

HOW TO: Rebuild Eroding Bunker Faces

by **STANLEY J. ZONTEK**
Director, North-Central Region, USGA Green Section

HOW MANY TIMES have you read a magazine article only to find very little new information passed your way? I hope when you finish reading this one, you'll say, "Wow! Now there's an idea I'm going to try!" You see, this is a "how to" article: how to rebuild and improve the shallow, eroding faces of sand bunkers.

A fairly common problem on those golf courses that have the newer, shallower-type sand bunkers of more contemporary design occurs because, as originally constructed, these sand bunkers are radically different from the older, deeper and more classical bunkers with which we are familiar. The old style bunker design incorporated a relatively flat sand base with grass banks extending down to the sand.

The new style bunkers are much shallower (and even elevated for visibility in some cases) and have the sand extending or flashing up the bank. While this type of bunker design is attractive, quite

visible and relatively easy and efficient to maintain, it does have some built-in maintenance problems. Foremost among them is erosion. *Diagram I* shows a cross section of this type of bunker. Water, whether from rainfall or irrigation runoff, travels down a grassy sloped surface, into the bunker, through the sand on the face and to the native soil underneath. When the water hits this tight, heavy native subsoil underlying the sand, it moves down the slope — carrying the sand with it and causing erosion.

Under normal irrigation or rainfall, little sand is moved. However, when heavy and intense rainfall occurs (as in thunderstorms), large amounts of sand can be moved off bunker faces, and the golf course superintendent and his crew have the chore of hand-throwing or pushing the sand back up the slope of the bunker. Besides being labor intensive, the sand readily becomes contaminated with subsoil, and it doesn't take too many of these washout/replacement

cycles to badly contaminate and dirty the sand. This detracts from the appearance of the bunker. Also, this dirty sand has different playing characteristics, and dirty sand grows more weeds, too!

IT IS NOT my intent to compare or criticize different sand bunker designs. Rather, I would point out that there is a technique that can be utilized, within certain limits, to reduce maintenance and improve the appearance and playability of this type of bunker design.

Diagram II shows a plausible and practical solution to the problem. The underlying subsoil on the slope of the bunker is dug out and removed to form an approximate 90-degree angle between the bottom of the bunker and the edge of the hazard. In essence, a vertical wall is formed from two feet to four feet high. The sand is replaced, matching the original design and slope of the bunker. The process is then complete.

Figure I.



Figure II.



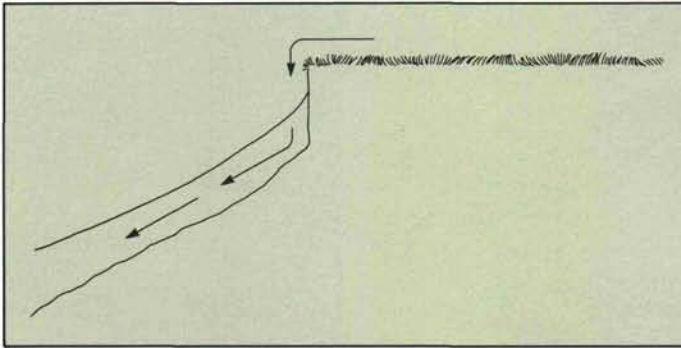


Diagram I.

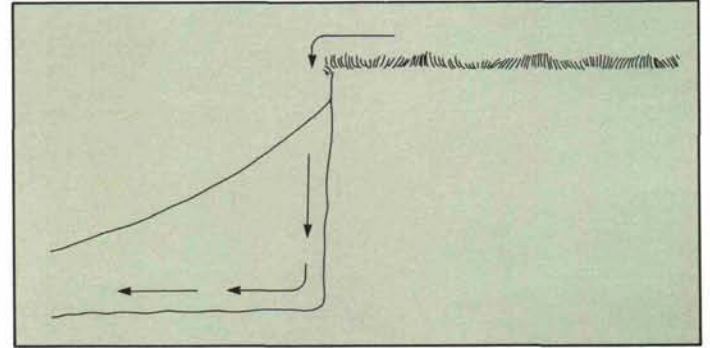


Diagram II.

Bob Holmes, Superintendent at Lafayette Country Club, Lafayette, Indiana, illustrates this technique during the renovation of some of the bunkers on his course:

Step 1 (Figure I). The eroding bunker face and its dirty and contaminated sand are removed mechanically, and the bottom of the bunker is leveled and squared off. To make the earth and sand removal quicker and easier, a small frontloading tractor is used.

Step 2 (Figure II). An employee is truing the cut and edge of the bank with a spade. **Figure III.** The finished job: a clean, neat wall ready for sand replacement.

Step 3 (Figure IV). The completed job with the sand replaced, smoothed and raked.

Bunkers constructed in this manner will look better and the sand will definitely stay in place better. This will reduce sand/soil contamination and alleviate the seemingly endless job of replacing washed-out sand after every heavy rainfall.

AS WITH ALMOST everything we do on a golf course, there are some limitations to this program. For example, there seems to be a limit on just how deep a cut can be made and how far the sand can be pushed up the face of the bunker. For one thing, this technique requires substantial amounts of sand, and the greater the elevation and cut, the more sand needed. Obviously, in areas where sand is expensive, this can become an expensive project.

Another consideration is that deep sand on the face of the bunker tends to be relatively soft and, under certain conditions, golf balls may plug and even bury on these faces. From a practical and playable point of view, there is a limit of approximately three to four feet on the depth of the sand. Within these limits, however, this procedure seems to work very well.

The old nagging problem of eroding sand on bunker faces now has a relatively simple solution. Where this rebuilding and renovation technique has been used, better looking and better playing sand bunkers have been built with resulting lower maintenance costs.

Now after all, isn't that what you were really looking for? A new idea that works!

Figure III.



Figure IV.

