

Trey Talley

KCI Technologies/Athens, TN

Summer 2012

### Summer Internship with KCI Technologies

This summer I interned with KCI Technologies, an engineering company based out of Baltimore, Maryland. They do the majority of their projects in the northeast, but they recently started an office in Nashville and work in the Tennessee area. The project that I was stationed on was in Athens, Tennessee. KCI Technologies was making a one-lane highway into a two-lane interstate, so they were basically building a whole other road. This eight-mile project was separated into two phases: phase 1 and phase 2. While I was working with KCI, phase 1 was almost done, and phase 2 had just been started. Phase 1 included a bridge that I got to see be finished building as well.

I had different jobs each day, depending on what needed to be done that day. For the first few days, I helped finish the drawing up of the plans for phase 2. I got to see what goes into the plans, how to read and understand the plans, and how to follow the plans exactly. After the plans were all finished, I usually went out on the site everyday, and I only did paperwork when it was raining. I started out working on the finishing up of phase 1. I watched them put the different final layers of rock on the road, and I learned how the drainage systems underneath the roads are done. Finally on phase 1, I got to see the beginning of the paving of the roads, which was really neat. Also on phase 1 was the bridge. They showed me the plans for the bridge and caught me up on where they were, and then I got to see them pour the final cement on the bridge and make the rail guards. For the road and the bridge, it was interesting to see how the engineers work, carrying the pans around with them

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everywhere and telling the workers the exact specifications of what needs to be done according to the plans.

I did a whole lot of work on phase 2 as well. They had just started work on phase 2 not too long before I was there, so they were mainly excavating land (flattening hills and filling in crevices) and moving utilities (gas lines, water lines, electric lines, etc.). This phase was interesting because I got to see a great bit of progress in the few weeks that I was there. I watched them cut down and burn the trees and excavate the land, as well as lay down the new utility lines. On a typical day on phase 2, I would go out on the site with an engineer, and watch him oversee the laying of the new pipes, like gas pipes for instance. We had to make sure that the contractors were laying the lines in the exact spot that they are supposed to be, otherwise it will mess up the building of the road and the draining that comes from underneath the road. It was cool for me to see this because I had no idea that all of these different utility lines run underground next to all of the roads that we drive on. On one tough day, I sat in on a major meeting with the contractors, the client (The Tennessee Department of Transportation) and the engineers about a problem that we ran into while running the water lines. I pulled out the different pages of plans that they needed as they tried to figure out a new way to run this water line because of a septic tank that was in the way. They finally concluded to run the lines on the other side of the road for half a mile, and so I got to watch them run the pipes underneath the road to the other side. The utilities on phase two was difficult

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because many different companies have to consult together (engineers, contractors, at&t, etc.), and it was cool to see that.

For a few days on phase 2, I helped out one engineer who was solely in charge of the drainage of the roads. He had to make sure that the mud from the dirt and rain didn't flow off of the state's roadside property and onto other people's property because KCI gets fined if that happens. I helped him to set up silt fences to stop the mud slides, I helped with erosion control on the sides of the highway to follow state regulations, and I helped oversee the new drainage systems that were being made under the roads. That was cool because I never knew that some water actually soaks into the roads and needs to be drained out, and I never knew why the roads were slanted on both sides and highest at the middle... it's for draining purposes. The Tennessee Department of Transportation was the client and they came by weekly to do inspections of the project. The engineers would have to make sure that everything was up to the correct regulations before TDOT came to inspect because KCI would be fined if anything were wrong (like if water was draining onto someone's backyard). KCI would also have to debrief TDOT on what their current progress was on phase 1 and phase 2.

Overall, I learned a whole lot about what goes into the building of a road. I got to see the paving of phase 1, and I got to see the beginnings of phase 2, learning how to read the plans, the basics of building a bridge, as well as so much other stuff in the meantime. This internship was a great experience for me because it helped assure me that I definitely want to be an engineer. Everything that was done made

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so much sense to me, and it was also all so interesting to me as well. We all drive on roads and bridges everyday, but nobody really knows the amount of work, planning, and engineering that goes into it, and I didn't either until this internship. KCI Technologies is a great engineering company with great engineers and hard workers, and it was very beneficial for me to work with these guys and learn about civil engineering.