



SOIL AND WATER CONSULTING

Data Collection Report



Spring 2021



	<u>5/9/18</u>	<u>5/10/19</u>	<u>5/18/21</u>
Humidity/Air Temperature	49%/69°	60%/75°	30%/79°
Fairway Temperature	(avg)67°	(avg)63.5°	(avg)62.8°
Greens Temperature	(avg)73.3°	(avg)63°	(avg)63.2°

WATER	Acceptable Range For Water Sample	Irrigation Water	Irrigation Water	Irrigation Water
		<u>5/9/17</u>	<u>5/10/19</u>	<u>5/18/21</u>
pH	6.0-6.5	6.72	7.13	6.43
EC	<2.25 mmhos/cm	0.25	0.14	0.19
Sodium		55.56	10.54	23.51
Calcium	20 - 60 ppm	12.13	12.09	11.25
Magnesium	10 - 25 ppm	2.95	3.62	3.68
Potassium	5 - 20 ppm	3.14	2.56	4.89
Sulfur	30 - 90 ppm	7.87	9.88	9.54
Bicarbonate	<120 ppm	53.73	58.32	63.53
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	73.19	9.53	22.47

TEES	Acceptable Range For Standard Soil Sample	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19	9,18 (avg) 5/18/21
Organic Matter (Humus)	2 - 3%	2.02	2.75	3.02
Sulfur	50 - 100 ppm	6.50	15.50	24.00
Mehlich III - Phosphorus	350 lbs/acre	279.50	199.50	5.00
Calcium	68%	74.21	67.88	68.16
Magnesium	15%	13.18	13.17	12.82
Potassium	5%	1.49	1.45	1.82
Sodium	<2%	2.76	1.87	1.59
Boron	1 - 1.5 ppm	0.59	0.44	0.38
Iron	120 ppm	189.00	243.00	229.00
Manganese	50 ppm	6.50	8.50	10.00

FAIRWAYS	Acceptable Range For Standard Soil Sample	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19	9,18 (avg) 5/18/21
Organic Matter (Humus)	2 - 3%	3.51	3.69	3.42
Sulfur	50 - 100 ppm	15.50	27.00	18.50
Mehlich III - Phosphorus	350 lbs/acre	401.00	476.00	481.00
Calcium	68%	65.80	66.76	59.49
Magnesium	15%	15.29	15.27	11.99
Potassium	5%	1.97	2.36	3.24
Sodium	<2%	2.14	1.65	1.61
Boron	1 - 1.5 ppm	0.79	0.79	0.45
Iron	120 ppm	234.00	292.50	309.50
Manganese	50 ppm	7.50	14.50	10.00

GREENS	Acceptable Range For Standard Soil Sample	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19	9,18 (avg) 5/18/21
Organic Matter (Humus)	2 - 3%	0.94	1.64	1.07
Sulfur	50 - 100 ppm	3.50	47.50	8.00
Mehlich III - Phosphorus	350 lbs/acre	165.00	176.00	142.50
Calcium	68%	62.06	65.38	68.50
Magnesium	15%	24.77	16.33	19.10
Potassium	5%	1.50	8.70	3.14
Sodium	<2%	5.84	2.79	2.53
Boron	1 - 1.5 ppm	0.58	0.33	<0.22
Iron	120 ppm	80.00	92.50	93.00
Manganese	50 ppm	18.50	27.00	25.00

TEES	Acceptable Range For Saturated Paste Sample	3,17 (avg) 5/10/19	9,18 (avg) 5/18/21
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.75
Phosphorus	2 - 10 ppm	0.35	0.47
Potassium	40 - 100 ppm	13.93	18.30
Calcium	60 - 200 ppm	36.06	47.98
Magnesium	20 - 70 ppm	10.61	11.64
Sodium	0 - 30 ppm	9.81	15.63
Soluble Salts	<1,920 ppm	164.00	263.00
Bicarbonate	<60 ppm	57.35	60.37
Chloride	<1,000 ppm	20.00	18.50
SAR	<4%	0.37	0.59

FAIRWAYS	Acceptable Range For Saturated Paste Sample	3,17 (avg) 5/10/19	9,18 (avg) 5/18/21
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.44	1.41
Potassium	40 - 100 ppm	17.00	16.59
Calcium	60 - 200 ppm	38.09	20.47
Magnesium	20 - 70 ppm	12.86	4.47
Sodium	0 - 30 ppm	17.00	9.16
Soluble Salts	<1,920 ppm	212.50	122.00
Bicarbonate	<60 ppm	73.21	33.12
Chloride	<1,000 ppm	25.00	13.00
SAR	<4%	0.52	0.48

GREENS	Acceptable Range For Saturated Paste Sample	3,17 (avg) 5/10/19	9,18 (avg) 5/18/21
Nitrate - Bentgrass	1-3 ppm	<0.5	0.95
Phosphorus	2 - 7 ppm	0.34	0.98
Potassium	25-40 ppm	130.02	20.24
Calcium	50- 75 ppm	71.53	18.38
Magnesium	15-30 ppm	22.25	6.32
Sodium	0 - 30 ppm	8.01	9.84
Soluble Salts	<1,000 ppm	542.00	146.00
Bicarbonate	<60 ppm	113.48	52.83
Chloride	<200 ppm	15.50	6.50
SAR	<4%	0.22	0.51



	<u>5/8/18</u>	<u>5/7/19</u>	<u>5/13/21</u>
Humidity/Air Temperature	39%/73°	80%/63°	40%/70°
Fairway Temperature	(avg)68.8°	(avg)62.5°	(avg)54.1°
Greens Temperature	(avg)71.9°	(avg)63.1°	(avg)50.1°

WATER	Acceptable Range For Water Sample	Hole #2 5/8/18	Pond 5/7/19	Pond 5/13/21
pH	6.0-6.5	7.46	7.53	7.86
EC	<2.25 mmhos/cm	1.06	0.88	1.20
Sodium		111.10	126.00	148.90
Calcium	20 - 60 ppm	65.48	27.63	40.00
Magnesium	10 - 25 ppm	18.23	13.02	28.46
Potassium	5 - 20 ppm	2.21	3.41	2.32
Sulfur	30 - 90 ppm	22.82	9.93	18.96
Bicarbonate	<120 ppm	183.68	146.91	211.29
Boron	<0.67 ppm	<0.05	<0.05	<0.5
Chloride	<177 ppm	217.87	206.80	236.42

TEES	Acceptable Range For Standard Soil Sample	2,11 (avg) 5/8/18	4,13(avg) 5/7/19	5,14(avg) 5/13/21
Organic Matter (Humus)	2 - 3%	3.78	3.64	3.21
Sulfur	50 - 100 ppm	11.00	26.50	33.50
Mehlich III - Phosphorus	350 lbs/acre	666.50	831.00	1055.50
Calcium	68%	75.09	67.89	75.63
Magnesium	15%	12.66	13.12	14.64
Potassium	5%	3.45	4.22	3.24
Sodium	<2%	1.97	1.60	2.29
Boron	1 - 1.5 ppm	0.77	0.67	0.65
Iron	120 ppm	168.50	220.50	364.50
Manganese	50 ppm	40.00	67.00	32.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	2,11 (avg) 5/8/18	4,13(avg) 5/7/19	5,14(avg) 5/13/21
Organic Matter (Humus)	2 - 3%	4.95	4.45	5.49
Sulfur	50 - 100 ppm	17.00	16.50	19.00
Mehlich III - Phosphorus	350 lbs/acre	341.00	259.00	272.50
Calcium	68%	70.07	67.42	68.72
Magnesium	15%	14.99	17.54	18.51
Potassium	5%	4.34	4.81	4.98
Sodium	<2%	2.18	1.82	2.57
Boron	1 - 1.5 ppm	0.35	0.74	0.57
Iron	120 ppm	91.50	114.50	159.00
Manganese	50 ppm	64.50	91.50	123.50

GREENS	Acceptable Range For Standard Soil Sample	2,11 (avg) 5/8/18	4,13(avg) 5/7/19	5,14(avg) 5/13/21
Organic Matter (Humus)	2 - 3%	3.01	3.23	2.59
Sulfur	50 - 100 ppm	36.50	49.50	61.50
Mehlich III - Phosphorus	350 lbs/acre	449.00	506.00	428.00
Calcium	68%	71.92	70.41	70.06
Magnesium	15%	16.47	18.36	17.17
Potassium	5%	4.69	5.12	5.60
Sodium	<2%	2.68	1.97	3.13
Boron	1 - 1.5 ppm	0.35	0.77	1.29

TEES	Acceptable Range For Saturated Paste Sample	4,13 (avg) 5/7/19	5,14(avg) 5/13/21
Nitrate - Poa/Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.57	0.72
Potassium	40 - 100 ppm	23.62	41.45
Calcium	60 - 200 ppm	45.44	107.19
Magnesium	20 - 70 ppm	11.31	24.29
Sodium	0 - 30 ppm	13.74	52.32
Soluble Salts	<1,920 ppm	243.00	547.00
Bicarbonate	<60 ppm	92.74	114.76
Chloride	<1,000 ppm	37.50	77.50
SAR	<4%	0.47	1.09

FAIRWAYS	Acceptable Range For Saturated Paste Sample	4,13 (avg) 5/7/19	5,14(avg) 5/13/21
Nitrate - Poa/Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.31	0.25
Potassium	40 - 100 ppm	17.19	13.79
Calcium	60 - 200 ppm	35.64	32.06
Magnesium	20 - 70 ppm	9.99	9.75
Sodium	0 - 30 ppm	15.06	26.31
Soluble Salts	<1,920 ppm	206.00	234.50
Bicarbonate	<60 ppm	54.91	94.13
Chloride	<1,000 ppm	39.50	35.50
SAR	<4%	0.58	1.06

GREENS	Acceptable Range For Saturated Paste Sample	4,13 (avg) 5/7/19	5,14(avg) 5/13/21
Nitrate - Poa/Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.31	0.25
Potassium	25-40 ppm	45.14	71.67
Calcium	50- 75 ppm	82.60	73.75
Magnesium	15-30 ppm	23.18	20.93
Sodium	0 - 30 ppm	21.54	41.19
Soluble Salts	<1,000 ppm	409.50	502.50
Bicarbonate	<60 ppm	142.76	64.15



	<u>5/10/18</u>	<u>5/9/19</u>	<u>5/11/21</u>
Humidity/Air Temperature	75%/75°	80%/60°	50%/64°
Fairway Temperature	(avg)71.2°	(avg)62.8°	(avg)55°
Greens Temperature	(avg)72.7°	(avg)61.15°	(avg)53.45°

WATER	Acceptable Range For Water Sample	Hole #9 <u>5/10/18</u>	Pond <u>5/9/19</u>	Pond <u>5/11/21</u>
pH	6.0-6.5	6.24	6.28	6.10
EC	<2.25 mmhos/cm	0.44	0.25	0.40
Sodium		41.10	20.19	36.64
Calcium	20 - 60 ppm	28.33	16.53	20.50
Magnesium	10 - 25 ppm	5.99	4.14	6.25
Potassium	5 - 20 ppm	4.88	4.69	5.06
Sulfur	30 - 90 ppm	43.83	36.42	38.25
Bicarbonate	<120 ppm	26.86	33.22	22.84
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	72.34	36.42	66.21

TEES	Acceptable Range For Standard Soil Sample	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7 (avg) <u>5/9/19</u>	Blue 9, White 9 (avg) <u>5/11/21</u>
Organic Matter (Humus)	2 - 3%	5.54	4.71	4.64
Sulfur	50 - 100 ppm	117.50	24.50	21.50
Mehlich III - Phosphorus	350 lbs/acre	861.00	996.00	852.00
Calcium	68%	62.29	55.08	60.19
Magnesium	15%	12.82	12.80	14.29
Potassium	5%	2.77	3.77	4.66
Sodium	<2%	2.51	1.54	2.02
Boron	1 - 1.5 ppm	0.43	0.85	0.56
Iron	120 ppm	453.00	479.00	626.00
Manganese	50 ppm	5.00	9.00	11.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7 (avg) <u>5/9/19</u>	Blue 9, White 9 (avg) <u>5/11/21</u>
Organic Matter (Humus)	2 - 3%	4.47	5.36	3.82
Sulfur	50 - 100 ppm	30.50	89.50	17.50
Mehlich III - Phosphorus	350 lbs/acre	943.50	744.00	632.00
Calcium	68%	70.13	61.85	68.71
Magnesium	15%	11.57	12.76	13.04
Potassium	5%	3.74	4.45	4.52
Sodium	<2%	2.15	1.40	1.32
Boron	1 - 1.5 ppm	0.45	0.81	0.54
Iron	120 ppm	394.50	485.00	523.50
Manganese	50 ppm	4.00	7.00	5.50

GREENS	Acceptable Range For Standard Soil Sample	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7 (avg) <u>5/9/19</u>	Blue 9, White 9 (avg) <u>5/11/21</u>
Organic Matter (Humus)	2 - 3%	2.83	3.45	2.37
Sulfur	50 - 100 ppm	32.00	46.00	44.00
Mehlich III - Phosphorus	350 lbs/acre	1,021.50	973.50	1,053.50
Calcium	68%	67.21	63.87	69.82
Magnesium	15%	11.88	11.78	12.12
Potassium	5%	3.88	4.43	3.64
Sodium	<2%	2.82	1.93	2.03
Boron	1 - 1.5 ppm	0.29	0.79	0.62
Iron	120 ppm	454.50	588.00	726.00
Manganese	50 ppm	8.50	10.00	10.50

TEE	Acceptable Range For Saturated Paste Sample	Red 7, White 7(avg) <u>5/9/19</u>	Blue 9, White 9 (avg) <u>5/11/21</u>
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.54	0.65
Potassium	40 - 100 ppm	13.73	9.69
Calcium	60 - 200 ppm	26.77	17.18
Magnesium	20 - 70 ppm	8.32	5.15
Sodium	0 - 30 ppm	12.12	11.11
Soluble Salts	<1,920 ppm	155.50	128.00
Bicarbonate	<60 ppm	58.57	27.83
Chloride	<1,000 ppm	16.00	15.00
SAR	<4%	0.53	0.61

FAIRWAY	Acceptable Range For Saturated Paste Sample	Red 7, White 7(avg) <u>5/9/19</u>	Blue 9, White 9 (avg) <u>5/11/21</u>
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.48	0.65
Potassium	40 - 100 ppm	20.49	12.41
Calcium	60 - 200 ppm	84.99	19.71
Magnesium	20 - 70 ppm	19.75	5.24
Sodium	0 - 30 ppm	19.75	9.06
Soluble Salts	<1,920 ppm	355.50	118.00
Bicarbonate	<60 ppm	40.35	35.79
Chloride	<1,000 ppm	20.00	14.00
SAR	<4%	0.57	0.47

GREENS	Acceptable Range For Saturated Paste Sample	Red 7, White 7(avg) <u>5/9/19</u>	Blue 9, White 9 (avg) <u>5/11/21</u>
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.9
Phosphorus	2 - 7 ppm	0.28	0.61
Potassium	25-40 ppm	31.48	26.95
Calcium	50- 75 ppm	44.24	39.56
Magnesium	15-30 ppm	15.00	9.49
Sodium	0 - 30 ppm	11.77	13.24
Soluble Salts	<1,000 ppm	312.00	333.50
Bicarbonate	<60 ppm	51.25	34.64
Chloride	<200 ppm	9.50	13.50
SAR	<4%	0.37	0.00



	<u>5/8/18</u>	<u>5/8/19</u>	<u>5/11/21</u>
Humidity/Air Temperature	56%/65°	rain/61°	30%/64°
Fairway Temperature	(avg)62.75°	(avg)63.8°	(avg)59.6°
Greens Temperature	(avg)62.75°	(avg)63.7°	(avg)62.65°

WATER	Acceptable Range For Water Sample	Hole 5/8/18	Pond 5/8/19	Pond 5/11/21
pH	6.0-6.5	7.34	6.83	7.35
EC	<2.25 mmhos/cm	0.29	0.22	0.23
Sodium		12.51	4.55	8.10
Calcium	20 - 60 ppm	30.63	28.54	25.52
Magnesium	10 - 25 ppm	7.40	6.52	6.88
Potassium	5 - 20 ppm	3.62	3.18	4.33
Sulfur	30 - 90 ppm	47.16	28.63	21.81
Bicarbonate	<120 ppm	74.78	97.45	110.64
Boron	<0.67 ppm	0.05	0.06	0.06
Chloride	<177 ppm	12.43	<2.0	<2.0

TEES	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19	4,12 (avg) 5/11/21
Organic Matter (Humus)	2 - 3%	2.90	2.76	2.25
Sulfur	50 - 100 ppm	135.50	26.00	28.00
Mehlich III - Phosphorus	350 lbs/acre	561.00	616.00	623.00
Calcium	68%	63.81	66.51	67.58
Magnesium	15%	11.97	13.48	15.83
Potassium	5%	3.26	3.77	6.54
Sodium	<2%	3.04	2.27	2.42
Boron	1 - 1.5 ppm	0.54	0.82	0.69
Iron	120 ppm	452.50	611.00	806.50
Manganese	50 ppm	8.50	19.00	20.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19	4,12 (avg) 5/11/21
Organic Matter (Humus)	2 - 3%	2.15	3.69	1.83
Sulfur	50 - 100 ppm	38.00	41.50	27.00
Mehlich III - Phosphorus	350 lbs/acre	520.00	611.50	614.00
Calcium	68%	64.26	64.78	68.67
Magnesium	15%	11.80	12.05	15.50
Potassium	5%	3.80	3.27	5.43
Sodium	<2%	3.77	1.90	2.83
Boron	1 - 1.5 ppm	0.54	0.91	0.80
Iron	120 ppm	603.00	527.50	810.50
Manganese	50 ppm	13.00	15.50	18.00

GREENS	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19	4,12 (avg) 5/11/21
Organic Matter (Humus)	2 - 3%	0.87	1.42	0.47
Sulfur	50 - 100 ppm	10.50	19.50	13.50
Mehlich III - Phosphorus	350 lbs/acre	217.50	222.50	133.00
Calcium	68%	69.36	70.40	71.63
Magnesium	15%	14.30	16.83	15.57
Potassium	5%	3.02	2.74	4.43
Sodium	<2%	6.15	3.20	3.50
Boron	1 - 1.5 ppm	<0.20	0.56	0.22
Iron	120 ppm	96.00	129.00	105.50
Manganese	50 ppm	9.50	12.00	10.00

TEES	Acceptable Range For Saturated Paste Sample	3,18 (avg) 5/8/19	4,12 (avg) 5/11/21
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.30	0.37
Potassium	40 - 100 ppm	16.76	22.33
Calcium	60 - 200 ppm	45.76	31.15
Magnesium	20 - 70 ppm	11.21	8.56
Sodium	0 - 30 ppm	18.99	16.33
Soluble Salts	<1,920 ppm	259.50	203.50
Bicarbonate	<60 ppm	81.75	42.46
Chloride	<1,000 ppm	39.00	22.50
SAR	<4%	0.65	0.67

FAIRWAYS	Acceptable Range For Saturated Paste Sample	3,18 (avg) 5/8/19	4,12 (avg) 5/11/21
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.23	0.38
Potassium	40 - 100 ppm	13.64	20.84
Calcium	60 - 200 ppm	59.11	43.57
Magnesium	20 - 70 ppm	13.30	10.73
Sodium	0 - 30 ppm	21.11	23.77
Soluble Salts	<1,920 ppm	291.00	253.00
Bicarbonate	<60 ppm	64.67	46.99
Chloride	<1,000 ppm	21.00	31.50
SAR	<4%	0.67	0.83

GREENS	Acceptable Range For Saturated Paste Sample	3,18 (avg) 5/8/19	4,12 (avg) 5/11/21
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.49	0.69
Potassium	25-40 ppm	15.03	21.54
Calcium	50- 75 ppm	49.72	23.29
Magnesium	15-30 ppm	10.05	6.05
Sodium	0 - 30 ppm	10.80	8.86
Soluble Salts	<1,000 ppm	220.50	150.00
Bicarbonate	<60 ppm	85.42	33.87
Chloride	<200 ppm	14.00	5.50
SAR	<4%	0.34	0.42



	<u>5/9/18</u>	<u>5/9/19</u>	<u>5/12/21</u>
Humidity/Air Temperature	75%/60°	85%/60°	30%/66°
Fairway Temperature	(avg)59.8°	(avg)64.45°	(avg)57.15°
Greens Temperature	(avg)56.85°	(avg)62.1°	(avg)54.8°

WATER	Acceptable Range For Water Sample	Pond Hole #12 5/9/18	Pond Hole #12 5/9/19	Pond Hole #12 5/12/21
pH	6.0-6.5	6.56	6.42	5.92
EC	<2.25 mmhos/cm	0.07	0.08	0.10
Sodium		2.13	2.83	5.11
Calcium	20 - 60 ppm	6.21	6.51	7.85
Magnesium	10 - 25 ppm	1.50	2.82	4.44
Potassium	5 - 20 ppm	2.13	2.50	2.65
Sulfur	30 - 90 ppm	6.35	8.61	7.83
Bicarbonate	<120 ppm	28.31	36.17	45.68
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	<2.00	<2.00	<2.00

TEES	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19	3,14(avg) 5/12/21
Organic Matter (Humus)	2 - 3%	1.21	1.60	0.93
Sulfur	50 - 100 ppm	11.00	30.50	38.50
Mehlich III - Phosphorus	350 lbs/acre	247.00	254.50	224.00
Calcium	68%	65.64	61.12	54.58
Magnesium	15%	14.01	12.27	9.95
Potassium	5%	4.33	5.42	8.98
Sodium	<2%	5.90	3.27	5.74
Boron	1 - 1.5 ppm	0.42	0.56	<0.20
Iron	120 ppm	269.00	251.50	229.50
Manganese	50 ppm	2.50	9.50	5.00

FAIRWAYS	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19	3,14(avg) 5/12/21
Organic Matter (Humus)	2 - 3%	5.18	5.22	4.39
Sulfur	50 - 100 ppm	15.50	35.50	40.00
Mehlich III - Phosphorus	350 lbs/acre	240.50	217.50	151.50
Calcium	68%	69.97	63.07	62.29
Magnesium	15%	12.85	12.43	12.69
Potassium	5%	4.12	3.66	6.20
Sodium	<2%	2.28	1.28	1.64
Boron	1 - 1.5 ppm	0.32	0.89	0.46
Iron	120 ppm	280.00	367.00	303.00
Manganese	50 ppm	3.50	6.50	5.00

GREENS	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19	3,14(avg) 5/12/21
Organic Matter (Humus)	2 - 3%	1.18	1.27	0.82
Sulfur	50 - 100 ppm	5.00	11.00	8.00
Mehlich III - Phosphorus	350 lbs/acre	293.00	240.50	247.00
Calcium	68%	63.05	63.93	60.99
Magnesium	15%	13.96	13.99	25.19
Potassium	5%	2.59	2.80	2.82
Sodium	<2%	7.07	3.77	2.68
Boron	1 - 1.5 ppm	<0.20	0.67	0.32
Iron	120 ppm	185.00	202.50	144.00
Manganese	50 ppm	17.00	42.00	37.50

TEES	Acceptable Range For Saturated Paste Sample	2,12 (avg) 5/9/19	3,14(avg) 5/12/21
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.6
Phosphorus	2 - 10 ppm	0.34	0.30
Potassium	40 - 100 ppm	59.09	84.41
Calcium	60 - 200 ppm	36.19	41.82
Magnesium	20 - 70 ppm	9.19	8.12
Sodium	0 - 30 ppm	10.42	11.27
Soluble Salts	<1,920 ppm	266.50	373.50
Bicarbonate	<60 ppm	43.93	10.22
Chloride	<1,000 ppm	9.00	10.00
SAR	<4%	0.40	0.46

FAIRWAYS	Acceptable Range For Saturated Paste Sample	2,12 (avg) 5/9/19	3,14(avg) 5/12/21
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.13	0.15
Potassium	40 - 100 ppm	23.36	41.74
Calcium	60 - 200 ppm	55.05	31.81
Magnesium	20 - 70 ppm	13.91	8.69
Sodium	0 - 30 ppm	6.92	9.99
Soluble Salts	<1,920 ppm	259.50	237.50
Bicarbonate	<60 ppm	85.42	29.97
Chloride	<1,000 ppm	14.00	12.50
SAR	<4%	0.22	0.41

GREENS	Acceptable Range For Saturated Paste Sample	2,12 (avg) 5/9/19	3,14(avg) 5/12/21
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.47	0.77
Potassium	25-40 ppm	10.45	10.87
Calcium	50- 75 ppm	15.94	15.70
Magnesium	15-30 ppm	4.73	8.97
Sodium	0 - 30 ppm	4.05	5.47
Soluble Salts	<1,000 ppm	102.50	125.50
Bicarbonate	<60 ppm	34.17	19.87
Chloride	<200 ppm	10.50	3.00
SAR	<4%	0.24	0.33



	<u>5/10/18</u>	<u>5/8/19</u>	<u>5/12/21</u>
Humidity/Air Temperature	75%/75°	rain/65°	36%/65°
Fairway Temperature	(avg)60.8°	(avg)65.25°	(avg)66.65°
Greens Temperature	(avg)59.1°	(avg)63.4°	(avg)61.5°

WATER	Acceptable Range For Water Sample	Hole #9 5/10/18	Pond 5/8/19	Pond 5/12/21
pH	6.0-6.5	4.49	6.38	5.94
EC	<2.25 mmhos/cm	0.21	0.12	0.25
Sodium		10.15	11.57	24.98
Calcium	20 - 60 ppm	17.15	8.17	14.08
Magnesium	10 - 25 ppm	2.20	1.65	2.53
Potassium	5 - 20 ppm	4.43	3.09	4.29
Sulfur	30 - 90 ppm	37.98	7.02	25.88
Bicarbonate	<120 ppm	0.00	40.60	32.84
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	17.87	10.21	32.00

TEES	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/10/18	5,17(avg) 5/8/19	4,15(avg) 5/12/21
Organic Matter (Humus)	2 - 3%	2.57	2.95	1.75
Sulfur	50 - 100 ppm	11.50	78.50	9.00
Mehlich III - Phosphorus	350 lbs/acre	639.00	634.50	577.50
Calcium	68%	60.60	64.68	66.25
Magnesium	15%	17.03	15.60	13.88
Potassium	5%	4.20	3.88	3.89
Sodium	<2%	3.32	1.79	1.95
Boron	1 - 1.5 ppm	<0.23	0.80	0.40
Iron	120 ppm	288.00	389.50	379.50
Manganese	50 ppm	6.00	11.50	9.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/10/18	5,17(avg) 5/8/19	4 5/12/21
Organic Matter (Humus)	2 - 3%	3.03	3.55	1.79
Sulfur	50 - 100 ppm	9.50	17.50	9.00
Mehlich III - Phosphorus	350 lbs/acre	471.50	817.50	692.00
Calcium	68%	59.30	53.04	60.79
Magnesium	15%	18.77	15.81	12.39
Potassium	5%	4.86	5.92	4.04
Sodium	<2%	3.06	1.65	2.41
Boron	1 - 1.5 ppm	<0.21	0.84	0.27
Iron	120 ppm	162.00	441.50	271.00
Manganese	50 ppm	3.50	7.00	7.00

GREENS	Acceptable Range For Standard Soil Sample	6,11 (avg) 5/10/18	5,17(avg) 5/8/19	4,15(avg) 5/12/21
Organic Matter (Humus)	2 - 3%	2.51	2.45	1.44
Sulfur	50 - 100 ppm	9.00	32.00	17.50
Mehlich III - Phosphorus	350 lbs/acre	533.50	646.00	449.00
Calcium	68%	68.60	65.72	63.50
Magnesium	15%	12.13	11.69	17.71
Potassium	5%	2.64	3.10	5.30
Sodium	<2%	4.33	2.29	2.60
Boron	1 - 1.5 ppm	<0.30	1.14	0.34
Iron	120 ppm	354.00	459.50	338.00
Manganese	50 ppm	14.50	30.00	26.50

TEES	Acceptable Range For Saturated Paste Sample	5,17 (avg) 5/8/19	4,15(avg) 5/12/21
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.96	0.89
Potassium	40 - 100 ppm	21.79	13.45
Calcium	60 - 200 ppm	32.81	13.92
Magnesium	20 - 70 ppm	12.08	4.48
Sodium	0 - 30 ppm	12.39	6.72
Soluble Salts	<1,920 ppm	195.50	114.50
Bicarbonate	<60 ppm	67.11	45.32
Chloride	<1,000 ppm	19.00	14.00
SAR	<4%	0.48	0.40

FAIRWAYS	Acceptable Range For Saturated Paste Sample	6,11 (avg) 5/10/18	4 5/12/21
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.93	1.25
Potassium	40 - 100 ppm	21.48	11.94
Calcium	60 - 200 ppm	14.27	12.31
Magnesium	20 - 70 ppm	5.81	3.26
Sodium	0 - 30 ppm	8.91	8.11
Soluble Salts	<1,920 ppm	124.00	83.00
Bicarbonate	<60 ppm	34.17	30.97
Chloride	<1,000 ppm	18.50	16.00
SAR	<4%	0.52	0.53

GREENS	Acceptable Range For Saturated Paste Sample	6,11 (avg) 5/10/18	4,15(avg) 5/12/21
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.62	0.42
Potassium	25-40 ppm	15.31	38.29
Calcium	50- 75 ppm	28.16	37.30
Magnesium	15-30 ppm	7.05	10.91
Sodium	0 - 30 ppm	11.51	12.79
Soluble Salts	<1,000 ppm	172.00	257.50
Bicarbonate	<60 ppm	57.35	93.28
Chloride	<200 ppm	10.50	12.00
SAR	<4%	0.50	0.54

Spring Application for Tees:	200 pounds of product/acre (0-0-50)	500 pounds of product/acre (Gypsum)	100 pounds of product/acre (Pro-Mag)	125 pounds of product/acre (11-55-00)
Blue Heron Pines GC	yes			
Downingtown CC				
Ramblewood CC				
Riverwinds Golf & Tennis Club				
Running Deer GC	yes	yes	yes	
Valleybrook CC	yes			

Spring Application for Fairways:	200 pounds of product/acre (0-0-50)	500 pounds of product/acre (Gypsum)	1,000 pounds of product/acre (Hi Cal Lime)	100 pounds of product/acre (Pro-Mag)	125 pounds of product/acre (11-55-00)
Blue Heron Pines GC	yes		??	yes	
Downingtown CC					
Ramblewood CC					
Riverwinds Golf & Tennis Club					
Running Deer GC					
Valleybrook CC	yes				

Monthly Applications for Greens:	2 pounds of product/1,000 sq. ft. (0-0-50)	10 pounds of product/1,000 sq. ft. (Gypsum)	3 pounds of product/1,000 sq.ft. (Pro-Mag)	3 pounds of product/1,000 sq.ft. (11-55-00)	3 pounds of product/1,000 sq.ft. (Manganese)
Blue Heron Pines GC	yes	yes	yes		yes
Downingtown CC					
Ramblewood CC	yes(White)				yes
Riverwinds Golf & Tennis Club	yes	yes	yes	yes	yes
Running Deer GC	yes	yes	yes		yes
Valleybrook CC	yes	yes	yes		yes

	Topdressing Sand 03/03/16	Topdressing Sand 04/30/17	Topdressing Sand 02/20/18	Topdressing Sand 05/12/21	USGA Recommendations
Coefficient of Uniformity	n/r	2.92	2.58	2.38	1.8-3.5
Clay	0.7	0.5	0.4	0.1	<= 3.0%
Silt	0.1	0.1	0.1	0.7	<= 5.0%
Sand	98.6	99.2	99.4	99.0	94 - 100%
Gravel	0.6	0.2	0.1	0.2	
Organic Material	<0.10	<0.10	<0.10	<0.10	
<u>Sieve #:</u>					
Fine Gravel 10	0.6	0.2	0.1	0.2	2.0mm <= 3.0%
Very Coarse Sand 18	9.3	11.3	7.6	7.5	2.0mm + 1.0mm <= 10%
Coarse Sand 35	27.4	43.6	30.5	21.8	
Medium Sand 60	45.4	33.2	42.3	50.6	0.5mm + 0.25mm >= 60%
Fine Sand 100	13.0	8.7	15.7	16.1	0.15mm <= 20%
Very Fine Sand 140	2.9	2.0	3.0	2.5	0.106mm + 0.053mm <= 5.0%
Very Fine Sand 270	0.6	0.4	0.3	0.5	
Infiltration Rate	n/r	n/r	18.9"	n/r	6 inches per hour

TOP LAYER	Blue Heron Pines 05/18/21	Downingtown 05/13/21	Ramblewood 05/11/21	Riverwinds 05/11/21	Running Deer 05/12/21	Valleybrook 05/12/21	Topdressing Sand 05/12/21
Coefficient of Uniformity	2.69	2.93	3.24	2.66	2.59	2.65	2.38
Clay	2.9	2.8	2.6	1.6	1.5	1.6	0.1
Silt	0.5	3.6	3.0	2.1	1.5	2.1	0.7
Sand	96.4	93.3	94.2	95.9	96.6	96.1	99.0
Gravel	0.2	0.3	0.2	0.4	0.4	0.2	0.2
Organic Material	3.83	5.15	1.22	1.30	2.49	2.84	<0.10
<u>Sieve #:</u>							
Fine Gravel 10	0.2	0.3	0.2	0.4	0.4	0.2	0.2
Very Coarse Sand 18	4.8	4.2	3.4	4.9	3.7	4.1	7.5
Coarse Sand 35	25.7	20.8	18.3	21.9	21.2	23.0	21.8
Medium Sand 60	45.9	50.4	48.2	45.6	51.1	49.9	50.6
Fine Sand 100	16.2	14.1	16.4	19.4	16.2	14.9	16.1
Very Fine Sand 140	3.0	3.0	6.1	2.8	3.9	3.5	2.5
Very Fine Sand 270	0.8	0.9	1.7	1.2	0.7	0.6	0.5
Infiltration Rate	3.6"	1.1"	7.9"	1.2"	1.2"	1.4"	n/r