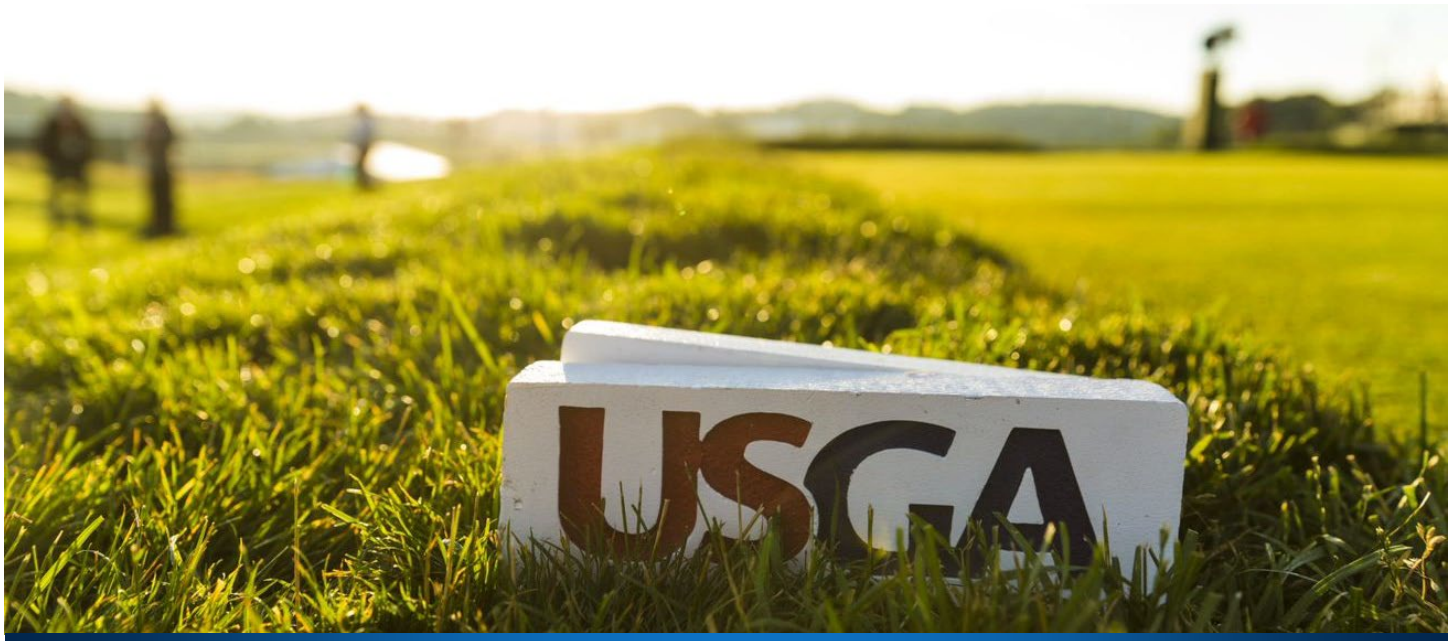

USGA COURSE CONSULTING SERVICE

Site Visit Report

Westbrook Village Golf Club

Peoria, Arizona

Visit Date: April 3, 2025

Present:

David Escobedo, Golf Course Superintendent
Jose Murillo, Superintendent, Lakes Course
Andrew Elias Perez, Assistant Golf Course Superintendent
Brandon Evans, Director of Golf
Jill Riedel, President
Dan Tennessen, Member
Brian Whitlark, USGA Green Section

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USGA Green Section

Executive Summary

Thank you for your kind hospitality and the invitation to visit Westbrook Golf Club to conduct a Course Consulting Service visit on behalf of the USGA Green Section. We were able to tour both golf courses, and it was good to see bermudagrass emerging on tees, fairways and greens. It was also good to see continued success with turf reduction on the Vistas Course. One of the main discussion topics during this visit was the well and irrigation system replacement on the Vistas Course. A brief summary of the topics discussed in this report is included below:

- **New well and irrigation on Vistas**. It is recommended to focus funding a new well on the Vistas Course followed by irrigation system replacement.
- **Putting greens.** Bermudagrass is emerging underneath the overseed on both golf courses. Additional nitrogen fertility is recommended to expedite the bermudagrass growth.
- **Fairways.** The common bermudagrass is slow to resume growth in the spring; however, it is beginning to green up, and now is the time to increase water and fertility. It was great to hear that Sapphire® has already been applied twice to help the transition process along.
- **Tees.** It was great to see continuation of tee leveling and expansion.
- **Bunkers.** Bunker playability has improved with aggressive raking and sand addition. However, we observed several bunkers on both golf courses that will need more routine rototilling.
- **Lakes practice facility.** We discussed leveling the practice facility tee on the Lakes Course this summer and evaluating the addition of synthetic turf to improve the golfer experience.

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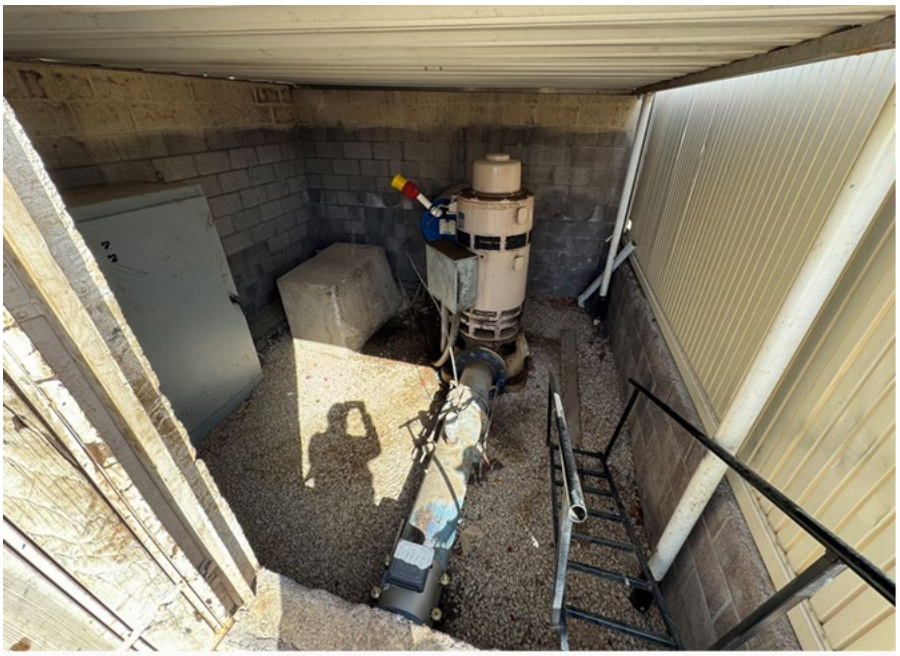
New Well and Irrigation

Observations and Recommendations

1. **Aging Well**

   The well next to the tee on No. 6 Vistas is reaching or has already reached the end of its useful service life. The time has come to dig a new well.

   - The golf course stakeholders have done a great job of visiting with professionals who specialize in hydrology/wells, and their advice is to move forward with replacing the well as soon as possible. Obviously, if this well should fail, the golf course will be in a very difficult situation. There is potential to switch to potable water temporarily, but that will be extremely expensive.
   - We also discussed irrigation system replacement; however, it is recommended to first fund the replacement well and ensure that you have a reliable water source before replacing the irrigation system.



The well providing water for the Vistas Course has reached the end of its useful service life and will need to be replaced soon.

2. **Aging Irrigation Infrastructure**

   The irrigation infrastructure on the Vistas Course is about 33 years old. The typical useful service life of a PVC irrigation system in the Desert Southwest is about 35 years. Many courses will replace the system at about year 30. The pipe and underground wiring have the longest service life while the sprinklers, mainline and lateral line valves and satellite controllers typically will only last 20 to 25 years. Irrigation nozzles with this hard water typically are only good for five to seven years.

As stated above, it is strongly recommended to focus the immediate funding on well replacement, then move on to irrigation system replacement. It was great to hear you have already been in discussions with Marvin Mills, irrigation designer/engineer. Mr. Mills will be a critical resource to help guide you through the irrigation system replacement process. I would like to offer a few key things to consider leading up to the irrigation system replacement:

- **Include turf reduction.** It is recommended to include turf reduction in the irrigation system replacement plan. This will be the ideal time to remove turf and align the new turf lines with the irrigation system. There are plans to construct island tees where there will be turf only on the surface of the tees and none on the slopes around the tees. This is quite common and an excellent way to remove irrigated turf. There are also plans to remove turf within the interior of holes in a strategic fashion. I applaud these efforts and not only does this mean less water and electrical costs throughout the year, but less irrigated turf acreage means lower irrigation system replacement costs.

- **Consider purchasing some parts in advance.** In my travels, I have seen courses now more frequently purchase irrigation parts a year or more in advance of the installation to reduce costs and reduce the risk of delays associated with waiting on irrigation parts. Obviously, storage is the biggest concern. Perhaps you can work with the irrigation distributor to purchase the parts and have them store them for you for the project.

3. **Subsurface Drip Irrigation for Tees**

   It is recommended to install subsurface drip irrigation for the new island tees. While this will require some additional upfront costs, it will save in the long run. Not only will you save water, but you will save labor and chemicals that would otherwise be necessary to control weeds and other undesirable vegetation around the tees due to overspray from overhead irrigation. I have included an information sheet on subsurface drip irrigation for tees.

4. **Reliability and Operational Efficiency**

   The biggest reason to replace the irrigation system includes reliability and improving operational efficiency.

   - With an old, antiquated system, there is poor reliability and there are frequent breaks in the system which result in wet and dry areas and also require a tremendous amount of labor to repair the GPS system.

   - With a new system, that labor can shift from repairs to maintaining the system. With any irrigation system, no matter the cost, there will always be wet and dry areas on the golf course, and the irrigation technicians' time is best spent on maintaining that system and making adjustments to optimize soil moisture consistency. However, with an old system, this labor is spent repairing breaks and therefore the turf health and golf course playability suffer.

   - Here are several resources on irrigation system replacement:
     - When is it Time to Replace the Irrigation System?
     - 10 Things Every Golfer Should Know About Golf Irrigation
     - Golf Course Irrigation - Where Does It Come From?
     - Irrigate For Playability and Turf Health, Not Color
     - When Is It Time to Replace an Irrigation System - Longer Version

Putting Greens

Vistas Observations

1. **Early Signs of Good Transition**

   It was good to see early signs of bermudagrass recovery on the Vistas putting greens. Soil profiles indicate healthy bermudagrass rhizomes producing new leaves. The 328 bermudagrass on these greens typically recovers very well from overseeding.

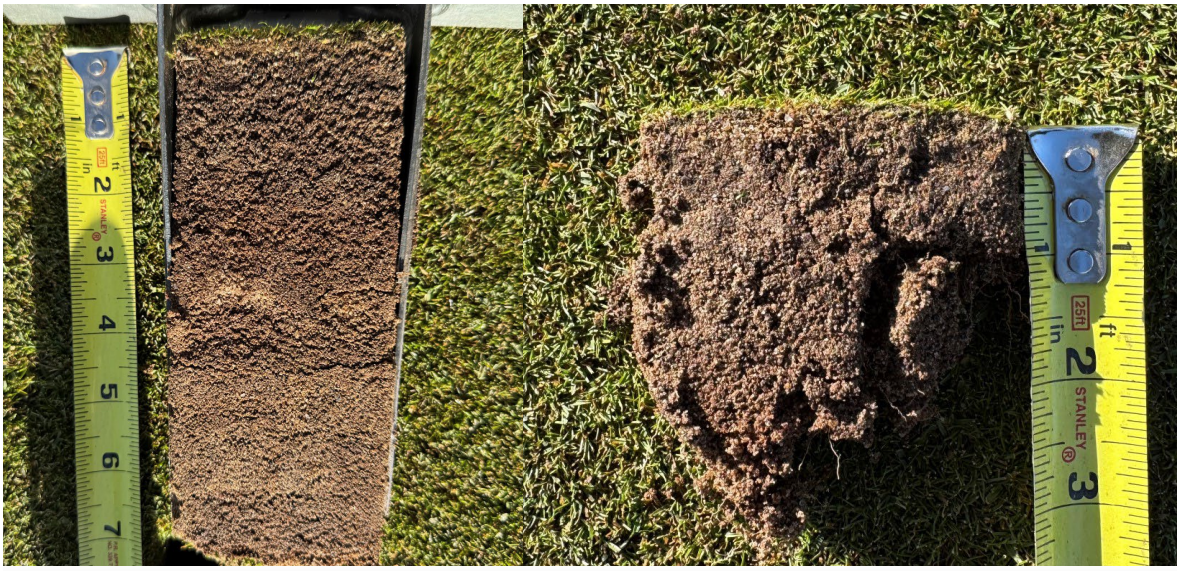
2. **Ball Roll**

   I utilized the USGA GS3 ball to collect ball roll characteristics on the Vistas greens.

   - The green speed was just over 9 feet.
   - Smoothness (the vertical deviation of the golf ball) was registered at 4.45, and trueness (the horizontal deviation of the golf ball as it rolls across the surface) was recorded at 0.91. USGA guidelines are that acceptable ball roll on greens typically occurs when smoothness numbers are less than 5 and trueness numbers are less than 1. It was good to see the values within these guidelines.
   - I also collected firmness, and this was recorded at 0.400 inches, which indicates a receptive green that is neither too soft nor too firm.

3. **Soil Profile**

   Soil profile samples indicate there is a healthy mixture of organic matter and sand near the surface of the greens and there are no layers limiting root development or water movement through the profile. This is good to see and indicates that the aeration and sand topdressing programs are working as desired.



A profile collected from No. 15 Vistas shows a rootzone with good drainage properties and no soil layering that would prohibit root development (left). On the right, a close-up image shows a healthy mixture of sand and organic matter at the surface.

Lakes Observations

1. **Also Good Transition**

   Similar to the Vistas greens, it was good to see early indications of bermudagrass emerging from overseeding. These are Tifdwarf greens and typically do not recover quite as quickly as the Tifgreen 328 on the Vistas greens. However, our observations in early April point to another successful bermudagrass recovery from overseeding.

2. **Ball Roll Characteristics**

   I used the USGA GS3 ball to measure ball roll characteristics on the Lakes greens as well.

   - Green speed was faster at about 10’3”. Smoothness readings were slightly lower at 3.16, and trueness readings were also lower at 0.74. This indicates that the Lakes greens are slightly faster, and ball roll is slightly better than on the Vistas greens, although both are perfectly acceptable.
   - Firmness readings on the Lakes greens were similar to slightly softer than on the Vistas Course. The firmness reading on No. 15 green was 0.44 inches. This is right within the ideal range for daily play.
   - Shear strength values were strong on both golf courses. Values on the Vistas Course ranged from 20 to 36.5 Nm. These values are very strong and indicate the greens are healthy with strong resistance to deep ball marks. Values on the Lakes Course were slightly lower, but still very strong at 15.5 to 15.20 Nm.

Recommendations

1. **Increased Nitrogen Inputs**

   Beginning within the next two weeks, it is recommended to increase nitrogen inputs on both golf courses, especially on the Lakes Course, to encourage bermudagrass growth and recovery from overseeding.

   - You are already using routine foliar sprays, and it is recommended to continue with these. Supplement with ammonium sulfate granular and plan to apply from 0.25 to 0.50 pounds of nitrogen per 1,000 square feet per week from mid-April through the end of May.
   - I would encourage you to extend the additional fertility into the collars and approaches.
   - It is recommended to apply the most nitrogen of any greens on the Lakes practice putting green. It was impressive to see the improvement in this green, and I'm optimistic this will continue with increased nitrogen fertility.
   - Apply nearly no nitrogen from mid-June through overseed time. At aeration, only apply approximately 0.3 pounds of nitrogen per 1,000 square feet.

2. **Aeration and Sand Topdressing**

   It is recommended to continue with your program to conduct one core aeration event in the summer and supplement with two or three small-diameter solid-tine aeration events. Apply a generous amount of sand with each of these events to dilute surface organic matter. Given the positive results, I do not see the need to modify these programs this year.

3. **Off-Type Bermudagrass in the Lakes Greens**

   Mr. Escobedo noted plans to plug out small, localized areas of off-type grasses in the Lakes greens.

   - The off-type bermudagrasses generally grow more aggressively than the desirable turfgrass and can cause problems with aesthetics and perhaps playability during the summer months. They can also cause problems with overseeding given their more prolific thatch production.
   - There will likely be a time when the patches are too numerous to practically remove mechanically and therefore practices will have to shift to management. Management strategies include using Anuew™ growth regulator at 6 to 8 ounces per acre weekly during the summer months as well as frequent vertical mowing. At least one aggressive vertical mowing combined with mower scalping in the summer situated around the core aeration event will help to mitigate the thatch in the more aggressively growing bermudagrass areas.

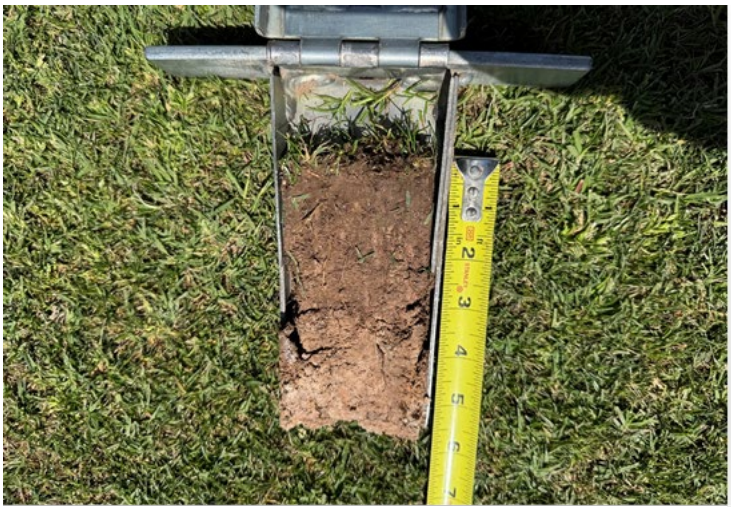
Fairways

Observations

1. **Transition**

   Soil profile samples collected on both golf courses revealed there is a considerable amount of healthy bermudagrass ready to emerge from overseeding.

   - An interesting comparison was made between the common bermudagrass areas with rhizomes residing in the top 1/2 to 1 inch of soil compared to the areas that have been sodded to either TifTuf or Tahoma 31 bermudagrass that have rhizomes with much higher population and extend to a depth of 2 or even 3 inches. The new hybrid bermudagrasses are superior to the common bermudagrass with recovery, density and playability.
   - It was great to hear the team have already sprayed two applications of Sapphire at 3 ounces per acre and will continue with several more applications.
   - The rootzone is relatively shallow on both golf courses, which places greater emphasis on moisture management. This results in shallower rooting due to soil layers and soil compaction.



Roots were found to extend to 6 inches at minimum in fairways despite compacted conditions.

Recommendations

1. **Communication**

   The team already have an excellent proactive transition program in place and therefore my primary recommendation in this section is to communicate the importance of these practices for successful transition and that these practices will impact the playing experience.

   - Lower mowing heights are critical to encourage sunlight exposure to the understory bermudagrass. While these lower mowing heights may not be welcomed by all golfers, they are necessary.
   - Occasional deep watering of the fairways is necessary, and this likely means wet conditions the day after irrigation. While this is not ideal for golf in the short term, it is critical to provide adequate moisture for the bermudagrass to successfully recover from overseeding. The goal is to provide good density and playing conditions throughout the summer months and leading into overseeding in the fall.

   I would like to emphasize the importance of communicating these practices to the general golfing membership and guests. Acknowledge that there will be some temporary inconvenience to playability, but this is all done with the comprehensive plan to achieve successful transition.

2. **Additional Nitrogen**

   It is recommended within the next two weeks to initiate urea or ammonium sulfate granular applications to all overseed areas. It is recommended to apply approximately 3 pounds of nitrogen per 1,000 square feet to these areas between mid-April and mid-June.

3. **Summer Growth Regulation**

   Dr. Jim Brosnan from the University of Tennessee has shown excellent data using Trimmit® (paclobutrazol) at 16 ounces per acre monthly from June through September to suppress bermudagrass growth and to control annual bluegrass. Given the transition process, I would recommend waiting until July for the first application and making three applications monthly from July through September.

4. **Nonoverseeded Weed Control**

   Preventative measures for weed control are always the most effective compared to postemergence control.

   - It is recommended to continue to apply Specticle® preemergent herbicide in the spring for season-long warm-season grass control.
   - In the fall, it is recommended to spray prodiamine in early September, but plan to follow up with a mixture of Princep® (simazine) and Tribute® Total in late November for continued cool-season grass weed control. Follow with glyphosate at 16 ounces per acre with two applications in late December and early January. These products will move with water and thus it is not recommended to apply within 12 to15 feet of the ryegrass.
   - In the areas immediately adjacent to the ryegrass, use SureGuard® in late November, or an alternative is StriCore™.
   - In the overseeded areas, you will need to apply a second preemergent product in May such as Pennant Magnum®, or StriCore for continued preemergent control. A second application will be needed eight weeks later. Both have excellent goosegrass activity.

Tees

Observations

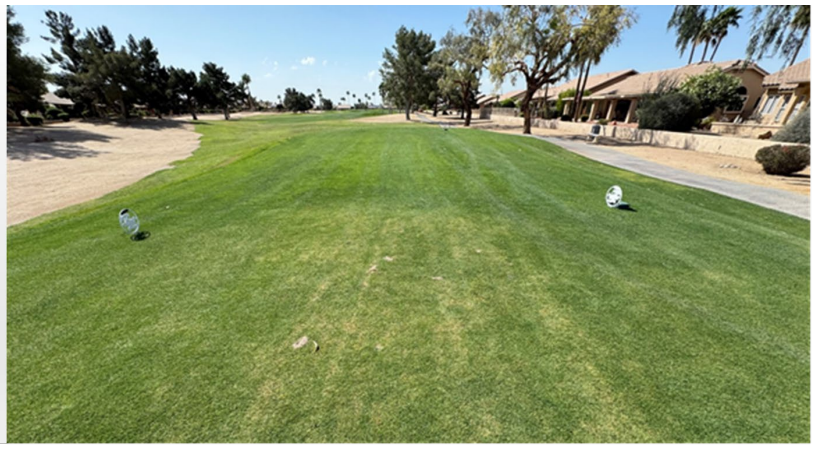
1. **Vistas Hitting Tee Upgrade**

   It was great to see the practice facility tee on the Vistas Course was upgraded to Tahoma 31 bermudagrass and to see the new bermudagrass is performing so well. I am seeing more and more of this grass being used throughout the Western region, and all have had good success. Many courses prefer the Tahoma 31 over the TifTuf bermudagrass.

2. **Tee Leveling and Expansion**

   Tees on hole Nos. 2 and 8 Vistas were leveled and expanded last summer and sodded to Tahoma 31 bermudagrass. The agronomy team at Westbrook Village have done a great job over the past five plus years continuing to level and expand strategic tees to provide better playing conditions.

This tee on No. 8 Vistas was leveled and expanded to provide greater usable hitting space.



Recommendations

1. **Lakes No. 1 – Level and Expand**

   We discussed expanding and leveling the first teeing ground on the Lakes Course this summer. The proposal is to combine the black, blue, white and red tees on the same tee deck using an organic shape that follows the contours of the cart path. The tee would be lowered to equal the level of the adjacent cart path and widened to allow for more hitting area and therefore a better turfgrass surface from which to play.

2. **Forward Tees**

   It is recommended to locate forward tees on the Vistas Course and use native soil to regrade the area around these tees to build a 6- to 8-inch rise to a 600- to 800-square foot flat area. This will improve the playing experience from these tees and encourage more use. Building the forward tees will also allow you to plan for turf reduction and subsequent irrigation design around the new turf lines. The forward tees can be used to initiate the start of the fairways. I have included suggestions for forward tee placement for each hole on the Vistas Course below:

Forward Tee Golfers - Forward Tee Handicap - 25 Swing Speed - 60 MPH					
Hole	Par	Yards	Yards Over Rec. Max.	Est. Approach Shot Distance	Est. Approach Shot Club
1	4	301	✗ 41	161	Fwy Wood+
2	3	124	✓ --	124	Fwy Wood+
3	4	334	✗ 74	194	Fwy Wood+
4	3	128	✓ --	128	Fwy Wood+
5	5	408	✗ 28	148	Fwy Wood+
6	5	393	✗ 13	133	Fwy Wood+
7	4	325	✗ 65	185	Fwy Wood+
8	5	426	✗ 46	166	Fwy Wood+
9	4	272	✗ 12	132	Fwy Wood+
10	4	292	✗ 32	152	Fwy Wood+
11	3	111	✓ --	111	Fwy Wood
12	4	348	✗ 88	208	Fwy Wood+
13	4	269	✗ 9	129	Fwy Wood+
14	5	395	✗ 15	135	Fwy Wood+
15	4	218	✓ --	78	Short Iron
16	3	164	✗ 24	164	Fwy Wood+
17	5	451	✗ 71	191	Fwy Wood+
18	4	276	✗ 16	136	Fwy Wood+
OUT	37	2,711	✗		
IN	36	2,524	✗		
TOT	73	5,235	✗		

Male Golfers - Middle Tee Handicap - 16-20 Swing Speed - 71-80 MPH					
Hole	Par	Yards	Yards Over Rec. Max.	Est. Approach Shot Distance	Est. Approach Shot Club
1	4	334	✓ --	154	Fwy Wood
2	3	122	✓ --	122	Hybrid/Long Iron
3	4	357	✗ 7	177	Fwy Wood+
4	3	139	✓ --	139	Hybrid/Long Iron
5	5	438	✓ --	88	Wedge
6	4	417	✗ 67	237	Fwy Wood+
7	4	358	✗ 8	178	Fwy Wood+
8	5	453	✓ --	103	Mid Iron
9	4	314	✓ --	134	Hybrid/Long Iron
10	4	308	✓ --	128	Hybrid/Long Iron
11	3	123	✓ --	123	Hybrid/Long Iron
12	4	373	✗ 23	193	Fwy Wood+
13	4	318	✓ --	138	Hybrid/Long Iron
14	5	431	✓ --	81	Wedge
15	4	254	✓ --	74	Wedge
16	3	183	✗ 3	183	Fwy Wood+
17	5	480	✓ --	130	Hybrid/Long Iron
18	4	302	✓ --	122	Hybrid/Long Iron
OUT	36	2,932	✓		
IN	36	2,772	✓		
TOT	72	5,704	✓		

Review the “Yards Over Rec. Max” column in these tables for the forward tees (left) and for the white tees (right). Notice the red X indicates the player will be unable to reach the green in regulation and for the forward tees, there are only four holes that the forward tee player is able to reach the green in regulation. Only one of these holes (No. 15) is this player expected to hit less than a fairway wood to the green. For the male player playing from the white tees, the story is much different (right). Clearly, the forward tees are too long for the slower-swing-speed golfer.

Forward Tee Golfers - Forward Tee Handicap - 25 Swing Speed - 60 MPH					
Hole	Par	Yards	Yards Over Rec. Max.	Est. Approach Shot Distance	Est. Approach Shot Club
1	4	259	✓ --	119	Fwy Wood
2	3	103	✓ --	103	Hybrid/Long Iron
3	4	260	✓ --	120	Fwy Wood+
4	3	100	✓ --	100	Hybrid/Long Iron
5	5	320	✓ --	60	Short Iron
6	5	330	✓ --	70	Short Iron
7	4	260	✓ --	120	Fwy Wood+
8	5	370	✓ --	110	Fwy Wood
9	4	240	✓ --	100	Hybrid/Long Iron
10	4	245	✓ --	105	Fwy Wood
11	3	102	✓ --	102	Hybrid/Long Iron
12	4	258	✓ --	118	Fwy Wood
13	4	245	✓ --	105	Fwy Wood
14	5	330	✓ --	70	Short Iron
15	4	199	✓ --	59	Wedge
16	3	135	✓ --	135	Fwy Wood+
17	5	286	✓ --	26	Wedge
18	4	242	✓ --	102	Hybrid/Long Iron
OUT	37	2,242	✓		
IN	36	2,042	✓		
TOT	73	4,284	✓		

These are the *approximate* recommended yardages for the forward tees on Vistas.

Bunkers

Observations and Recommendations

1. **Ample but Compacted Sand**

   Samples collected in several bunkers on each golf course revealed ample sand depth in most all areas. However, the sand is contaminated with fine materials such as silt and clay and different types of sand have been added over the years, which has resulted in a scenario where the sand becomes compacted. The compaction results in firm conditions and is not conducive to hitting a typical splash-out bunker shot that one can land softly on the green.

   - The USGA GS3 device was used to measure firmness in several bunkers. These readings confirmed field observations that the bunkers are too firm in some areas. For example, the left greenside bunker on No. 5 Vistas had a value of 0.422, which is well below the lower level of what I consider to be acceptable bunker conditions at a range between 0.55 and 0.85. The left greenside bunker on No. 3 Lakes had an average 0.498 firmness, which is better but still arguably too firm.

   - In the short term, it is recommended to plan to rototill the bunkers on a routine schedule, as often as four times per year. It is also recommended to use the deep tines on the mechanical bunker rake to fluff up the sand, and it should be noted that the team have been doing this. It is also recommended to routinely test the bunker sand depth and pull sand from the bunker faces to ensure there is ample sand in the lower, flat areas of the bunkers.

   - In the longer term, it will be necessary to replace the sand in the bunkers. We can discuss this in greater detail when the time comes for this project. It will likely be recommended to utilize no liner and rather install drain lines in the native soil with no gravel, fill those trenches with sand, and achieve a sand depth of 9 to 10 inches on the bunker floors and 3 inches on the bunker faces. I believe this will provide more consistent conditions and will help to provide drier conditions at the surface, which will improve playability. This will also save considerable money without the installation of a liner.

Lakes Practice Facility

Observations and Recommendations

1. **Insufficient Space**

   The practice facility on the Lakes Course is too small to allow enough time for the turf to heal in the regular rotation moving the hitting area from the front of the tee to the back of the tee. Golf course architect Gary Brawley has designed a nice modification to the practice facility; however, there are no funds to consider that project at this time.

   - In the meantime, it is recommended to move forward with leveling the hitting tee, which would help capture space toward the back of the hitting tee. This will require removing a significant amount of material.

   - You may also consider installing a line of synthetic turf at the back end of the hitting tee. However, this is also an expensive option and may not be considered a priority with the well project and irrigation system replacement looming on the Lakes Course.

This line of synthetic turf has improved the practice experience at Arizona CC.

Closing Comments

It was a pleasure to return to Westbrook Village Golf Club and spend the day with key golf course stakeholders and the agronomy leadership team. I have been impressed that this team has made smart decisions in a fiscally responsible manner over the past few years. The rigorous planning that is going into the well and irrigation system replacement project is just another example of how this team is moving forward with prudent decisions. Best wishes for the bermudagrass transition process. I look forward to following up this summer to see how the golf courses have responded to the transition program. Thank you for your continued support of the USGA Green Section.

Respectfully submitted,

Brian Whitlark, Regional Director
USGA Green Section, West Region

Distribution:

David Escobedo, Golf Course Superintendent

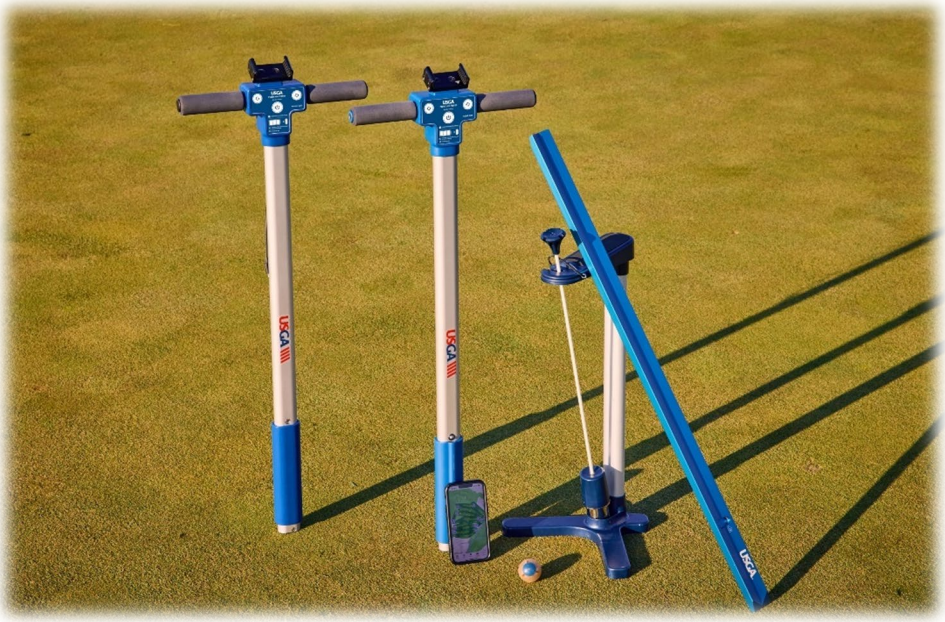
USGA Green Section

Turfgrass and Environmental Research

The USGA Green Section appreciates your support of the Course Consulting Service. First started in 1953, the Course Consulting Service provides unbiased assessments of golf facilities to optimize resources and reduce consumption of critical resources. The proceeds from the Course Consulting Service directly support the USGA's annual $2 million investment in turfgrass and environmental research, which provides an estimated $2 billion annual benefit to the U.S. golf industry. In 2025, our research team released the USGA Water Conservation Playbook to detail strategies for golf courses to optimize water usage. Follow the QR Code to contact us for more information.

Tools and Solutions

The USGA Green Section is proud to offer tools and solutions for golf courses. Innovative products including Deacon, GS3, and the new CDX moisture meter provide solutions to optimize the golf experience through data-driven communication and resource management.



Green Section Record

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