Great Basin College Land Surveying/Geomatics Program Graduates

Nicholas F. Carter

Nicholas F. Carter (Fall 2008) is the first graduate of the Program. He began his studies as the lead surveyor on the Hoover Dam Bypass Project. He had already earned a four year degree in Construction Engineering and was licensed as a Professional Engineer. One of the surveying challenges on the Hoover Dam Bypass Project was establishing vertical control on the site which would allow the bridge spans to be placed within a tolerance of 1/16 inch. Nick used his research on the required vertical control to satisfy the Program Capstone course. This research was published as Establishing Vertical Control on the Hoover Dam Bypass-Colorado River Bridge. Surveying and Land Information Science Journal (SALIS), Vol. 69, No. 1, March 2009. He is now a licensed land surveyor in Iowa. Nick presented the challenges of the bridge layout at the joint California-Nevada Annual Conference in Las Vegas in 2010. I became interested in surveying while working on the Nevada Approach portion of the Hoover Dam Bypass project. I was looking online for any offerings of survey courses in the Las Vegas area and found the Great Basin College Land Surveying/Geomatics Program in an Internet search. My initial intent was not to obtain a degree, but to take a couple of courses to gain some additional knowledge in the area of surveying. After taking the first semester of courses I became very intrigued by the program. Having previously earned a bachelor's degree in engineering from Iowa State University, I had anticipated the course material to be elementary and fairly routine. To my surprise, the program proved to be highly challenging and the course content was very thorough. Due to the excellent instruction and academic challenges that highly exceeded my expectations, I decided to pursue the Great Basin College Bachelor's of Applied Science. After completing my work on the Nevada approach of the Hoover Dam Bypass project, I began working for the Obayashi / PSM Joint Venture on the Hoover Dam Bypass, Colorado River Bridge project, now known as the Pat Tillman – Mike O'Callaghan Memorial Bridge. My primary duties on this project were to manage the design and implementation of the geometry control system for the fabrication and erection of the precast column segments and to implement the geometry control for the cast-in-place arch segments. Additionally, I performed all other surveying on this project as a one-man crew with the use of a robotic total station and a high accuracy control network developed by Artisan Spatial Technology. I did not know it at the time I decided to pursue my degree in Land Surveying and Geomatics through the Great Basin Program, but the knowledge I obtained in completing the courses was essential in allowing me to properly complete my work and confidently establish procedures and systems that would drive the work on the bypass bridge over the Colorado River. One notable example of my use of skills obtained through the GBC Land Surveying /Geomatics Program was using propagation of error to identify any measurement errors in the geometry control process for fabricating the precast column segments. This allowed for a better understanding of how the geometry

control system needed to be established and also gave me the confidence to implement this system. Error propagation was also performed in establishing the vertical control network at the bridge site which allowed for consistency in the high-accuracy survey of the cast-in-place arch segments. After obtaining my degree through the GBC Land Surveying/Geomatics Program and completing my work on the Hoover Dam Bypass project, I moved to Des Moines, Iowa where I currently work for the Metropolitan Wastewater Reclamation Authority. My primary tasks include managing multiple pump station and wastewater conveyance projects. In accepting my current position, I did not initially see much of a use for the knowledge and skills I obtained through the GBC Land Surveying/Geomatics program. Fortunately, however, I have been able to become heavily involved in expanding the GIS system maintained by the city of Des Moines. Some of the courses offered in the program gave me extensive insight into the need for, and the implementation of a standardized source of geographic information. With this knowledge, I have been able to expand the city's system and consolidate the information with other agencies making it a more usable asset. While there is no substitute for proper field experience, I have been able to use my Land Surveying/Geomatics education to meet and exceed my goals and also provide me with a level of understanding of the surveying profession and practice that could not have been obtained by field work alone.