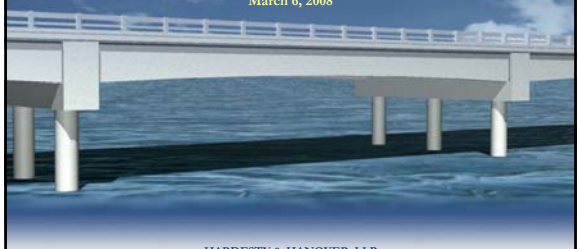
Chincoteague Project Overview

Long Life Aspects

Henri Sinson, PE
Virginia Concrete Conference
March 6, 2008

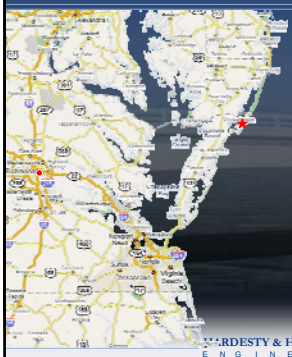


HARDESTY & HANOVER, LLP
E N G I N E E R I N G

Presentation Goals

- Project Overview
  - Site Conditions
  - Scope
  - Alignment
  - Constructability
- Bascule Span Highlights
- Approach Substructure
  - Satisfied Aesthetic Requirements
  - Satisfied Subsurface Conditions
  - Details for Long Life
- Approach Superstructure
  - Satisfied Aesthetic Requirements
  - Details for Long Life
  - Innovation for Efficiency
  - Innovation for Long Life

Project Overview



- Bridge on Rte 175 Over Black Narrows and Lewis Creek Channel
- Accomack County and Town of Chincoteague, Virginia

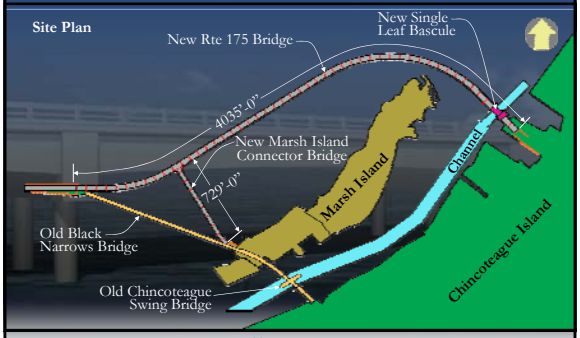
- 4035'-0" low level bridge
- 123'-6" single leaf bascule span
- 729'-0" low level connector bridge

- Owner: VDOT
- Designer: Hardesty & Hanover, LLP
- Contractor: American Bridge
- Contractor Bid: $68.7 million

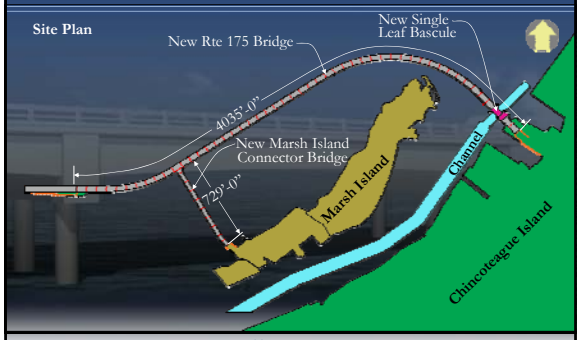
Site Conditions

Site Conditions

Scope

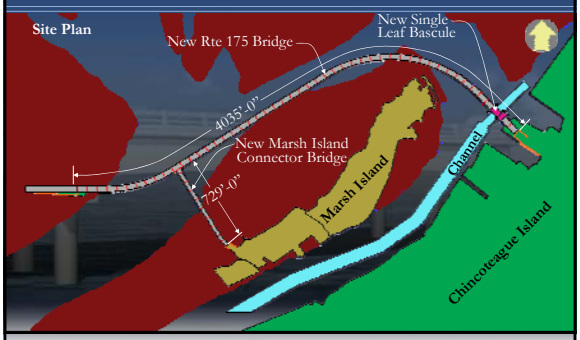


Alignment



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Constructability



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Bascule Span

- 92'-0" Span Length
- Closed Pit Pier
- 5" Half filled grating
- 1662 Kip Leaf
- 26" Trunnion Diameter
- Gear Driven
- 75 HP, 900 RPM Primary

HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Bascule Span

HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

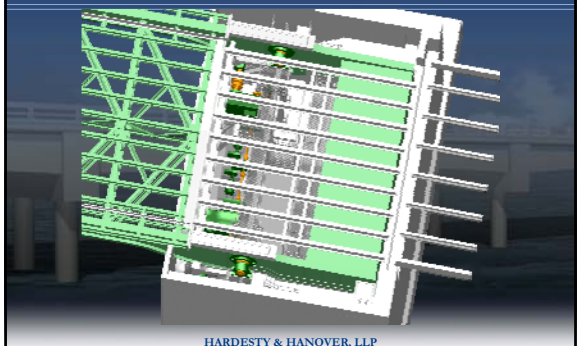
Bascule Span

HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Bascule Pier

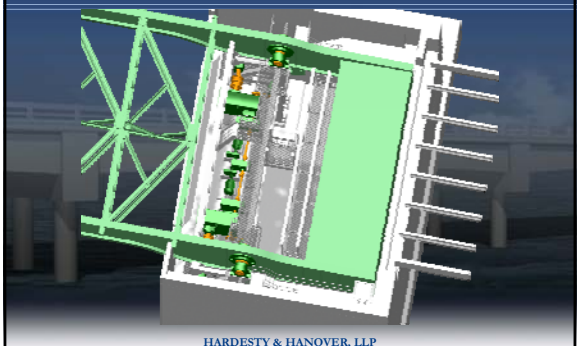
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Bascule Pier Deck Removed



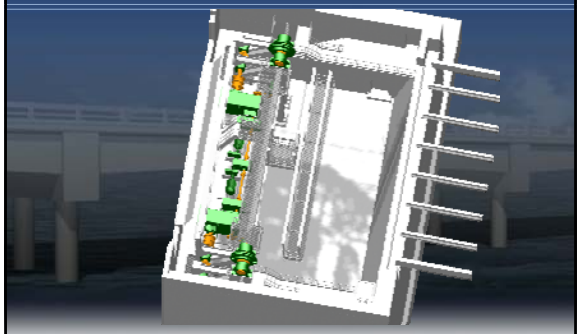
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Bascule Pier Stringers Removed



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

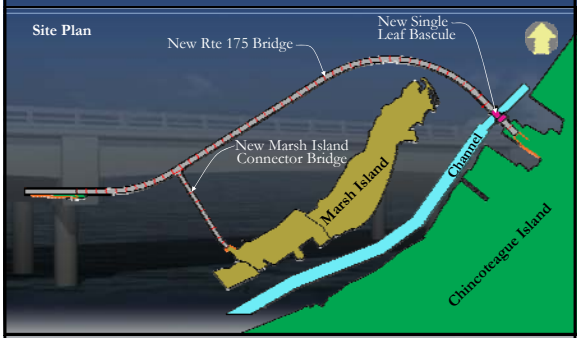
Bascule Span Removed



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Approach Substructure

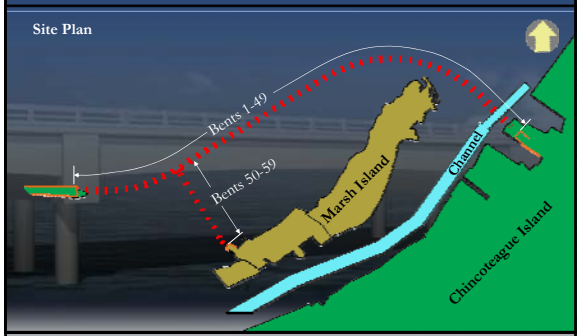
Site Plan



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Approach Substructure

Site Plan



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Substructure Aesthetics

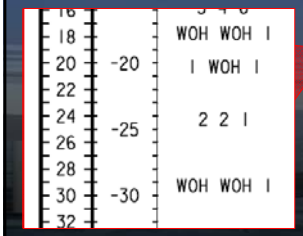
Typical Trestle Bent

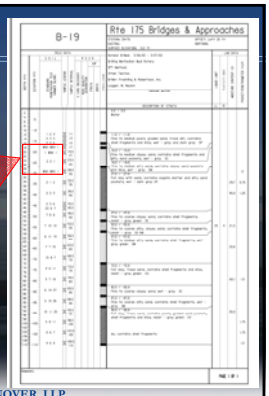
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Substructure Aesthetics

Cylinder Pile Bent

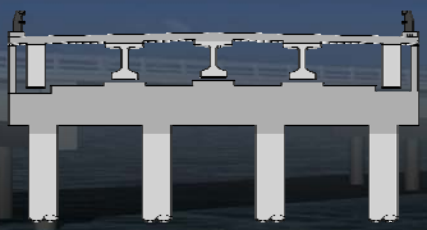
Subsurface





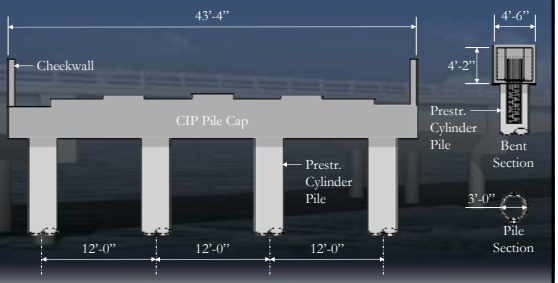
Substructure Details

Bent Elevation



Substructure Details

Bent Elevation



Approach Substructure

Approach Substructure

Photo Courtesy of Jacobs Engineering Group Inc.

Approach Superstructure

"Baseline" Bridge Elevation

HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Superstructure Aesthetics

Addition of Cheekwalls

HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

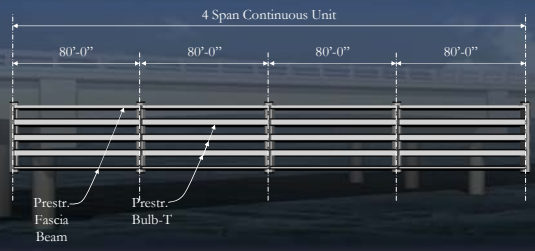
Superstructure Aesthetics

Addition of Arched Fascia Beams

HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Superstructure Details

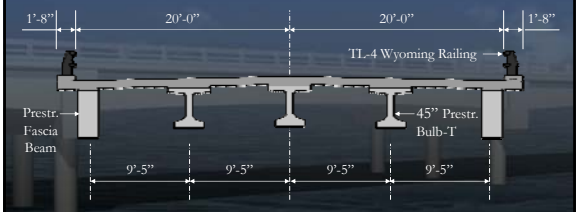
Framing Plan



HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Superstructure Details

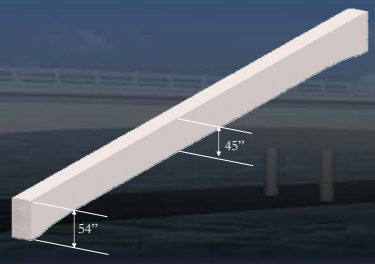
Cross Section



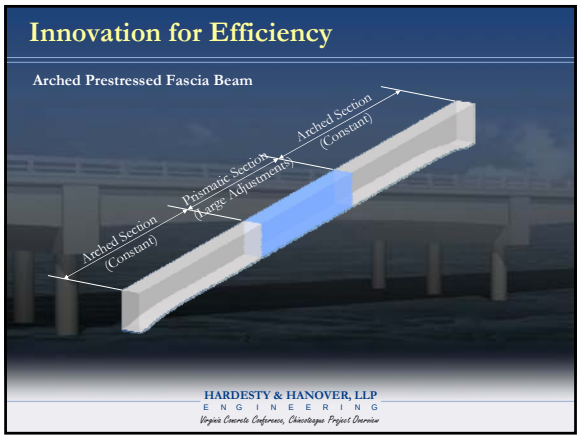
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

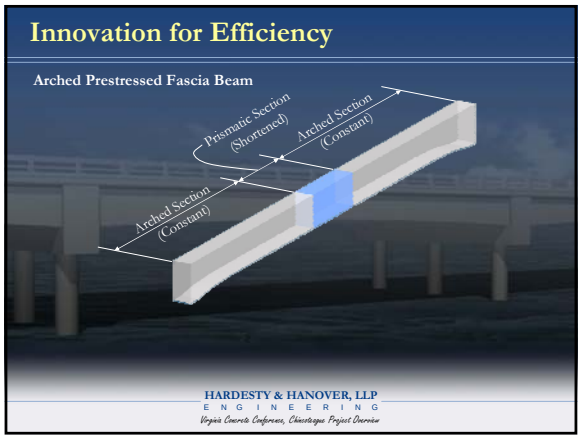
Innovation for Efficiency

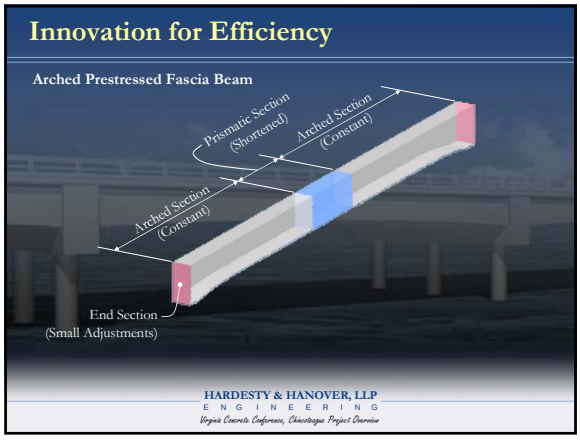
Arched Prestressed Fascia Beam

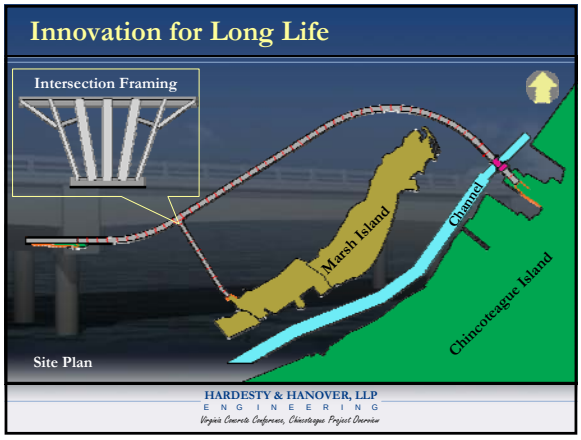


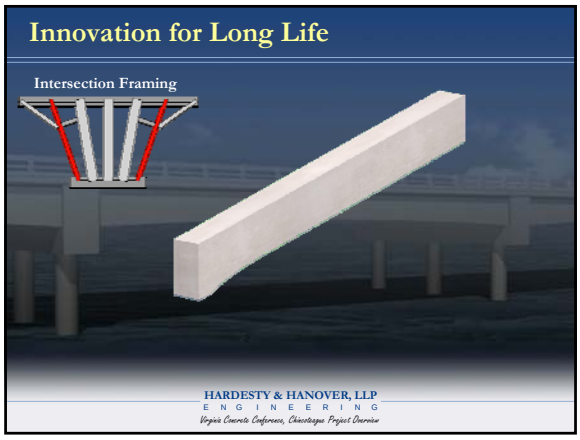
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

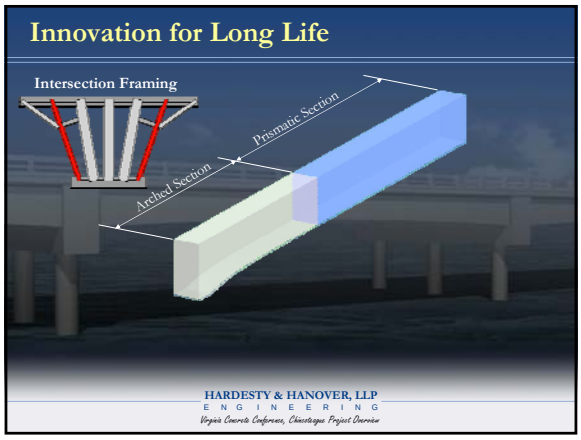

Innovation for Efficiency
Arched Prestressed Fascia Beam
Arched Section (Constant)
Prismatic Section (Large Adjustments)
Arched Section (Constant)
HARDESTY & HANOVER, LLP
ENGINEERING
Virginia Concrete Conference, Chincoteague Project Overview

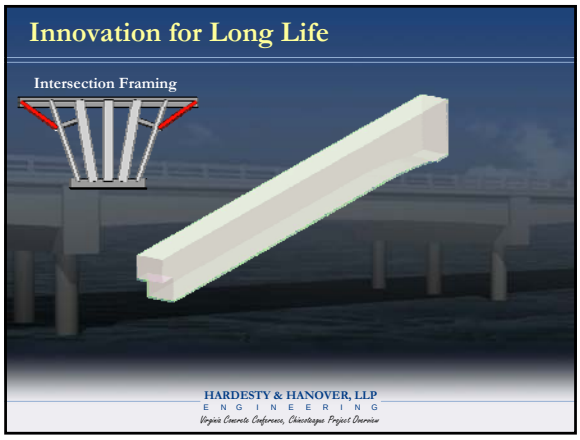

Innovation for Efficiency
Arched Prestressed Fascia Beam
Prismatic Section (Shortened)
Arched Section (Constant)
Arched Section (Constant)
HARDESTY & HANOVER, LLP
ENGINEERING
Virginia Concrete Conference, Chincoteague Project Overview

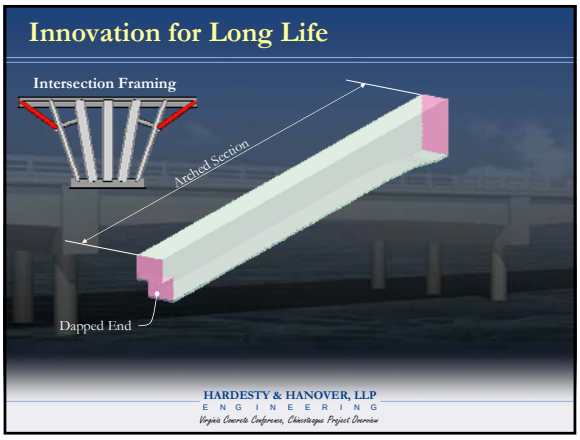

Innovation for Efficiency
Arched Prestressed Fascia Beam
Prismatic Section (Shortened)
Arched Section (Constant)
Arched Section (Constant)
End Section (Small Adjustments)
HARDESTY & HANOVER, LLP
ENGINEERING
Virginia Concrete Conference, Chincoteague Project Overview

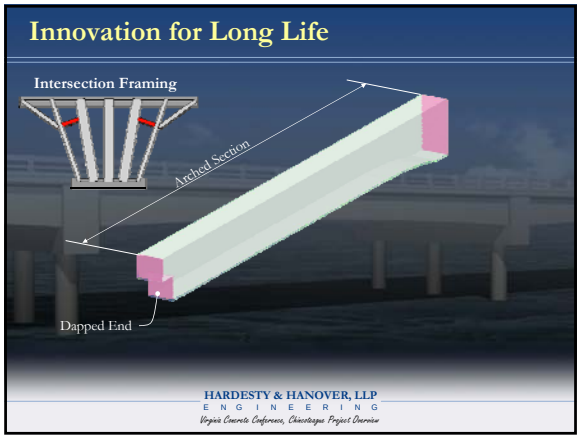

Innovation for Long Life
Intersection Framing
Marsh Island
Channel
Chincoteague Island
Site Plan
HARDESTY & HANOVER, LLP
ENGINEERING
Virginia Concrete Conference, Chincoteague Project Overview

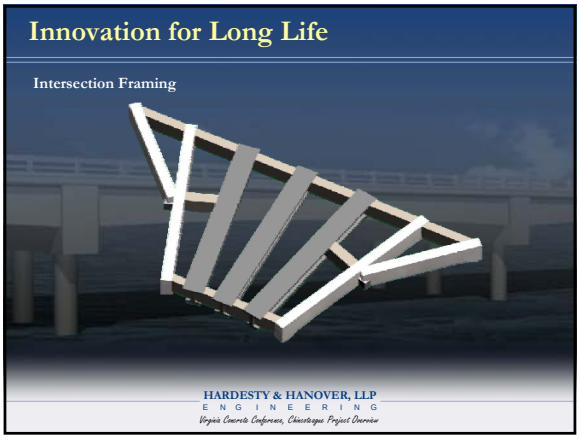

Innovation for Long Life
Intersection Framing
HARDESTY & HANOVER, LLP
ENGINEERING
Virginia Concrete Conference, Chincoteague Project Overview


Innovation for Long Life
Intersection Framing
Prismatic Section
Arched Section
HARDESTY & HANOVER, LLP
ENGINEERING
Virginia Concrete Conference, Chincoteague Project Overview


Innovation for Long Life
Intersection Framing
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

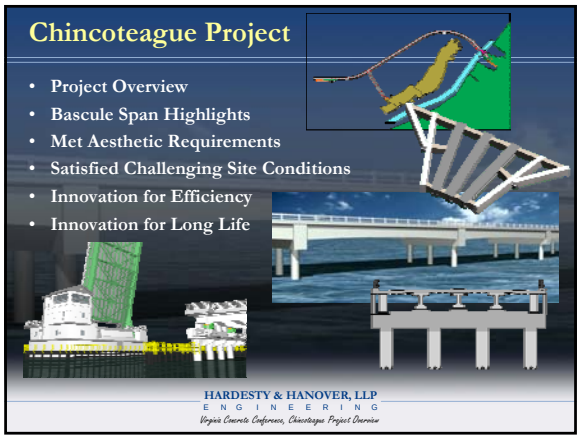

Innovation for Long Life
Intersection Framing
Arched Section
Dapped End
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview


Innovation for Long Life
Intersection Framing
Arched Section
Dapped End
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview


Innovation for Long Life
Intersection Framing
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Innovation for Long Life
Intersection Framing
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview

Innovation for Long Life
Intersection Framing
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview


Chincoteague Project
• Project Overview
• Bascule Span Highlights
• Met Aesthetic Requirements
• Satisfied Challenging Site Conditions
• Innovation for Efficiency
• Innovation for Long Life
HARDESTY & HANOVER, LLP
E N G I N E E R I N G
Virginia Concrete Conference, Chincoteague Project Overview