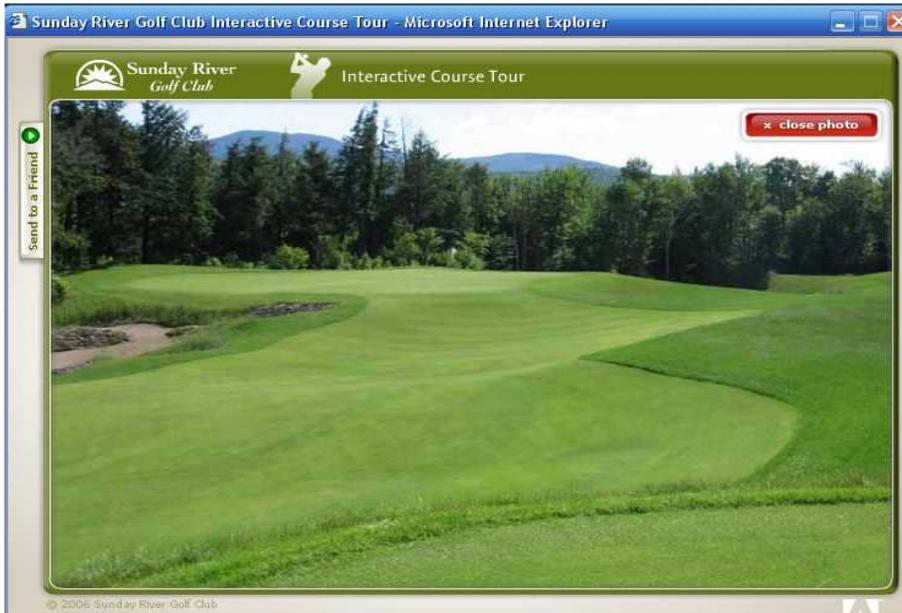


COMPLETE DESIGN OF A HOLE BY HOMEBOY

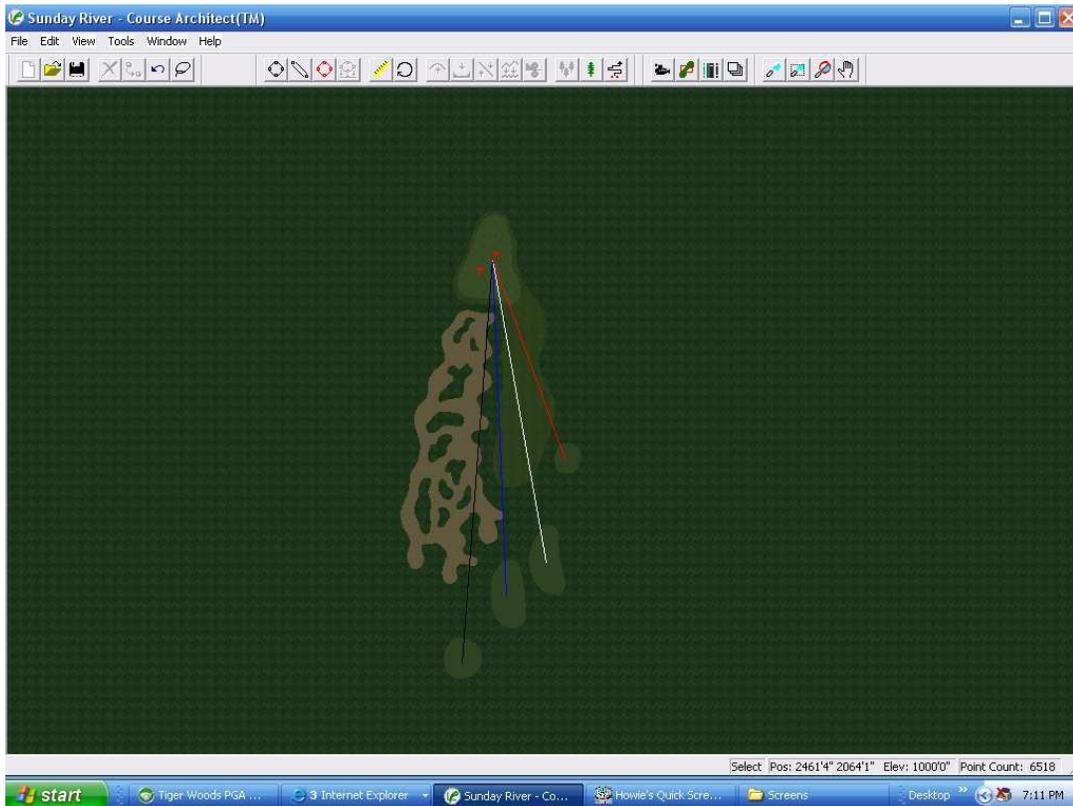
In this tutorial, I thought that I would try designing a real hole from scratch (on a flat plot) to show how to do some advance planning with terrain work and then the step-by-step approach to turn it into a playable hole in the game. I decided that I would try my hand at a hole from a course that I've been looking at for awhile – the 6th hole at Sunday River Golf Club (a spectacular new Robert Trent Jones, Jr. course in Newry, Maine).

Here are some pics of the hole. The pro tee plays slightly uphill and over a large waste area, while the other tees play downhill and over the fairway.



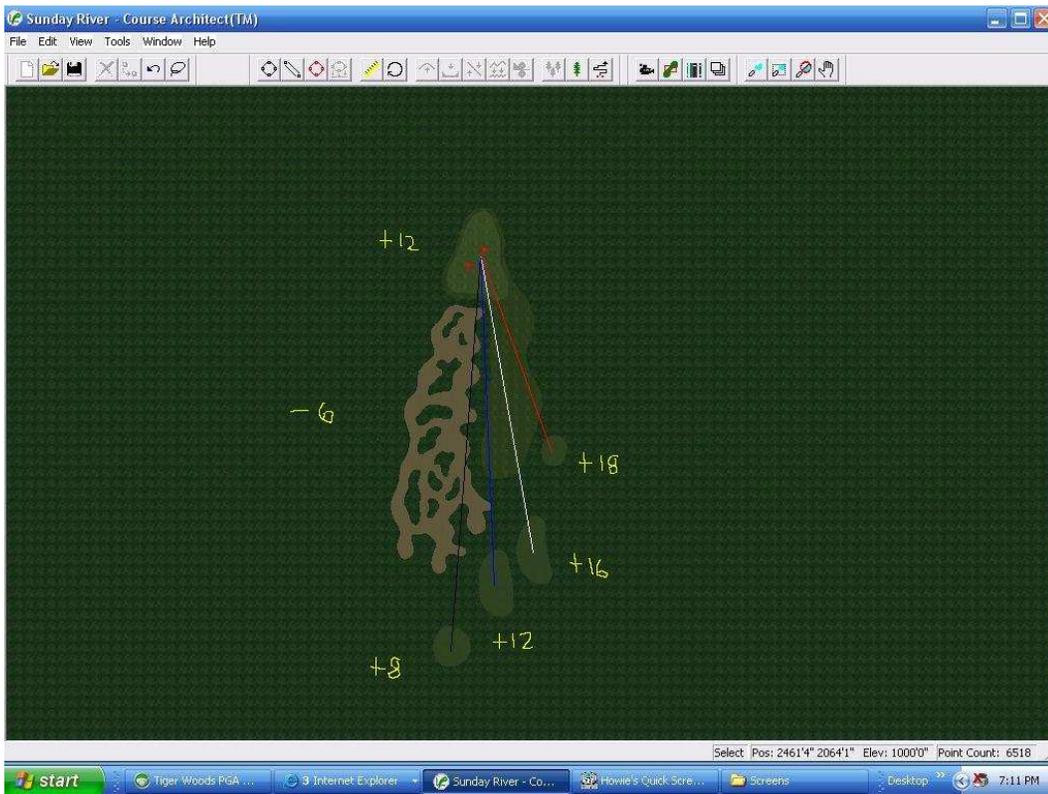


The first thing I do is use the Ghost It program to draw the shapes of the top picture. Then I set my shot paths and set 2 temporary pins for compiling purposes.

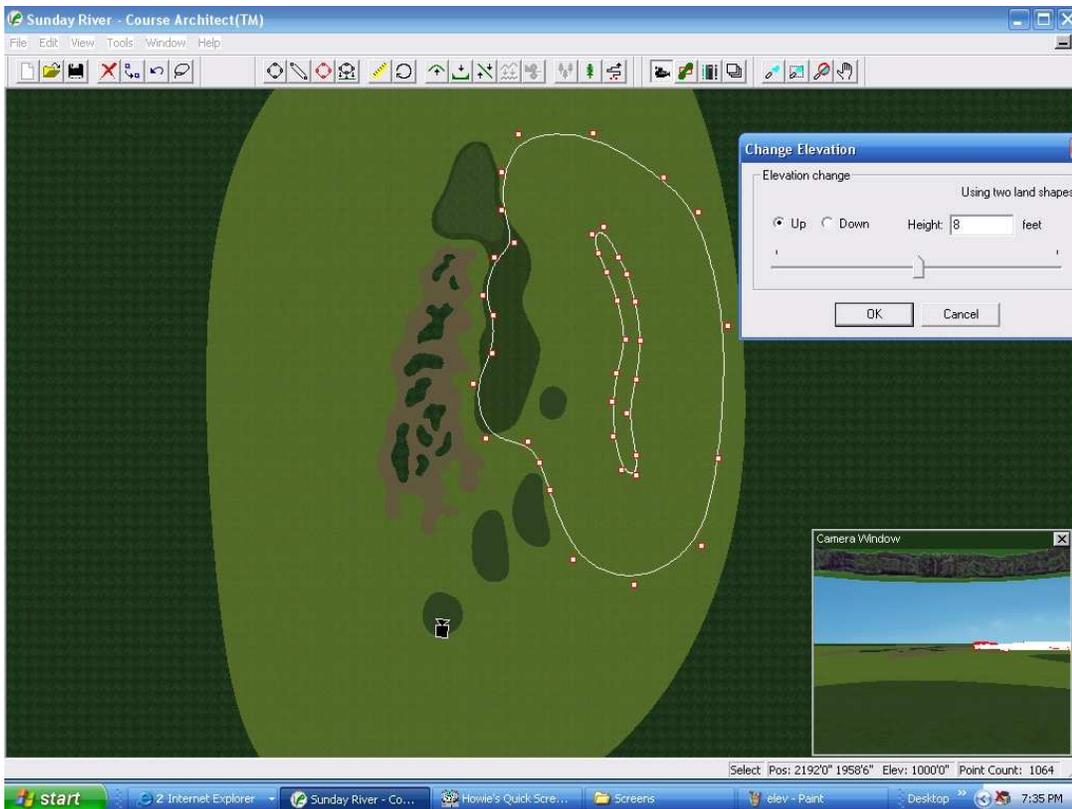


Then I spend some time analyzing the photos to come up with a plan for the elevation work. This would obviously be a lot easier if I used the Terrain Assist program, but this course is so new that there isn't overhead imagery available yet.

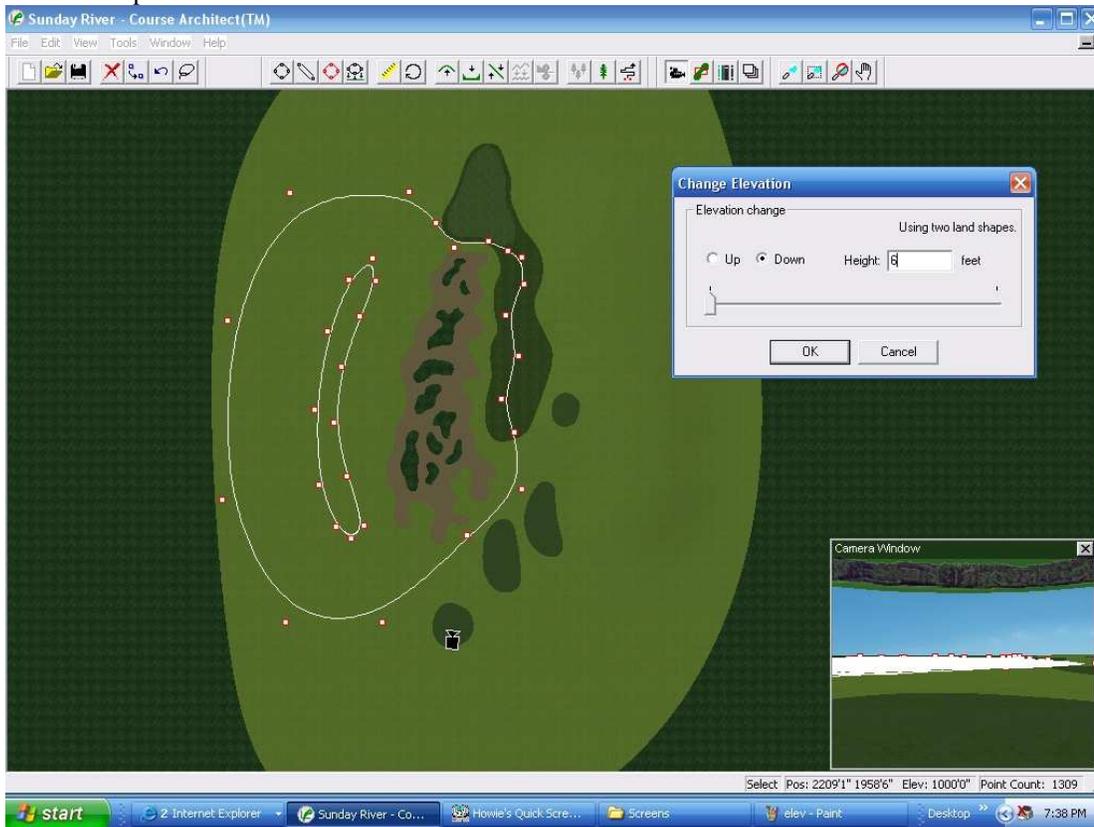
The hole is set on the side of a hill with a pronounced slope down from right to left. As I said before, the pro tee plays slightly uphill and the remaining tees play downhill from staggered tee boxes. This is what I come up with for basic elevation work (in feet):



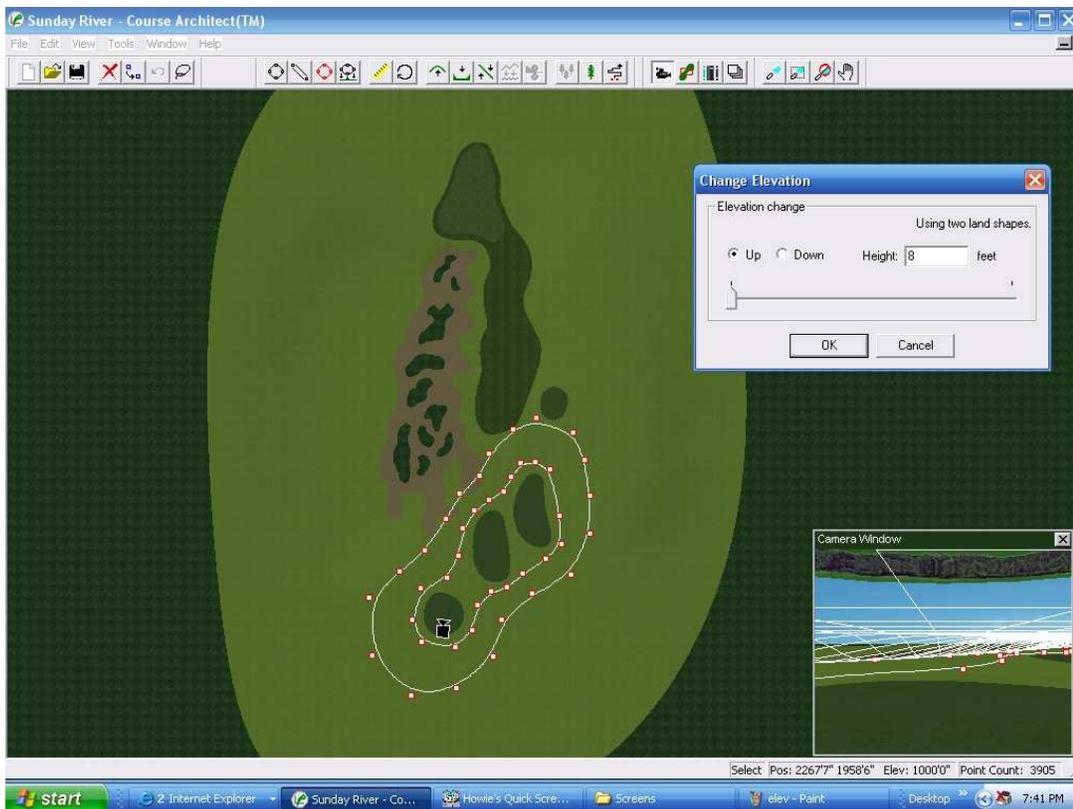
Now I get to work. I always drop a temporary, brightly-colored texture (first cut Architect), which is acts as a buffer and shows terrain work well. I then start with the basic elevations – raising the right side of the hole 8 feet for now. Note that I have included the fairway in the outside shape – this means that slope will be created on the fairway as can be seen in the photos. Also, note that the red tee box is included in the outside shape, so it will be elevated.



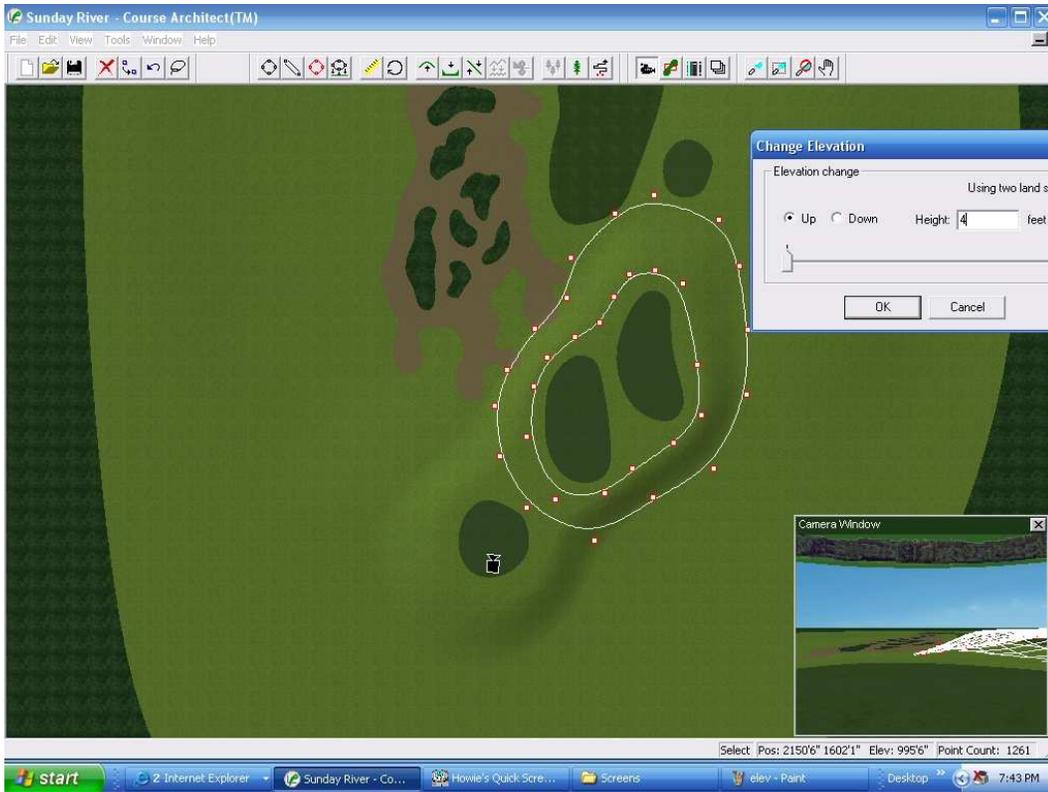
I also lower the left side of the hole by 6 feet – again, note that I have included a portion of the fairway in order to create more of a side slope.



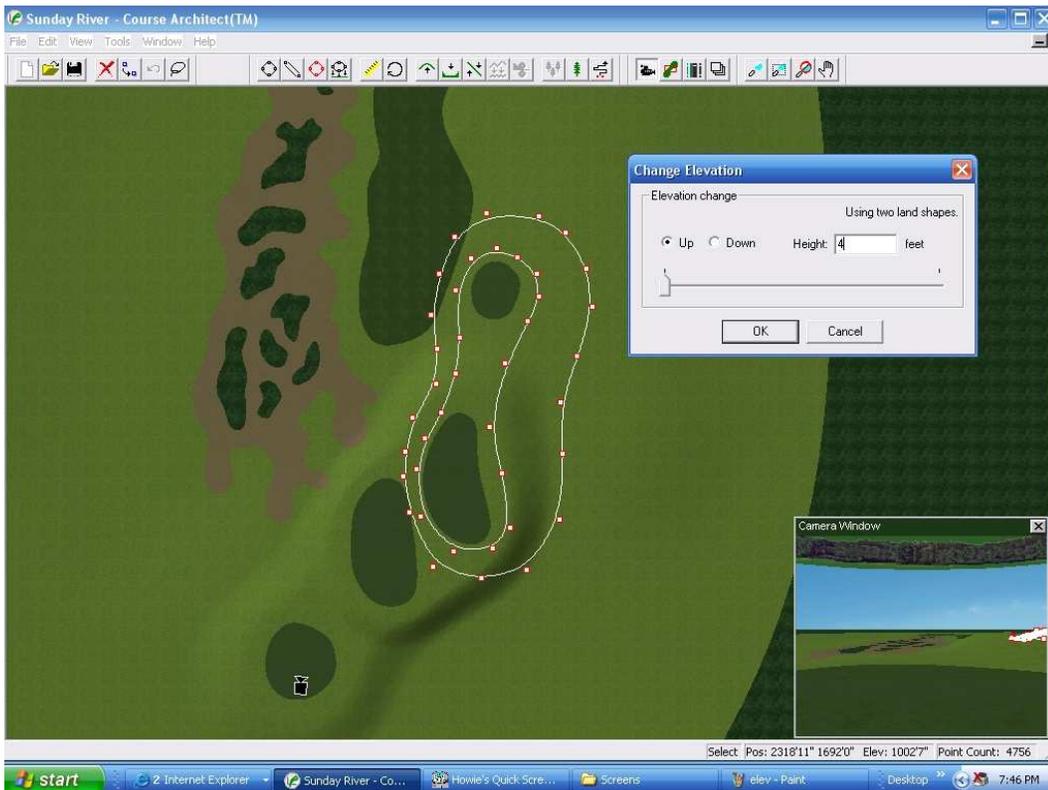
Then I get started working tee to green. I raise all 3 of the back tee boxes 8 feet.



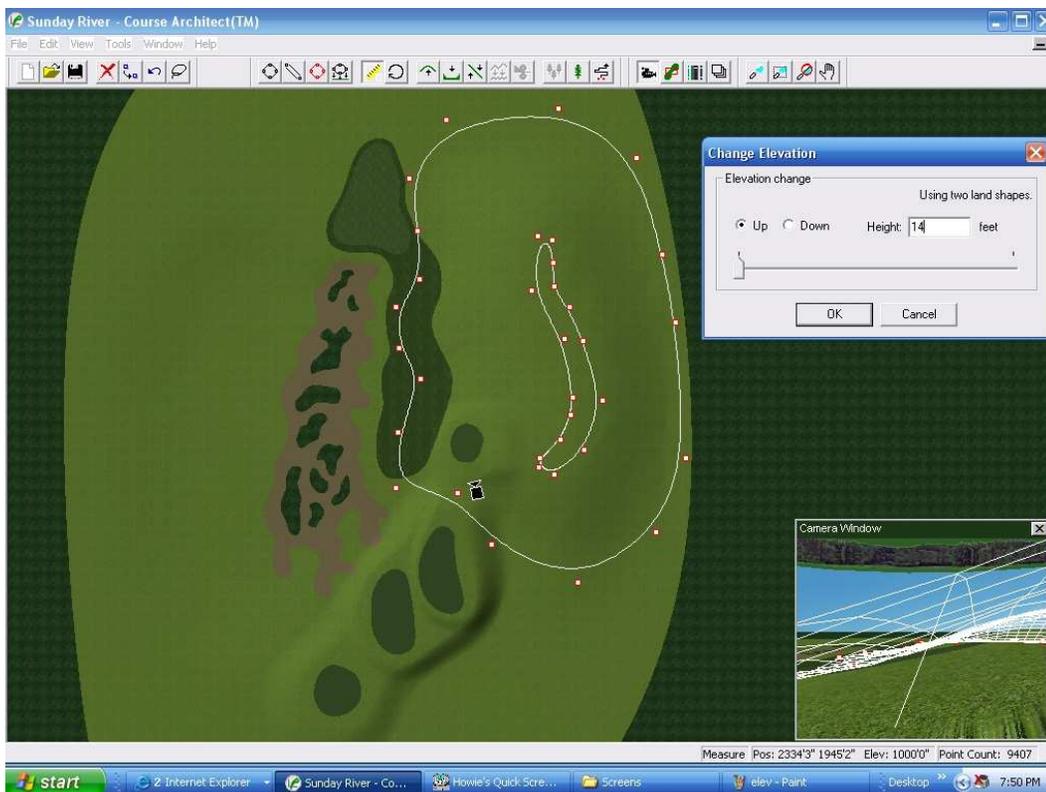
Then I raise the blue and the white tees another 4 feet.



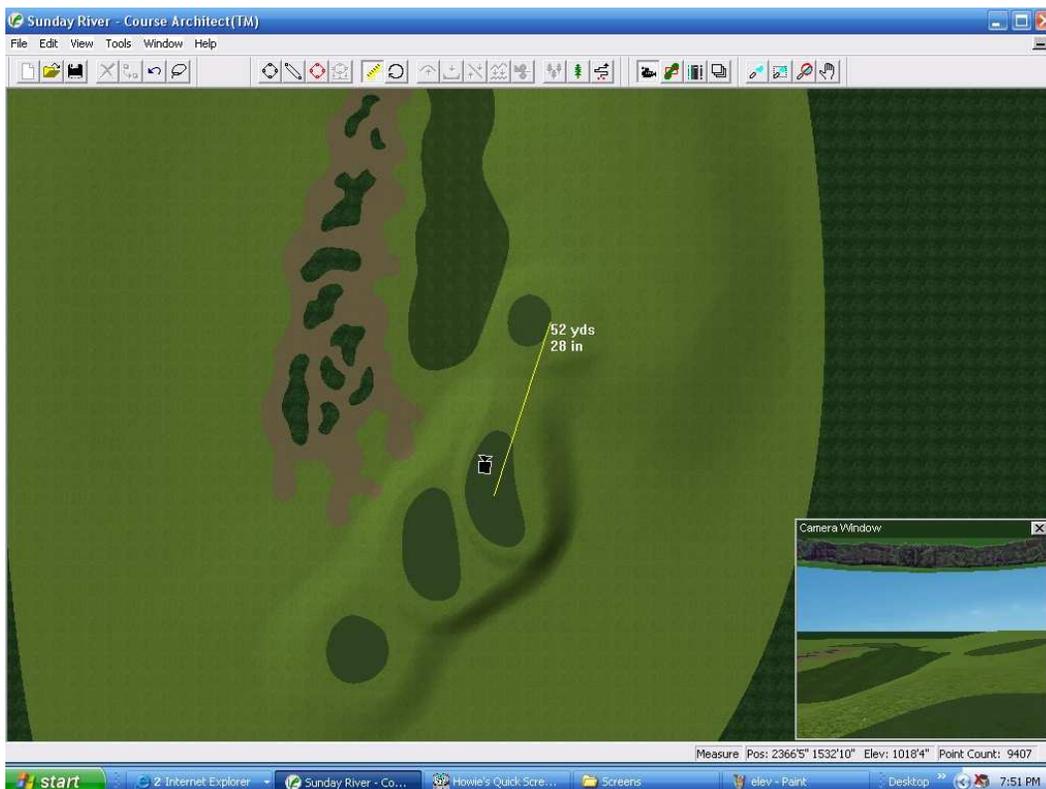
Then I raise the white and red tees another 4 feet. I include the adjacent tee in the shapes so that the elevations flow smoothly from tee box to tee box. This creates staggered tee boxes that go from 8 feet tall on the pro tee, and then go up another 4 feet on the back tee and again on the middle tee.



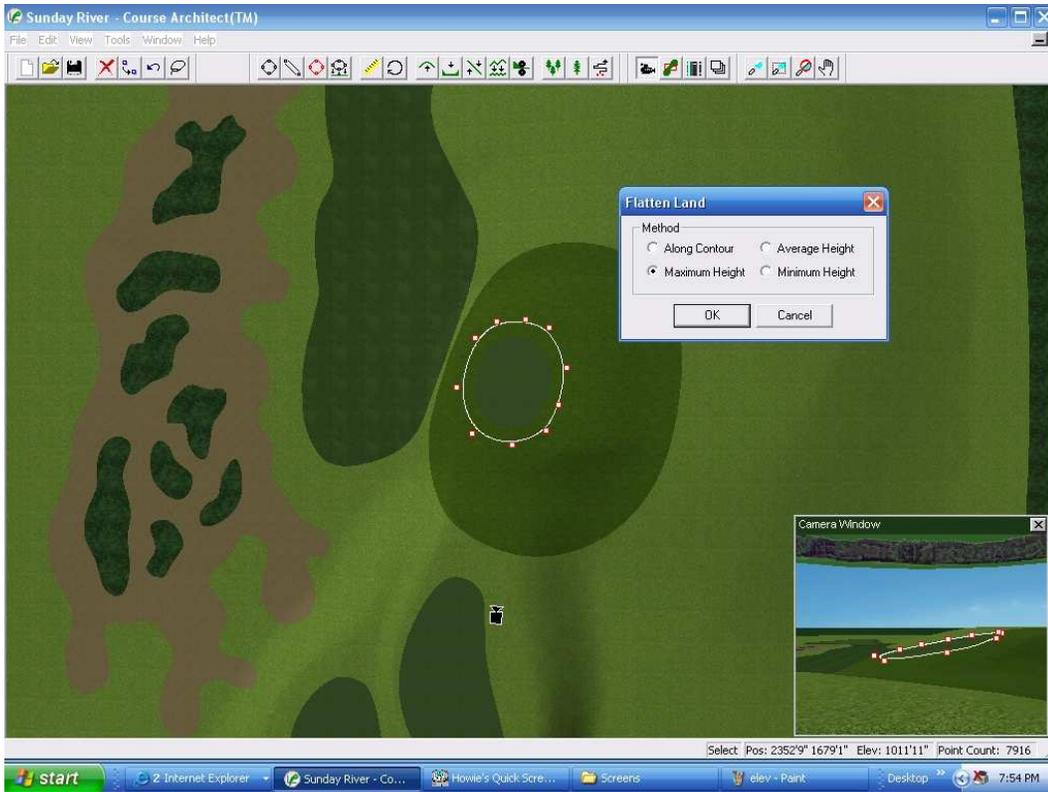
I then do some additional terrain work to create the hill to the right of the red tee – this time raising the area 14 feet.



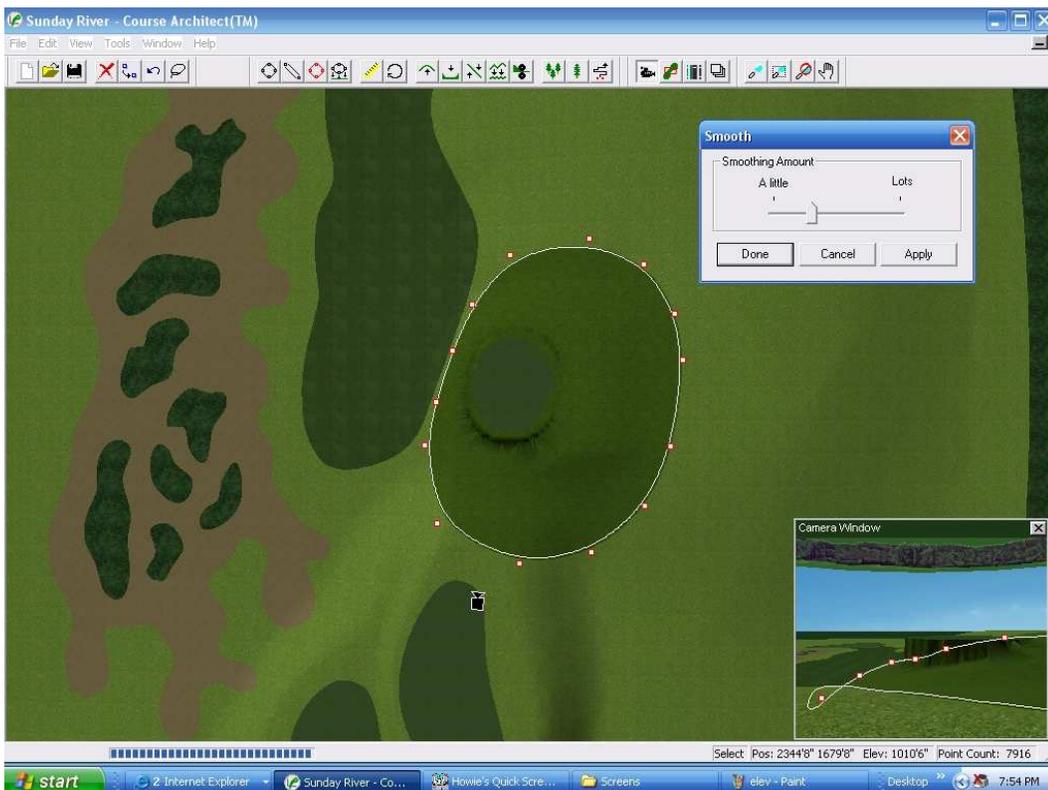
So now my black tee has been raised 8 feet, the blue tee 12 feet and the white tee 16 feet. Using the ruler, I can see that the right side of the red tee box is just more than 2 feet higher than the white tee box – which is what I had originally sketched out. The 3 back tee boxes are all level since I started with a flat plot, but the red tee box will now need to be leveled.



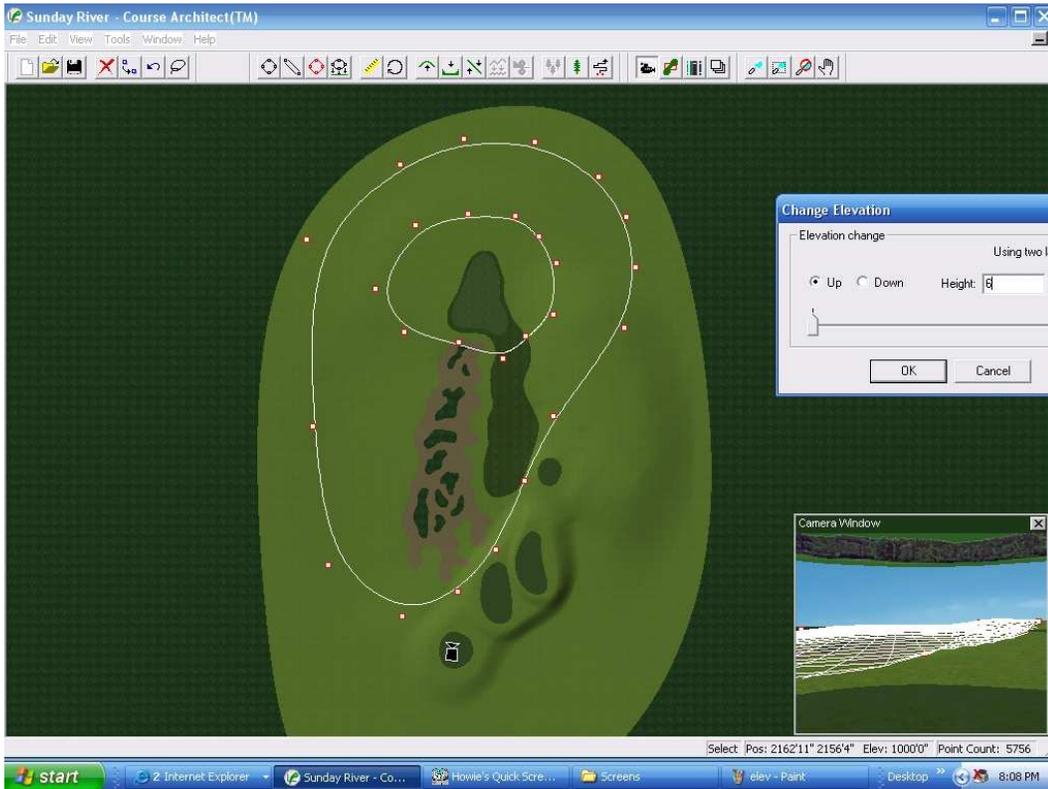
For this elevation work, I draw another temporary buffer shape around the tee box to contain the point count run-up. I select the tee box shape, use as shape and increase several feet. I am then going to flatten to the maximum height.



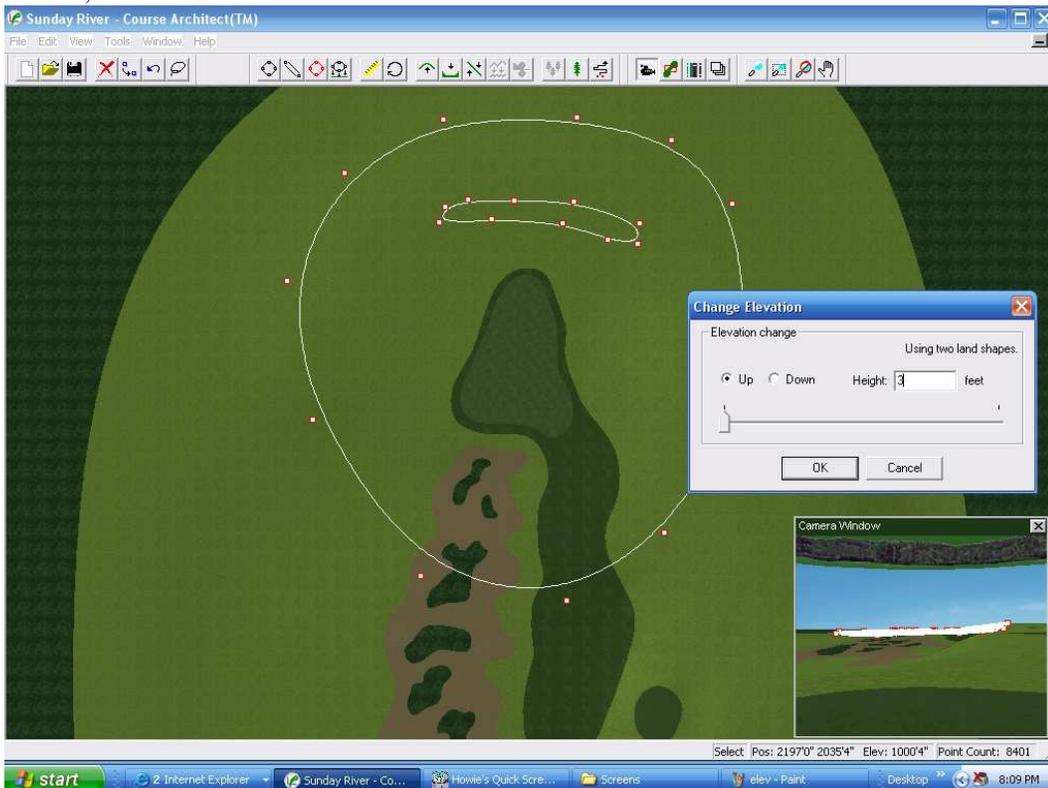
I then select my buffer shape and reduce the size by several inches to smooth. I try to use a large area for smoothing so that the terrain flows gradually into the tee box. At a few notches over, I smooth about 5 times. I then repeat the process, flattening to maximum height and smoothing until the tee box is perfectly flat. Next, I optimize the temporary buffer shape around the tee box and the tee box itself and delete the temporary buffer shape.



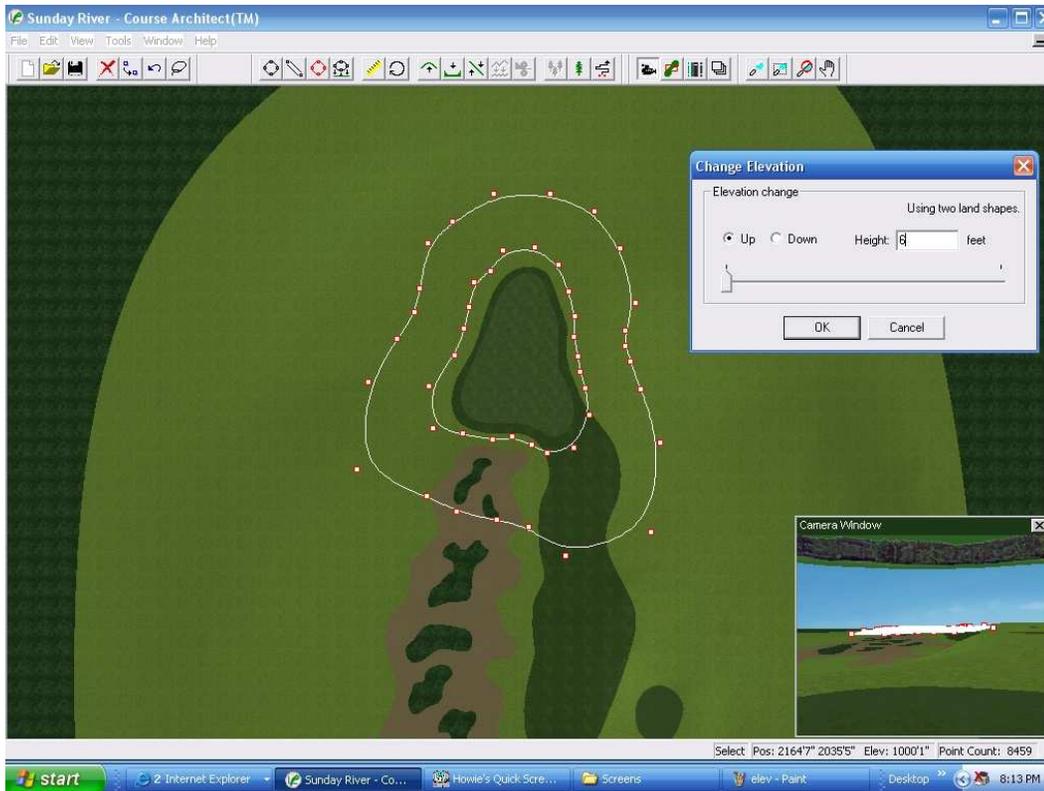
Now the basic elevation work on the teeing areas is done. I now start to elevate the fairway and the green. I want to elevate the green 12 feet, so that the tee shot from the pro tee is slightly uphill. Rather than just elevating the green 12 feet now, I am going to do it in 3 steps. First I use an inside shape that is significantly larger than the green – this means that a large area around the green will be raised to the maximum height of 6 feet. I also use a very large outside shape so that the elevation change is very gradual.



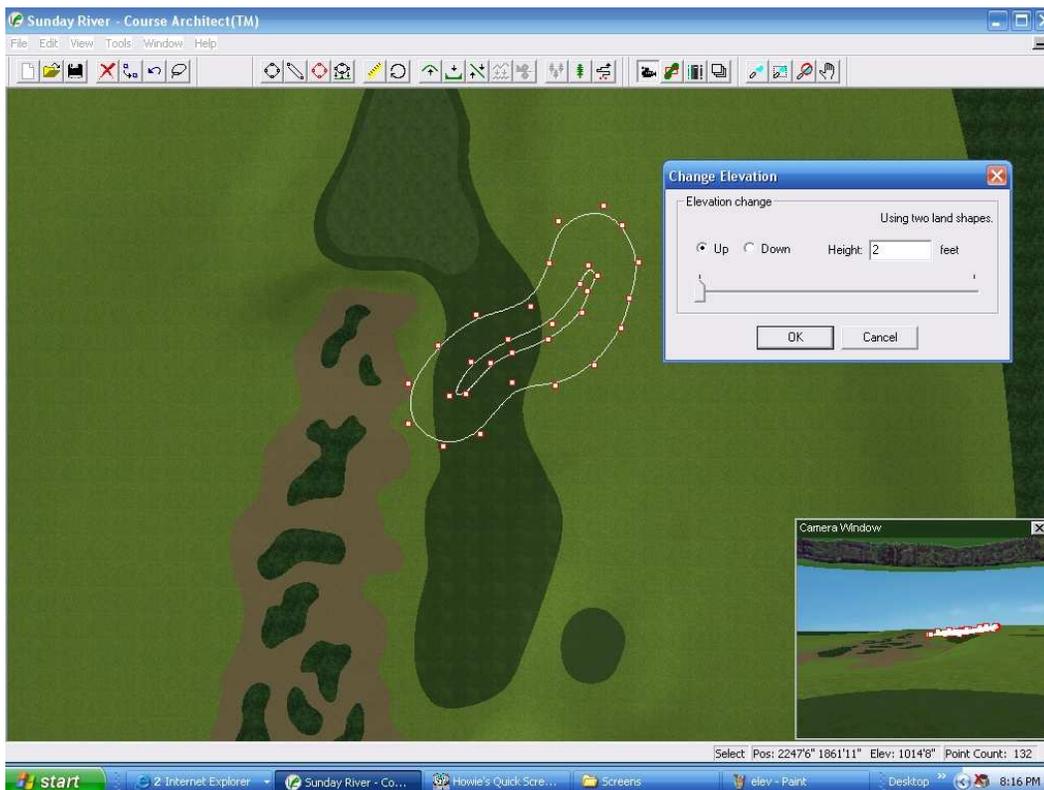
Next I add some elevation behind the green so that there is an uphill slope to the green from front to back. Using the two-shape method, I elevate 3 feet.



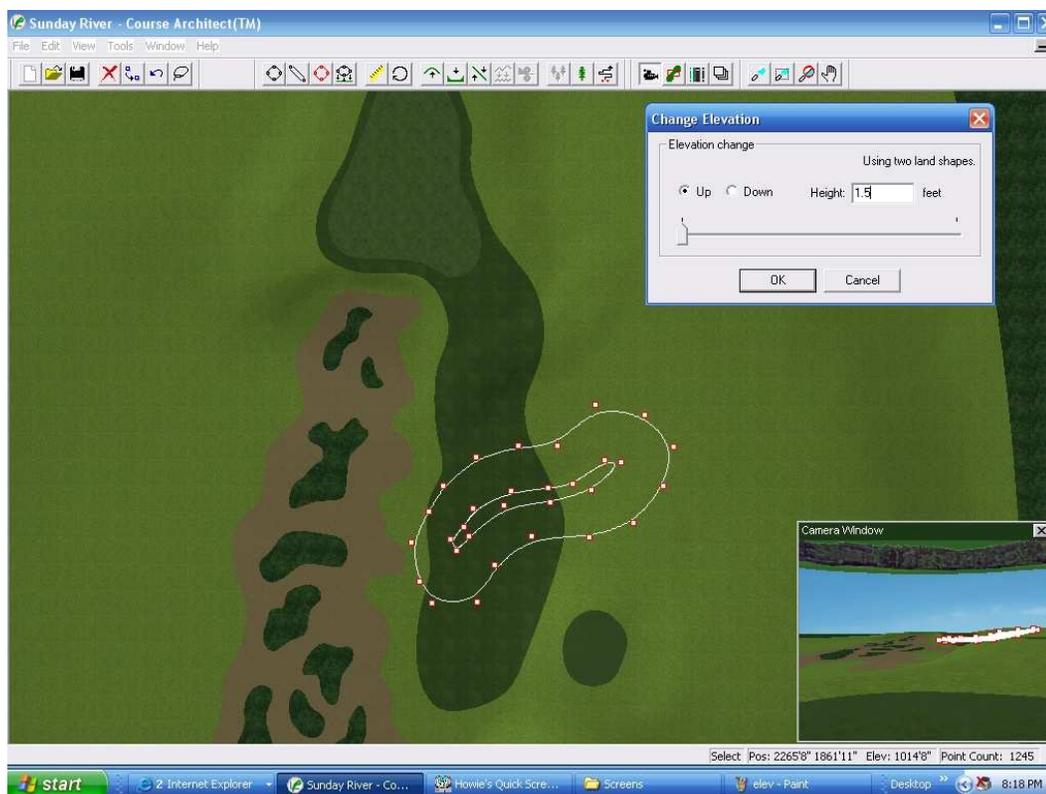
Finally, I raise the immediate green area another 6 feet. This time, I use the green shape and increase it by 6-10 feet. The outside shape is about 30 feet larger, but I flare out the front portion a bit so that the elevation change is more gradual from the fairway.



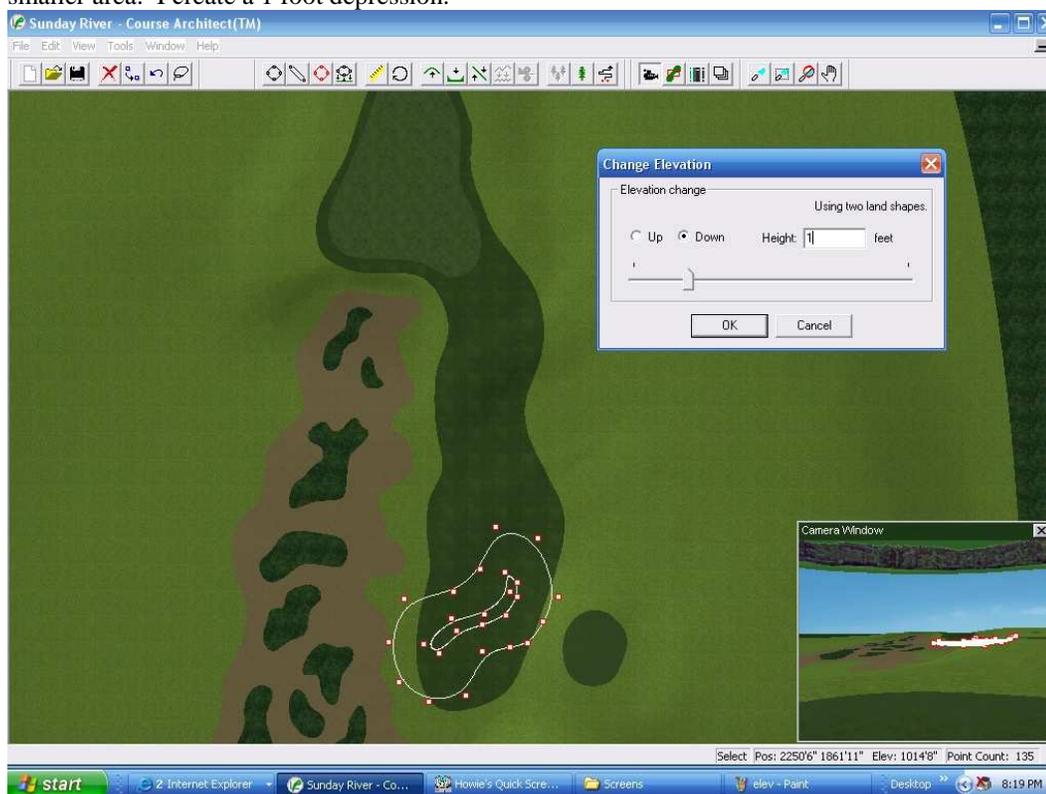
So now the green has been elevated to the desired height – 12 feet – and there is now about a 20 inch incline from the front of the green to the back. I now work on the fairway elevations by trying to copy the contours seen in the Interactive Course Tour. I draw an “S” shape – which I always use for fairway undulations – and raise both 2 feet.



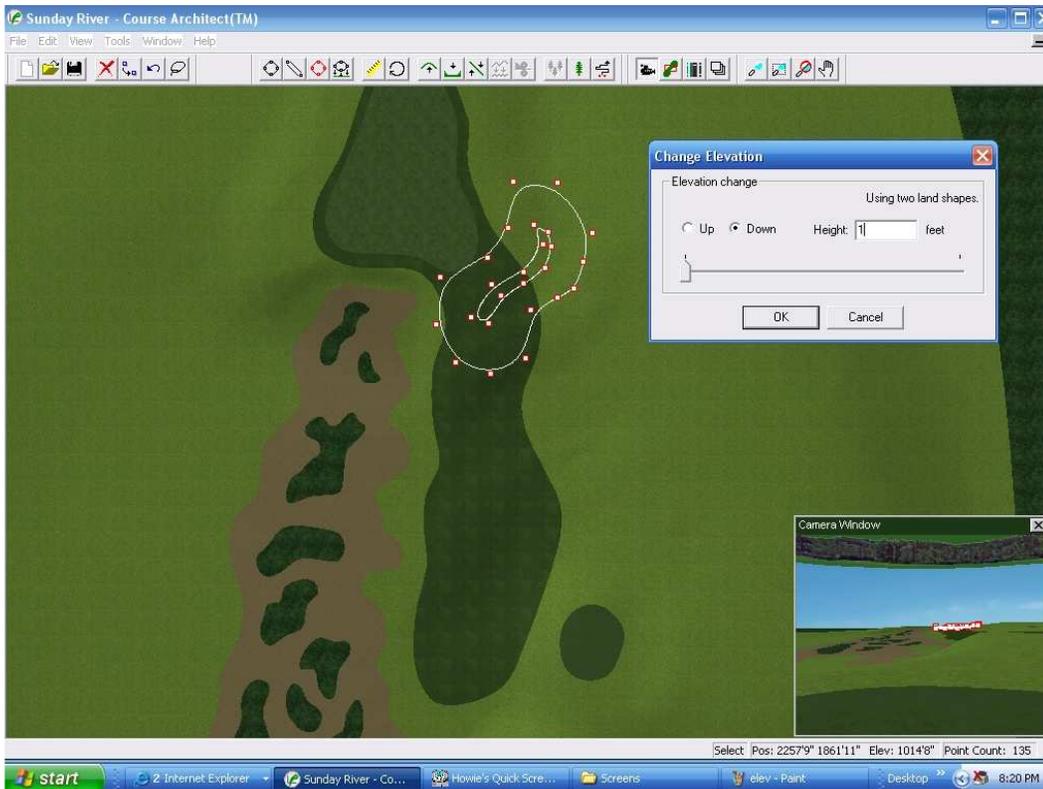
I then use the rotate tool to turn the shape around 180 degrees, vary the shape slightly and elevate 1.5 feet.



I then create a new shape which I will use to create depressions in the fairway. This will be a slightly smaller shape affecting a smaller area. I create a 1 foot depression.

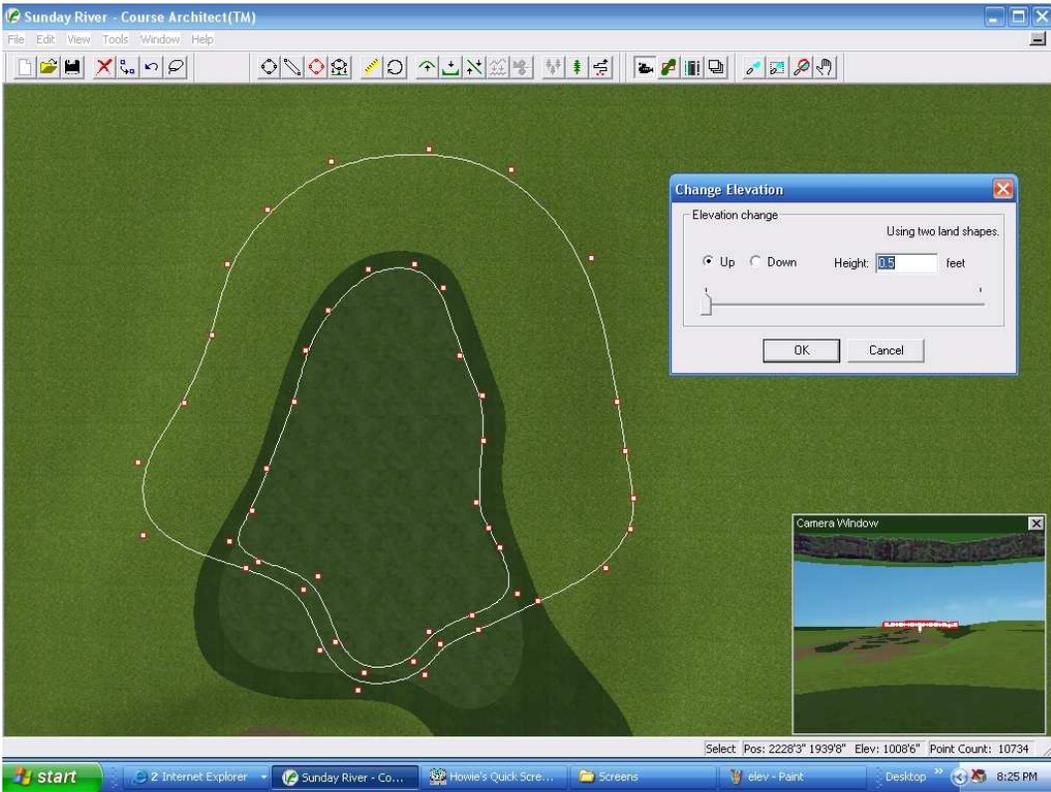


Holding the Ctrl button, I move both shapes just in front of the green and again create a 1 foot depression.

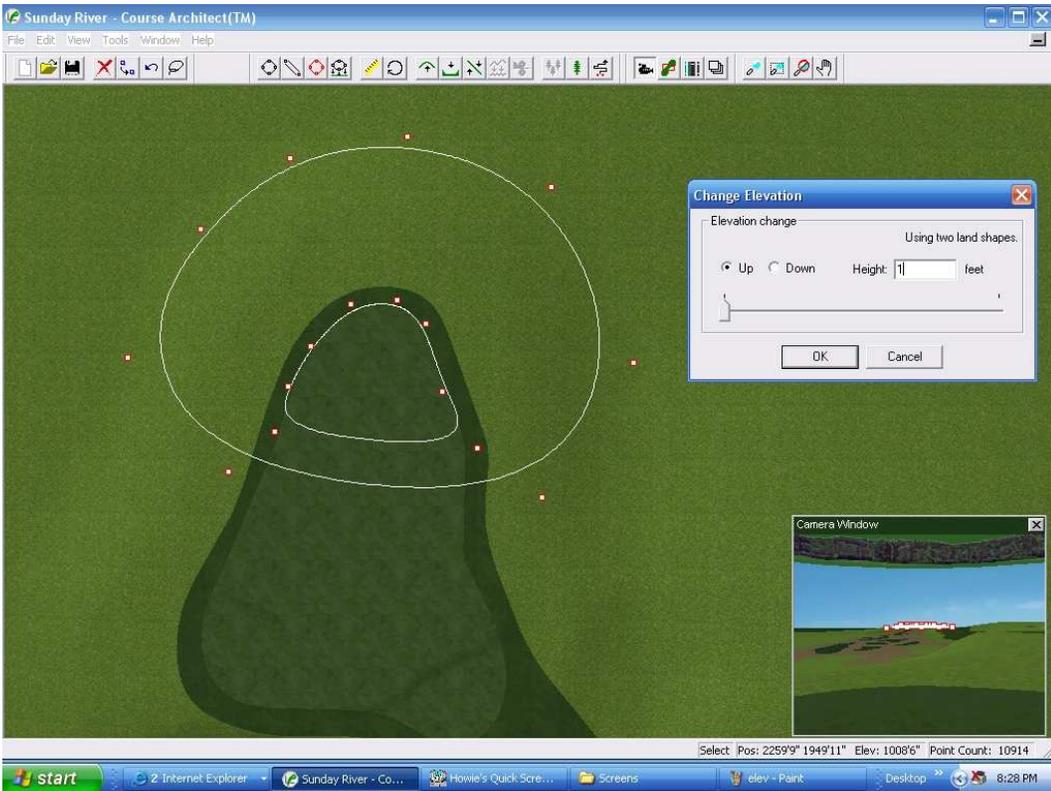


Now the fairway elevations are done. These are not significant elevations, but they are enough to create a rolling fairway. Obviously, if I wanted more pronounced fairway undulations, I could elevate by 2-3 feet. Now it is time to work on the green contours. Looking at the green contours in the Interactive Course Tour, the green has 3 tiers with some mounds at the front portion of the green.

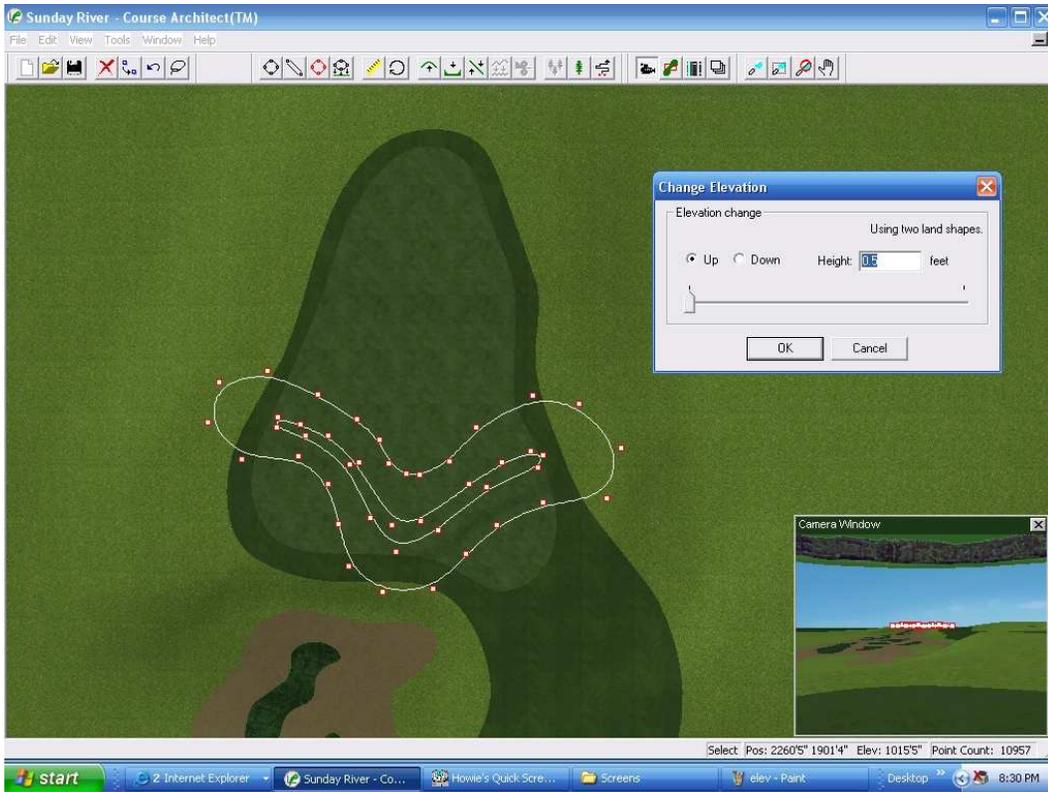
First, I use the shape of the green and then move the control points at the front corners of the green – this means that all of the green will be affected by the elevation except the front corners. I then duplicate that shape and increase it by 5 feet. I then move the control points out by about 30 feet around the sides and back of the green. So now when I elevate, there will be a sharp elevation change along the front of the green where the shapes are 5 feet apart, but much less gradual along the sides and back of the green. I then elevate .5 feet. So now there is a 6” elevation change from the first tier to the rest of the green.



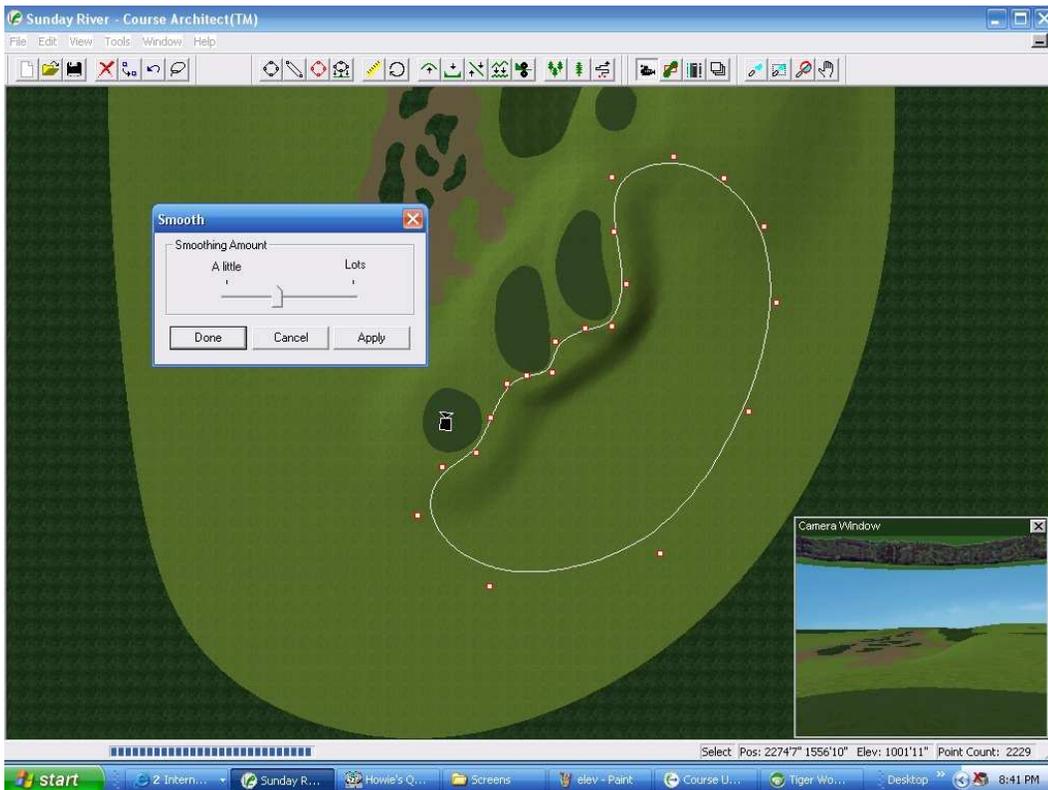
Now I create the second and third tiers of the green. Again, I use the shape of the green and then move control points so that only the very top part of the green will be in the affected part of the elevation. I duplicate the shape and increase by about 8 feet and again move the control points out by 30 feet or more along the sides and top. I then elevate 1 foot.

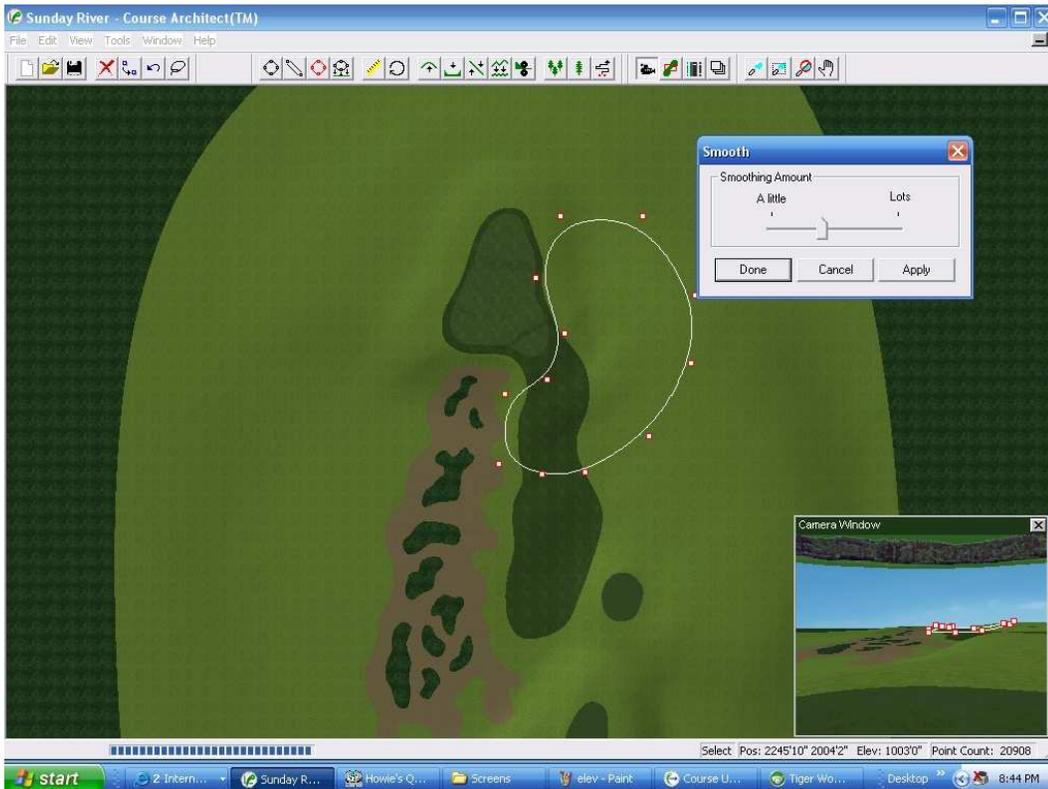
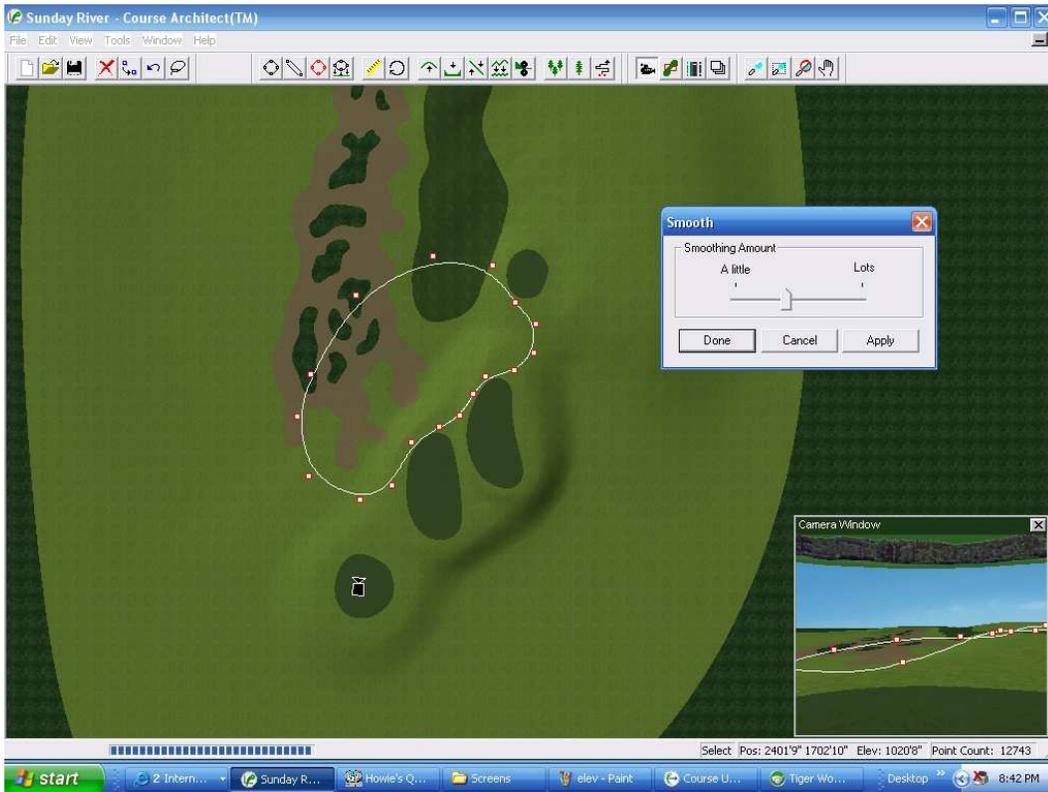


Now I create the mound at the front of the green. I use the two shape method and elevate .5 feet. Now the green contours are done.



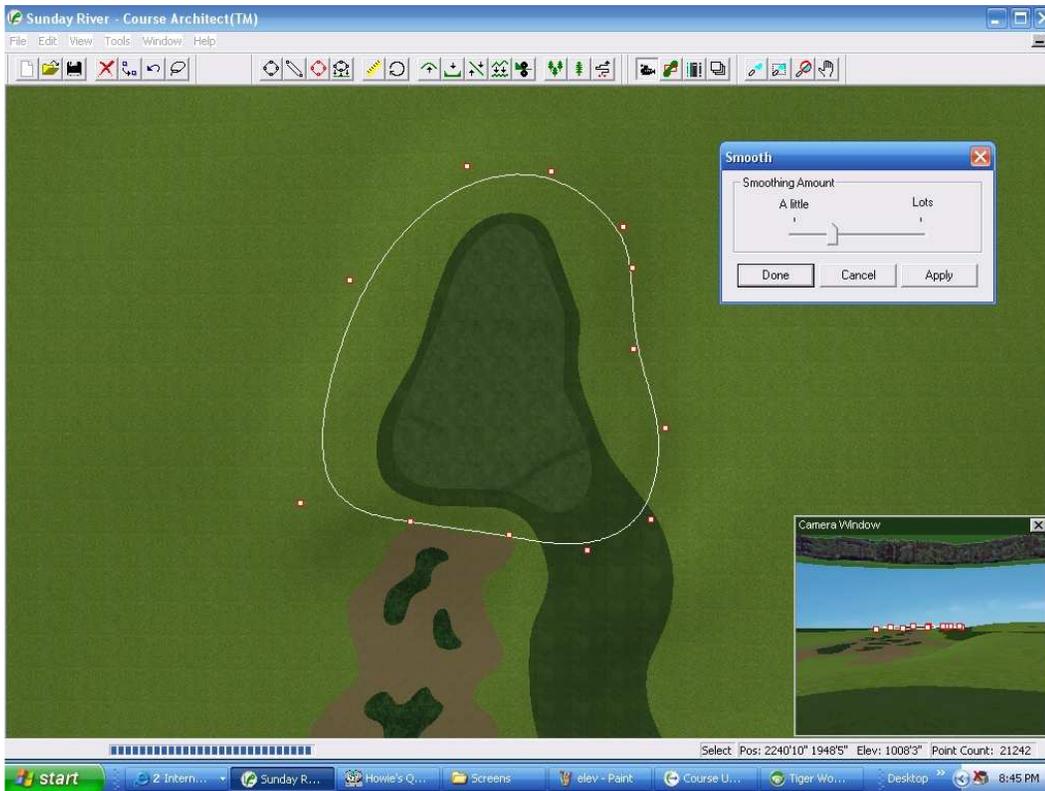
Now the only elevation work left to do is the waste bunker area. I always do my bunkers after I do my overall smoothing so that the bunkers flow smoothly into the surrounding elevations. So I start my smoothing and optimizing process. I create shapes and smooth everywhere within the bright green buffer shape – at about half-way across the slider I hit Apply 2 times.



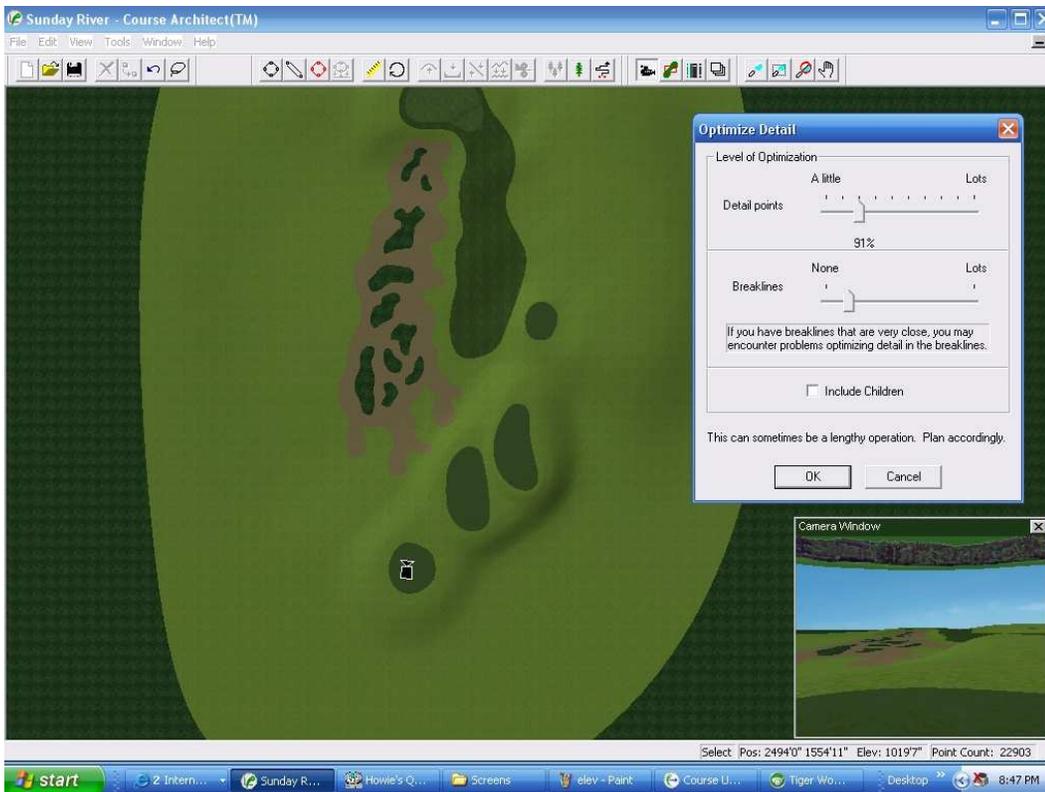


You can see in the picture just above that the point count on the bright green buffer shape has climbed pretty significantly during my smoothing to more than 20,000 points. The more points I add during the smoothing process, the more that the point count will be reduced when I optimize.

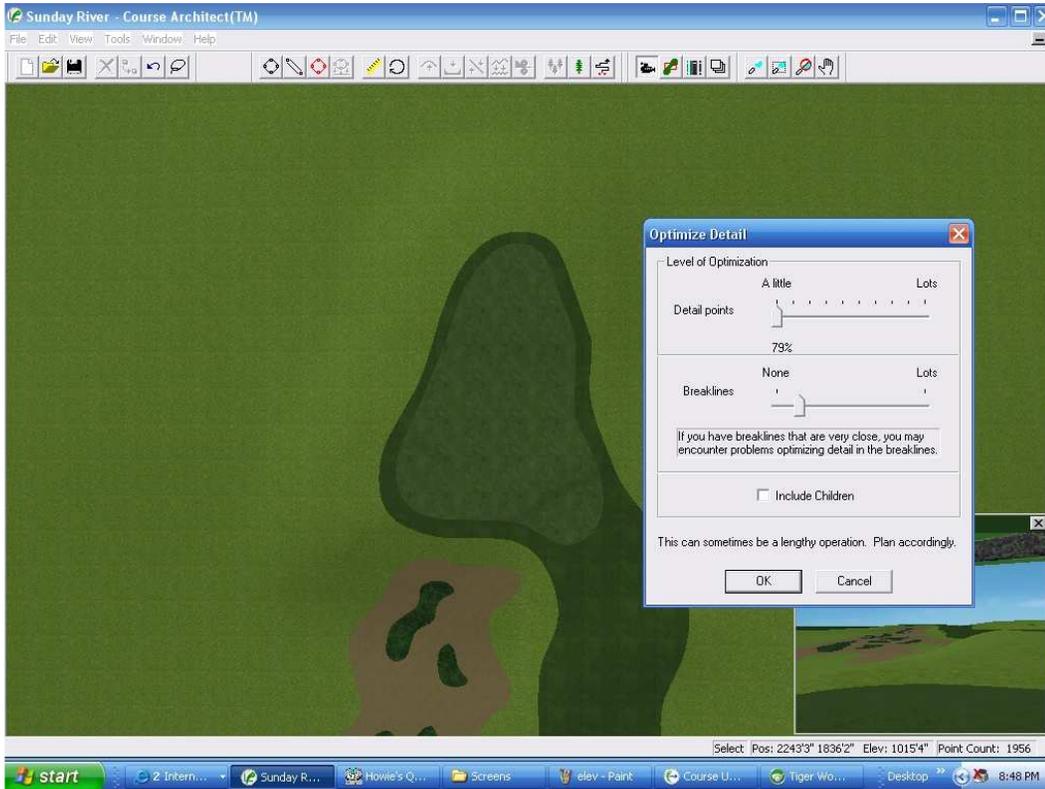
Finally, I smooth the green complex. I smooth only once at a lower setting so I do not ruin the green contours.



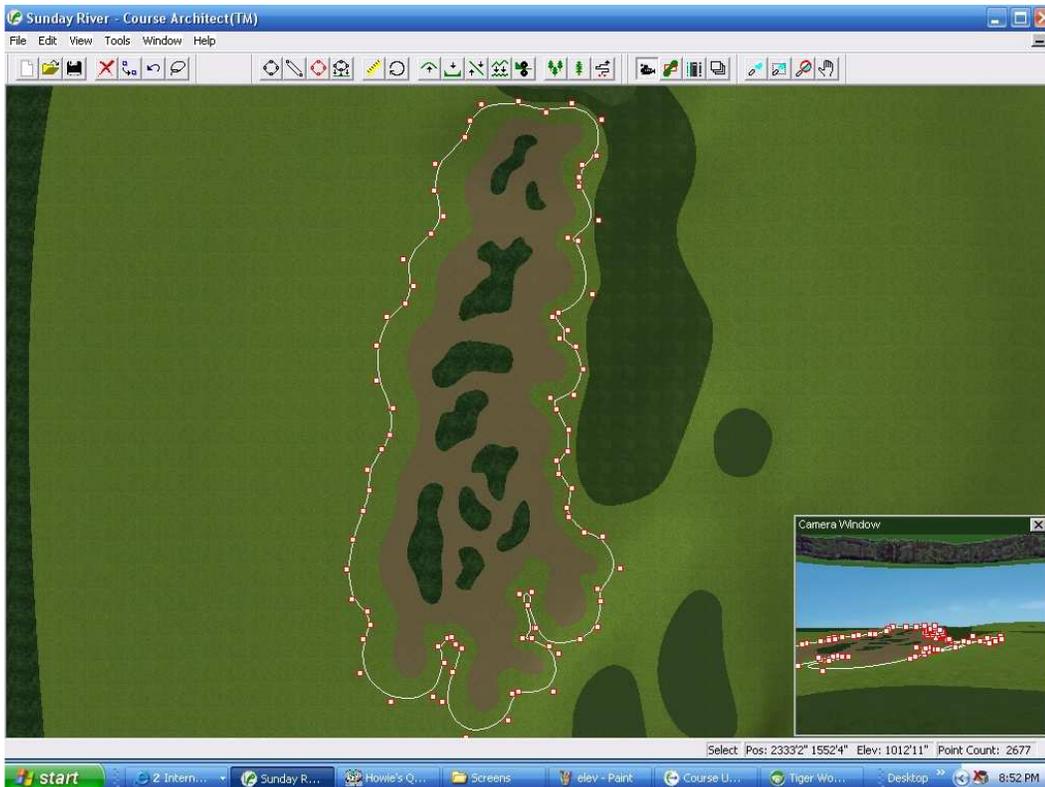
Now I optimize my shapes. Here, I optimize the bright green buffer shape twice at this setting. It reduces the point count from 22,900 points to just over 2,000 points. I optimize each of the tee boxes and the fairway as well at this setting.



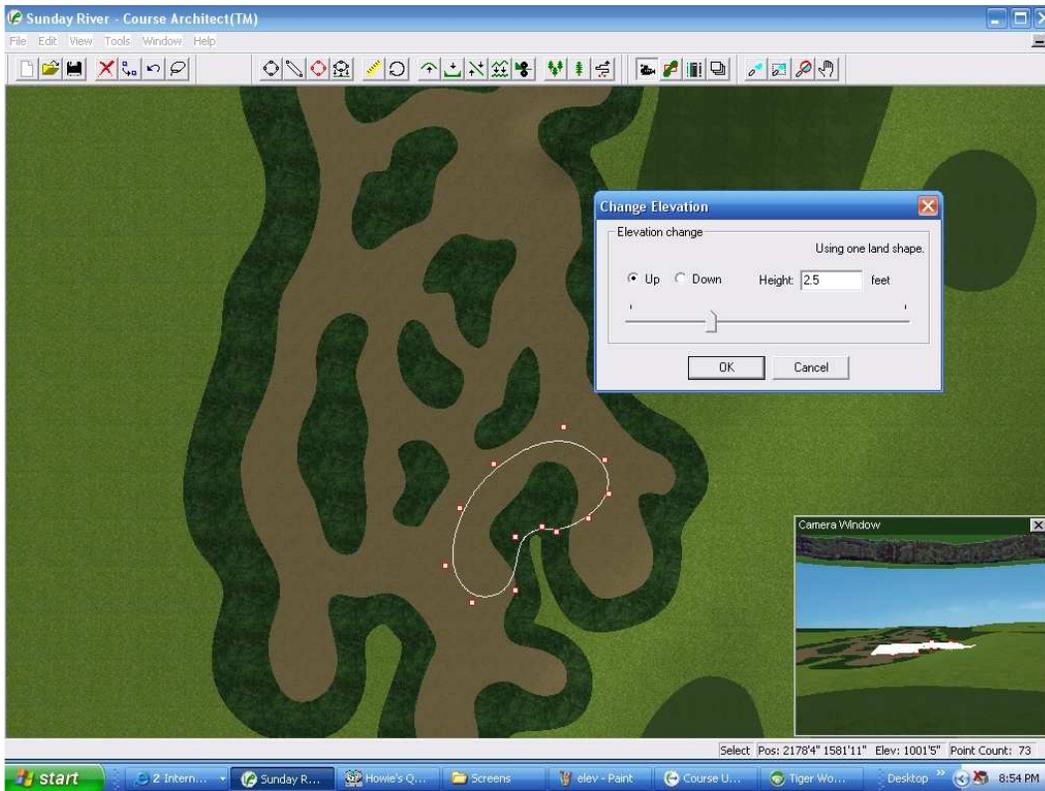
Then I optimize the green just once at the lowest setting – it will go from 1,900 points to just over 200 points.



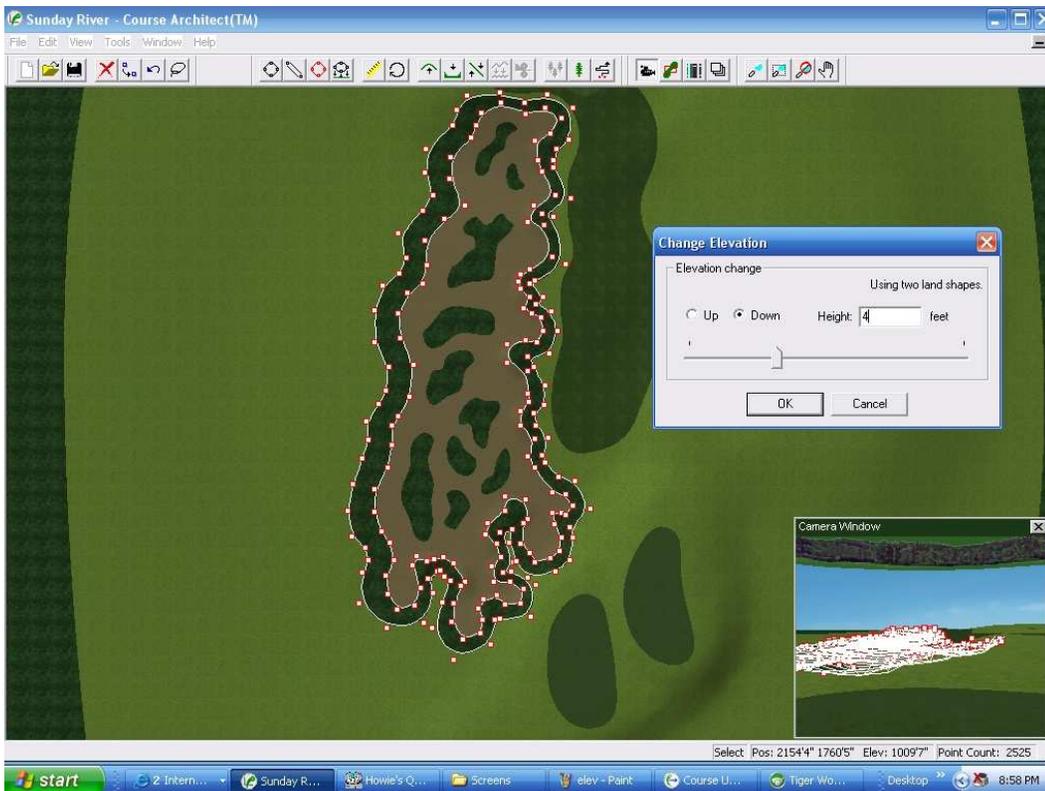
Now I work on the waste area, which will add a lot of character to the hole. I use the bunker shape and increase by 9 feet. I then move a bunch of overlapping control points and pull out the left side a bit (so that is a more gradual elevation change on the left side).



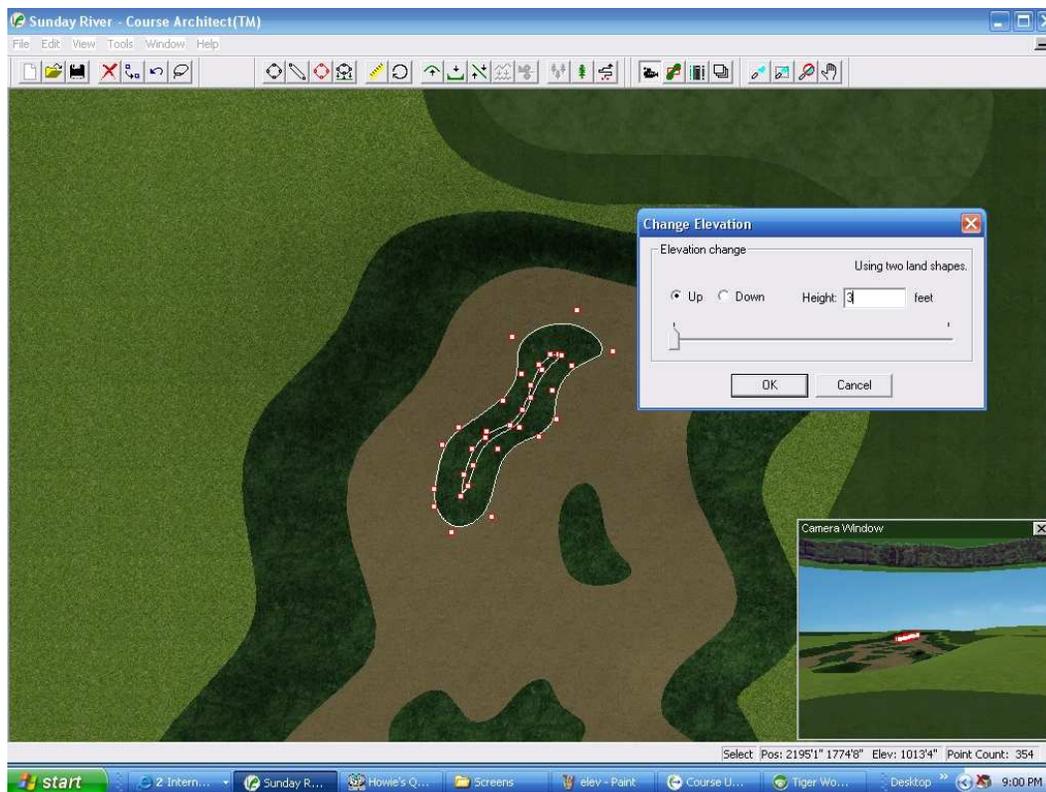
Now I add some elevations around the outside of the waste area to try to replicate the rugged look seen on Page 2.



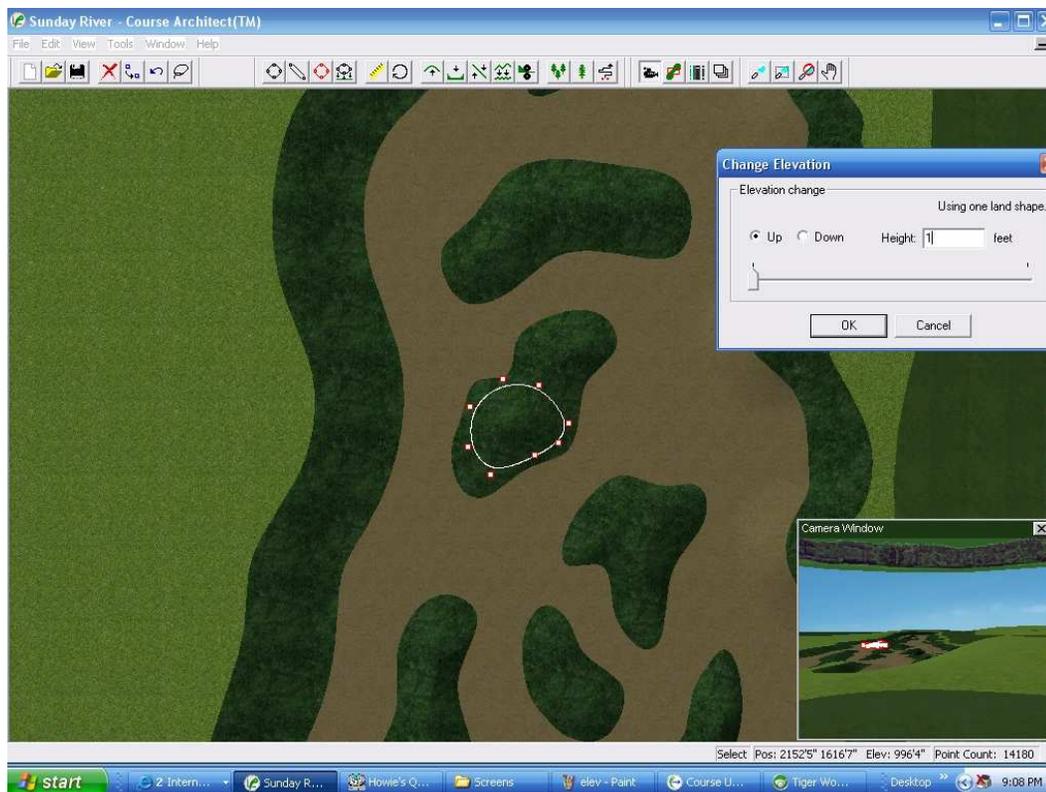
After adding several bumps around the edge of the bunker, I select both shapes and drop 4 feet.



Next I elevate all those mounds of grass inside the bunker. I use the two shape method and elevate 3 feet using the slope tool (so that it is a more drastic elevation change than using the hill tool).



To add variety, I go around to various spots and elevate another foot or two.



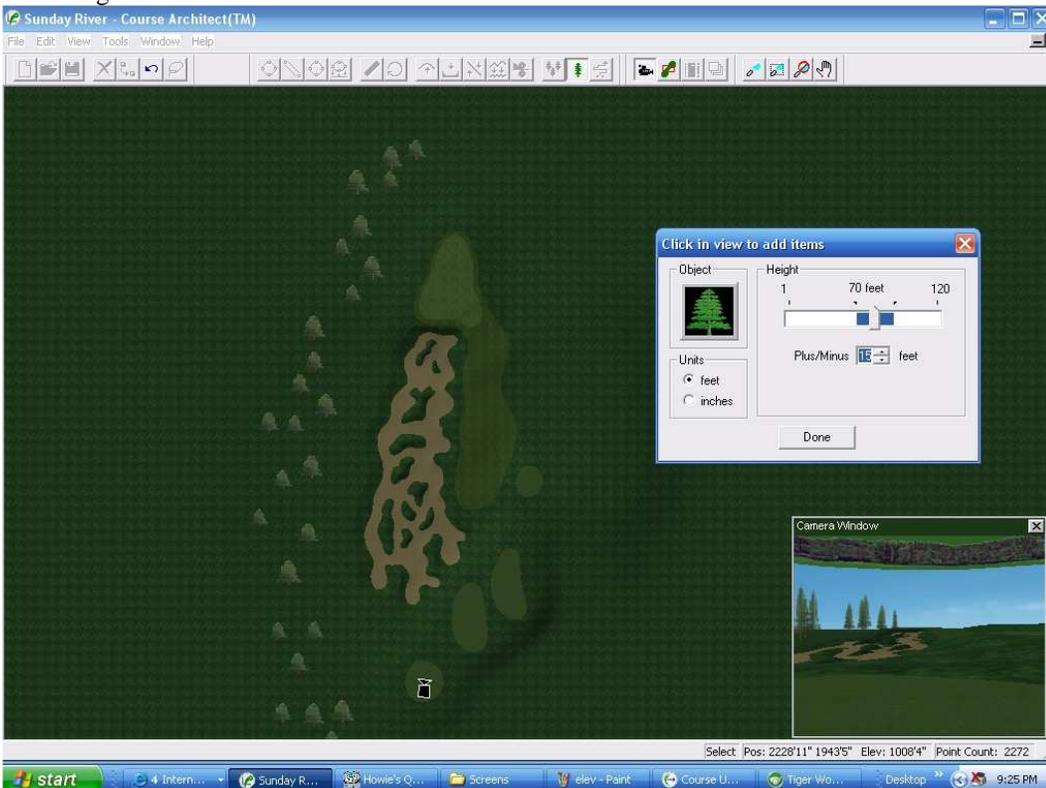
Sorry, I guess I didn't take a screenshot, but I then selected the outside (dark green) shape, reduced the size by a few inches and smoothed twice at the 3rd notch. Next, I optimized each of the shapes at two notches over.

Just for kicks, I upload the course to see how it looks in the game now that the elevation work is all done.

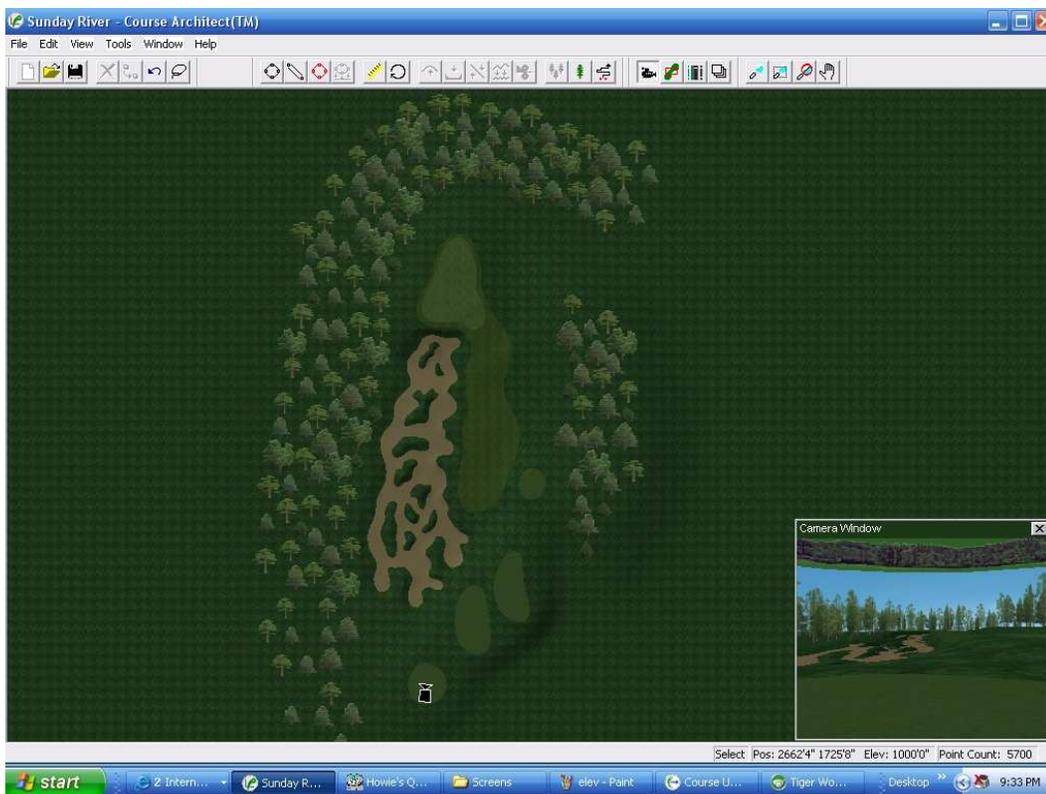


It looks good to me. Now I switch the bright green texture to the desired rough texture and start the final part of the design process – plantings, cart paths, tee markers, rocks, etc.

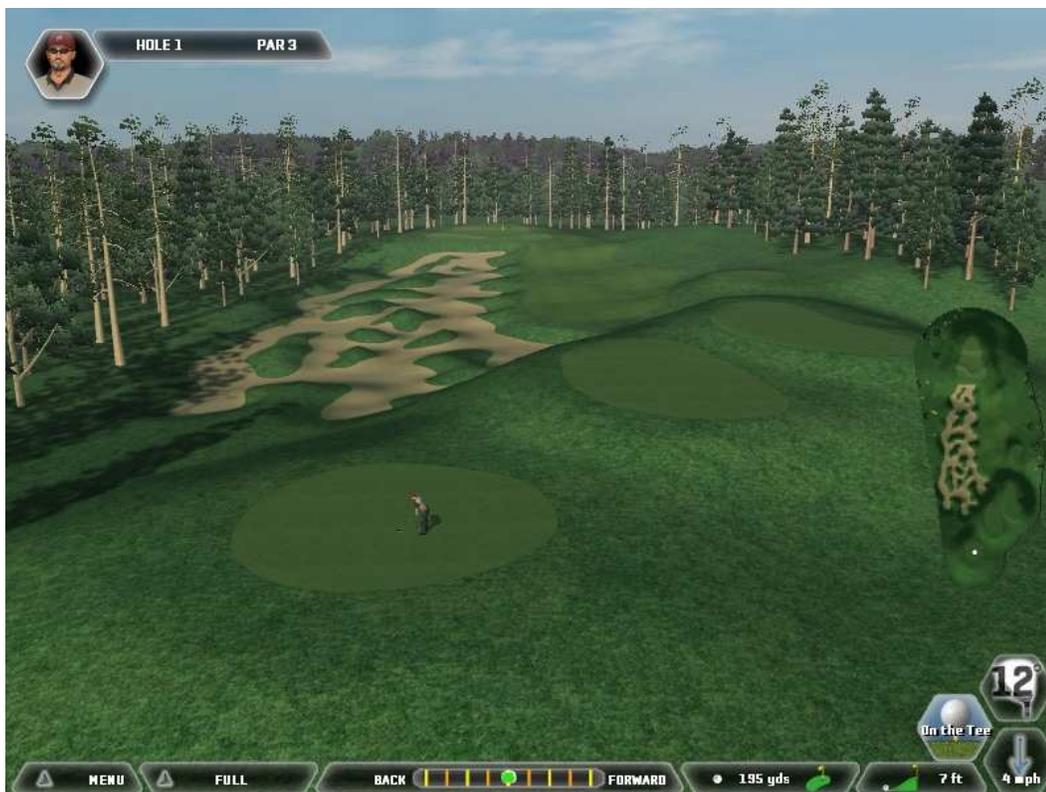
Using the click-click planting tool, I select a pine tree with a base height of 75 feet +/- 15 feet – so that the trees are not all the same height.



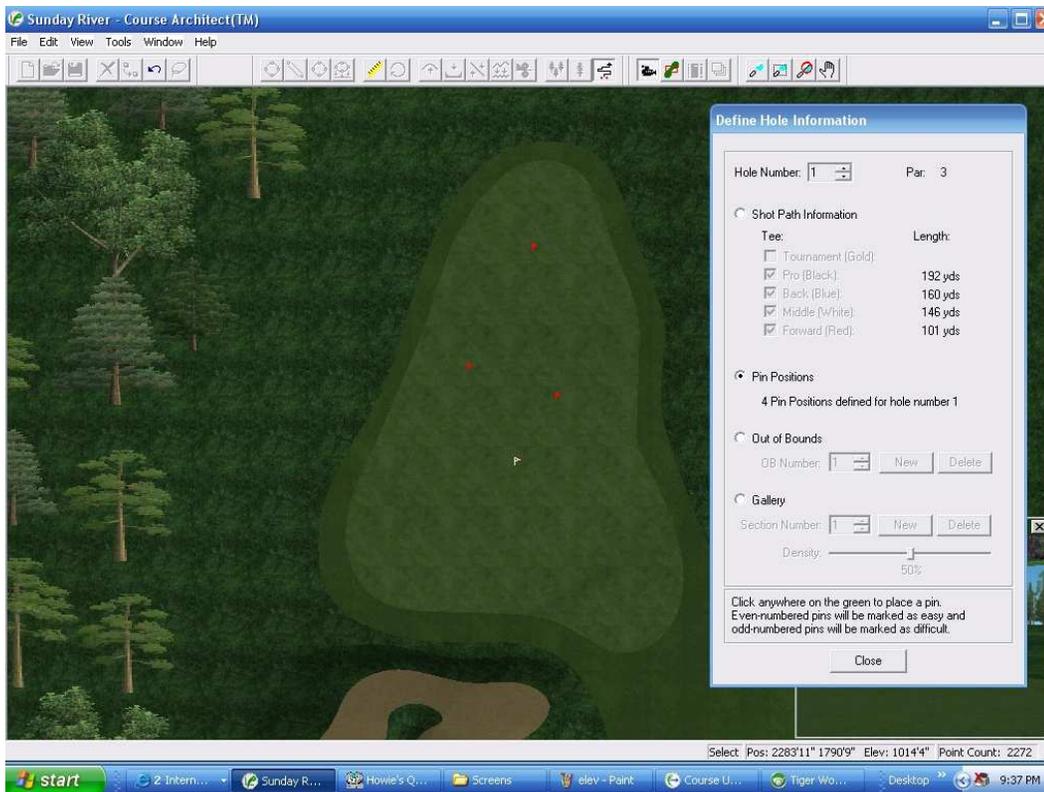
I select a number of other trees from the same library (TPC Boston) and fill in around the perimeter.



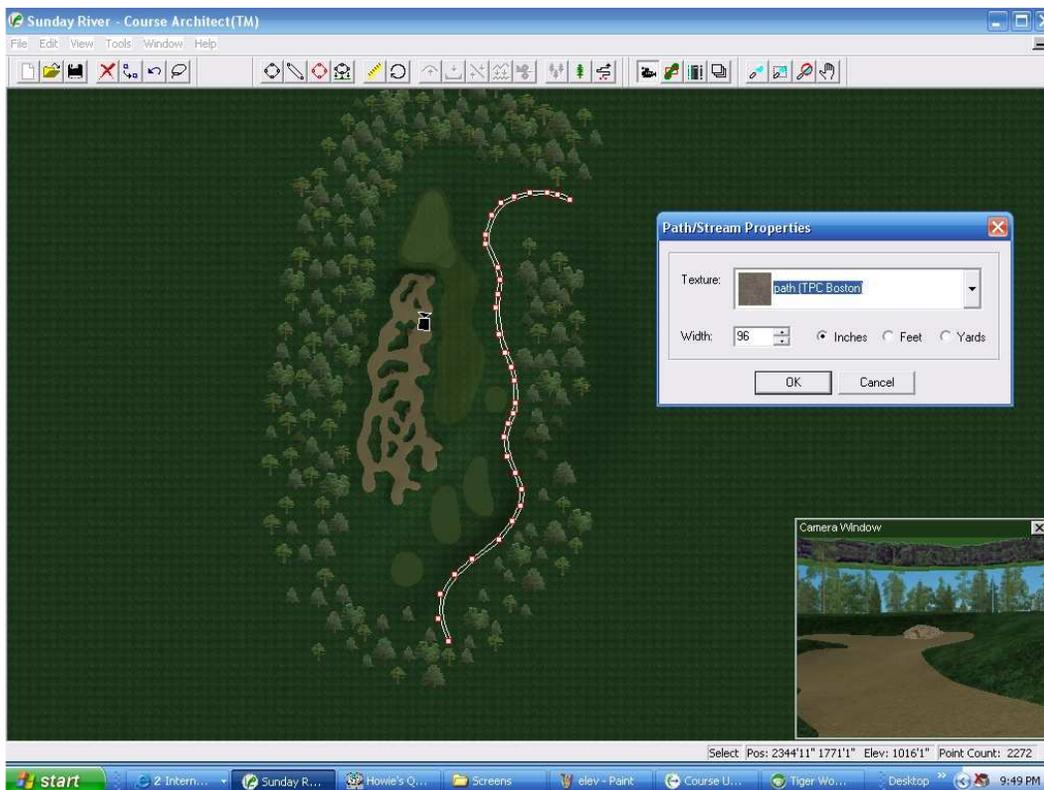
In the game it looks like this after the planting stage.



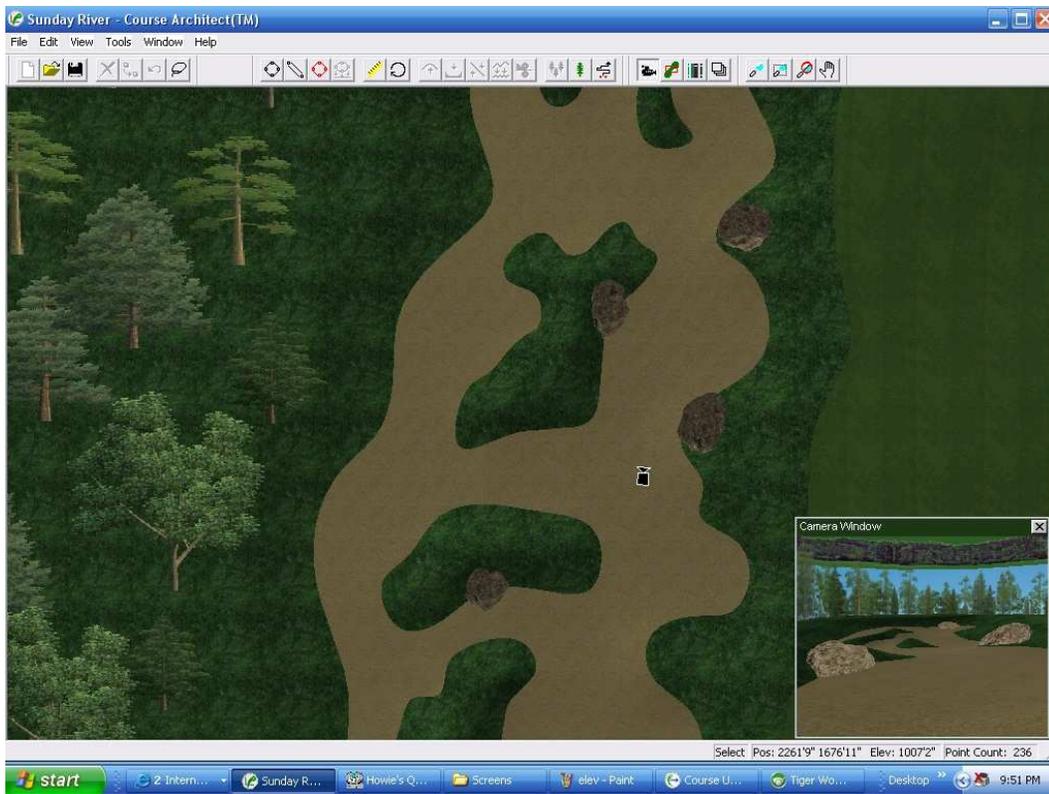
Now I set my pin placements. The two middle pins are the easy pins and there is a difficult pin on the top tier at the back of the green and another difficult pin tucked behind the mound at the front of the second tier.



Next I draw the cart path – using plenty of control points around curves so that I don't get jagged edges. I set the width at 8 feet like I always do.



Next I add some rocks from Judd's Walls n Stuff to the waste area. I reduce the scale so they are not so big and then submerge them in the ground a few feet.



Finally, I add tee markers and I'm done. A couple of final shots ...





There you have it ... 2 ½ hours of work to design the hole from scratch.