

Chesapeake Bay Bridge-Tunnel Expansion Parallel Thimble Shoal

Norfolk, VA

CTLGroup was retained by Titan Virginia Ready-Mix and the Chesapeake Tunnel JV: Dragados USA and Shiavone Construction Company, LLC, to provide on-site and laboratory qualification services for concrete mixtures for this \$756M bored tunnel project, specifically to provide technical and mass concrete consulting services for the approach structure slurry walls and base slab of the tunnel, which requires a service life of 100-years. CTLGroup was also asked to prepare concrete thermal control plans for the planned two-lane bored tunnel under Thimble Shoal Channel and Chesapeake Channel.

Approximately 42,000 cubic yards of concrete will be used to make the tunnel sections. We evaluated durability indicators to assess the performance of concrete to be placed during construction. This included compressive strength, freeze-thaw resistance, chloride penetration resistance, inverse carbonation resistance, sulfate resistance, and water-soluble chlorides.

In addition, we evaluated the elastic modulus and coefficient of thermal expansion in order to allow for performance-based temperature difference limits for thermal control of mass concrete placements.

Completed:

Ongoing

Client:

Titan Virginia Ready-Mix &
Chesapeake Tunnel JV

Services Provided:

Mixture Qualification, Mass Concrete Consulting, Thermal Control Plan Development, Service Life Consulting & Design

