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Project Speeds Along In Monticello

When Argenio Bros. finishes construction at the new Monticello Motor Club in Monticello, New York, it will be the longest private race track in the country at 4.1 miles long.

By Christina Fisher. Pictures provided by Argenio Bros. -- Constructioneer, 9/1/2008

When Louis Argenio, an Italian immigrant, started a business hauling brick with a half dozen horses and buggies in the late 1800s, he could not have imagined that his great grandson Jerry Argenio, vice president and senior project manager of Argenio Bros., would be building a racetrack that would allow a Ferrari 430 Challenge to achieve speeds in excess of 170 mph. Argenio Bros., a heavy highway general contractor based in New Windsor, NY, has been on the job since December 2006, and is nearing the finish line of what will be only the third such track of its type in the country and the longest at 4.1 miles – the Monticello Motor Club in Monticello, New York.



The entire project has been a learning experience for Argenio Bros., whose management team of Jerry Argenio Sr., Albert Argenio and Jordan Ely, P.E. sat through a grueling process of eight interviews before being awarded the project. Argenio Bros. has been a part of the project team from the beginning during the research and development of the mix designs and the methodology for the installation. The final product was the only thing the owners dictated. The methods and means to arrive there were totally left up to the Argenio Bros. design and management team and the design engineers, PS&S from Warren, New Jersey. Argenio explains that the owners hired and consulted with experts from Rutgers University Pavement Institute; experienced racing professionals like drivers Brian Redmond, Nick Longhi and Mario Andretti; and highway construction experts like Argenio Bros. and their supplier, Callanan Industries, “to come up with the best possible project they could.”

Work began with a million yards of cut to fill, and there was some blasting to lay back some of the steep slopes on the site. Argenio Bros.' scope of work also has included utility installation and many other site features custom to a racing facility of this nature.

“There is 20,000 feet of pipe, anywhere from 4-inch under drain to 48-inch culverts. There are also large outlet structures, as the project is surrounded by wetlands,” says Argenio. “Environmental protection was an entirely different challenge. We received multiple surprise environmental inspections by governing agencies and were never cited as being in violation, a victory for any contractor on a job with a 116-acre footprint.”

It is the construction of the track itself, however, that has proved to be the most challenging aspect of the project. While the same basic principles involved in road building can be applied to construction of a racetrack, the tolerances and applications are very different. “Most all of the practices and procedures we've developed over the years were raised to the next level for the execution of this project,” says Argenio.

Argenio Bros. did most of the grading and site layout with equipment-mounted Trimble GPS equipment and multiple SPS 851 rover units. "Once the earthwork was up and running the job moved fast, very fast. We had our best people here; I believe the best people in the industry with no small thanks to Laborers Local 17, Operators Local 825 and Teamsters Local 445, the GPS allowed us to get the most out of all of our resources," adds Argenio.

"The tolerances on the track were incredibly tight – both horizontally and vertically," adds Argenio. "The GPS system was linked up to between nine and 11 satellites at any one time, and they were accurate to 2 centimeters up and down, and 3 to 4 centimeters left and right. We also bought a GL-722 laser augmented GPS for fine grading. It is a relatively new system that Trimble developed, but it gave us tolerances of $\pm 1/8$ to $1/4$ inch on the Item 4 so we could achieve $\pm 1/8$ of an inch tolerances on the black top installation."

The track is 39 feet wide. There are 36,000 tons of bituminous concrete on the track, which was installed following the state of New York superpave format as far as specifications, installation and compaction. The lower courses are 19.5-millimeter superpave, and the final course is 12.5-millimeter superpave. Argenio Bros. used a three-roller compaction train – two Ingersoll Rand DD110s followed by a nine-wheel Dynapac rubber tire roller.

"The tolerances were incredible and we succeeded," says Argenio. "The owners ran the track several weekends ago, and they were thrilled with the final product."

As with any racetrack, changes will have to be made once cars start driving the circuit. "Turns are going to have to be widened and opened up; curb is going to have to be added," says Argenio. "There's horizontal compaction that occurs on a racetrack. When you take a turn really tight at speed, the lateral motion of the race car gives you horizontal compaction in the pavement, which you don't really have to any appreciable degree with a highway or road.

"We're anticipating that after a year of running this track there will be areas where this horizontal compaction will occur. We may have to go in there and do a different treatment like a shallow mill and replacement in the driving line in the tight corners, which will be determined by the drivers. It may include exotic liquid binders or different proportions of sand, aggregate and liquid, possibly even concrete."

Even with four generations of experience behind him, Argenio points out, "While pavement principles are still basic – sand, stone, asphalt and Item No. 4 – it's the modifications and bringing these principles to the next level – that's the experience we've gained as a company from this project.

"Race pavement is a different animal. There is a need to protect it from extremes that are never considered when you install pavement on a highway. These are the challenges we faced, and we performed extensive internal research early on so we would not make the same mistakes others have made. This owner is very demanding and very loyal, and in exchange he expects, and, quite frankly, insists on competence and effective execution. Hands down, there are no excuses when a problem arises, just solutions."