Replacement of Norfolk Southern Bridge CF-35.40 over Cotton Run, Seven Mile, OH

OTECK

Wednesday, October 3\textsuperscript{rd}, 2018
AGENDA

• Introductions
• How It Started
• Bridge Location
• Existing Bridge Information
• Immediate Response
• Monitoring the Existing Bridge
• Type Study
• Final Design
• Project Schedule
• Construction
• 24-Hour Outage
• Questions
Introductions

Owner – Norfolk Southern

Lisa Hoekenga, P.E., S.E. - Michael Baker International

Subconsultants:
KS Associates
NEAS, Inc.
Stone Environmental
Geo-Instruments
GRL Engineers

Contractor – McHugh Construction
HOW IT STARTED...
MONITORING THE EXISTING BRIDGE
MONITORING THE EXISTING BRIDGE
Option 1 – Rehabilitate Existing Substructure, Replace Superstructure

Option 2 – Replace Piers and Superstructure

Option 3 – Four Adjacent Concrete Box Culverts

Option 4 – Single Span Bridge Replacement

Option 5 – Two Span Bridge Replacement

Option 6 – New Bridge on New Permanent Alignment
## Type Study

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Construction Cost</th>
<th>Required Track Outage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rehabilitate Existing Structure</td>
<td>$2,072,000</td>
<td>40 hrs</td>
</tr>
<tr>
<td>2</td>
<td>Replace Piers and Superstructure</td>
<td>$673,000</td>
<td>36 hrs</td>
</tr>
<tr>
<td>3</td>
<td>Four Adjacent Concrete Box Culverts – OPTION ELIMINATED</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4a</td>
<td>Single Span Bridge Replacement - Slide-In During Track Outage</td>
<td>$1,923,000</td>
<td>24 hrs</td>
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<tr>
<td>4b</td>
<td>Single Span Bridge Replacement - Temporary Track Realignment</td>
<td>$3,153,000</td>
<td>14 hrs [6hrs/8hrs]</td>
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<tr>
<td>5a</td>
<td>Two-Span Bridge Replacement - Slide-In During Track Outage</td>
<td>$2,825,000</td>
<td>28 hrs</td>
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<tr>
<td>5b</td>
<td>Two-Span Bridge Replacement - Temporary Track Realignment</td>
<td>$4,194,000</td>
<td>22 hrs [6 hrs/16hrs]</td>
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<tr>
<td>6</td>
<td>New Bridge on New Permanent Alignment</td>
<td>$3,843,000</td>
<td>8 hrs</td>
</tr>
</tbody>
</table>
**Final Design**

**Top Flange:** 20” x 1 5/8”

**Web:** 60” x 5/8”

**Bottom Flange:** 20” x 1 5/8”

**Floorbeams:** W21x101 spa. @ 2’-7 3/16”

(4) 5’-0” diameter, permanently encased drilled shafts.

Precast concrete abutment seat and backwall
MONITORING THE EXISTING BRIDGE

0.025 in/ft x 22 ft = 0.55 in settlement at east pier
QUESTIONS?
We Make a Difference