galvanizing compound containing at least 95% zinc if corrosion is observed. If during this process any section loss is observed, contact TEP immediately. Repaint to match.</p>
	<p>Observation: Corrosion was observed on B leg at elevation 45’.</p> <p>Recommendation: Use a wire brush to remove existing paint from vicinity of visible corrosion. Then thoroughly clean and apply two coats of a brush on cold galvanizing compound containing at least 95% zinc if corrosion is observed. If during this process any section loss is observed, contact TEP immediately. Repaint to match.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Minor corrosion was observed on the bottom of the inside connection of the tower leg to the water tank on all legs.</p> <p>Recommendation: Monitor condition of the inside of each leg to ensure no material loss occurs. AWWA recommends regularly scheduled maintenance inspections every five years.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Corrosion was observed on the back of every tower leg at elevation 30'.</p> <p>Recommendation: Use a wire brush to remove existing paint from vicinity of visible corrosion. Then thoroughly clean and apply two coats of a brush on cold galvanizing compound containing at least 95% zinc if corrosion is observed. If during this process any section loss is observed, contact TEP immediately. Repaint to match.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: (4) bent PL 15''x14''x3/8'' were observed on the back of every tower leg at elevation 30'.</p> <p>Recommendation: An Engineer licensed in the state of Missouri should review the current condition and determine an appropriate course of action.</p>
	
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
 The photographs show the interior of a water tower leg, focusing on the connection points between the legs. The metal surfaces are painted white, and there are visible signs of minor corrosion, particularly at the joints and along the edges of the legs. The corrosion appears as brownish-orange staining and pitting. The legs are supported by a network of steel beams, and the overall structure is well-maintained but shows signs of age and wear.	<p>Observation: Minor corrosion was observed on the outside of every tower leg connection to the water tank at elevation 60'.</p> <p>Recommendation: Monitor condition of the inside of each leg to ensure no material loss occurs. AWWA recommends regularly scheduled maintenance inspections every five years.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Loose electrical wires and unused conduit were observed on C leg at elevation 32'.</p> <p>Recommendation: Remove the loose wires and unused conduits from the tower leg.</p>
	<p>Observation: (2) bent PL 1/4" thick with 3/4" deflection were observed on the baseplate of the D leg.</p> <p>Recommendation: An Engineer licensed in the state of Missouri should review the current condition and determine an appropriate course of action.</p>
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: (6) 5/8"Ø bolts were loose at the top of the ladder connection at elevation 60'.</p> <p>Recommendation: Tighten the bolt per AISC "turn-of-the-nut" method.</p>
	
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Corrosion was observed platform connection to the water tank at elevation 62’.</p> <p>Recommendation: Use a wire brush to remove existing paint from vicinity of visible corrosion. Then thoroughly clean and apply two coats of a brush on cold galvanizing compound containing at least 95% zinc if corrosion is observed. If during this process any section loss is observed, contact TEP immediately. Repaint to match.</p>
	
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Corrosion was observed on the empty mount pipe on the alpha, beta, and gamma sector and the mount pipe hardware on the gamma sector at elevation 65’.</p> <p>Recommendation: If possible remove empty mounts to reduce wind loading on handrail. If mounts must stay in place for future use replace pipe mounts and hardware.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Corrosion was observed throughout the handrail connections at elevation 65’.</p> <p>Recommendation: Use a wire brush to remove existing paint from vicinity of visible corrosion. Then thoroughly clean and apply two coats of a brush on cold galvanizing compound containing at least 95% zinc if corrosion is observed. If during this process any section loss is observed, contact TEP immediately. Repaint to match.</p>
	
	<p>Observation: (1) Bent L 2”x2”x1/4” was observed on the platform handrail and elevation 65’ near B leg.</p> <p>Recommendation: An Engineer licensed in the state of Missouri should review the current condition and determine an appropriate course of action.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: (2) loose 3/4"Ø J-bolts were observed at the bottom of the platform ladder at elevation 65'.</p> <p>Recommendation: Tighten the bolt per AISC "turn-of-the-nut" method.</p>
	<p>Observation: (2) loose 5/8"Ø bolts were observed at the bottom of the platform ladder at elevation 65'.</p> <p>Recommendation: Tighten the bolt per AISC "turn-of-the-nut" method.</p>



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: (1) recessed 1/2"Ø bolt was observed on the platform bracing at elevation 65' D leg.</p> <p>Recommendation: Replace recessed bolt with new 1/2"Ø bolt of sufficient length.</p>
	<p>Observation: Minor corrosion was observed throughout the top cap of the water tank at elevation 100'.</p> <p>Recommendation: Monitor condition of the inside of each leg to ensure no material loss occurs. AWWA recommends regularly scheduled maintenance inspections every five years.</p>
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
	<p>Observation: Corrosion was observed on the water tank sections throughout the tower.</p> <p>Recommendation: Use a wire brush to remove existing paint from vicinity of visible corrosion. Then thoroughly clean and apply two coats of a brush on cold galvanizing compound containing at least 95% zinc if corrosion is observed. If during this process any section loss is observed, contact TEP immediately. Repaint to match.</p>
	
	



EXECUTIVE SUMMARY

Photographs	Observations and Recommendations
 <p>A photograph showing a close-up of a metal platform ladder's attachment point to a structure. Several bolts are visible, some appearing loose or missing. A timestamp '8.30.2021 12:50' is overlaid in orange at the bottom.</p>	<p>Observation: Loose bolts at the bottom of the platform ladder caused the ladder to be unstable and unsafe to climb. The top of the water tank was unable to be inspected.</p> <p>Recommendation: Tighten loose bolts at the bottom of the ladder to make ladder stable.</p>
 <p>A photograph of a vertical metal beam with several bolts. The beam is part of the ladder structure. A timestamp '8.30.2021 12:29' is overlaid in orange at the bottom.</p>	
 <p>A close-up photograph of a bolt and nut on a metal beam. The bolt appears to be loose or damaged. A timestamp '8.30.2021 12:24' is overlaid in orange at the bottom.</p>	



Photographs	Observations and Recommendations
 A photograph showing dense green bushes and trees inside a fenced area. A timestamp in the bottom right corner reads "8.30.2021 10:52".	<p>Observation: Overgrown vegetation was observed inside the compound.</p> <p>Recommendation: Remove overgrown vegetation inside the compound.</p>
 An aerial photograph of a white metal water tower structure. The tower is surrounded by dense green vegetation. A timestamp in the top left corner reads "8.30.2021 12:32".	<p>Observation: Equipment cabinets were found unlocked at the time of the inspection.</p> <p>Recommendation: Lock all equipment cabinets.</p>
 A close-up photograph of a metal cabinet door. A silver padlock is attached to the door, and it is in an unlocked position. A timestamp in the bottom right corner reads "8.30.2021 10:53".	

