Facing Options for Soil Nail Walls

USE OF SOIL NAIL WALLS ON TxDOT PROJECTS

CUT SITUATIONS
- TEXAS TURN AROUNDS
- DEPRESSED ROADWAYS
- WIDENED ROADWAYS
- TEMPORARY SPECIAL SHORING

CUT/FILL SITUATIONS
- HYBRID – SOIL NAIL/MSE
- TEMPORARY SPECIAL SHORING
Facing Options for Soil Nail Walls

“Texas Turn Around”
Or
U-Turn Walls
Facing Options for Soil Nail Walls

Widening a Roadway

Depressing a Roadway
Facing Options for Soil Nail Walls
Facing Options for Soil Nail Walls

Temporary Special Shoring
Focus on Permanent Soil Nail Walls and the facing options available
Facing Options for Soil Nail Walls

What does one need to consider when trying to select a facing for a soil nail wall?

What types of facing options are available?

What is the range in cost of the facing options?
CONSIDERATIONS FOR FACING OPTION FOR A SOIL NAIL WALL

- Location
- Surrounding aesthetics
CONSIDERATIONS FOR FACING OPTION FOR A SOIL NAIL WALL

- Location

Urban

Rural
CONSIDERATIONS FOR FACING OPTION FOR A SOIL NAIL WALL

-Surrounding aesthetics
WHAT TYPES OF FACING OPTIONS ARE AVAILABLE?
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- Cast in-place
- Precast Panels
- Shotcrete
WHAT TYPES OF FACING OPTIONS ARE AVAILABLE?

- Cast in-place
Facing Options for Soil Nail Walls

Cast In-Place Fascia
Facing Options for Soil Nail Walls

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Cast In-Place Fascia
WHAT TYPES OF FACING OPTIONS ARE AVAILABLE?

- Precast Panels
Facing Options for Soil Nail Walls

Pre-Cast Fascia
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Pre-Cast Fascia
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Pre-Cast Fascia
WHAT TYPES OF FACING OPTIONS ARE AVAILABLE?

• Shotcrete
  - Sculpted Shotcrete
  - Smooth Finish
  - Rough Finish
WHAT TYPES OF FACING OPTIONS ARE AVAILABLE?

- Shotcrete
  - Sculpted Shotcrete
After reinforcement is placed, then shotcrete is applied to the surface by ACI Certified Nozzleman.

As the shotcrete is being placed, the sculptors follow behind carving the required pattern into the shotcrete.

The shotcrete is then allowed to cure and is stained if required.
Facing Options for Soil Nail Walls

Prior to starting the wall it is best to do a “mock-up” or test section.

This allows one to obtain a sense of what it will look like and what the staining will look like.

Sculpted Shotcrete
Facing Options for Soil Nail Walls

Sculpted Shotcrete
Facing Options for Soil Nail Walls

Sculpted Shotcrete

The shotcrete was allowed to cure prior to application of the color stain.
Facing Options for Soil Nail Walls

Sculpted Shotcrete

Finished wall
Facing Options for Soil Nail Walls

Sculpted Shotcrete

Finished wall

Actual Outcrop
Facing Options for Soil Nail Walls

Sculpted Shotcrete
WHAT TYPES OF FACING OPTIONS ARE AVAILABLE?

- Shotcrete
  - Smooth Finish
Facing Options for Soil Nail Walls

Smooth Shotcrete
Facing Options for Soil Nail Walls

Smooth Shotcrete
Facing Options for Soil Nail Walls

Rough Shotcrete
What is the range in cost of the facing options?

<table>
<thead>
<tr>
<th>Finish Type</th>
<th>Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast In-Place</td>
<td>35 - 65</td>
</tr>
<tr>
<td>Precast Panels</td>
<td>30 - 50</td>
</tr>
<tr>
<td>Sculpted Shotcrete</td>
<td>25 - 40</td>
</tr>
<tr>
<td>Smooth/Rough Shotcrete**</td>
<td>15 - 28</td>
</tr>
</tbody>
</table>

* - Variation in cost is due to a number of factors, including quantity, complexity of aesthetics, etc.

** - Assumes that cost of the sculpting is ~ $10/sf.
SUMMARY

• Soil Nail Walls are currently the most commonly used wall type in cut situations

• There are a variety of different facing options, which are: cast in-place; precast panels; sculpted shotcrete; and either smooth or rough shotcrete.

• Which is best for a project depends upon several factors, including: location; aesthetic surroundings; and cost.