



SOIL AND WATER CONSULTING

Data Collection Report



ASHWOOD
GOLF COURSE



2023



	<u>9/28/21</u>	<u>9/23/22</u>	<u>10/21/23</u>
Humidity/Air Temperature	35%/75°	20%/91°	30%/85
Greens Temperature	(avg)67.5°	(avg)58.9°	(avg)57.2°
Fairways Temperature	(avg)68.45°	(avg)60.7°	(avg)60.8°

WATER	Acceptable Range For Water Sample	Irrigation Water	Irrigation Water	Irrigation Water
		<u>9/28/21</u>	<u>9/23/22</u>	<u>10/21/23</u>
pH	6.0-6.5	7.93	8.48	8.48
EC	<2.25 mmhos/cm	0.32	0.25	0.28
Sodium		22.86	17.07	15.15
Calcium	20 - 60 ppm	33.75	23.77	30.16
Magnesium	10 - 25 ppm	6.45	6.54	5.60
Potassium	5 - 20 ppm	5.14	2.30	2.15
Sulfur	30 - 90 ppm	34.05	19.88	21.74
Bicarbonate	<120 ppm	168.46	45.90	63.69
Boron	<0.67 ppm	<0.05	<0.05	<0.05
Chloride	<177 ppm	13.45	19.57	22.64

TEES	Acceptable Range For Alkaline Soils Sample	<u>1,1,9(avg)</u> <u>9/28/21</u>	<u>2,2,2(avg)</u> <u>9/23/22</u>	<u>7,7,7(avg)</u> <u>10/21/23</u>
Organic Matter (Humus)	2 - 3%	3.38	4.18	2.57
Sulfur	12 - 16 ppm	42.00	12.67	11.33
Olsen - Phosphorus	13 - 20 ppm	5.00	7.00	8.33
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,426.67	2,691.33	2,836.00
Magnesium	>7% base saturation or at least 200 lbs/acre	11.51%/292.66	13.65%/279.33	13.1%/2780.67
Potassium - TEC of 0 - 35	100 ppm	74.67	69.33	63.33
Manganese	>50 ppm	31.00	19.67	23.33

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	<u>1,1,9(avg)</u> <u>9/28/21</u>	<u>2,2,2(avg)</u> <u>9/23/22</u>	<u>7,7,7(avg)</u> <u>10/21/23</u>
Organic Matter (Humus)	2 - 3%	3.24	3.26	1.94
Sulfur	12 - 16 ppm	28.00	16.00	14.33
Olsen - Phosphorus	13 - 20 ppm	4.00	7.00	6.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,147.33	2,594.67	2,167.33
Magnesium	>7% base saturation or at least 200 lbs/acre	11.32%/262	14.35%/286	13.4%/218
Potassium - TEC of 0 - 35	100 ppm	83.00	66.67	53.67
Manganese	>50 ppm	27.67	21.33	18.67

GREENS	Acceptable Range For Alkaline Soils Sample	<u>1,1,1,9(avg)</u> <u>9/28/21</u>	<u>PG,2,2,2(avg)</u> <u>9/23/22</u>	<u>7,7,7,8(avg)</u> <u>10/21/23</u>
Organic Matter (Humus)	2 - 3%	1.42	1.80	0.94
Sulfur	12 - 16 ppm	28.75	15.25	24.50
Olsen - Phosphorus	13 - 20 ppm	3.75	4.50	4.25
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,855.50	1,572.00	1,525.00
Magnesium	>7% base saturation or at least 200 lbs/acre	8.22%/107.5	11.96%/142.5	9.28%/103.5
Potassium - TEC of 0 - 35	150 ppm	34.50	45.75	62.50
Manganese	>50 ppm	35.25	28.75	27.25

TEE	Acceptable Range For Saturated Paste Sample	<u>B9</u> <u>9/28/21</u>	<u>B2</u> <u>9/23/22</u>	<u>B7</u> <u>10/21/23</u>
Nitrate	10-15 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	3.17	3.70	3.32
Potassium	40 - 100 ppm	18.12	21.76	12.72
Calcium	60 - 200 ppm	47.92	47.52	36.64
Magnesium	20 - 70 ppm	10.72	12.62	8.13
Sodium	0 - 30 ppm	27.42	28.27	25.04
Soluble Salts	<1,920 ppm	303.00	312.00	207.00
Bicarbonate	<60 ppm	131.61	147.71	113.90
Chloride	<1,000 ppm	42.00	31.00	21.00
SAR	<4%	0.93	0.94	0.97

FAIRWAY	Acceptable Range For Saturated Paste Sample	<u>B9</u> <u>9/28/21</u>	<u>B2</u> <u>9/23/22</u>	<u>B7</u> <u>10/21/23</u>
Nitrate	10-15 ppm	<0.5	<0.5	1.20
Phosphorus	2 - 10 ppm	3.56	6.21	3.04
Potassium	40 - 100 ppm	22.01	28.77	14.19
Calcium	60 - 200 ppm	41.01	45.61	41.89
Magnesium	20 - 70 ppm	9.33	12.21	10.09
Sodium	0 - 30 ppm	21.62	29.03	24.63
Soluble Salts	<1,920 ppm	269.00	319.00	237.00
Bicarbonate	<60 ppm	128.74	137.74	126.93
Chloride	<1,000 ppm	33.00	40.00	18.00
SAR	<4%	0.79	0.99	0.89

GREENS	Acceptable Range For Saturated Paste Sample	<u>B1,B9(avg)</u> <u>9/28/21</u>	<u>PG,B2(avg)</u> <u>9/28/21</u>	<u>B7,B8(avg)</u> <u>10/21/23</u>
Nitrate - Bentgrass/Poa	1-3 ppm	0.65	<0.5	<0.5
Phosphorus	2 - 7 ppm	0.71	0.99	0.48
Potassium	25-40 ppm	10.52	17.76	25.89
Calcium	50- 75 ppm	40.90	49.83	34.88
Magnesium	15-30 ppm	7.88	9.06	5.57
Sodium	0 - 30 ppm	18.67	22.97	19.87
Soluble Salts	<1,000 ppm	241.00	277.75	230.50
Bicarbonate	<60 ppm	125.40	111.40	57.54
Chloride	<200 ppm	25.50	30.00	18.50
SAR	<4%	0.70	0.79	0.83



	<u>6/17/21</u>	<u>6/13/22</u>	<u>6/6/23</u>
Humidity/Air Temperature	30%/100°	80%/65°	55%/69°
Greens Temperature	(avg)81.9°	(avg)70.75°	(avg)66.6°
Fairways Temperature	(avg)79.8°	(avg)74.1°	(avg)65.75°

WATER	Acceptable Range For Water Sample	Irrigation Water 6/17/21	Irrigation Water 6/13/22	Wash Pad 6/6/23
pH	6.0-6.5	7.80	7.62	8.01
EC	<2.25 mmhos/cm	0.70	0.51	0.40
Sodium		42.86	16.36	28.76
Calcium	20 - 60 ppm	61.10	64.44	37.32
Magnesium	10 - 25 ppm	15.91	12.02	8.61
Potassium	5 - 20 ppm	3.94	2.80	3.05
Sulfur	30 - 90 ppm	102.09	45.81	55.83
Bicarbonate	<120 ppm	196.75	182.86	123.14
Boron	<0.67 ppm	0.09	0.06	0.07
Chloride	<177 ppm	36.08	18.72	19.74

TEES	Acceptable Range For Alkaline Soils Sample	6,13,15(avg) 6/17/21	7,11,12(avg) 6/13/22	4,5,8(avg) 6/6/23
Organic Matter (Humus)	2 - 3%	2.35	2.35	2.40
Sulfur	12 - 16 ppm	52.33	67.67	18.00
Olsen - Phosphorus	13 - 20 ppm	15.67	14.00	16.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,749.33	3,206.67	2,746.00
Magnesium	>7% base saturation or at least 200 lbs/acre	13.98%/304.6	12.91%/322.66	14.03%/298.66
Potassium - TEC of 0 - 35	100 ppm	80.00	128.33	92.33
Manganese	>50 ppm	32.67	31.00	36.67

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	6,13,15(avg) 6/17/21	7,11,12(avg) 6/13/22	4,5,8(avg) 6/6/23
Organic Matter (Humus)	2 - 3%	3.43	3.13	5.29
Sulfur	12 - 16 ppm	259.67	84.33	301.00
Olsen - Phosphorus	13 - 20 ppm	7.33	2.33	7.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	7,934.00	5,050.67	6,228.00
Magnesium	>7% base saturation or at least 200 lbs/acre	15.61%/946	17.27%/889.33	15.0%/726.66
Potassium - TEC of 0 - 35	100 ppm	145.00	128.33	129.00
Manganese	>50 ppm	41.00	50.00	38.00

GREENS	Acceptable Range For Alkaline Soils Sample	4,6,13,15(avg) 6/17/21	7,8,11,12(avg) 6/13/22	4,5,8,9(avg) 6/6/23
Organic Matter (Humus)	2 - 3%	0.79	0.57	0.63
Sulfur	12 - 16 ppm	66.50	22.25	9.75
Olsen - Phosphorus	13 - 20 ppm	10.50	3.75	6.25
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,434.50	1,061.50	1,059.50
Magnesium	>7% base saturation or at least 200 lbs/acre	11.17%/133	11.75%/101	10.59%/87
Potassium - TEC of 0 - 35	150 ppm	178.50	80.75	69.00
Manganese	>50 ppm	60.75	42.50	44.00

TEES	Acceptable Range For Saturated Paste Sample	6 6/17/21	7 6/13/22	4 6/6/23
Nitrate	10-15 ppm	4.70	<0.5	<0.5
Phosphorus	2 - 10 ppm	1.66	3.38	3.28
Potassium	40 - 100 ppm	18.67	56.43	20.98
Calcium	60 - 200 ppm	77.67	154.14	98.86
Magnesium	20 - 70 ppm	17.64	35.45	22.65
Sodium	0 - 30 ppm	49.92	61.11	36.80
Soluble Salts	<1,920 ppm	436.00	749.00	486.00
Bicarbonate	<60 ppm	130.11	180.02	160.72
Chloride	<1,000 ppm	55.00	120.00	80.00
SAR	<4%	1.33	1.15	0.87

FAIRWAYS	Acceptable Range For Saturated Paste Sample	6 6/17/21	7 6/13/22	4 6/6/23
Nitrate	10-15 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.25	0.07	0.38
Potassium	40 - 100 ppm	7.59	9.87	17.43
Calcium	60 - 200 ppm	196.06	158.92	136.41
Magnesium	20 - 70 ppm	36.26	40.38	29.84
Sodium	0 - 30 ppm	83.91	101.19	77.00
Soluble Salts	<1,920 ppm	803.00	799.00	673.00
Bicarbonate	<60 ppm	167.16	136.76	160.01
Chloride	<1,000 ppm	92.00	76.00	101.00
SAR	<4%	1.44	1.85	1.56

GREENS	Acceptable Range For Saturated Paste Sample	4,6(avg) 6/17/21	7,8(avg) 6/13/22	4,8(avg) 6/6/23
Nitrate - Bentgrass/Poa	1-3 ppm	<0.5	2.95	1.20
Phosphorus	2 - 7 ppm	1.26	0.65	0.74
Potassium	25-40 ppm	60.34	30.34	9.65
Calcium	50- 75 ppm	64.58	69.37	14.13
Magnesium	15-30 ppm	11.88	12.39	2.68
Sodium	0 - 30 ppm	41.11	43.08	11.91
Soluble Salts	<1,000 ppm	437.50	406.00	121.50
Bicarbonate	<60 ppm	100.77	74.64	30.12
Chloride	<200 ppm	38.00	39.50	10.50
SAR	<4%	1.24	1.25	0.54



CAMARILLO SPRINGS Golf Course

	6/18/21	6/14/22	6/7/23
Humidity/Air Temperature	40%/73°	50%/77°	60%/67°
Greens Temperature	(avg)75.55°	(avg)74.73°	(avg)65°
Fairway Temperature	(avg)74.4°	(avg)75.46°	(avg)66.7°

WATER	Acceptable Range For Water Sample	Irrigation Pond 6/18/21	Irrigation Pond 6/14/22	Irrigation Pond 6/7/23
pH	6.0-6.5	7.04	7.35	7.71
EC	<2.25 mmhos/cm	1.85	1.85	2.24
Sodium		134.40	148.50	192.13
Calcium	20 - 60 ppm	73.31	83.16	118.76
Magnesium	10 - 25 ppm	95.87	110.10	126.07
Potassium	5 - 20 ppm	2.45	2.80	3.09
Phosphorus	0.1 - 0.4 ppm	n/t	0.45	<0.20
Nitrate	5 - 50 ppm	n/t	2.7	<0.10
Sulfur	30 - 90 ppm	249.93	285.24	353.33
Bicarbonate	<120 ppm	386.97	446.35	692.15
Boron	<0.67 ppm	0.33	0.34	0.45
Chloride	<177 ppm	209.02	246.97	365.95

TEES	Acceptable Range For Alkaline Soils Sample	7,9,18(avg) 6/18/21	3,14,16(avg) 6/14/22	6,11,12(avg) 6/7/23
Organic Matter (Humus)	2 - 3%	5.76	6.96	4.44
Sulfur	12 - 16 ppm	160.00	120.67	46.33
Olsen - Phosphorus	13 - 20 ppm	126.67	120.33	96.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,240.67	4,544.67	3,511.33
Magnesium	>7% base saturation or at least 200 lbs/acre	37.25%/1,984.66	36.4%/2,051.33	35.7%/1,410
Potassium - TEC of 0 - 35	100 ppm	388.67	261.00	186.33
Manganese	>50 ppm	22.67	21.33	n/r

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	7,9,18(avg) 6/18/21	3,14,16(avg) 6/14/22	6,11,12(avg) 6/7/23
Organic Matter (Humus)	2 - 3%	8.24	9.29	10.54
Sulfur	12 - 16 ppm	482.67	200.33	48.67
Olsen - Phosphorus	13 - 20 ppm	100.33	101.67	40.33
Calcium - TEC of 6 - 12	1,000 lbs/acre	6,209.33	7,445.33	4,876.67
Magnesium	>7% base saturation or at least 200 lbs/acre	42.76%/3,716.6	40.68%/3,834.66	43.0%/2,749.33
Potassium - TEC of 0 - 35	100 ppm	490.33	573.00	479.00
Manganese	>50 ppm	62.67	63.00	n/r

GREENS	Acceptable Range For Alkaline Soils Sample	3,7,9,18(avg) 6/18/21	3,8,14,16(avg) 6/14/22	6,11,12,18(avg) 6/7/23
Organic Matter (Humus)	2 - 3%	1.46	1.02	1.01
Sulfur	12 - 16 ppm	162.00	114.00	57.00
Olsen - Phosphorus	13 - 20 ppm	37.75	21.75	18.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,146.50	3,353.50	2,520.00
Magnesium	>7% base saturation or at least 200 lbs/acre	22.34%/618	20.28%/577.5	21.85%/473.5
Potassium - TEC of 0 - 35	150 ppm	66.75	49.00	32.75
Manganese	>50 ppm	90.75	102.00	n/r

TEES	Acceptable Range For Saturated Paste Sample	7 6/18/21	3 6/14/22	6 6/7/23
Nitrate	5 - 10 ppm	24.10	17.20	26.70
Phosphorus	2 - 10 ppm	11.29	7.43	6.36
Potassium	40 - 100 ppm	45.13	59.58	19.81
Calcium	60 - 200 ppm	146.58	184.43	72.36
Magnesium	20 - 70 ppm	133.23	143.00	61.19
Sodium	0 - 30 ppm	204.80	269.41	108.06
Soluble Salts	<1,920 ppm	1,408.00	1,786.00	758.00
Bicarbonate	<60 ppm	193.93	168.96	106.51
Chloride	<1,000 ppm	361.00		208.00
SAR	<4%	2.95	3.62	2.26

FAIRWAYS	Acceptable Range For Saturated Paste Sample	7 6/18/21	3 6/14/22	6 6/7/23
Nitrate	5 - 10 ppm	0.70	<0.5	<0.5
Phosphorus	2 - 10 ppm	1.82	6.14	11.04
Potassium	40 - 100 ppm	54.39	40.03	27.62
Calcium	60 - 200 ppm	395.36	100.86	46.94
Magnesium	20 - 70 ppm	451.20	100.55	50.36
Sodium	0 - 30 ppm	589.70	165.10	57.15
Soluble Salts	<1,920 ppm	3,153.00	1,066.00	521.00
Bicarbonate	<60 ppm	323.61	272.24	187.87
Chloride	<1,000 ppm	791.00	226.00	99.00
SAR	<4%	4.81	2.78	1.38

GREENS	Acceptable Range For Saturated Paste Sample	3,7(avg) 6/18/21	3,8(avg) 6/14/22	6,18(avg) 6/7/23
rate - Bentgrass/Poa	1-3 ppm	1.55	1.70	5.35
Phosphorus	2 - 7 ppm	2.35	1.99	0.63
Potassium	25-40 ppm	29.58	16.82	4.53
Calcium	50- 75 ppm	178.73	97.55	28.83
Magnesium	15-30 ppm	108.45	66.53	27.52
Sodium	0 - 30 ppm	172.01	161.58	59.59
Soluble Salts	<1,000 ppm	1,282.00	943.00	406.50
Bicarbonate	<60 ppm	163.30	117.24	52.32
Chloride	<200 ppm	233.50	212.50	104.00
SAR	<4%	2.52	3.08	1.44



<u>6/14/23</u>		
Humidity/Air Temperature	20%/92°	
Greens Temperature	(avg)70.05°	
Fairway Temperature	(avg)68.2°	

WATER	Acceptable Range For Water Sample	Concord Course Pond 6/14/23
pH	6.0-6.5	9.30
EC	<2.25 mmhos/cm	1.51
Sodium		195.82
Calcium	20 - 60 ppm	81.37
Magnesium	10 - 25 ppm	28.73
Potassium	5 - 20 ppm	13.54
Sulfur	30 - 90 ppm	267.49
Bicarbonate	<120 ppm	58.03
Boron	<0.67 ppm	0.21
Chloride	<177 ppm	262.29

CONCORD TEES	Acceptable Range For Alkaline Soils Sample	7,12,18(avg) 6/14/23
Organic Matter (Humus)	2 - 3%	3.35
Sulfur	12 - 16 ppm	61.00
Olsen - Phosphorus	13 - 20 ppm	19.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,556.67
	>7% base saturation or at least 200 lbs/acre	
Magnesium		15.56%/496
Potassium - TEC of 0 - 35	100 ppm	219.33
Manganese	>50 ppm	23.33

CONCORD FAIRWAYS	Acceptable Range For Alkaline Soils Sample	7,12,18(avg) 6/14/23
Organic Matter (Humus)	2 - 3%	6.25
Sulfur	12 - 16 ppm	1,552.00
Olsen - Phosphorus	13 - 20 ppm	24.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	8,093.33
	>7% base saturation or at least 200 lbs/acre	
Magnesium		9.04%/569.33
Potassium - TEC of 0 - 35	100 ppm	540.33
Manganese	>50 ppm	13.67

CONCORD GREENS	Acceptable Range For Alkaline Soils Sample	7,12,18,PG(avg) 6/14/23
Organic Matter (Humus)	2 - 3%	1.66
Sulfur	12 - 16 ppm	53.00
Olsen - Phosphorus	13 - 20 ppm	22.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,190.67
	>7% base saturation or at least 200 lbs/acre	
Magnesium		12.61%/271.5
Potassium - TEC of 0 - 35	150 ppm	383.00
Manganese	>50 ppm	55.33

CONCORD TEES	Acceptable Range For Saturated Paste Sample	7 6/14/23
Nitrate - Bermudagrass	10-15 ppm	1.90
Phosphorus	2 - 10 ppm	2.88
Potassium	40 - 100 ppm	14.84
Calcium	60 - 200 ppm	28.85
Magnesium	20 - 70 ppm	11.76
Sodium	0 - 30 ppm	80.82
Soluble Salts	<1,920 ppm	329.00
Bicarbonate	<60 ppm	119.89
Chloride	<1,000 ppm	54.00
SAR	<4%	3.20

CONCORD FAIRWAYS	Acceptable Range For Saturated Paste Sample	7 6/14/23
Nitrate - Bermudagrass	10-15 ppm	<0.5
Phosphorus	2 - 10 ppm	1.75
Potassium	40 - 100 ppm	58.84
Calcium	60 - 200 ppm	409.77
Magnesium	20 - 70 ppm	67.89
Sodium	0 - 30 ppm	378.07
Soluble Salts	<1,920 ppm	2,133.00
Bicarbonate	<60 ppm	141.30
Chloride	<1,000 ppm	381.00
SAR	<4%	4.56

CONCORD GREENS	Acceptable Range For Saturated Paste Sample	7,12(avg) 6/14/23
Nitrate - Bentgrass/Poa	1-3 ppm	<0.5
Phosphorus	2 - 7 ppm	2.70
Potassium	25-40 ppm	19.08
Calcium	50- 75 ppm	43.71
Magnesium	15-30 ppm	11.91
Sodium	0 - 30 ppm	118.44
Soluble Salts	<1,000 ppm	532.00
Bicarbonate	<60 ppm	70.09
Chloride	<200 ppm	100.00
SAR	<4%	4.08

SAN RAMON GOLF CLUB

	10/1/21	10/6/22	10/16/23
Humidity/Air Temperature	35%/90°	35%/87°	50%/76°
Greens Temperature	(avg)57.45°	(avg)68.25°	(avg)58.4°
Fairway Temperature	(avg)59.8°	(avg)68.7°	(avg)61°

WATER	Acceptable Range For Water Sample	Stream #9	Pond #18	Stream #9	Pond #18	Stream #9	Pond #18
		10/1/21	10/1/21	10/6/22	10/6/22	10/16/23	10/16/23
pH	6.0-6.5	7.62	7.56	7.77	7.63	7.52	7.43
EC	<2.25 mmhos/cm	0.98	1.09	0.97	1.12	1.00	1.05
Sodium		112.40	157.00	108.10	156.70	99.21	150.42
Calcium	20 - 60 ppm	66.10	47.27	71.62	49.85	73.13	48.33
Magnesium	10 - 25 ppm	29.91	20.59	30.37	19.74	31.08	21.68
Potassium	5 - 20 ppm	2.37	2.03	2.52	2.21	2.19	3.40
Sulfur	30 - 90 ppm	74.04	2.82	66.63	2.53	59.32	2.65
Bicarbonate	<120 ppm	428.35	346.28	416.61	306.03	425.18	354.32
Boron	<0.67 ppm	0.36	1.01	0.34	1.01	0.33	0.78
Chloride	<177 ppm	96.34	218.38	94.81	221.78	96.68	168.17

TEES	Acceptable Range For Alkaline Soils Sample	3,6,12(avg) 10/1/21	10,13,14(avg) 10/6/22	2,7,17(avg) 10/16/23
Organic Matter (Humus)	2 - 3%	1.63	4.39	5.58
Sulfur	12 - 16 ppm	21.33	48.33	44.00
Olsen - Phosphorus	13 - 20 ppm	6.00	12.67	18.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,090.00	3,706.67	5,616.67
Magnesium	>7% base saturation or at least 200 lbs/acre	25.91%/1,003	27.37%/1,045.33	27.58%/1,504.66
Potassium - TEC of 0 - 35	100 ppm	46.00	80.00	142.67
Manganese	>50 ppm	20.67	50.00	28.33

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	3,6,12(avg) 10/1/21	10,13,14(avg) 10/6/22	2,7,17(avg) 10/16/23
Organic Matter (Humus)	2 - 3%	5.77	6.34	9.20
Sulfur	12 - 16 ppm	35.00	76.33	49.00
Olsen - Phosphorus	13 - 20 ppm	6.33	13.67	6.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,366.00	5,926.67	6,762.67
Magnesium	>7% base saturation or at least 200 lbs/acre	29.83%/2,126.66	32.1%/2,723	32.1%/2,410
Potassium - TEC of 0 - 35	100 ppm	157.33	195.00	208.33
Manganese	>50 ppm	21.67	47.00	45.00

GREENS	Acceptable Range For Alkaline Soils Sample	2,3,6,12(avg) 10/1/21	PG,10,13,14(avg) 10/6/22	2,7,17,18(avg) 10/16/23
Organic Matter (Humus)	2 - 3%	1.95	1.78	1.74
Sulfur	12 - 16 ppm	76.00	72.00	94.25
Olsen - Phosphorus	13 - 20 ppm	14.75	20.50	27.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,993.50	2,604.00	2,762.50
Magnesium	>7% base saturation or at least 200 lbs/acre	14.42%/445.5	14.70%/424	14.53%/332
Potassium - TEC of 0 - 35	150 ppm	163.50	147.25	155.00
Manganese	>50 ppm	29.50	40.00	35.75

TEE	Acceptable Range For Saturated Paste Sample	3 10/1/21	10 10/6/22	2 10/16/23
Nitrate - Ryegrass	5 - 10 ppm	1.80	3.00	<0.5
Phosphorus	2 - 10 ppm	1.17	2.45	4.81
Potassium	40 - 100 ppm	12.36	14.55	16.47
Calcium	60 - 200 ppm	54.42	63.08	59.58
Magnesium	20 - 70 ppm	29.60	33.12	30.97
Sodium	0 - 30 ppm	261.52	215.33	151.78
Soluble Salts	<1,920 ppm	881.00	810.00	602.00
Bicarbonate	<60 ppm	246.94	226.27	179.37
Chloride	<1,000 ppm	253.00	220.00	199.00
SAR	<4%	7.09	5.46	3.97

FAIRWAY	Acceptable Range For Saturated Paste Sample	3 10/1/21	10 10/6/22	2 10/16/23
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	1.32	2.02	2.18
Potassium	40 - 100 ppm	11.08	8.79	6.34
Calcium	60 - 200 ppm	66.66	71.23	42.64
Magnesium	20 - 70 ppm	30.85	39.28	22.25
Sodium	0 - 30 ppm	223.29	342.63	160.80
Soluble Salts	<1,920 ppm	845.00	1,119.00	530.00
Bicarbonate	<60 ppm	222.02	290.23	204.95
Chloride	<1,000 ppm	235.00	327.00	95.00
SAR	<4%	5.67	8.09	4.97

GREENS	Acceptable Range For Saturated Paste Sample	3,12(avg) 10/1/21	PG,10(avg) 10/6/22	2,17(avg) 10/16/23
Nitrate - Bentgrass/Poa	1-3 ppm	0.98	<0.5	<0.5
Phosphorus	2 - 7 ppm	1.33	2.89	3.84
Potassium	25-40 ppm	53.76	95.82	91.06
Calcium	50- 75 ppm	61.13	69.65	79.98
Magnesium	15-30 ppm	25.31	30.75	32.80
Sodium	0 - 30 ppm	176.14	190.30	163.74
Soluble Salts	<1,000 ppm	781.00	912.50	838.00
Bicarbonate	<60 ppm	118.16	178.27	138.49
Chloride	<200 ppm	168.25	164.50	142.00
SAR	<4%	4.80	4.76	3.90



THE LEGACY

GOLF CLUB • LAS VEGAS

	9/12/23
Humidity/Air Temperature	29%/93°
Greens Temperature	(avg)78.6°
Fairway Temperature	(avg)78.9°

WATER	Acceptable Range For Water Sample	Clubhouse 9/12/23
pH	6.0-6.5	7.06
EC	<2.25 mmhos/cm	1.99
Sodium		290.35
Calcium	20 - 60 ppm	93.81
Magnesium	10 - 25 ppm	28.81
Potassium	5 - 20 ppm	20.53
Sulfur	30 - 90 ppm	271.83
Bicarbonate	<120 ppm	202.77
Boron	<0.67 ppm	0.33
Chloride	<177 ppm	384.84

TEES	Acceptable Range For Alkaline Soils Sample	9,18(avg) 9/12/23
Organic Matter (Humus)	2 - 3%	4.77
Sulfur	12 - 16 ppm	70.00
Olsen - Phosphorus	13 - 20 ppm	48.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,213.00
	>7% base saturation or at least 200 lbs/acre	
Magnesium		16.68%/687
Potassium - TEC of 0 - 35	100 ppm	272.50
Manganese	>50 ppm	14.50

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	1,9,18(avg) 9/12/23
Organic Matter (Humus)	2 - 3%	5.04
Sulfur	12 - 16 ppm	67.00
Olsen - Phosphorus	13 - 20 ppm	51.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,699.33
	>7% base saturation or at least 200 lbs/acre	
Magnesium		13.93%/764.66
Potassium - TEC of 0 - 35	100 ppm	1,090.00
Manganese	>50 ppm	23.33

GREENS	Acceptable Range For Alkaline Soils Sample	1,9,18, PG(avg) 9/12/23
Organic Matter (Humus)	2 - 3%	2.46
Sulfur	12 - 16 ppm	36.50
Olsen - Phosphorus	13 - 20 ppm	25.25
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,391.00
	>7% base saturation or at least 200 lbs/acre	
Magnesium		14.04%/315.5
Potassium - TEC of 0 - 35	150 ppm	200.50
Manganese	>50 ppm	55.75

TEES	Acceptable Range For Saturated Paste Sample	1 9/12/23
Nitrate - Bermudagrass	10-15 ppm	19.80
Phosphorus	2 - 10 ppm	3.51
Potassium	40 - 100 ppm	25.41
Calcium	60 - 200 ppm	42.94
Magnesium	20 - 70 ppm	14.49
Sodium	0 - 30 ppm	206.22
Soluble Salts	<1,920 ppm	744.00
Bicarbonate	<60 ppm	172.38
Chloride	<1,000 ppm	181.00
SAR	<4%	6.94

FAIRWAYS	Acceptable Range For Saturated Paste Sample	1 9/12/23
Nitrate - Bermudagrass	10-15 ppm	24.00
Phosphorus	2 - 10 ppm	4.24
Potassium	40 - 100 ppm	27.13
Calcium	60 - 200 ppm	53.06
Magnesium	20 - 70 ppm	18.16
Sodium	0 - 30 ppm	263.59
Soluble Salts	<1,920 ppm	249.00
Bicarbonate	<60 ppm	202.52
Chloride	<1,000 ppm	249.00
SAR	<4%	7.96

GREENS	Acceptable Range For Saturated Paste Sample	1,18(avg) 9/12/23
Nitrate - Bermudagrass	1-3 ppm	6.55
Phosphorus	2 - 7 ppm	3.85
Potassium	25-40 ppm	16.80
Calcium	50- 75 ppm	30.72
Magnesium	15-30 ppm	10.26
Sodium	0 - 30 ppm	153.57
Soluble Salts	<1,000 ppm	588.00
Bicarbonate	<60 ppm	102.29
Chloride	<200 ppm	143.50
SAR	<4%	6.14



	9/28/21	9/22/22	10/20/23
Humidity/Air Temperature	45%/90°	10%/100°	13%/104
Greens Temperature	(avg)71.2°	(avg)78.5°	n/r
Fairways Temperature	(avg)72.6°	(avg)79.9°	n/r

WATER	Acceptable Range For Water Sample	Irrigation Water 9/28/21	Irrigation Water 9/22/22	Irrigation Water 10/20/23
pH	6.0-6.5	7.20	8.12	n/r
EC	<2.25 mmhos/cm	0.26	0.33	n/r
Sodium		17.17	21.58	n/r
Calcium	20 - 60 ppm	27.89	36.50	n/r
Magnesium	10 - 25 ppm	6.47	7.26	n/r
Potassium	5 - 20 ppm	2.33	5.20	n/r
Sulfur	30 - 90 ppm	21.91	34.92	n/r
Bicarbonate	<120 ppm	97.91	113.37	n/r
Boron	<0.67 ppm	<0.05	<0.05	n/r
Chloride	<177 ppm	25.87	3.74	n/r

TEES	Acceptable Range For Alkaline Soils Sample	1,9,18(avg) 9/28/21	3,11,16(avg) 9/22/22	6,8,12(avg) 10/20/23
Organic Matter (Humus)	2 - 3%	3.46	3.71	3.01
Sulfur	12 - 16 ppm	49.00	13.33	12.00
Olsen - Phosphorus	13 - 20 ppm	10.00	4.67	6.67
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,406.00	3,727.33	3,538.67
	>7% base saturation or at least 200 lbs/acre			
Magnesium		10.72%/355.33	11.88%/329.33	10.82%/283.33
Potassium - TEC of 0 - 35	100 ppm	182.67	116.00	126.33
Manganese	>50 ppm	32.33	34.33	37.67

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	1,9,18(avg) 9/28/21	3,11,16(avg) 9/22/22	6,8,12(avg) 10/20/23
Organic Matter (Humus)	2 - 3%	3.50	4.30	2.35
Sulfur	12 - 16 ppm	57.67	32.00	33.67
Olsen - Phosphorus	13 - 20 ppm	8.67	11.00	4.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	5,152.67	5,093.33	4,800.67
	>7% base saturation or at least 200 lbs/acre			
Magnesium		10.47%/412	12.47%/486.66	8.68%/299.33
Potassium - TEC of 0 - 35	100 ppm	288.33	229.33	170.00
Manganese	>50 ppm	34.00	31.00	46.00

GREENS	Acceptable Range For Alkaline Soils Sample	1,2,9,18(avg) 9/28/21	PG,3,11,16(avg) 9/22/22	6,8,12,13(avg) 10/20/23
Organic Matter (Humus)	2 - 3%	1.75	2.19	2.22
Sulfur	12 - 16 ppm	25.25	12.50	16.25
Olsen - Phosphorus	13 - 20 ppm	11.50	14.25	22.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,058.00	2,400.50	2,846.00
	>7% base saturation or at least 200 lbs/acre			
Magnesium		14.48%/236	13.8%/263.5	13.85%/312.50
Potassium - TEC of 0 - 35	150 ppm	106.00	156.75	183.50
Manganese	>50 ppm	39.00	42.00	64.00

TEE	Acceptable Range For Saturated Paste Sample	1 9/28/21	3 9/22/22	6 10/20/23
Nitrate-Ryegrass	5-10 ppm	6.60	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.77	2.11	5.99
Potassium	40 - 100 ppm	24.55	11.82	26.05
Calcium	60 - 200 ppm	62.62	42.29	100.16
Magnesium	20 - 70 ppm	11.68	8.80	16.67
Sodium	0 - 30 ppm	59.12	23.50	22.40
Soluble Salts	<1,920 ppm	439.00	241.00	359.00
Bicarbonate	<60 ppm	161.49	140.32	172.35
Chloride	<1,000 ppm	49.00	11.00	25.00
SAR	<4%	1.80	0.86	0.55

FAIRWAY	Acceptable Range For Saturated Paste Sample	1 9/28/21	3 9/22/22	6 10/20/23
Nitrate-Ryegrass	5-10 ppm	5.60	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.86	1.33	2.41
Potassium	40 - 100 ppm	56.80	26.98	39.06
Calcium	60 - 200 ppm	125.38	89.08	133.68
Magnesium	20 - 70 ppm	22.21	18.77	22.65
Sodium	0 - 30 ppm	101.45	67.77	34.51
Soluble Salts	<1,920 ppm	758.00	499.00	532.00
Bicarbonate	<60 ppm	243.21	221.34	280.91
Chloride	<1,000 ppm	93.00	26.00	30.00
SAR	<4%	2.19	1.70	0.73

GREENS	Acceptable Range For Saturated Paste Sample	1,18(avg) 9/28/21	PG,3(avg) 9/22/22	6,13(avg) 10/20/23
Nitrate - Bermudagrass	5-10 ppm	20.40	12.15	<0.5
Phosphorus	2 - 7 ppm	0.80	1.84	2.52
Potassium	25-40 ppm	19.51	28.77	45.81
Calcium	50- 75 ppm	27.69	33.36	65.31
Magnesium	15-30 ppm	7.67	9.14	15.69
Sodium	0 - 30 ppm	28.72	26.96	28.97
Soluble Salts	<1,000 ppm	291.50	261.75	377.50
Bicarbonate	<60 ppm	138.01	83.96	196.42
Chloride	<200 ppm	15.50	11.50	26.00
SAR	<4%	1.25	1.06	0.83



	6/17/21	6/11/22	6/6/23
Humidity/Air Temperature	30%/100°	35%/98°	55%/69°
Greens Temperature	(avg)68.76°	(avg)67.25°	(avg)61.2°
Fairways Temperature	(avg)72.16°	(avg)70.13°	(avg)65.3°

WATER	Acceptable Range For Water Sample	Hole#5 6/17/21	New Water 6/17/21	Hole #6 6/11/22	Hole #13 6/6/23
pH	6.0-6.5	6.67	7.37	7.09	7.68
EC	<2.25 mmhos/cm	0.84	0.62	0.49	0.54
Sodium		93.43	38.91	66.22	41.39
Calcium	20 - 60 ppm	39.87	56.63	22.83	54.41
Magnesium	10 - 25 ppm	15.68	10.96	5.34	10.03
Potassium	5 - 20 ppm	5.72	2.19	6.96	2.63
Phosphorus	0.1 - 0.4 ppm	0.69	<0.20	2.13	<0.20
Nitrate	5 - 50 ppm	7.9	1.19	3.81	3.17
Sulfur	30 - 90 ppm	138.09	22.81	31.92	24.50
Bicarbonate	<120 ppm	150.29	214.18	151.18	207.36
Boron	<0.67 ppm	0.21	<0.05	0.28	<0.05
Chloride	<177 ppm	74.04	33.70	46.13	55.66

TEES	Acceptable Range For Alkaline Soils Sample	5,12,14(avg) 6/17/21	6,7,16(avg) 6/11/22	3,8,13(avg) 6/6/23
Organic Matter (Humus)	2 - 3%	2.97	3.26	3.97
Sulfur	12 - 16 ppm	86.67	37.67	37.00
Olsen - Phosphorus	13 - 20 ppm	13.00	23.00	37.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,746.67	2,427.33	1,877.00
	>7% base saturation or at least 200 lbs/acre			
Magnesium		17.88%/304.66	17.58%/371.33	12.76%/272
Potassium - TEC of 0 - 35	100 ppm	59.00	71.00	76.33
Manganese	>50 ppm	11.67	12.67	10.67

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	5,12,14(avg) 6/17/21	6,7,16(avg) 6/11/22	3,8,13(avg) 6/6/23
Organic Matter (Humus)	2 - 3%	2.99	2.51	3.46
Sulfur	12 - 16 ppm	110.00	212.67	68.00
Olsen - Phosphorus	13 - 20 ppm	7.00	8.33	13.33
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,690.67	4,348.67	3,643.33
	>7% base saturation or at least 200 lbs/acre			
Magnesium		18.93%/646.66	16.93%/658	17.28%/521.33
Potassium - TEC of 0 - 35	100 ppm	88.00	88.33	75.33
Manganese	>50 ppm	52.67	64.67	45.67

GREENS	Acceptable Range For Alkaline Soils Sample	5,12,14,16(avg) 6/17/21	6,7,8,16(avg) 6/11/22	3,8,13,18(avg) 6/6/23
Organic Matter (Humus)	2 - 3%	1.67	1.25	1.51
Sulfur	12 - 16 ppm	91.25	58.75	37.50
Olsen - Phosphorus	13 - 20 ppm	18.50	13.25	17.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,551.00	1,617.00	1,727.00
	>7% base saturation or at least 200 lbs/acre			
Magnesium		16.86%/239.5	13.94%/193	12.11%/163
Potassium - TEC of 0 - 35	150 ppm	110.75	95.50	75.25
Manganese	>50 ppm	36.25	36.75	41.25

TEES	Acceptable Range For Saturated Paste Sample	5 6/17/21	6 6/11/22	3 6/6/23
Nitrate	5 - 10 ppm	2.90	<0.5	3.20
Phosphorus	2 - 10 ppm	1.88	1.47	1.56
Potassium	40 - 100 ppm	25.42	10.40	17.90
Calcium	60 - 200 ppm	60.34	16.71	81.08
Magnesium	20 - 70 ppm	21.83	6.26	15.49
Sodium	0 - 30 ppm	98.58	62.52	31.05
Soluble Salts	<1,920 ppm	574.00	243.00	424.00
Bicarbonate	<60 ppm	62.99	47.71	72.18
Chloride	<1,000 ppm	77.00	41.00	42.00
SAR	<4%	2.76	3.31	0.83

FAIRWAYS	Acceptable Range For Saturated Paste Sample	5 6/17/21	6 6/11/22	3 6/6/23
Nitrate	5 - 10 ppm	<0.5	<0.5	<0.5
Phosphorus	2 - 10 ppm	0.55	0.35	1.82
Potassium	40 - 100 ppm	5.86	5.25	9.60
Calcium	60 - 200 ppm	48.59	51.76	49.09
Magnesium	20 - 70 ppm	17.25	16.30	14.36
Sodium	0 - 30 ppm	177.57	171.10	53.23
Soluble Salts	<1,920 ppm	637.00	648.00	355.00
Bicarbonate	<60 ppm	174.16	115.14	145.81
Chloride	<1,000 ppm	124.00	86.00	62.00
SAR	<4%	5.57	5.31	1.72

GREENS	Acceptable Range For Saturated Paste Sample	5,12(avg) 6/17/21	6,8(avg) 6/11/22	3,8(avg) 6/6/23
Nitrate - Bentgrass/Poa	1-3 ppm	<0.5	<0.5	0.80
Phosphorus	2 - 7 ppm	1.92	0.98	1.05
Potassium	25-40 ppm	48.87	38.95	25.45
Calcium	50- 75 ppm	91.40	63.93	68.22
Magnesium	15-30 ppm	26.35	14.17	12.71
Sodium	0 - 30 ppm	135.41	109.99	38.94
Soluble Salts	<1,000 ppm	771.50	588.00	414.00
Bicarbonate	<60 ppm	99.06	38.33	37.62
Chloride	<200 ppm	117.50	77.50	52.50
SAR	<4%	3.22	3.25	1.14

Application for Tees:	200 pounds of product/acre (0-0-50)	500 pounds of product/acre (Gypsum)	125 pounds of product/acre(11-55-00)
Ashwood GC	yes		yes
Birch Hills GC	yes		
Camarillo Springs GC			
Revere GC			
San Ramon GC			
Tri-Palms Estates CC			yes
The Legacy GC			
Yucaipa Valley GC	yes		

Application for Fairways:	200 pounds of product/acre (0-0-50)	500 pounds of product/acre (Gypsum)	125 pounds of product/acre(11-55-00)
Ashwood GC	yes		yes
Birch Hills GC			yes
Camarillo Springs GC			
Revere GC			
San Ramon GC			
Tri-Palms Estates CC			yes
The Legacy GC			
Yucaipa Valley GC	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)
Ashwood GC	yes		yes	yes	yes
Birch Hills GC	yes		yes	yes	yes
Camarillo Springs GC	yes				
Revere GC					
San Ramon GC					yes
Tri-Palms Estates CC					
The Legacy GC	yes	yes			
Yucaipa Valley GC	yes				yes