

RCP Adds Value to Ohio's Largest Investment of Stimulus Funds – The Nelsonville Bypass

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[Concrete pipe](#)¹ is being used extensively on the four-lane, 8.5-mile bypass around Nelsonville Ohio, located on U.S. 33 about 70 miles southeast of Columbus. Construction of the bypass was needed because U.S. 33 narrowed from four lanes when it reached Nelsonville. With 1,700 trucks using the route each day to reach the state capitals on either end, state officials said it is one of the busiest truck routes in Ohio. When completed in June 2013, the four-lane highway will run from Columbus to Athens, Ohio.

Construction on Phase I of the [Nelsonville Bypass](#)² (a \$22 million non-stimulus project) was completed in the summer of 2009. Phase II (awarded at \$45.2 million) focused on the construction of 3.16 miles of new four-lane highway and paving of 4.56 miles of roadway, along with West Interchange Road. Phase III (awarded for \$92.2 million) consists of 3.87 miles of new four-lane highway, 1.63 miles of a new State Route 78 connection to US 33, a half-mile of new connection to State Route 691, and construction of the east interchange and Hocking River Bridge. The [Ohio Department of Transportation](#)³ (ODOT) is investing up to \$150 million in funds from the American Recovery and Reinvestment Act for construction of the final two phases.

ODOT used reinforced concrete pipe (RCP) for 28 culverts and other pipelines comprised of 14,345 feet of RCP, and 2,804 joints totalling 35,325 tons of concrete on all three phases. The largest culvert was on Phase 3. It was a 326 foot, 144-inch diameter installation under 40 feet of fill at its deepest point. The longest culvert was installed in Phase 1. It was a 770-foot, 120-inch diameter installation under a maximum 71 feet of fill. The deepest culvert was an 84-inch diameter installation that extended 776 feet under 99 feet of fill at its deepest.

Thirteen deep fill applications required specially designed heavy wall RCP that included 42, 54, 60, 78, 84, 120 and 144-inch diameter pipe. All designs were tested by three-edge-bearing machine to 0.01-inch crack and ultimate design loads. The maximum single test load was 460,688 pounds.

Pipe design approval was the responsibility of the ODOT Central Office, Office of Structural Engineering, Roadway Hydraulics. Concrete pipe was supplied by the Columbus, Cleveland, and Pittsburgh plants of [Rinker Materials-Concrete Pipe Division CEMEX](#)⁴. The Columbus pipe plant in Delaware, OH supplied the pipe on Phase 1. Rinker's Cleveland pipe plant in Diamond, OH supplied pipe to Phases 2 and 3, and the 144-inch diameter RCP was supplied from Rinker's Pittsburgh plant in Oakdale, PA. The deep bury 60-inch diameter pipe used on Phase 1 had a 13.75-inch wall, the 78-inch diameter pipe had a 14.5-inch wall, and the 120-inch diameter (wet cast) pipe had a 20-inch wall. The 84-inch diameter pipe of Phase 3 had a 19.25-inch wall, and the 144-inch had a 14-inch wall.

Contractors included [Kokosing Construction Company](#)⁵ for Phases 1 and 3. [Beaver Excavating Company](#)⁶ was the contractor for Phase 2.

LINKS

Info Links

1. <http://www.concrete-pipe.org/why.htm>
2. <http://www.dot.state.oh.us/districts/D10/nelsonvillebypass/Pages/default.aspx>
3. <http://www.dot.state.oh.us/Pages/Home.aspx>
4. <http://www.rinkerpipe.com/default.shtml>
5. <http://www.kokosing.biz/default.aspx>
6. <http://www.beaverexcavating.com>

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- **Keyword Search on American Concrete Pipe Association Website**
(Culvert, highway, bypass, deep, joint, storm.)
www.concrete-pipe.org
- **Concrete Pipe Design Manual**
<http://www.concrete-pipe.org/designmanual.htm>

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