



SOIL AND WATER CONSULTING

Data Collection Report



Spring 2019



	<u>4/24/17</u>	<u>5/9/18</u>	<u>5/10/19</u>
Humidity/Air Temperature	71%/55°	49%/69°	60%/75°
Fairway Temperature	60°	(avg)67°	(avg)63.5°
Greens Temperature	59°	(avg)73.3°	(avg)63°

WATER	Acceptable Range For Water Sample	Irrigation Water 4/24/17	Irrigation Water 5/9/17	Irrigation Water 5/10/19
pH	6.0-6.5	7.01	6.72	7.13
EC	<2.25 mmhos/cm	0.13	0.25	0.14
Sodium		17.90	55.56	10.54
Calcium	20 - 60 ppm	5.27	12.13	12.09
Magnesium	10 - 25 ppm	1.41	2.95	3.62
Potassium	5 - 20 ppm	2.12	3.14	2.56
Sulfur	30 - 90 ppm	3.31	7.87	9.88
Bicarbonate	<120 ppm	30.96	53.73	58.32
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	17.02	73.19	9.53

TEES	Acceptable Range For Standard Soil Sample	1,10 (avg) 4/24/17	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19
Organic Matter (Humus)	2 - 3%	1.75	2.02	2.75
Sulfur	50 - 100 ppm	14.00	6.50	15.50
Mehlich III - Phosphorus	350 lbs/acre	321.00	279.50	199.50
Calcium	68%	75.74	74.21	67.88
Magnesium	15%	12.23	13.18	13.17
Potassium	5%	1.16	1.49	1.45
Sodium	<2%	2.39	2.76	1.87
Boron	1 - 1.5 ppm	0.71	0.59	0.44
Iron	120 ppm	268.50	189.00	243.00
Manganese	50 ppm	9.00	6.50	8.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	1,10 (avg) 4/24/17	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19
Organic Matter (Humus)	2 - 3%	2.24	3.51	3.69
Sulfur	50 - 100 ppm	14.50	15.50	27.00
Mehlich III - Phosphorus	350 lbs/acre	522.00	401.00	476.00
Calcium	68%	65.20	65.80	66.76
Magnesium	15%	13.17	15.29	15.27
Potassium	5%	3.04	1.97	2.36
Sodium	<2%	2.25	2.14	1.65
Boron	1 - 1.5 ppm	0.67	0.79	0.79
Iron	120 ppm	275.50	234.00	292.50
Manganese	50 ppm	9.50	7.50	14.50

GREENS	Acceptable Range For Standard Soil Sample	1,10 (avg) 4/24/17	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19
Organic Matter (Humus)	2 - 3%	0.85	0.94	1.64
Sulfur	50 - 100 ppm	7.00	3.50	47.50
Mehlich III - Phosphorus	350 lbs/acre	192.50	165.00	176.00
Calcium	68%	67.79	62.06	65.38
Magnesium	15%	18.79	24.77	16.33
Potassium	5%	2.15	1.50	8.70
Sodium	<2%	4.49	5.84	2.79
Boron	1 - 1.5 ppm	0.46	0.58	0.33
Iron	120 ppm	92.00	80.00	92.50
Manganese	50 ppm	24.50	18.50	27.00

TEES	Acceptable Range For Saturated Paste Sample	1,10 (avg) 4/24/17	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.71	0.74	0.35
Potassium	40 - 100 ppm	31.92	13.94	13.93
Calcium	60 - 200 ppm	28.19	23.70	36.06
Magnesium	20 - 70 ppm	8.12	6.73	10.61
Sodium	0 - 30 ppm	6.23	6.73	9.81
Soluble Salts	<1,920 ppm	201.50	169.00	164.00
Bicarbonate	<60 ppm	91.52	101.28	57.35
Chloride	<1,000 ppm	37.50	13.50	20.00
SAR	<4%	0.26	0.32	0.37

FAIRWAYS	Acceptable Range For Saturated Paste Sample	1,10 (avg) 4/24/17	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.82	0.61	0.44
Potassium	40 - 100 ppm	23.91	18.56	17.00
Calcium	60 - 200 ppm	20.77	34.03	38.09
Magnesium	20 - 70 ppm	7.66	12.24	12.86
Sodium	0 - 30 ppm	7.55	10.67	17.00
Soluble Salts	<1,920 ppm	171.50	227.00	212.50
Bicarbonate	<60 ppm	79.32	87.86	73.21
Chloride	<1,000 ppm	27.50	25.50	25.00
SAR	<4%	0.37	0.40	0.52

GREENS	Acceptable Range For Saturated Paste Sample	1,10 (avg) 4/24/17	6,15 (avg) 5/9/18	3,17 (avg) 5/10/19
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.72	0.96	0.34
Potassium	25-40 ppm	15.29	12.88	130.02
Calcium	50- 75 ppm	23.07	17.41	71.53
Magnesium	15-30 ppm	12.06	10.50	22.25
Sodium	0 - 30 ppm	8.64	5.30	8.01
Soluble Salts	<1,000 ppm	179.50	142.50	542.00
Bicarbonate	<60 ppm	125.68	91.52	113.48
Chloride	<200 ppm	20.50	13.00	15.50
SAR	<4%	0.37	0.25	0.22



	<u>5/3/17</u>	<u>5/8/18</u>	<u>5/7/19</u>
Humidity/Air Temperature	27%/63°	39%/73°	80%/63°
Fairway Temperature	70°	(avg)68.8°	(avg)62.5°
Greens Temperature	68°	(avg)71.9°	(avg)63.1°

WATER	Acceptable Range For Water Sample	Hole #18 5/3/17	Hole #2 5/8/18	Pond 5/7/19
pH	6.0-6.5	7.65	7.46	7.53
EC	<2.25 mmhos/cm	0.83	1.06	0.88
Sodium		103.30	111.10	126.00
Calcium	20 - 60 ppm	34.10	65.48	27.63
Magnesium	10 - 25 ppm	12.08	18.23	13.02
Potassium	5 - 20 ppm	2.06	2.21	3.41
Sulfur	30 - 90 ppm	10.34	22.82	9.93
Bicarbonate	<120 ppm	155.50	183.68	146.91
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	157.44	217.87	206.80

TEES	Acceptable Range For Standard Soil Sample	9,18 (avg) 5/3/17	2,11 (avg) 5/8/18	4,13 (avg) 5/7/19
Organic Matter (Humus)	2 - 3%	3.93	3.78	3.64
Sulfur	50 - 100 ppm	21.00	11.00	26.50
Mehlich III - Phosphorus	350 lbs/acre	820.00	666.50	831.00
Calcium	68%	75.88	75.09	67.89
Magnesium	15%	12.69	12.66	13.12
Potassium	5%	3.42	3.45	4.22
Sodium	<2%	1.18	1.97	1.60
Boron	1 - 1.5 ppm	0.61	0.77	0.67
Iron	120 ppm	313.50	168.50	220.50
Manganese	50 ppm	51.00	40.00	67.00

FAIRWAYS	Acceptable Range For Standard Soil Sample	9,18 (avg) 5/3/17	2,11 (avg) 5/8/18	4,13 (avg) 5/7/19
Organic Matter (Humus)	2 - 3%	4.47	4.95	4.45
Sulfur	50 - 100 ppm	27.50	17.00	16.50
Mehlich III - Phosphorus	350 lbs/acre	251.50	341.00	259.00
Calcium	68%	69.50	70.07	67.42
Magnesium	15%	16.51	14.99	17.54
Potassium	5%	4.93	4.34	4.81
Sodium	<2%	2.26	2.18	1.82
Boron	1 - 1.5 ppm	0.54	0.35	0.74
Iron	120 ppm	144.50	91.50	114.50
Manganese	50 ppm	63.00	64.50	91.50

GREENS	Acceptable Range For Standard Soil Sample	9,18 (avg) 5/3/17	2,11 (avg) 5/8/18	4,13 (avg) 5/7/19
Organic Matter (Humus)	2 - 3%	2.64	3.01	3.23
Sulfur	50 - 100 ppm	50.50	36.50	49.50
Mehlich III - Phosphorus	350 lbs/acre	536.00	449.00	506.00
Calcium	68%	74.90	71.92	70.41
Magnesium	15%	13.58	16.47	18.36
Potassium	5%	4.29	4.69	5.12
Sodium	<2%	2.09	2.68	1.97
Boron	1 - 1.5 ppm	0.41	0.35	0.77
Iron	120 ppm	282.50	187.50	218.50
Manganese	50 ppm	33.00	36.50	39.00

TEES	Acceptable Range For Saturated Paste Sample	9,18 (avg) 5/3/17	2,11 (avg) 5/8/18	4,13 (avg) 5/7/19
Nitrate - Poa/Bentgrass	5 - 10 ppm	<0.5	2.05	<0.5
Phosphorus	2 - 10 ppm	0.62	0.78	0.57
Potassium	40 - 100 ppm	17.60	13.11	23.62
Calcium	60 - 200 ppm	28.06	18.40	45.44
Magnesium	20 - 70 ppm	9.09	5.25	11.31
Sodium	0 - 30 ppm	8.20	10.13	13.74
Soluble Salts	<1,920 ppm	191.00	147.00	243.00
Bicarbonate	<60 ppm	119.58	57.35	92.74
Chloride	<1,000 ppm	13.00	23.00	37.50
SAR	<4%	0.35	0.55	0.47

FAIRWAYS	Acceptable Range For Saturated Paste Sample	9,18 (avg) 5/3/17	2,11 (avg) 5/8/18	4,13 (avg) 5/7/19
Nitrate - Poa/Bentgrass	5 - 10 ppm	<0.5	2.05	<0.5
Phosphorus	2 - 10 ppm	0.42	0.27	0.31
Potassium	40 - 100 ppm	13.25	12.89	17.19
Calcium	60 - 200 ppm	31.46	23.12	35.64
Magnesium	20 - 70 ppm	10.74	6.74	9.99
Sodium	0 - 30 ppm	19.41	13.14	15.06
Soluble Salts	<1,920 ppm	238.50	182.00	206.00
Bicarbonate	<60 ppm	112.26	56.13	54.91
Chloride	<1,000 ppm	27.00	19.50	39.50
SAR	<4%	0.78	0.62	0.58

GREENS	Acceptable Range For Saturated Paste Sample	9,18 (avg) 5/3/17	2,11 (avg) 5/8/18	4,13 (avg) 5/7/19
Nitrate - Poa/Bentgrass	1-3 ppm	<0.5	2.15	<0.5
Phosphorus	2 - 7 ppm	0.79	0.35	0.31
Potassium	25-40 ppm	37.71	35.52	45.14
Calcium	50- 75 ppm	61.82	86.08	82.60
Magnesium	15-30 ppm	18.93	21.37	23.18
Sodium	0 - 30 ppm	19.23	25.98	21.54
Soluble Salts	<1,000 ppm	396.50	515.50	409.50
Bicarbonate	<60 ppm	126.90	79.31	142.76
Chloride	<200 ppm	43.00	22.00	25.50
SAR	<4%	0.55	0.66	0.54



	<u>4/26/17</u>	<u>5/10/18</u>	<u>5/9/19</u>
Humidity/Air Temperature	77%/64°	75%/75°	80%/60°
Fairway Temperature	60°	(avg)71.2°	(avg)62.8°
Greens Temperature	61°	(avg)72.7°	(avg)61.15°

WATER	Acceptable Range For Water Sample	Pond <u>4/26/17</u>	Hole #9 <u>5/10/18</u>	Pond <u>5/9/19</u>
pH	6.0-6.5	6.14	6.24	6.28
EC	<2.25 mmhos/cm	0.35	0.44	0.25
Sodium		20.90	41.10	20.19
Calcium	20 - 60 ppm	30.23	28.33	16.53
Magnesium	10 - 25 ppm	4.67	5.99	4.14
Potassium	5 - 20 ppm	4.67	4.88	4.69
Sulfur	30 - 90 ppm	45.09	43.83	36.42
Bicarbonate	<120 ppm	46.07	26.86	33.22
Boron	<0.67 ppm	>0.05	<0.05	<0.05
Chloride	<177 ppm	36.25	72.34	36.42

TEES	Acceptable Range For Standard Soil Sample	Red 2 , White 2, Blue 2 (avg) <u>4/26/17</u>	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7 (avg) <u>5/9/19</u>
Organic Matter (Humus)	2 - 3%	4.26	5.54	4.71
Sulfur	50 - 100 ppm	20.66	117.50	24.50
Mehlich III - Phosphorus	350 lbs/acre	1210.66	861.00	996.00
Calcium	68%	66.74	62.29	55.08
Magnesium	15%	15.67	12.82	12.80
Potassium	5%	3.37	2.77	3.77
Sodium	<2%	1.78	2.51	1.54
Boron	1 - 1.5 ppm	1.00	0.43	0.85
Iron	120 ppm	599.66	453.00	479.00
Manganese	50 ppm	11.00	5.00	9.00

FAIRWAYS	Acceptable Range For Standard Soil Sample	Red 2, White 2, Blue 2 (avg) <u>4/26/17</u>	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7 (avg) <u>5/9/19</u>
Organic Matter (Humus)	2 - 3%	3.79	4.47	5.36
Sulfur	50 - 100 ppm	27.00	30.50	89.50
Mehlich III - Phosphorus	350 lbs/acre	1,221.33	943.50	744.00
Calcium	68%	68.69	70.13	61.85
Magnesium	15%	13.16	11.57	12.76
Potassium	5%	5.12	3.74	4.45
Sodium	<2%	1.69	2.15	1.40
Boron	1 - 1.5 ppm	0.97	0.45	0.81
Iron	120 ppm	494.33	394.50	485.00
Manganese	50 ppm	8.33	4.00	7.00

GREENS	Acceptable Range For Standard Soil Sample	Red 2, White 2, Blue 2 (avg) <u>4/26/17</u>	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7 (avg) <u>5/9/19</u>
Organic Matter (Humus)	2 - 3%	2.66	2.83	3.45
Sulfur	50 - 100 ppm	61.66	32.00	46.00
Mehlich III - Phosphorus	350 lbs/acre	1,244.33	1,021.50	973.50
Calcium	68%	63.37	67.21	63.87
Magnesium	15%	11.88	11.88	11.78
Potassium	5%	3.05	3.88	4.43
Sodium	<2%	1.94	2.82	1.93
Boron	1 - 1.5 ppm	1.02	0.29	0.79
Iron	120 ppm	672.33	454.50	588.00
Manganese	50 ppm	11.00	8.50	10.00

TEE	Acceptable Range For Saturated Paste Sample	Red 8, Blue 8(avg) <u>5/10/18</u>	Red 7, White 7(avg) <u>5/9/19</u>
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	1.06	0.54
Potassium	40 - 100 ppm	21.26	13.73
Calcium	60 - 200 ppm	33.01	26.77
Magnesium	20 - 70 ppm	10.08	8.32
Sodium	0 - 30 ppm	12.69	12.12
Soluble Salts	<1,920 ppm	252.00	155.50
Bicarbonate	<60 ppm	75.65	58.57
Chloride	<1,000 ppm	24.00	16.00
SAR	<4%	0.50	0.53

FAIRWAY	Acceptable Range For Saturated Paste Sample	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7(avg) <u>5/9/19</u>
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.76	0.48
Potassium	40 - 100 ppm	20.21	20.49
Calcium	60 - 200 ppm	54.33	84.99
Magnesium	20 - 70 ppm	11.75	19.75
Sodium	0 - 30 ppm	13.56	19.75
Soluble Salts	<1,920 ppm	286.00	355.50
Bicarbonate	<60 ppm	89.07	40.35
Chloride	<1,000 ppm	21.00	20.00
SAR	<4%	0.43	0.57

GREENS	Acceptable Range For Saturated Paste Sample	Red 8, Blue 8 (avg) <u>5/10/18</u>	Red 7, White 7(avg) <u>5/9/19</u>
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.52	0.28
Potassium	25-40 ppm	40.85	31.48
Calcium	50- 75 ppm	48.30	44.24
Magnesium	15-30 ppm	11.75	15.00
Sodium	0 - 30 ppm	13.53	11.77
Soluble Salts	<1,000 ppm	326.50	312.00
Bicarbonate	<60 ppm	34.17	51.25
Chloride	<200 ppm	15.00	9.50
SAR	<4%	0.46	0.37



	<u>5/10/17</u>	<u>5/8/18</u>	<u>5/8/19</u>
Humidity/Air Temperature	46%/70°	56%/65°	rain/61°
Fairway Temperature	62°	(avg)62.75°	(avg)63.8°
Greens Temperature	59°	(avg)62.75°	(avg)63.7°

WATER	Acceptable Range For Water Sample	Pond 5/10/17	Hole 5/8/18	Pond 5/8/19
pH	6.0-6.5	8.98	7.34	6.83
EC	<2.25 mmhos/cm	0.37	0.29	0.22
Sodium		22.03	12.51	4.55
Calcium	20 - 60 ppm	31.91	30.63	28.54
Magnesium	10 - 25 ppm	9.26	7.40	6.52
Potassium	5 - 20 ppm	4.13	3.62	3.18
Sulfur	30 - 90 ppm	46.65	47.16	28.63
Bicarbonate	<120 ppm	63.35	74.78	97.45
Boron	<0.67 ppm	0.07	0.05	0.06
Chloride	<177 ppm	29.96	12.43	<2.0

TEES	Acceptable Range For Standard Soil Sample	1,10 (avg) 5/10/17	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19
Organic Matter (Humus)	2 - 3%	1.55	2.90	2.76
Sulfur	50 - 100 ppm	17.00	135.50	26.00
Mehlich III - Phosphorus	350 lbs/acre	570.00	561.00	616.00
Calcium	68%	64.74	63.81	66.51
Magnesium	15%	16.98	11.97	13.48
Potassium	5%	3.96	3.26	3.77
Sodium	<2%	3.49	3.04	2.27
Boron	1 - 1.5 ppm	0.57	0.54	0.82
Iron	120 ppm	702.50	452.50	611.00
Manganese	50 ppm	13.00	8.50	19.00

FAIRWAYS	Acceptable Range For Standard Soil Sample	1,10 (avg) 5/10/17	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19
Organic Matter (Humus)	2 - 3%	2.55	2.15	3.69
Sulfur	50 - 100 ppm	117.50	38.00	41.50
Mehlich III - Phosphorus	350 lbs/acre	602.50	520.00	611.50
Calcium	68%	65.35	64.26	64.78
Magnesium	15%	14.62	11.80	12.05
Potassium	5%	3.02	3.80	3.27
Sodium	<2%	3.05	3.77	1.90
Boron	1 - 1.5 ppm	0.76	0.54	0.91
Iron	120 ppm	570.00	603.00	527.50
Manganese	50 ppm	12.00	13.00	15.50

GREENS	Acceptable Range For Standard Soil Sample	1,10 (avg) 5/10/17	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19
Organic Matter (Humus)	2 - 3%	0.47	0.87	1.42
Sulfur	50 - 100 ppm	21.00	10.50	19.50
Mehlich III - Phosphorus	350 lbs/acre	190.00	217.50	222.50
Calcium	68%	66.33	69.36	70.40
Magnesium	15%	16.30	14.30	16.83
Potassium	5%	5.53	3.02	2.74
Sodium	<2%	5.00	6.15	3.20
Boron	1 - 1.5 ppm	0.25	<0.20	0.56
Iron	120 ppm	74.00	96.00	129.00
Manganese	50 ppm	9.00	9.50	12.00

TEES	Acceptable Range For Saturated Paste Sample	1,10 (avg) 5/10/17	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19
Nitrate - Bentgrass	5 - 10 ppm	<0.5	1.95	<0.5
Phosphorus	2 - 10 ppm	1.04	0.30	0.30
Potassium	40 - 100 ppm	17.11	32.73	16.76
Calcium	60 - 200 ppm	38.92	176.80	45.76
Magnesium	20 - 70 ppm	12.12	35.01	11.21
Sodium	0 - 30 ppm	20.02	32.23	18.99
Soluble Salts	<1,920 ppm	267.00	822.50	259.50
Bicarbonate	<60 ppm	126.90	25.62	81.75
Chloride	<1,000 ppm	36.00	40.50	39.00
SAR	<4%	0.72	0.60	0.65

FAIRWAYS	Acceptable Range For Saturated Paste Sample	1,10 (avg) 5/10/17	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19
Nitrate - Bentgrass	5 - 10 ppm	<0.5	0.90	<0.5
Phosphorus	2 - 10 ppm	0.27	0.31	0.23
Potassium	40 - 100 ppm	19.97	20.07	13.64
Calcium	60 - 200 ppm	136.23	56.35	59.11
Magnesium	20 - 70 ppm	32.95	12.18	13.30
Sodium	0 - 30 ppm	46.97	25.79	21.11
Soluble Salts	<1,920 ppm	701.00	375.00	291.00
Bicarbonate	<60 ppm	95.18	21.96	64.67
Chloride	<1,000 ppm	54.50	38.00	21.00
SAR	<4%	0.95	0.82	0.67

GREENS	Acceptable Range For Saturated Paste Sample	1,10 (avg) 5/10/17	6,11 (avg) 5/8/18	3,18 (avg) 5/8/19
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 7 ppm	2.49	1.44	0.49
Potassium	25-40 ppm	44.77	22.50	15.03
Calcium	50- 75 ppm	37.41	21.33	49.72
Magnesium	15-30 ppm	13.56	7.38	10.05
Sodium	0 - 30 ppm	10.89	5.87	10.80
Soluble Salts	<1,000 ppm	292.50	184.50	220.50
Bicarbonate	<60 ppm	120.80	58.57	85.42
Chloride	<200 ppm	23.00	9.50	14.00
SAR	<4%	0.39	0.28	0.34



	<u>5/3/17</u>	<u>5/9/18</u>	<u>5/9/19</u>
Humidity/Air Temperature	45%/63°	75%/60°	85%/60°
Fairway Temperature	66°	(avg)59.8°	(avg)64.45°
Greens Temperature	65°	(avg)56.85°	(avg)62.1°

WATER	Acceptable Range For Water Sample	Sprinkler head	Pond Hole #12	Pond Hole #12
		<u>5/3/17</u>	<u>5/9/18</u>	<u>5/9/19</u>
pH	6.0-6.5	6.51	6.56	6.42
EC	<2.25 mmhos/cm	0.07	0.07	0.08
Sodium		3.33	2.13	2.83
Calcium	20 - 60 ppm	5.67	6.21	6.51
Magnesium	10 - 25 ppm	1.43	1.50	2.82
Potassium	5 - 20 ppm	2.03	2.13	2.50
Sulfur	30 - 90 ppm	11.83	6.35	8.61
Bicarbonate	<120 ppm	21.60	28.31	36.17
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	<2.00	<2.00	<2.

TEES	Acceptable Range For Standard Soil Sample	1,10 (avg) 5/3/17	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19
Organic Matter (Humus)	2 - 3%	0.90	1.21	1.60
Sulfur	50 - 100 ppm	49.50	11.00	30.50
Mehlich III - Phosphorus	350 lbs/acre	309.00	247.00	254.50
Calcium	68%	65.90	65.64	61.12
Magnesium	15%	12.28	14.01	12.27
Potassium	5%	5.32	4.33	5.42
Sodium	<2%	3.32	5.90	3.27
Boron	1 - 1.5 ppm	0.35	0.42	0.56
Iron	120 ppm	380.00	269.00	251.50
Manganese	50 ppm	2.50	2.50	9.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	1,10 (avg) 5/3/17	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19
Organic Matter (Humus)	2 - 3%	4.75	5.18	5.22
Sulfur	50 - 100 ppm	65.50	15.50	35.50
Mehlich III - Phosphorus	350 lbs/acre	162.50	240.50	217.50
Calcium	68%	67.38	69.97	63.07
Magnesium	15%	14.51	12.85	12.43
Potassium	5%	5.17	4.12	3.66
Sodium	<2%	1.34	2.28	1.28
Boron	1 - 1.5 ppm	0.48	0.32	0.89
Iron	120 ppm	392.50	280.00	367.00
Manganese	50 ppm	8.00	3.50	6.50

GREENS	Acceptable Range For Standard Soil Sample	1,10 (avg) 5/3/17	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19
Organic Matter (Humus)	2 - 3%	0.72	1.18	1.27
Sulfur	50 - 100 ppm	8.50	5.00	11.00
Mehlich III - Phosphorus	350 lbs/acre	309.00	293.00	240.50
Calcium	68%	58.37	63.05	63.93
Magnesium	15%	19.37	13.96	13.99
Potassium	5%	3.38	2.59	2.80
Sodium	<2%	3.95	7.07	3.77
Boron	1 - 1.5 ppm	0.44	<0.20	0.67
Iron	120 ppm	200.50	185.00	202.50
Manganese	50 ppm	19.00	17.00	42.00

TEES	Acceptable Range For Saturated Paste Sample	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.76	0.34
Potassium	40 - 100 ppm	32.06	59.09
Calcium	60 - 200 ppm	16.95	36.19
Magnesium	20 - 70 ppm	4.96	9.19
Sodium	0 - 30 ppm	5.68	10.42
Soluble Salts	<1,920 ppm	163.50	266.50
Bicarbonate	<60 ppm	58.57	43.93
Chloride	<1,000 ppm	10.50	9.00
SAR	<4%	0.32	0.40

FAIRWAYS	Acceptable Range For Saturated Paste Sample	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19
Nitrate - Bentgrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.48	0.13
Potassium	40 - 100 ppm	23.90	23.36
Calcium	60 - 200 ppm	22.32	55.05
Magnesium	20 - 70 ppm	6.29	13.91
Sodium	0 - 30 ppm	4.62	6.92
Soluble Salts	<1,920 ppm	178.00	259.50
Bicarbonate	<60 ppm	74.43	85.42
Chloride	<1,000 ppm	16.50	14.00
SAR	<4%	0.23	0.22

GREENS	Acceptable Range For Saturated Paste Sample	6,11 (avg) 5/9/18	2,12 (avg) 5/9/19
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	1.08	0.47
Potassium	25-40 ppm	8.46	10.45
Calcium	50- 75 ppm	6.93	15.94
Magnesium	15-30 ppm	2.35	4.73
Sodium	0 - 30 ppm	4.24	4.05
Soluble Salts	<1,000 ppm	61.00	102.50
Bicarbonate	<60 ppm	28.06	34.17
Chloride	<200 ppm	5.00	10.50
SAR	<4%	0.35	0.24



	<u>4/26/17</u>	<u>5/10/18</u>	<u>5/8/19</u>
Humidity/Air Temperature	90%/59°	75%/75°	rain/65°
Fairway Temperature	59°	(avg)60.8°	(avg)65.25°
Greens Temperature	59°	(avg)59.1°	(avg)63.4°

WATER	Acceptable Range For Water Sample	Pond 4/20/16	Hole #9 5/10/18	Pond 5/8/19
pH	6.0-6.5	5.39	4.49	6.38
EC	<2.25 mmhos/cm	0.23	0.21	0.12
Sodium		19.66	10.15	11.57
Calcium	20 - 60 ppm	15.42	17.15	8.17
Magnesium	10 - 25 ppm	2.35	2.20	1.65
Potassium	5 - 20 ppm	6.50	4.43	3.09
Sulfur	30 - 90 ppm	32.19	37.98	7.02
Bicarbonate	<120 ppm	26.64	0.00	40.60
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	29.62	17.87	10.21

TEES	Acceptable Range For Standard Soil Sample	2,10(avg) 4/26/17	6,11 (avg) 5/10/18	5,17(avg) 5/8/19
Organic Matter (Humus)	2 - 3%	1.99	2.57	2.95
Sulfur	50 - 100 ppm	16.00	11.50	78.50
Mehlich III - Phosphorus	350 lbs/acre	1053.50	639.00	634.50
Calcium	68%	63.57	60.60	64.68
Magnesium	15%	16.07	17.03	15.60
Potassium	5%	3.50	4.20	3.88
Sodium	<2%	2.89	3.32	1.79
Boron	1 - 1.5 ppm	0.83	<0.23	0.80
Iron	120 ppm	556.50	288.00	389.50
Manganese	50 ppm	10.00	6.00	11.50

FAIRWAYS	Acceptable Range For Standard Soil Sample	2,10(avg) 4/26/17	6,11 (avg) 5/10/18	5,17(avg) 5/8/19
Organic Matter (Humus)	2 - 3%	2.33	3.03	3.55
Sulfur	50 - 100 ppm	16.00	9.50	17.50
Mehlich III - Phosphorus	350 lbs/acre	959.50	471.50	817.50
Calcium	68%	61.24	59.30	53.04
Magnesium	15%	15.33	18.77	15.81
Potassium	5%	4.00	4.86	5.92
Sodium	<2%	2.23	3.06	1.65
Boron	1 - 1.5 ppm	0.68	<0.21	0.84
Iron	120 ppm	378.00	162.00	441.50
Manganese	50 ppm	7.00	3.50	7.00

GREENS	Acceptable Range For Standard Soil Sample	2,10 (avg) 4/26/17	6,11 (avg) 5/10/18	5,17(avg) 5/8/19
Organic Matter (Humus)	2 - 3%	1.85	2.51	2.45
Sulfur	50 - 100 ppm	13.50	9.00	32.00
Mehlich III - Phosphorus	350 lbs/acre	419.00	533.50	646.00
Calcium	68%	66.46	68.60	65.72
Magnesium	15%	10.09	12.13	11.69
Potassium	5%	2.70	2.64	3.10
Sodium	<2%	3.61	4.33	2.29
Boron	1 - 1.5 ppm	0.70	<0.30	1.14
Iron	120 ppm	477.50	354.00	459.50
Manganese	50 ppm	18.00	14.50	30.00

TEES	Acceptable Range For Saturated Paste Sample	2,10 (avg) 4/26/17	6,11 (avg) 5/10/18	5,17 (avg) 5/8/19
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	1.38	0.68	0.96
Potassium	40 - 100 ppm	20.87	15.54	21.79
Calcium	60 - 200 ppm	22.88	21.47	32.81
Magnesium	20 - 70 ppm	9.68	8.62	12.08
Sodium	0 - 30 ppm	8.03	10.83	12.39
Soluble Salts	<1,920 ppm	172.50	166.50	195.50
Bicarbonate	<60 ppm	84.19	63.45	67.11
Chloride	<1,000 ppm	30.50	18.00	19.00
SAR	<4%	0.36	0.50	0.48

FAIRWAYS	Acceptable Range For Saturated Paste Sample	2,10 (avg) 4/26/17	6,11 (avg) 5/10/18	6,11 (avg) 5/10/18
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.94	0.59	0.93
Potassium	40 - 100 ppm	34.77	12.92	21.48
Calcium	60 - 200 ppm	18.70	15.22	14.27
Magnesium	20 - 70 ppm	8.05	6.40	5.81
Sodium	0 - 30 ppm	6.95	6.62	8.91
Soluble Salts	<1,920 ppm	153.50	124.50	124.00
Bicarbonate	<60 ppm	93.91	64.67	34.17
Chloride	<1,000 ppm	40.50	17.50	18.50
SAR	<4%	0.34	0.36	0.52

GREENS	Acceptable Range For Saturated Paste Sample	2,10 (avg) 4/26/17	6,11 (avg) 5/10/18	6,11 (avg) 5/10/18
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 7 ppm	1.50	3.89	0.62
Potassium	25-40 ppm	37.95	47.38	15.31
Calcium	50- 75 ppm	13.90	14.29	28.16
Magnesium	15-30 ppm	3.77	4.29	7.05
Sodium	0 - 30 ppm	11.51	6.83	11.51
Soluble Salts	<1,000 ppm	121.50	248.00	172.00
Bicarbonate	<60 ppm	24.40	53.69	57.35
Chloride	<200 ppm	28.00	52.00	10.50
SAR	<4%	0.71	0.42	0.50

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		yes	yes
Downingtown CC				
Ramblewood CC				
Riverwinds Golf & Tennis Club	yes* 0-0-22		yes* 0-0-22	
Running Deer GC	yes	yes	yes	yes
Valleybrook CC				

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				
Downingtown CC					yes
Ramblewood CC					
Riverwinds Golf & Tennis Club	yes* 0-0-22			yes* 0-0-22	
Running Deer GC			yes* #12 only		
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)
Blue Heron Pines GC	yes			yes
Downingtown CC	yes			
Ramblewood CC	yes			
Riverwinds Golf & Tennis Club	yes		yes	yes
Running Deer GC	yes		yes	yes
Valleybrook CC	yes			