

FALL 2017

Data Collection Report
Soil & Water Consulting



Revere Golf Club



SOIL and WATER CONSULTING

Course Name: Revere Golf Club
Date of Visit: September 21, 2017

	<u>9/26/16</u>	<u>3/23/17</u>	<u>9/21/17</u>
Humidity/Air Temperature	15%/90°	38%/54°	20%/82°
Greens Temperature	62°	56°	64°
Fairway Temperature	68°	58°	70°

WATER	Acceptable Range For Water Sample	Hole #7 <u>9/26/16</u>	Hole #1 <u>3/23/17</u>	Hole #3 <u>9/21/17</u>
pH	6.0-6.5	6.61	7.84	3.67
EC	<2.25 mmhos/cm	1.99	2.16	2.02
Sodium		244.20	287.00	263.50
Calcium	20 - 60 ppm	90.45	97.76	99.74
Magnesium	10 - 25 ppm	29.52	30.23	26.96
Potassium	5 - 20 ppm	21.82	28.11	21.18
Phosphorus	0.1 - 0.4 ppm	2.15	2.29	1.98
Nitrate	5 - 50 ppm	12.12	11.99	9.71
Sulfur	30 - 90 ppm	366.00	281.49	453.30
Bicarbonate	<120 ppm	72.71	159.82	0.00
Boron	<0.67 ppm	0.36	0.34	0.31



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Lexington Course



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TEE	Acceptable Range For Alkaline Soils Sample	7 9/26/16	1 3/23/17	3 9/21/17
Organic Matter (Humus)	2 - 3%	4.26	3.64	2.69
Sulfur	12 - 16 ppm	81.00	74.00	114.00
Olsen - Phosphorus	13 - 20 ppm	21.00	28.00	33.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,560.00	3,918.00	3,846.00
Magnesium	>7% base saturation or at least 200 lbs/acre	7.04%/380	12.56%/464	12.04%/422
Potassium - TEC of 0 - 35	100 ppm	366.00	457.00	403.00
Copper	>0.8 ppm	1.74	1.37	1.37
Manganese	>1 ppm	1.00	2.00	1.00
Zinc	>1 - 2 ppm	8.68	8.03	6.18

FAIRWAY	Acceptable Range For Alkaline Soils Sample	7 9/26/16	1 3/23/17	3 9/21/17
Organic Matter (Humus)	2 - 3%	4.86	5.21	3.50
Sulfur	12 - 16 ppm	1,445.00	5,337.00	1,305.00
Olsen - Phosphorus	13 - 20 ppm	41.00	25.00	15.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	8,050.00	18,232.00	8,242.00
Magnesium	>7% base saturation or at least 200 lbs/acre	9.38%/636	4.09%/530	7.11%/440
Potassium - TEC of 0 - 35	100 ppm	794.00	569.00	383.00
Copper	>0.8 ppm	0.96	0.97	0.85
Manganese	>1 ppm	2.00	2.00	1.00
Zinc	>1 - 2 ppm	7.45	5.32	4.43

GREENS	Acceptable Range For Alkaline Soils Sample	7 9/26/16	1 3/23/17	3 9/21/17
Organic Matter (Humus)	2 - 3%	1.82	2.26	2.33
Sulfur	12 - 16 ppm	70.00	111.00	65.00
Olsen - Phosphorus	13 - 20 ppm	7.00	6.00	5.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,690.00	2,824.00	2,786.00
Magnesium	>7% base saturation or at least 200 lbs/acre	8.0%/206	8.16%/238	8.74%/256
Potassium - TEC of 0 - 35	150 ppm	605.00	731.00	909.00
Copper	>0.8 ppm	0.81	0.62	0.71
Manganese	4 ppm or more	2.00	1.00	1.00
Zinc	>1 - 2 ppm	10.71	9.37	8.93



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TEE	Acceptable Range For <u>Saturated Paste Sample</u>	1,10 (avg) <u>3/23/17</u>	3,12 (avg) <u>9/21/17</u>
Nitrate - Ryegrass	5 - 10 ppm	18.85	25.18
Nitrate - Bermudagrass	10 -15 ppm		
Phosphorus	2 - 10 ppm	3.78	6.00
Potassium	40 - 100 ppm	36.73	56.05
Calcium	60 - 200 ppm	113.08	216.61
Magnesium	20 - 70 ppm	32.89	65.49
Sodium	0 - 30 ppm	329.96	433.19
Soluble Salts	<1,920 ppm	1,456.00	2,134.00
Bicarbonate	<60 ppm	255.02	229.40
Chloride	<1,000 ppm	324.00	405.50
SAR	<4%	7.01	6.63

FAIRWAY	Acceptable Range For <u>Saturated Paste Sample</u>	1,10 (avg) <u>3/23/17</u>	3,12 (avg) <u>9/21/17</u>
Nitrate - Ryegrass	5 - 10 ppm	7.90	15.90
Nitrate - Bermudagrass	10 -15 ppm		
Phosphorus	2 - 10 ppm	1.53	1.81
Potassium	40 - 100 ppm	70.73	76.83
Calcium	60 - 200 ppm	508.25	456.19
Magnesium	20 - 70 ppm	93.34	84.70
Sodium	0 - 30 ppm	579.18	393.33
Soluble Salts	<1,920 ppm	2,998.50	2,608.00
Bicarbonate	<60 ppm	223.30	225.74
Chloride	<1,000 ppm	543.00	241.00
SAR	<4%	6.20	4.42

GREENS	Acceptable Range For <u>Saturated Paste Sample</u>	1,10 (avg) <u>3/23/17</u>	3,12 (avg) <u>9/21/17</u>
Nitrate - Bentgrass	1-3 ppm	<0.6	1.50
Phosphorus	2 - 7 ppm	0.84	1.41
Potassium	25-40 ppm	16.65	24.08
Calcium	50- 75 ppm	69.26	44.51
Magnesium	15-30 ppm	18.35	13.16
Sodium	0 - 30 ppm	153.07	129.57
Soluble Salts	<1,000 ppm	650.50	590.00
Bicarbonate	<60 ppm	125.68	158.63
Chloride	<200 ppm	77.00	66.00
SAR	<4%	4.21	4.39



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TEE	Acceptable Range For Tissue Sample	3,12 (avg) <u>9/21/17</u>
Nitrogen	3.34%-5.10%	3.85
Phosphorus	0.35% - 0.55%	0.50
Potassium	2.0% - 3.42%	1.70
Calcium	0.25%-0.5%	0.83
Magnesium	0.16%-0.32%	0.30
Sodium	229-1107 ppm	6,675.00

FAIRWAY	Acceptable Range For Tissue Sample	3,12 (avg) <u>9/21/17</u>
Nitrogen	3.34%-5.10%	4.48
Phosphorus	0.35% - 0.55%	0.63
Potassium	2.0% - 3.42%	2.51
Calcium	0.25%-0.5%	0.94
Magnesium	0.16%-0.32%	0.32
Sodium	229-1107 ppm	9,280.00

GREENS	Acceptable Range For Tissue Sample	3,12 (avg) <u>9/21/17</u>
Nitrogen	3.0%-6.5%	4.20
Phosphorus	0.2%-0.55%	0.63
Potassium	0.86%-2.55%	1.73
Calcium	0.21%-0.50%	1.01
Magnesium	0.09%-0.22%	0.27
Sodium	506- 2264 ppm	4,185.00



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Concord Course



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TEE	Acceptable Range For <u>Saturated Paste Sample</u>	1 <u>3/23/17</u>	3 <u>10/12/17</u>
Nitrate - Ryegrass	5 - 10 ppm	3.90	
Nitrate - Bermudagrass	10 - 15 ppm		1.10
Phosphorus	2 - 10 ppm	3.93	8.27
Potassium	40 - 100 ppm	36.14	49.12
Calcium	60 - 200 ppm	91.06	111.11
Magnesium	20 - 70 ppm	23.80	32.29
Sodium	0 - 30 ppm	235.69	236.90
Soluble Salts	<1,920 ppm	1,158.00	1,261.00
Bicarbonate	<60 ppm	244.04	256.24
Chloride	<1,000 ppm	260.00	226.00
SAR	<4%	5.68	5.09

FAIRWAY	Acceptable Range For <u>Saturated Paste Sample</u>	1 <u>3/23/17</u>	3 <u>10/12/17</u>
Nitrate - Ryegrass	5 - 10 ppm	2.20	
Nitrate - Bermudagrass	10 - 15 ppm		<0.5
Phosphorus	2 - 10 ppm	0.62	3.57
Potassium	40 - 100 ppm	77.39	49.95
Calcium	60 - 200 ppm	469.81	152.70
Magnesium	20 - 70 ppm	100.59	42.14
Sodium	0 - 30 ppm	580.00	336.24
Soluble Salts	<1,920 ppm	3,251.00	1,626.00
Bicarbonate	<60 ppm	280.65	268.44
Chloride	<1,000 ppm	838.00	285.00
SAR	<4%	6.33	6.21

GREENS	Acceptable Range For <u>Saturated Paste Sample</u>	1 <u>3/23/17</u>	3 <u>10/12/17</u>
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	1.21	2.82
Potassium	25-40 ppm	20.78	48.86
Calcium	50- 75 ppm	62.30	86.65
Magnesium	15-30 ppm	18.27	25.70
Sodium	0 - 30 ppm	128.45	178.76
Soluble Salts	<1,000 ppm	608.00	977.00
Bicarbonate	<60 ppm	148.86	195.23
Chloride	<200 ppm	66.00	99.00
SAR	<4%	3.68	4.33



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TEE	Acceptable Range For Tissue Sample	3 10/12/17
Nitrogen	3.34%-5.10%	4.75
Phosphorus	0.35% - 0.55%	0.74
Potassium	2.0% - 3.42%	3.14
Calcium	0.25%-0.5%	1.29
Magnesium	0.16%-0.32%	0.43
Sodium	229-1107 ppm	9,380.00

FAIRWAY	Acceptable Range For Tissue Sample	3 10/12/17
Nitrogen	3.34%-5.10%	4.57
Phosphorus	0.35% - 0.55%	0.72
Potassium	2.0% - 3.42%	2.95
Calcium	0.25%-0.5%	1.14
Magnesium	0.16%-0.32%	0.35
Sodium	229-1107 ppm	7,870.00

GREENS	Acceptable Range For Tissue Sample	3 10/12/17
Nitrogen	3.0%-6.5%	5.24
Phosphorus	0.2%-0.55%	0.63
Potassium	0.86%-2.55%	2.16
Calcium	0.21%-0.50%	1.11
Magnesium	0.09%-0.22%	0.29
Sodium	506- 2264 ppm	5,040.00



RECOMMENDATIONS



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Thoughts on the course visit

One thing that you did a couple of years ago was adjust your thinking. You saw disease on greens and high sodium and reacted. (sulfur burner purchase and 2 week interval fungicide sprays) What that lead you to, in an excessively tough Summer in 2017, was no disease on the greens. While several other courses in the area struggled, there was no evidence of anything like that on your greens. I realize there is an expense to spraying fungicides that some may not feel is as necessary in the desert, but it is hard to put a price tag on the good reputation of a golf course. Once you turned the course around to begin getting good reviews and talk around town, it is important to keep that going. The added routine topdressing and a couple of years of inter-seeding in the greens has also made a real difference.

There are only 1 or 2 true deficiencies on this set of data. One is the Phosphorus levels on the Lexington greens and the other is the overall Manganese levels on both courses. Manganese can be worked on throughout the Winter very easily and will help with color on the cool season grasses. The low Phosphorus on greens has been consistent. A quick correction for seeding purposes may just be the use of a starter fertilizer. Other times, it probably isn't a big enough concern to act on.



Notes from the visit

- Greens mowing height- 0.130"
- Recent greens fertility was at aerification on 8/27. (Gypsum)
- Topdressing greens at least once per month.
- Spraying fungicides on greens every two weeks.
- Lexington Fairways were cut 3 times by the day of visit.
- Recent fertility to fairways was 8 - 30-15.

Fertilizer and Product Recommendations

Tees & Fairways

Manganese- Add to Winter ryegrass sprays.

Greens (Monthly applications)

Calcium- 5 pounds of product per 1,000 square feet. (Gypsum)

Potassium- 2 pounds of product per 1,000 square feet (0-0-50)

***pHacid or Blast spray and water in monthly.**