



SCHERER DESIGN GROUP, LLC
Consulting Engineers • Construction Inspectors

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November 13, 2020

Re: Site Name: JS Seaside Park 08 SC
102 F St.
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 6.0' 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.

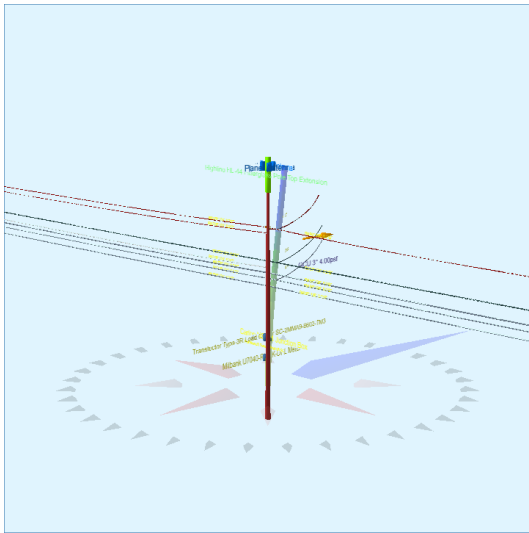
Regards,



Colleen Connolly, P.E.
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Pole Num:	JS Seaside Park 08 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):	6.00	Construction Grade:	C	Pole Strength Factor:	0.85
Aux Data 3	Unset	G/L Circumference (in):	33.50	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:	39.927630 Deg	Longitude:	-74.077890 Deg	Elevation:	0 Feet		



Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	46.6	0.0
Groundline	46.6	0.0
Vertical	22.0	21.3

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	30,859	5.6
Groundline	30,859	5.6
GL Allowable	67,455	
Overturn	54,510	

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 5.6°										
	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	189	13.8	5,346	17.3	7.9	529	467	5	534	7.9
Comms	911	66.8	19,398	62.9	28.8	1,919	2,568	29	1,948	28.6
GenericEquipments	92	6.8	3,070	10.0	4.6	304	472	5	309	4.5
Pole	172	12.6	3,021	9.8	4.5	299	1,618	18	317	4.7
Insulators	1	0.0	24	0.1	0.0	2	61	1	3	0.0
Pole Load	1,364	100.0	30,859	100.0	45.8	3,053	5,186	58	3,111	45.7
Pole Reserve Capacity			36,596		54.3	3,747			3,689	54.3

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 5.6°										
	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	1,039	76.1	23,284	75.5	34.5	2,303	2,825	32	2,335	34.3
Proposed	154	11.3	4,554	14.8	6.8	451	743	8	459	6.7
Pole	172	12.6	3,021	9.8	4.5	299	1,618	18	317	4.7
Totals:	1,364	100.0	30,859	100.0	45.8	3,053	5,186	58	3,111	45.7

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	27.99	5.61	0.5370	0.071	138.0	90.0	138.0			2	400	402	
Secondary	DUPLEX 6 AWG	Existing	27.97	6.04	0.5370	0.071	138.0	90.0	138.0			3	399	402	
Secondary	DUPLEX 6 AWG	Existing	27.99	6.29	0.5370	0.071	124.0	270.0	124.0			-3	358	355	
Secondary	DUPLEX 6 AWG	Existing	27.97	5.85	0.5370	0.071	124.0	270.0	124.0			-2	358	356	
Secondary	DUPLEX 6 AWG	Existing	27.99	6.30	0.5370	0.071	40.0	330.0	40.4			-1	37	36	
Secondary	DUPLEX 6 AWG	Existing	27.97	5.89	0.5370	0.071	40.0	330.0	40.4			-1	36	36	
Secondary	DUPLEX 6 AWG	Proposed	26.97	6.25	0.5370	0.071	124.0	270.0	124.0			-3	391	389	
Overlashed Bundle	6M	Existing	28.00	5.94	0.2420	2.84	0.104	138.0	90.0	138.0	250	687	3	1,520	2,210
Overlashed Bundle	6M	Existing	28.00	5.94	0.2420	1.67	0.104	124.0	270.0	124.0	400	-1,099	-2	1,365	264
Overlashed Bundle	6M	Existing	28.00	5.94	0.2420	4.94	0.104	40.0	330.0	40.4	10	228	-1	139	366
Overlashed Bundle	6M	Proposed	27.00	6.25	0.2420	1.49	0.104	124.0	270.0	124.0	350	-927	-3	1,363	433
										Totals:	-1,111	-9	6,366	5,246	

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)	
Overlashed Bundle	6M	Existing	22.00	6.54	0.2420	2.86	0.104	138.0	90.0	138.0	2,750	5,934	23	1,110	7,066
CATV	CATV .50	Existing	21.97	6.60	0.5700		0.600	138.0	90.0	138.0			58	229	288
CATV	CATV .50	Existing	22.02	6.77	0.5700		0.600	138.0	90.0	138.0			60	230	290
CATV	CATV .50	Existing	22.00	6.41	0.5700		0.600	138.0	90.0	138.0			56	229	286
CATV	CATV .50	Existing	22.03	6.55	0.5700		0.600	138.0	90.0	138.0			58	230	288
CATV	CATV .50	Existing	21.99	6.72	0.5700		0.600	138.0	90.0	138.0			60	229	289
Overlashed Bundle	6M	Existing	22.00	6.54	0.2420	2.84	0.104	124.0	270.0	124.0	2,250	-4,855	21	1,018	-3,816
CATV	CATV .50	Existing	21.97	6.55	0.5700		0.600	124.0	270.0	124.0			53	227	280
CATV	CATV .50	Existing	22.00	6.70	0.5700		0.600	124.0	270.0	124.0			55	227	282
CATV	CATV .50	Existing	22.00	6.39	0.5700		0.600	124.0	270.0	124.0			51	227	279
CATV	CATV .50	Existing	22.03	6.53	0.5700		0.600	124.0	270.0	124.0			53	227	280
CATV	CATV .50	Existing	21.96	6.76	0.5700		0.600	124.0	270.0	124.0			55	227	282
CATV	CATV .25	Existing	22.00	6.54	0.2500	1.87	0.091	40.0	330.0	40.3	10	179	11	101	291
Overlashed Bundle	6M	Proposed	21.00	6.60	0.2420	1.98	0.104	124.0	270.0	124.0	375	-772	-3	1,086	310
Fiber	Fiber	Proposed	20.96	6.60	0.6250		0.190	124.0	270.0	124.0			-4	331	327
Overlashed Bundle	6M	Existing	20.00	6.66	0.2420	1.99	0.104	138.0	90.0	138.0	1,000	1,962	52	1,398	3,412
Telco	TELE 1.25	Existing	19.94	6.66	1.2500		0.600	138.0	90.0	138.0			88	596	684
Overlashed Bundle	6M	Existing	20.00	6.66	0.2420	2.02	0.104	124.0	270.0	124.0	800	-1,569	48	1,268	-254
Telco	TELE 1.25	Existing	19.94	6.67	1.2500		0.600	124.0	270.0	124.0			80	547	627
Overlashed Bundle	6M	Existing	19.00	6.72	0.2420	1.49	0.104	138.0	90.0	138.0	1,000	1,864	48	1,251	3,162
Telco	TELE 1.0	Existing	18.95	6.73	1.0000		0.400	138.0	90.0	138.0			70	489	559
Overlashed Bundle	6M	Existing	19.00	6.72	0.2420	1.53	0.104	124.0	270.0	124.0	800	-1,491	43	1,114	-334
Telco	TELE 1.0	Existing	18.95	6.72	1.0000		0.400	124.0	270.0	124.0			62	430	492
Telco	TELE .25	Existing	19.00	6.72	0.2500	1.87	0.091	40.0	330.0	40.3	10	154	12	87	253
Overlashed Bundle	6M	Existing	18.00	6.78	0.2420	1.49	0.104	138.0	90.0	138.0	1,000	1,765	-49	1,185	2,902
Telco	TELE 1.0	Existing	17.95	6.78	1.0000		0.400	138.0	90.0	138.0			-70	463	393
Overlashed Bundle	6M	Existing	18.00	6.78	0.2420	1.74	0.104	124.0	270.0	124.0	700	-1,236	-43	1,055	-224
Telco	TELE 1.0	Existing	17.95	6.77	1.0000		0.400	124.0	270.0	124.0			-63	407	344
Totals:											1,934	887	16,216	19,037	

Generic Equipment	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)	
Box	Panel Antenna	Proposed	38.42	12.13	5.0	0.0	35.00	18.50	6.90	--	9.60	67	530	597
Box	Panel Antenna	Proposed	38.42	12.13	125.0	0.0	35.00	18.50	6.90	--	9.60	-33	420	387
Box	Panel Antenna	Proposed	38.42	12.13	245.0	0.0	35.00	18.50	6.90	--	9.60	-34	416	382
Cylinder	Highline HL-44 Fiberglass Pole Top Extension	Proposed	37.00	0.83	0.0	0.0	96.00	72.00	--	12.00	--	-13	1,552	1,539

Box	Transtector Type-3R Load Center SC- 2MMA9-8602-TM3	Proposed	8.62	7.99	270.0	0.0	20.00	14.85	6.32	--	9.20	-2	63	60
Box	Carlon NS664 Junction Box	Proposed	8.25	6.85	0.0	0.0	2.38	6.00	4.00	--	6.00	3	23	26
Box	Milbank U7040-RL-KK- DPL Meter	Proposed	5.00	7.10	270.0	0.0	25.00	14.56	4.13	--	11.00	-3	24	21
Totals:											-15	3,028	3,012	

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	90.0	90.0	1.00	2.50	2.12	0	7	7
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	Proposed	27.00	0.00	270.0	270.0	5.00	3.00	0.00	0	0	0
Bolt	Single Bolt	Existing	22.00	0.00	0.0	0.0	5.00	3.00	0.00	5	0	5
Bolt	Single Bolt	Proposed	21.00	0.00	270.0	270.0	5.00	3.00	0.00	-1	0	-1
Bolt	Single Bolt	Existing	20.00	0.00	0.0	0.0	5.00	3.00	0.00	5	0	5
Bolt	Single Bolt	Existing	19.00	0.00	0.0	0.0	5.00	3.00	0.00	5	0	5
Bolt	Single Bolt	Existing	18.00	0.00	180.0	180.0	5.00	3.00	0.00	-5	0	-5
Totals:										9	14	24

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	21.30	33.51	9.83	16.88	6.69	10.67	1.60e+6	60.00	57.00	34.00	23,525	235.74	4.55