CP&P

CMC PRECAST

Project Case Study | Bealeton, VA

Precast Solution Supports Rail and Road at Luck Stone Bealeton Quarry

Box Culvert

Precast Product Line

CORE PRODUCTS DIVISION

Project Overview

Luck Stone's Bealeton quarry faced a critical infrastructure challenge when a quad run of 15x9 corrugated metal arch pipes (CMP) beneath their railroad crossing and entrance roadway began failing. To ensure long-term stability and safety, the solution called for replacing the aging CMP with a robust precast concrete box culvert system.

Project Location

Luck Stone Bealeton Quarry
11603 Luck Stone Rd
Bealeton, VA 22712

Project Duration

8 business days
(installation phase)

Challenges

Virginia Construction Company (VCC), based in Fredericksburg, VA, was tasked with completing the entire installation within an aggressive eight-day window while keeping the quarry operational. The project also required maintaining continuous water flow from Craig Run, which necessitated a live bypass pipe during the first phase of installation. Compounding the challenge, the team faced rain throughout the installation, adding pressure to meet the tight timeline.

CP&P Solutions

Concrete Pipe & Precast (CP&P) supplied a custom-engineered 12'x9' precast box culvert designed to ASTM C1577 LRFD and VDOT specifications (HL-93, E80-RR, LL for 4-5' of fill). The system included:

- ☑ **79 standard quad-run box culvert pieces**
- ☑ **8 skewed end sections**
- ☑ **4 wing walls**
- ☑ **Parapet and bull nosing pieces**

Each box featured a 1'-2" thick top slab, 10" walls, and a 1' thick base slab. The heaviest section weighed 59,200 lbs. Installation was sequenced in two phases, enabling traffic to shift onto the completed half while the remaining CMP was removed and the installation finalized.

Outcome

Despite site constraints and adverse weather, CP&P and VCC collaborated closely to complete the project on schedule. The new box culvert now provides a durable, long-term solution for Luck Stone's critical quarry entrance and railroad crossing.

To learn more about CP&P's precast box culvert solutions, contact us at info@concretepandp.com

CP&P, A CMC Precast Business
10364 Design Road
Ashland, Virginia 23005