



Client: Iron Wolf Golf & Country Club
Fall 2024 Report

<u>9/30/24</u>	
Humidity/Air Temperature	10%/107°
Greens Temperature	(avg)74°
Fairway Temperature	(avg)75.5°

<i>WATER</i>	Acceptable Range For Water Sample	Potable Water 9/30/24	Hole #7 Lake 9/30/11	Hole #7 Lake Fill 9/30/24	Hole #7 Lake 9/30/24
EC	<2.25 mmhos/cm	1.29	2.54	2.35	2.42
Sodium		223.19	433.70	368.30	379.65
Calcium	20 - 60 ppm	37.38	102.92	103.80	102.72
Magnesium	10 - 25 ppm	6.52	32.53	32.50	34.58
Potassium	5 - 20 ppm	4.97	17.55	23.36	18.67
Sulfur	30 - 90 ppm	136.73	268.06	306.60	271.57
Bicarbonate	<120 ppm	119.58	309.93	355.48	322.13
Boron	<0.67 ppm	0.71	0.53	0.50	0.53
Chloride	<177 ppm	258.21	541.26	537.86	531.05



SOIL AND WATER CONSULTING

<i>TEE</i>	Acceptable Range For Tissue Sample	2 9/30/24
Nitrogen	3.34%-5.10%	
Phosphorus	0.35% - 0.55%	
Potassium	2.0% - 3.42%	
Calcium	0.25%-0.5%	
Magnesium	0.16%-0.32%	
Sodium	229-1107 ppm	

<i>FAIRWAY</i>	Acceptable Range For Tissue Sample	2 9/30/24
Nitrogen	3.34%-5.10%	
Phosphorus	0.35% - 0.55%	
Potassium	2.0% - 3.42%	
Calcium	0.25%-0.5%	
Magnesium	0.16%-0.32%	
Sodium	229-1107 ppm	

<i>GREENS</i>	Acceptable Range For Tissue Sample	2,11(avg) 9/30/24
Nitrogen	3.0%-6.5%	0.00
Phosphorus	0.2%-0.55%	0.00
Potassium	0.86%-2.55%	0.00
Calcium	0.21%-0.50%	0.00
Magnesium	0.09%-0.22%	0.00
Sodium	506- 2264 ppm	0.00

TEES	Acceptable Range For Alkaline Soils Sample	2,9(avg) 9/30/24
Organic Matter (Humus)	2 - 3%	1.94
Sulfur	12 - 16 ppm	44.00
Olsen - Phosphorus	13 - 20 ppm	25.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,324.00
Magnesium	>7% base saturation or at least 200 lbs/acre	12.355%/427
Potassium - TEC of 0 - 35	100 ppm	162.50
Manganese	>50 ppm	35.50

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	2,9(avg) 9/30/24
Organic Matter (Humus)	2 - 3%	1.45
Sulfur	12 - 16 ppm	55.00
Olsen - Phosphorus	13 - 20 ppm	41.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,770.00
Magnesium	>7% base saturation or at least 200 lbs/acre	10.99%/405
Potassium - TEC of 0 - 35	100 ppm	126.00
Manganese	>50 ppm	36.00

GREENS	Acceptable Range For Alkaline Soils Sample	2,9(avg) 9/30/24
Organic Matter (Humus)	2 - 3%	1.07
Sulfur	12 - 16 ppm	23.00
Olsen - Phosphorus	13 - 20 ppm	24.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,736.00
Magnesium	>7% base saturation or at least 200 lbs/acre	15.35%/350
Potassium - TEC of 0 - 35	150 ppm	89.50
Manganese	>50 ppm	55.00

TEE	Acceptable Range For Saturated Paste Sample	2 9/30/24
Nitrate - 328/419/Ryegrass	10 -15 ppm	4.30
Phosphorus	2 - 10 ppm	3.51
Potassium	40 - 100 ppm	28.80
Calcium	60 - 200 ppm	51.38
Magnesium	20 - 70 ppm	16.23
Sodium	0 - 30 ppm	191.40
Soluble Salts	<1,920 ppm	765.00
Bicarbonate	<60 ppm	191.60
Chloride	<1,000 ppm	206.00
SAR	<4%	5.96

FAIRWAY	Acceptable Range For Saturated Paste Sample	2 9/30/24
Nitrate-328/419 Bermudagrass	10 -15 ppm	4.40
Phosphorus	2 - 10 ppm	2.30
Potassium	40 - 100 ppm	17.26
Calcium	60 - 200 ppm	41.16
Magnesium	20 - 70 ppm	11.42
Sodium	0 - 30 ppm	206.66
Soluble Salts	<1,920 ppm	714.00
Bicarbonate	<60 ppm	195.44
Chloride	<1,000 ppm	187.00
SAR	<4%	7.35

GREEN	Acceptable Range For Saturated Paste Sample	2,11(avg) 9/30/24
Nitrate-Tifeagle/Poa Trivialis	1-3 ppm	28.65
Phosphorus	2 - 7 ppm	2.72
Potassium	25-40 ppm	13.89
Calcium	50- 75 ppm	33.33
Magnesium	15-30 ppm	10.87
Sodium	0 - 30 ppm	138.70
Soluble Salts	<1,000 ppm	585.50
Bicarbonate	<60 ppm	109.38
Chloride	<200 ppm	113.50
SAR	<4%	5.30



Nutrient Deficiencies

		K ppm	Na ppm	Na %
TEE	2	167	194	6.28
TEE	11	158	252	7.13
FAIRWAY	2	112	225	6.80
FAIRWAY	11	140	238	6.35
GREEN	2	75	155	7.18
GREEN	11	104	154	6.97
Desired Value		100-150	<50	2.5% or less

Potassium can be added in the form of 0-0-50 at a rate of 2 pounds of product per 1,000 sq ft monthly

Comments and Next Level Cultural Practices

- Sodium and bicarbonate levels in the irrigation water are very high. I had forgotten how severe that water source is. I showed a sample I had collected the same day in 2011 on the water report spreadsheet on the first page
- Although I had not sampled these holes before, the holes I sampled in the Fall from 2011 through 2015, showed similar results. The sodium levels on the fairways back then did ebb and flow but when I sample in the Fall during overseed time, I find different results based on watering more at the time.
- I was not being very “judgy” of the grass during my visit. I was focused on catching up on the course since I had been there 10 years ago. The course was closed and there were many projects going on. We did look at two areas of thin bermudagrass- #15 fairway and off the tee on #16. After doing some probing, I didn’t believe the soils were different enough to sample. #16 is stressed by compaction from cart traffic and #15 fairway showed good signs of healing but may not be fully covered by dormancy. Aerification would help both areas.

