



SCHERER DESIGN GROUP, LLC
Consulting Engineers • Construction Inspectors

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November 12, 2020

Re: Site Name: JS Seaside Park 03 SC
701 S Ocean Ave
Seaside Park, NJ 08752

To Whom It May Concern,

Scherer Design Group, LLC (SDG) has performed a Structural Assessment for an existing wooden utility pole at the above-referenced site. The proposed equipment loading is depicted within the Construction Documents, by SDG, Revision A, dated 11/12/20.

This analysis was performed using O-Calc Pro Version 5.03 modeling software. The loads considered in this analysis are in accordance with the requirements of the National Electric Safety Code (NESC) 17 (250B), Grade C, Heavy Load. The existing pole embedment was checked using O-Calc Pro, by comparing the overturning moment with the groundline moment.

The existing wooden utility pole was designed based on the following specifications:

- Class 4 Southern Pine
- 40' wooden pole with 5.5' embedment depth
- Assumed Soil Class: Class 5 – Medium dense coarse sand and sandy gravels, stiff to very stiff silts and clays

All existing pole specifications and existing loading are based upon information provided by Tilson and field verified measurements. Soil parameters were assumed based upon location. A site-specific geotechnical investigation was not performed. This analysis assumes the information provided is correct and the existing pole was installed plumb and free of unreasonable defects. SDG should be notified if any discrepancies are discovered between the actual conditions and the assumptions stated above.

Based upon this Structural Assessment, the existing utility pole was found to be structurally adequate to support the existing load and proposed antenna and equipment installations. However, if the actual conditions vary from the above-mentioned or if any deficiencies in the existing wooden utility pole are discovered at the time of construction, the contractor must immediately report these discrepancies or deficiencies to the Design Engineer for review.

Should you have any questions regarding any of the above information, please call me at 908-323-2513.

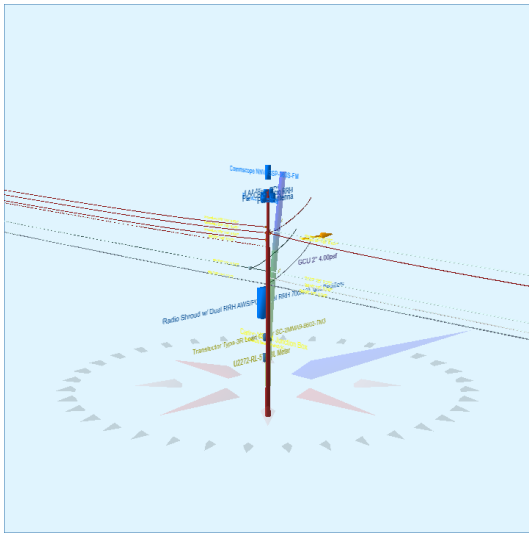
Regards,



Colleen Connolly, P.E.
NJ PE#24GE04133700

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Pole Num:	JS Seaside Park 03 SC	Pole Length / Class:	40 / 4	Code:	NESC	Structure Type:	Unguyed Tangent
Aux Data 1	Unset	Species:	SOUTHERN PINE	NESC Rule:	Rule 250B	Status	Unguyed
Aux Data 2	Unset	Setting Depth (ft):	5.50	Construction Grade:	C	Pole Strength Factor:	0.85
Aux Data 3	Unset	G/L Circumference (in):	33.68	Loading District:	Heavy	Transverse Wind LF:	1.75
Aux Data 4	Unset	G/L Fiber Stress (psi):	8,000	Ice Thickness (in):	0.50	Wire Tension LF:	1.00
Aux Data 5	Unset	Allowable Stress (psi):	6,800	Wind Speed (mph):	39.53	Vertical LF:	1.90
Aux Data 6	Unset	Fiber Stress Ht. Reduc:	No	Wind Pressure (psf):	4.00		
Latitude:	39.917657 Deg	Longitude:	-74.076518 Deg	Elevation:	0 Feet		



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	37.3	0.0
Groundline	37.3	0.0
Vertical	15.4	20.2

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	25,110	0.8
Groundline	25,110	0.8
GL Allowable	68,571	
Overturn	39,564	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 0.8°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Powers	342	29.8	9,176	36.5	13.4	898	567	6	904	13.3
Comms	474	41.4	9,579	38.2	14.0	937	952	11	948	13.9
GenericEquipments	154	13.4	3,222	12.8	4.7	315	996	11	326	4.8
Pole	175	15.3	3,106	12.4	4.5	304	1,654	18	322	4.7
Insulators	1	0.1	28	0.1	0.0	3	55	1	3	0.0
Pole Load	1,146	100.0	25,110	100.0	36.6	2,456	4,225	47	2,503	36.8
Pole Reserve Capacity			43,461		63.4	4,344			4,297	63.2

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 0.8°										
	Shear Load* (lbs)	Applied Load (%)	Bending Moment (ft-lb)	Applied Moment (%)	Pole Capacity (%)	Bending Stress (+/- psi)	Vertical Load (lbs)	Vertical Stress (psi)	Total Stress (psi)	Pole Capacity (%)
Existing	671	58.6	15,548	61.9	22.7	1,521	1,282	14	1,535	22.6
Proposed	300	26.1	6,456	25.7	9.4	632	1,289	14	646	9.5
Pole	175	15.3	3,106	12.4	4.5	304	1,654	18	322	4.7
Totals:	1,146	100.0	25,110	100.0	36.6	2,456	4,225	47	2,503	36.8

Detailed Load Components:

Power	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Secondary	DUPLEX 6 AWG	Existing	28.00	5.57	0.5370	2.10	0.071	145.0	270.0	145.0	150	-55	-1	1,819	1,763
Secondary	DUPLEX 6 AWG	Existing	27.00	5.63	0.5370	2.05	0.071	126.0	90.0	126.1	100	36	1	1,524	1,560
Secondary	DUPLEX 6 AWG	Existing	27.00	6.38	0.5370		0.071	43.0	327.0	43.1		0	38	38	
Secondary	DUPLEX 6 AWG	Existing	26.97	6.03	0.5370		0.071	43.0	327.0	43.1		0	38	38	
Secondary	DUPLEX 6 AWG	Existing	27.00	5.63	0.5370	2.10	0.071	145.0	270.0	145.0	150	-53	-1	1,754	1,700
Secondary	DUPLEX 6 AWG	Existing	25.75	5.70	0.5370	2.10	0.071	145.0	270.0	145.0	150	-51	-1	1,673	1,621
Secondary	DUPLEX 6 AWG	Proposed	24.64	6.42	0.5370		0.071	145.0	270.0	145.0		0	420	420	
Overlashed Bundle	6M	Existing	27.00	6.03	0.2420	2.87	0.104	43.0	327.0	43.1	20	449	0	146	595
Overlashed Bundle	6M	Proposed	24.67	6.42	0.2420	1.56	0.104	145.0	270.0	145.0	450	-146	0	1,464	1,317
Totals:											179	-3	8,875	9,052	

Comm	Owner	Height (ft)	Horiz. Offset (in)	Cable Diameter (in)	Sag at Max Temp (ft)	Cable Weight (lbs/ft)	Lead/Span Length (ft)	Span Angle (deg)	Wire Length (ft)	Tension (lbs)	Tension Moment* (ft-lb)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
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Overlashed Bundle	6M	Existing	27.50	6.25	0.2420	0.34	0.104	126.0	90.0	126.0	850	307	0	1,284	1,592
Overlashed Bundle	6M	Existing	20.25	6.68	0.2420	0.32	0.104	126.0	90.0	126.0	900	240	39	945	1,224
Overlashed Bundle	6M	Existing	20.25	6.68	0.2420	1.75	0.104	145.0	270.0	145.0	1,250	-333	40	1,219	926
CATV	CATV .50	Existing	20.22	6.68	0.5700		0.600	145.0	270.0	145.0			78	363	441
CATV	CATV .25	Existing	20.16	60.35	0.2500	1.23	0.091	43.0	327.0	43.1	20	324	1	97	421
Overlashed Bundle	6M	Proposed	19.25	6.73	0.2420	1.60	0.104	126.0	90.0	126.0	500	127	0	1,017	1,144
Fiber	Fiber	Proposed	19.21	6.73	0.6250		0.190	126.0	90.0	126.0			1	309	310
Overlashed Bundle	6M	Existing	18.25	6.79	0.2420	1.68	0.104	126.0	90.0	126.0	750	180	-45	1,104	1,239
Telco	TELE 1.0	Existing	18.20	6.79	1.0000		0.400	126.0	90.0	126.0			-65	433	368
Overlashed Bundle	6M	Existing	18.25	6.79	0.2420	1.63	0.104	145.0	270.0	145.0	1,000	-240	-52	1,271	979
Telco	TELE 1.0	Existing	18.20	6.78	1.0000		0.400	145.0	270.0	145.0			-75	498	423
Telco	TELE 0.25	Existing	18.25	6.79	0.2500	1.23	0.091	43.0	327.0	43.1	20	303	-13	91	382
Totals:											908	-89	8,631	9,449	

GenericEquipment		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Cylinder	Commscope NNVVSSP-360S-FM	Proposed	37.42	0.83	0.0	0.0	26.70	28.70	--	12.00	--	-4	626	623
Box	CBRS Micro RRH	Proposed	34.08	7.44	90.0	0.0	35.00	13.91	4.15	--	8.55	1	153	154
Box	LAA Micro RRH	Proposed	34.08	6.87	270.0	0.0	35.00	8.90	3.00	--	9.10	-1	71	70
Box	Panel Antenna	Proposed	33.17	12.47	90.0	0.0	35.00	18.50	6.90	--	9.60	1	329	330
Box	Panel Antenna	Proposed	33.17	12.47	180.0	0.0	35.00	18.50	6.90	--	9.60	-69	458	389
Box	Panel Antenna	Proposed	33.17	12.47	270.0	0.0	35.00	18.50	6.90	--	9.60	-1	329	328
Box	Transtector Type-3R Load Center SC-2MMA9-8602-TM3	Proposed	8.62	8.02	270.0	0.0	20.00	14.85	6.32	--	9.20	0	63	63
Box	Carlson NS664 Junction Box	Proposed	8.25	6.88	0.0	0.0	2.38	6.00	4.00	--	6.00	3	23	26
Box	U2272-RL-5T9-BL Meter	Proposed	5.00	7.49	270.0	0.0	25.00	18.50	4.84	--	10.00	0	35	34
Box	Radio Shroud w/ Dual RRH AWS/PCS, Dual RRH 700/850, and Rectifiers	Proposed	14.67	12.50	270.0	0.0	275.00	64.00	16.00	--	23.00	-7	1,168	1,161
Totals:											-78	3,256	3,178	

Insulator		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Diameter (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)
Spool	Spool 2.5"	Existing	28.00	0.00	270.0	270.0	1.00	2.50	2.12	0	7	7
Bolt	Single Bolt	Existing	27.50	0.00	90.0	90.0	5.00	3.00	0.00	0	0	0
Spool	Spool 2.5"	Existing	27.00	0.00	90.0	90.0	1.00	2.50	2.12	0	7	7
Spool	Spool 2.5"	Existing	27.00	0.00	270.0	270.0	1.00	2.50	2.12	0	7	7
Spool	Spool 2.5"	Existing	25.75	0.00	270.0	270.0	1.00	2.50	2.12	0	7	7
Bolt	Single Bolt	Proposed	24.67	0.00	270.0	270.0	5.00	3.00	0.00	0	0	0
Bolt	Single Bolt	Existing	20.25	0.00	0.0	0.0	5.00	3.00	0.00	5	0	5
Bolt	Single Bolt	Proposed	19.25	0.00	90.0	90.0	5.00	3.00	0.00	0	0	0

Bolt	Single Bolt	Existing	18.25	0.00	180.0	180.0	5.00	3.00	0.00	-5	0	-5
Totals:										0	28	28

Pole Buckling													
Buckling Constant	Buckling Column Height* (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diameter (in)	Minimum Buckling Diameter at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Load Capacity at Height (lbs)	Buckling Load Applied at Height (lbs)	Buckling Load Factor of Safety
2.00	20.15	33.30	9.94	14.95	6.69	10.73	1.60e+6	60.00	57.00	34.50	27,466	274.33	6.49