



SOIL AND WATER CONSULTING

Data Collection Report

Summer 2020

Date of Collection: 7/11/20

Client: Tucson Country Club



Testing Results

	<u>6/3/18</u>	<u>6/20/19</u>	<u>7/11/20</u>
Humidity/Air Temperature	7%/105°	7%/100°	30%/107°
Greens Temperature	(avg)83.3°	(avg)76.25°	(avg)76.35°
Fairway Temperature	(avg)84.3°	(avg)79.15°	(avg)79.6°

WATER	Acceptable Range For Water Sample	Effluent Lake 6/3/18	Hole #15 6/20/19	Lake fill 6/16/20
EC	<2.25 mmhos/cm	1.27	0.26	1.20
Sodium		138.90	27.84	129.20
Calcium	20 - 60 ppm	84.37	24.08	90.36
Magnesium	10 - 25 ppm	17.57	2.26	16.77
Potassium	5 - 20 ppm	15.91	2.51	9.62
Sulfur	30 - 90 ppm	170.37	25.22	182.37
Bicarbonate	<120 ppm	246.85	101.87	270.81
Boron	<0.67 ppm	0.21	<0.05	0.26
Chloride	<177 ppm	163.40	10.89	129.02

TEE	Acceptable Range For Tissue Sample	13 7/11/20
Nitrogen	2.49%-4.56%	3.84
Phosphorus	0.26%-0.38%	0.56
Potassium	0.95% - 1.97%	2.15
Calcium	0.50%-0.90%	0.65
Magnesium	0.13%-0.16%	0.21
Sodium	622-1709 ppm	1,310.00

FAIRWAY	Acceptable Range For Tissue Sample	13 7/11/20
Nitrogen	2.49%-4.56%	3.71
Phosphorus	0.26%-0.38%	0.55
Potassium	0.95% - 1.97%	2.34
Calcium	0.50%-0.90%	0.56
Magnesium	0.13%-0.16%	0.19
Sodium	622-1709 ppm	2,030.00

GREENS	Acceptable Range For Tissue Sample	4.13 (avg) 7/11/20
Nitrogen	3.0%-6.5%	3.76
Phosphorus	0.2%-0.55%	0.73
Potassium	0.86%-2.55%	2.16
Calcium	0.21%-0.50%	0.56
Magnesium	0.09%-0.22%	0.21
Sodium	506- 2264 ppm	1,800.00

TEES	Acceptable Range For Alkaline Soils Sample	3,12(avg) 6/3/18	6,15(avg) 6/20/19	4,13(avg) 7/11/20
Organic Matter (Humus)	2 - 3%	2.62	2.75	3.37
Sulfur	12 - 16 ppm	16.50	34.00	43.00
Olsen - Phosphorus	13 - 20 ppm	12.50	14.00	14.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,131.00	2,942.00	4,852.00
Magnesium	>7% base saturation or at least 200 lbs/acre	8.18%/194	9.62%/226	8.53%/157.5
Potassium - TEC of 0 - 35	100 ppm	151.50	203.00	241.50
Manganese	>50 ppm	39.00	52.50	48.50

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	3,12(avg) 6/3/18	6,15(avg) 6/20/19	4,13(avg) 7/11/20
Organic Matter (Humus)	2 - 3%	3.90	3.52	3.89
Sulfur	12 - 16 ppm	44.00	28.00	83.50
Olsen - Phosphorus	13 - 20 ppm	30.00	16.00	17.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,260.00	2,988.00	3,855.00
Magnesium	>7% base saturation or at least 200 lbs/acre	10.65%/292	10.59%/270	9.89%/326
Potassium - TEC of 0 - 35	100 ppm	299.00	367.00	308.00
Manganese	>50 ppm	30.00	42.50	22.00

GREENS	Acceptable Range For Alkaline Soils Sample	3,12(avg) 6/3/18	6,15(avg) 6/20/19	4,13(avg) 7/11/20
Organic Matter (Humus)	2 - 3%	0.85	0.73	1.03
Sulfur	12 - 16 ppm	18.50	12.50	21.00
Olsen - Phosphorus	13 - 20 ppm	13.00	11.50	11.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,782.00	1,083.00	2,573.00
Magnesium	>7% base saturation or at least 200 lbs/acre	10.37%/165	11.38%/229	11.67%/263
Potassium - TEC of 0 - 35	150 ppm	334.50	253.50	410.00
Manganese	>50 ppm	56.50	55.00	74.50

TEE	Acceptable Range For Saturated Paste Sample	15 6/20/19	13 7/11/20
Nitrate -Bermudagrass	5 - 10 ppm	55.20	52.10
Phosphorus	2 - 10 ppm	1.47	1.78
Potassium	40 - 100 ppm	69.80	28.46
Calcium	60 - 200 ppm	119.38	83.47
Magnesium	20 - 70 ppm	19.63	10.67
Sodium	0 - 30 ppm	219.27	119.83
Soluble Salts	<1,920 ppm	1,111.00	620.00
Bicarbonate	<60 ppm	366.06	88.19
Chloride	<1,000 ppm	110.00	66.00
SAR	<4%	4.90	3.28

FAIRWAY	Acceptable Range For Saturated Paste Sample	15 6/20/19	13 7/11/20
Nitrate - Bermudagrass	5 - 10 ppm	24.50	126.80
Phosphorus	2 - 10 ppm	3.79	2.82
Potassium	40 - 100 ppm	66.89	66.01
Calcium	60 - 200 ppm	56.82	140.35
Magnesium	20 - 70 ppm	11.36	22.26
Sodium	0 - 30 ppm	161.95	271.13
Soluble Salts	<1,920 ppm	670.00	1,238.00
Bicarbonate	<60 ppm	219.64	68.42
Chloride	<1,000 ppm	72.00	150.00
SAR	<4%	5.13	5.61

GREENS	Acceptable Range For Saturated Paste Sample	6,15 (avg) 6/20/19	4,13(avg) 7/11/20
Nitrate - Bentgrass/Poa	1-3 ppm	1.55	61.80
Phosphorus	2 - 7 ppm	2.60	3.34
Potassium	25-40 ppm	82.03	61.02
Calcium	50- 75 ppm	57.67	61.54
Magnesium	15-30 ppm	11.94	11.67
Sodium	0 - 30 ppm	66.40	99.51
Soluble Salts	<1,000 ppm	505.00	668.00
Bicarbonate	<60 ppm	192.80	73.41
Chloride	<200 ppm	49.00	80.50
SAR	<4%	2.08	3.05