Waterton Road Box Culvert

US SPEC Product: MP Grout
Location: Littleton, CO
Date of Completion: 2020

Waterton Road is located in the southwest Denver metro area. This project consisted of installing two concrete walls in the middle of existing box culverts. The walls would run parallel to the length, approximately 100 feet. These walls would add additional strength to the culvert to support the new road above.

The contractor set up form work and poured the walls. Reinforcing steel was placed in the existing structure to tie the two together. Since the form work could not be sealed to the roof of the structure and still allow for concrete placement, a second pour would be needed. There was a void at the top of the wall, approximately 8 inches wide, and running the length of the culvert. Because this void needed to be filled, a continuous placement was desired to eliminate cold joints. A product was required that could be pumped the distance of the repair, and the contractor chose US SPEC MP Grout.

MP Grout is a blend of portland cement, special admixtures and proprietary aggregates designed to provide high flexural and compressive strength from plastic to fluid consistence. For this application, MP Grout was mixed to a flowable consistency.

This repair was 100 feet long and could not be accessed from the sides or tops due to the forms and an active roadway above. A unique solution was found. Heavy duty PVS pipe, approximately 2” in diameter, was placed the length of the repair. The grout pump hose was attached to the pipe, and the grout was pumped from the low side of the structure. As MP Grout was placed, the pipe was slowly pulled out. There were vent/sight holes in the form work so one could confirm the grout’s location before removing more pipe. This allowed for one continuous placement of the grout.

The plan and material worked well and the void was filled. The forms were removed after samples of the grout taken during placement were broke in a lab to confirm the desired PSI.

This project took place during the winter months and cold weather precautions were taken. The grout was stored indoors prior to use. Also, the repair areas were tented and heated to ensure the substrates were within recommended temperature ranges.