



Brightwater Conveyance System, Central Contract, Kenmore, WA; VCGP/Parsons RCI/Frontier-Kemper (VPFK) Joint Venture for King County, WA

White Shield supported the Joint Venture (JV) of VCGP/Parsons RCI/Frontier-Kemper (VPFK), the general contractor assigned to the Conveyance System's central portion located in Kenmore. The project includes two tunnels approximately 11,600-feet and 20,100-feet long, a 3,400-foot long influent sewer micro-tunnel and portal structures at North Kenmore and Ballinger Way. White Shield provided all construction related surveying for the project, including establishment of a site control network, sediment and erosion control, a temporary construction road, a 50-foot grid for mass grading of the site, a 3,400-foot micro-tunnel, 35-foot high noise reduction walls and the reconstruction of 192nd street. To facilitate shaft development at the Kenmore Portal, White Shield provided control for the shaft, set the centerline and laid out the frames for the new wall segments. This process was repeated every 20-feet of depth to attain a total depth of over 120-feet. After the portal had reached about 80-feet in depth and line of sight issues arose, control was established on the portal walls by using an array of reflector prisms. This process was repeated to develop the micro-tunneling portal and was repeated again at the 200-foot Ballinger Portal. Once horizontal tunneling began, high accuracy control traverses were used to guide the Tunnel Boring Machine (TBM) through the tunnel. A Global Positioning System (GPS) was used to develop a highly accurate control network along the surface of the route, and to monitor movement as the TBM proceeded.

