

CASE STUDY

Washington State DOT (WSDOT) Lundeen Parkway Soldier Pile Wall

SR9 Lundeen Parkway to SR 92 Intersection Improvements and Widening

HISTORY

The Washington State Department of Transportation (WSDOT) is the steward of over 18,000 miles of state highway lanes and 3,600 bridges, with 7,200 full-time employees. WSDOT, working closely with private contractors, is in year five of a twenty-year program that will be the largest capital construction program in their history - delivering more than \$15 billion in projects, including 391 highway projects valued at \$11 billion.

PROBLEM

A fast-growing area in the Eastern suburbs of Seattle, Snohomish County's population grew by 80 percent between 1980 and 2000 - and as the population has grown, traffic congestion has increased as well.

State Route 9 (SR 9) is the only North-South highway on the East side of Snohomish County and the only major alternative to nearby Interstate 5. This once-rural two-lane road has seen a significant increase in traffic volumes, leading to a rise in collisions, particularly at intersections where drivers have to cross oncoming traffic when making left turns.

From 1993 to 2000, Snohomish County saw an average of 325 collisions per year on the SR 9 corridor. By 2007, that average had increased to almost 450 collisions per year (an increase of 38%). The WSDOT is working to improve safety and reduce congestion by widening SR 9 to four lanes and adding turning lanes at intersections.

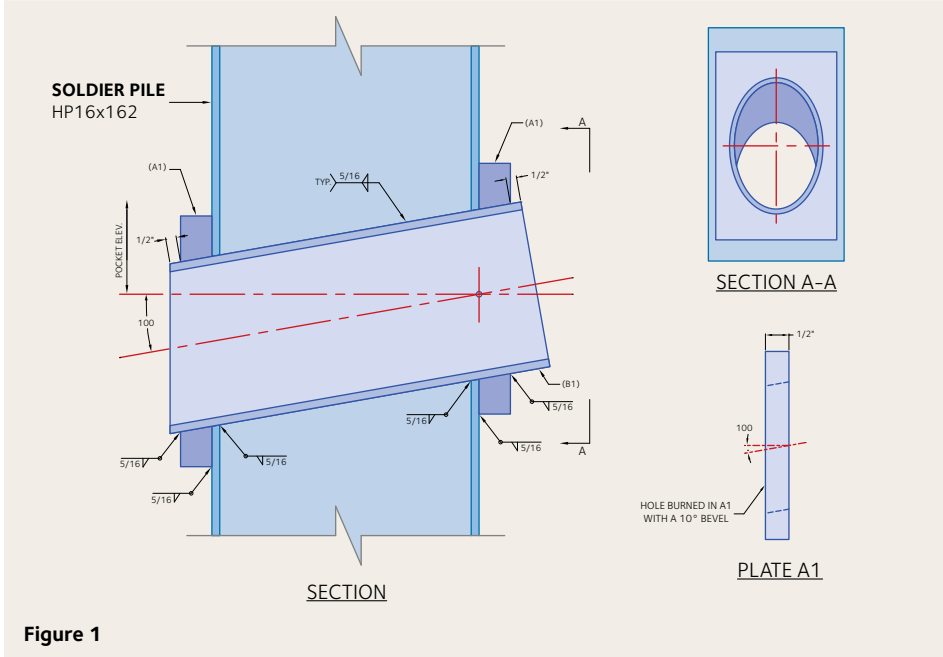
Road widening of the Lundeen Parkway required filling of the lower side of the highway. This process resulted in the construction of



HP16 x 162 with coating and handling holes.

CASE STUDY

WSDOT Lundeen Parkway



PROJECT TIME FRAME

Wall B or Phase 1: Summer 2010
Wall A or Phase 2: December 2011

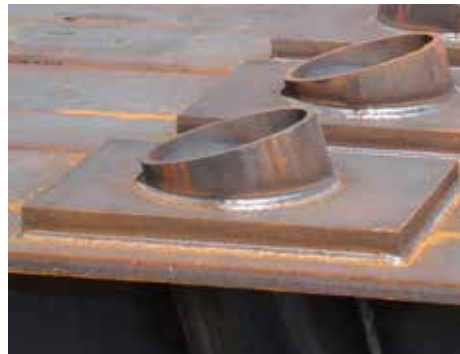
PROJECT PARTNERS

Owner/Engineer
Washington State DOT
Mount Vernon, Washington
Ph: 360-428-1593

General Contractor
Granite Construction Company
1525 E. Marine View Drive
Everett, Washington
Ph: 425-551-3100

Sub-contractor
Malcolm Drilling Company, Inc.
Kent, Washington
Ph: 253-395-3300

soldier pile walls to support the newly placed back fill material. Nucor Skyline was contacted by Malcolm Drilling Company, Inc. to provide wide flange sections for new soldier pile walls. Originally, the project called for wide flange (W14 x 159) sections which were only available at a premium price and are rolled at set times due to tight mill rolling schedules. Temporary casing limitations also made the wide flange product more difficult to install, so Malcolm Drilling was open to alternatives in this application.



Customized Tie Rod Pockets

SOLUTION

Nucor Skyline provided Malcolm Drilling with a cost analysis and suggested using H-piles (HP16 x 162) as a less expensive alternative. This represents cost savings for the project owner, WSDOT. This size of H-pile is stiffer and also has a larger bending moment capacity than the W14 x 159. Due to the uniform geometry of this product, H-piles also allowed for a simplified drilling process.

Once design properties and drawings of the proposed sections were approved, Nucor Skyline provided customized H-pile beams containing pockets to allow the tie rods to pass through (See Figure 1).

In keeping with the company's goal of serving as a True Project Partner, the Nucor Skyline team was actively involved in every phase of the project including manufacturing, fabrication, coating, and coordinating the

PRODUCTS

Product
H-piles HP16 x 162

Steel Grades
ASTM A572 Gr. 50

Quantity
Wall A: 316 tons
Wall B: 323 tons
Total: 639 tons

logistics for final delivery to the job site. Drawing upon its strengths, Nucor Skyline was able to quickly deliver a solution that would normally have required the involvement of multiple vendors. For the client, Nucor Skyline's industry expertise and reliability helped deliver significant cost savings, and knocked three weeks off the project's timeline.