

## Producing Expansion Loops to Alleviate Flange Leakage

A Midwest refinery contacted Brindley Engineering and challenged us with the task of producing fabrication isometrics for several lines in a pipe alley that were experiencing leakage at flange connections to increase flexibility required to compensate for thermal growth. Time was limited with little more than a week for our team to design the loops and get the drawings into the review process.

### BE the Solution

Due to time constraints, conflicts with other work in the area, and for improved quality, the Brindley Team decided to utilize the latest high-resolution 3D scanning technology to capture the area electronically via point cloud. This allowed us to very quickly and safely dimension most of the existing piping in the 3D point cloud scan and create the 3D piping model without interfering with the site work underway at the time.

### Our Challenges


Although the unit shut down was scheduled well in advance, this project was a last-minute addition to the scope of work due to recent discovery of the leaks. The pipe fabrication shop needed to begin work as soon as possible to meet the demanding time line. Earthwork was in progress so that the foundations could be poured for a large pipe support structure that would be needed accommodate the new expansion loops. The area was already very busy and we knew that we had to make the most of our time without getting in the way of the construction team.

### BE the Result

*The foundations, pipe support, and new pipe routing was completed within the tight timeframe required and was implement with zero defects. Right the first time, every time.*

### Contact Us

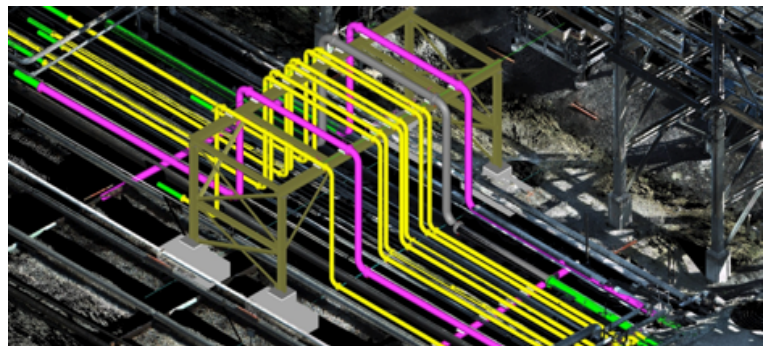
**Brindley Engineering**  
901 Warrenville Road  
Suite 15  
Lisle, IL 60532

 630-796-2020

 [info@BrindleyEngineering.com](mailto:info@BrindleyEngineering.com)



3D Point Cloud Scan of Pipe Alley Prior to Piping Model Creation



3D Point Cloud Scan of Pipe Alley with Piping Model Overlay