

# San Patricio Fiber Reinforced Polymer (FRP) Bridge

**Bill Reitmann, P.E.**

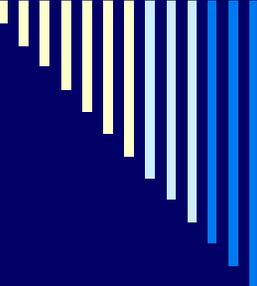
Texas Department of Transportation

August 15, 2007

2007 Design and Bridge Conference

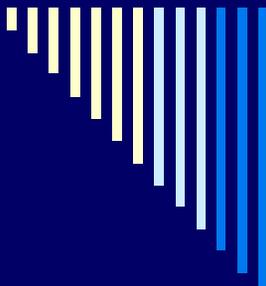
---

---



# What's FRP?

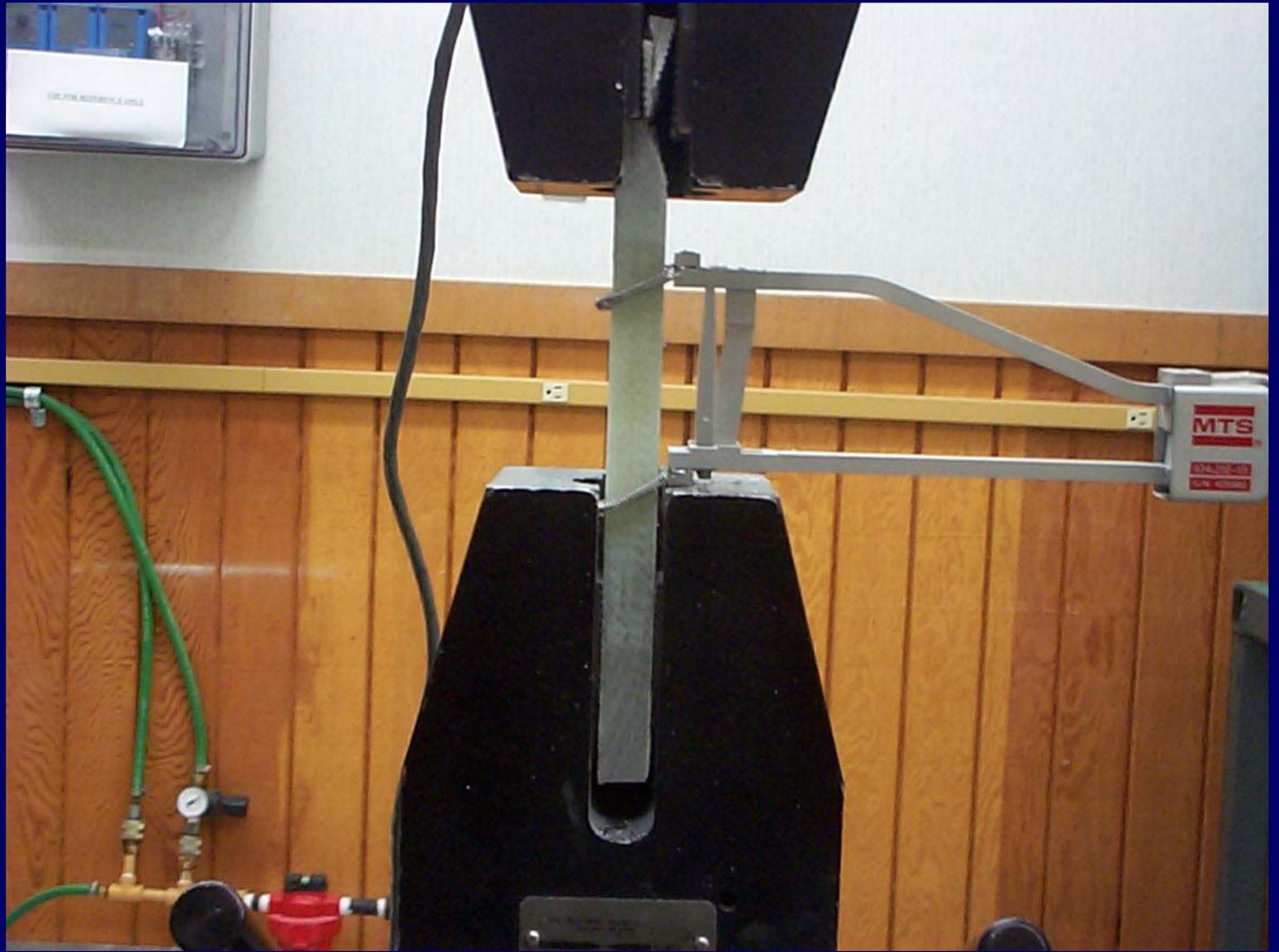
- Fiber Reinforced Polymer
  - Resin, Additives, Knitted and Chopped E-Glass Fiber
-



---

# FRP Beams: FM 3284 Bridge

- ❑ 60-ft length – 2 - 30-ft spans
  - ❑ Manufactured by the hand lay-up method
  - ❑ Concrete deck on FRP composite beams
  - ❑ 24 beams – 2'8" spacing, 2" upward camber
  - ❑ 1-1/2" diameter steel pipes @ 16" on center
  - ❑ Shoring at mid-span until concrete cured
-



# Beam Fabrication

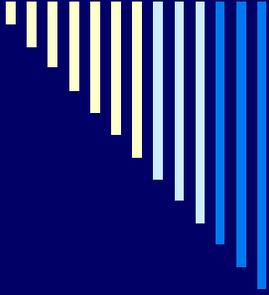






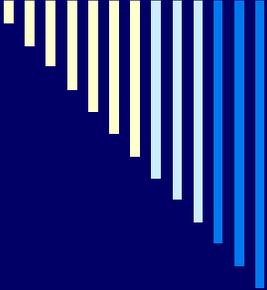








---



# EXISTING BRIDGE

@ Gregory Drainage Canal



# Construction



Abutments  
6-16" Piles  
x 29'

Interior Bent  
4-16" Piles  
x 38'









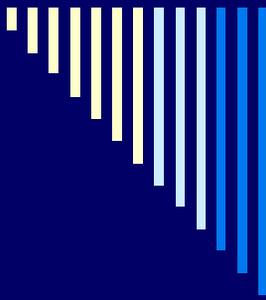




Polystyrene

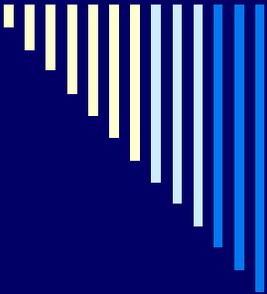
1 1/2" Diameter Steel Pipes @ 16" on Center





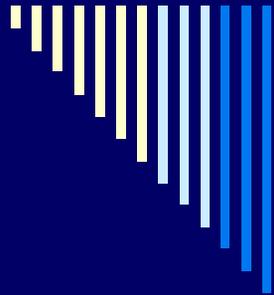
# Bracing at Midspan





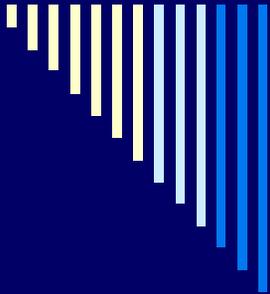
# Deck Pour

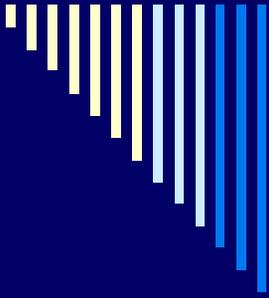




# Testing

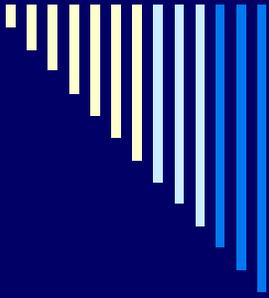






FM1684







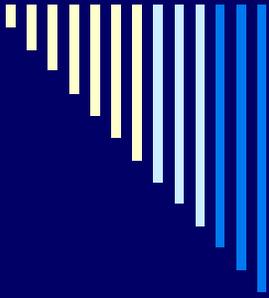


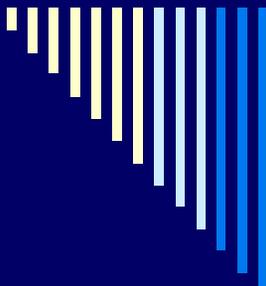












---

# Advantages

- Lightweight Beams
    - Easy to Install
    - Minimal Traffic Disruption
    - Minimal Environmental Impacts
    - Heavy Machinery not needed
    - Improve Work-Zone Safety
  - Excellent Corrosion Resistance
  - Accelerated Construction
  - Improved Quality and Lower Life-Cycle Costs
  - Economical
-