

Augercast Piles for the Midfield Terminal Parking Garage

The Detroit Metropolitan Airport in Romulus, Michigan, needed to expand and upgrade their facilities. As part of the 1.2 billion dollar Mid-



field Terminal Project a new 11,500 space parking garage was built. The entire structure is approximately 1,600 feet long, 240 feet wide, and 10 stories tall, 3 stories of which are below grade. At the time of completion in 2001 it was the largest parking structure ever built at one time.



However, as an cost saving alternative, Alberici, Walsh, PBM Joint Venture requested the use of augercast piles. G2 Consulting Group, LLC (G2) designed a 16 inch diameter, 200 ton capacity augercast pile system to replace the steel driven piles. These augercast piles were the highest capacity ever used locally. Due to no such precedence, we also developed a rigorous load testing program to verify the capacities of the piles. This included a combination of load tests, including compression, tension, and lateral load tests, all of which performed as expected.

During installation of the augercast piles, G2 was retained to perform quality control and observation services. This entailed verifying depth, plumb, grout volumes, and grout strength. A field engineer was present to observe and document discrepancies that occurred during con-



struction operations to save the contractor time, money, and materials. After an augercast pile was completed, the integrity of each pile was verified using low strain integrity testing. Occasionally, an augercast pile did not reach the desired depth due to an obstruction. When this occurred a professional geotechnical engineer determined a reduced augercast pile capacity. The end result was a quality, high capacity, and cost-effective foundation system.