

AGENDA: March 19, 2020

TO: Regional Transportation Commission

FROM: Sarah Christensen, P.E., Senior Transportation Engineer

RE: Emergency Bridge Repair – Ballast Deck Timber Trestle at MP 4.87

RECOMMENDATIONS

Staff recommends that the Regional Transportation Commission (RTC) receive an update regarding the response to the emergency repair of the bridge at Milepost (MP) 4.87 and approve the attached Resolution ([Attachment 1](#)) authorizing the Executive Director to negotiate, enter into, and amend agreements for professional engineering services, environmental services, construction, and construction management for an amount not to exceed the available budget and programming capacity.

BACKGROUND

In 2017 historic rain and flooding resulted in fallen trees, landslides, erosion, and other damages along the Santa Cruz Branch Rail Line (SCBRL). In February of 2017, the Federal Emergency Management Agency (FEMA) announced that federal disaster assistance had been made available for emergency repair of facilities damaged by the severe 2017 winter storms to eligible local government agencies across California. The RTC submitted a Request for Public Assistance for storm damage repair work along the SCBRL, which was approved by FEMA.

Between November 2017 and January 2018, RTC and FEMA Public Assistance Program staff inspected the damages incurred along the SCBRL. FEMA then issued the Damage Description and Dimensions (DDD) and Scope of Work (SOW) for seven (7) storm damage repair distinct sites (Site).

RTC staff awarded a total of six (6) contracts to a professional engineering consultant, Bowman & Williams, Inc. (Bowman & Williams), to prepare the construction documents for repairs of Sites 1, 2, 4, 5, 6, and 7.

In July 2018, the RTC entered into an Administration, Coordination and Licensing (ACL) Agreement with St. Paul and Pacific Railroad (SPPR) a company of Progressive Rail which designates SPPR as the new railroad operator. Section 5 of the ACL agreement with SPPR requires that the Commission fund and complete initial repairs to the freight easement property. Initial repairs include repair of storm damage, maintenance of drainage facilities (such as culverts and drainage

ditches), bridge repairs, at-grade roadway crossing maintenance, track and ballast repairs, and vegetation control.

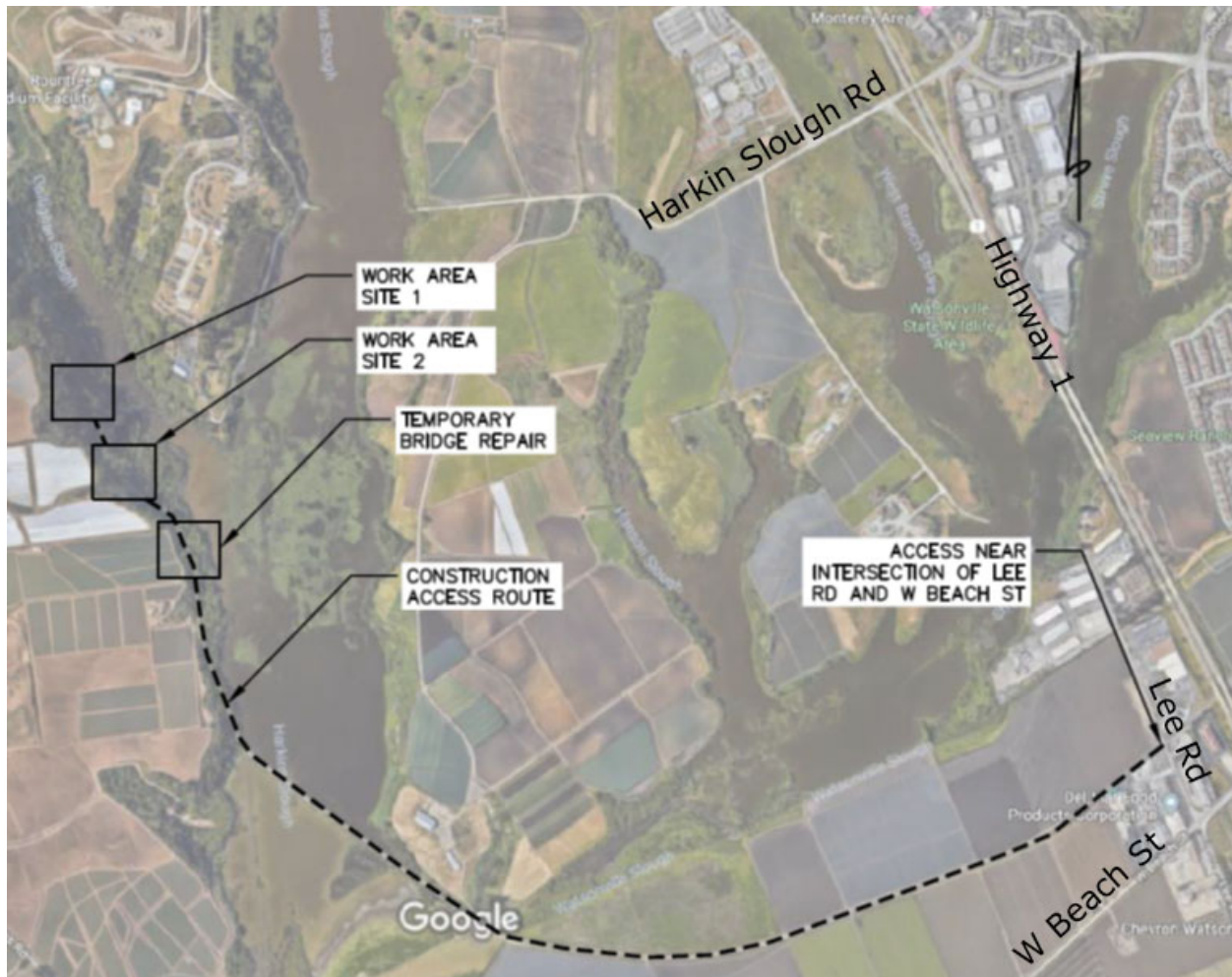
In 2018, RTC staff released a Request for Qualifications (RFQ) for engineering services and established a list of qualified on-call engineering consultants for civil engineering, structural engineering/inspections, and construction management services for infrastructure projects along the Santa Cruz Branch Rail corridor. The Commission authorized contracts with on-call engineering consultants on the approved on-call list for the first set of task orders including inspections, analysis and recommendation of repair and rehabilitation work for bridges, culverts, and other infrastructure on the Santa Cruz Branch Rail Line right-of-way. The 29 bridges along the Santa Cruz Branch Rail corridor were inspected in 2018 and draft inspection reports were developed by on-call engineering consultant RailPros, Inc.

In December of 2019, the RTC awarded a professional engineering services agreement to STV, Inc. who was the top ranked firm from the on-call list of structural engineering firms, for engineering services for phase 1 of the bridge repairs, which included the railroad bridge at MP 4.87.

DISCUSSION

The railroad bridge at MP 4.87 is a ballast deck timber trestle over a seasonal drainage. This bridge has 13 spans with a total length of 195 feet. The inspection of the bridge conducted in December 2018 by RailPros put the bridge out of service due to scour damage to 3 foundation piles at bridge Bent 3. Scour damage is defined as erosion of supporting soil material surrounding structural elements, caused by high amounts of storm runoff, seepage from irrigation, or natural groundwater.

The bridge is located adjacent to Harkin Slough west of Watsonville and south of the storm damage repair Sites 1 & 2. Due to the remote location of storm damage repair Sites 1 & 2, construction access was assumed to be required by rail which will entail the construction contractor to haul in and out construction equipment and materials using track-mounted equipment and/or flatbed rail cars. Because the bridge is located between the next southernmost grade crossing in the City of Watsonville and the storm damage Sites 1 and 2, the bridge must be able to carry construction loads in order to make the repair. A map showing the access location, temporary bridge repair location, and storm damage repair Sites 1 & 2 is shown below:



Following the RailPros 2018 inspection, design work was added to the Sites 1 and 2 storm damage repair projects to include a temporary shoring detail in order to install bracing of the existing bridge as a first order of work on the construction contract. The temporary shoring was deemed necessary to allow freight-level loads to travel over the bridge and access Sites 1 and 2. The temporary shoring would allow the storm damage repair project to be completed in advance of a permanent repair. The cost of the temporary shoring repair was included in an amendment to the Bowman and Williams contract, which was authorized by the Commission in January 2019.

Staff provided for the permanent repair for this bridge under a separate contract with STV Inc., as part of the Phase 1 Bridge Repairs, which was authorized by the RTC in December 2019.

In early January of 2020, the RTC was notified that a landslide had occurred at an adjacent agricultural field located upslope and west of the Santa Cruz Branch Rail Line, adjacent to the bridge at MP 4.87. The landslide was caused by agricultural and storm runoff and a failed drainage pipe. Staff contacted the owner of the adjacent property notifying them of the damage caused to the branch line and

called a field meeting to assess the damage. On February 3, 2020, staff met on site with the property owner to assess the landslide. At that meeting, staff also inspected the bridge at MP 4.87 and observed new severe scour damage at Bent 2 of the bridge, and worsening of existing scour at Bent 3. The damage appeared to be caused by the re-routed drainage course due to the recent storms and upslope failure.

Staff requested a scope of services and fee estimate from Bowman & Williams to include an additional temporary shoring detail in the plans to address the new scour damage. Bowman & Williams' bridge design subconsultant is also RailPros. Based on photographs provided, RailPros notified staff that the bridge is in extremely vulnerable condition and could be subject to sudden critical collapse due to the scour damage now occurring at multiple bents. The RTC Engineer, RTC Executive Director, and RailPros bridge inspectors performed an inspection on March 14, 2020 to better assess the condition and locations of scour, which may warrant an emergency repair of this bridge as a separate contract in advance of the planned storm damage repairs at Sites 1 and 2.

On March 14, 2020, additional scour damage was observed at bents 2, 7, and 8 which required immediate attention in order to limit future damage which would lead to failed bents. Bent 3 had severe scour damage requiring replacement of the entire bent as an emergency repair. The Executive Director plans to issue emergency sole-source contracts for the following:

- Professional Engineering Services, to prepare a request for construction bids plans, details, and specifications for the emergency bridge repair.
- Environmental Services, to assist with emergency environmental permits as required.
- Construction, to construct the emergency repair. Priority will be given to construction contractors who are immediately available.
- Construction Management Services, to administer the construction contract, perform inspections, coordinate responses to Requests for Information (RFI's) and issue Contract Change Orders (CCO's) as necessary.

The Executive Director has the authority to issue emergency contracts as permitted by the RTC procurement policies under emergency circumstances as described in section 5.1 Authority and Approvals of the Fiscal Policy, sub-section B which reads:

In the event of an emergency or urgent need, the Executive Director is authorized to take all necessary actions to prevent significant unnecessary loss to RTC, a shutdown of public services, or to address a situation threatening the health or safety of persons or property, including authorization to contract with a contractor or consultant on a sole source basis, consistent with applicable state or federal law without prior approval from the Board of Directors. In the event such an emergency or urgent need occurs, the Executive Director will consult with the Chair of the Board and submit a report to the Commission at its next regular meeting to obtain ratification for those actions.

The RTC Executive Director has notified the Commission Chair and Vice Chair, and led the Vice Chair on a field inspection on March 16, 2020 to observe the damage to the bridge. Therefore **staff recommends the RTC approve the attached Resolution (Attachment 1) authorizing the Executive Director to negotiate, enter into, and amend agreements for professional engineering services, environmental services, construction, and construction management for an amount not to exceed the available budget and programming capacity** understanding that the current estimated costs are approximately \$350,000 for all services.

If contract(s) are issued prior to the meeting, details of contract(s) will be provided as soon as possible but no later than this scheduled meeting. Additional authority to enter into contract(s) and/or amend the FY 19/20 budget may be requested as necessary.

FISCAL IMPACT

The RTC's budget for the Santa Cruz Branch Rail Line provides funds to maintain and repair the railroad infrastructure for preservation as needed. RTC's approved Measure D Five-Year Program of Projects includes a total of \$2.2 Million for Railroad Bridge rehabilitation, with approximately \$1.7 Million of funding capacity remaining for this work. If emergency contract(s) are issued prior to this scheduled meeting, the Executive Director will limit the value as to not exceed this current fiscal year's budget capacity. Additional budget capacity may be requested at future Commission meetings, if additional funding is needed to fund the full scope of work.

SUMMARY

An emergency repair of the ballast deck timber trestle may be needed at the bridge at MP 4.87, with an inspection to take place as soon as possible. Staff will provide additional information about necessary steps and authorizations needed prior to or at this scheduled TPW meeting.

RESOLUTION NO.

Adopted by the Santa Cruz County Regional Transportation Commission
on the date of March 19, 2020
on the motion of Commissioner
duly seconded by Commissioner

A RESOLUTION AUTHORIZING THE EXECUTIVE DIRECTOR TO ENTER INTO CONTRACTS FOR PROFESSIONAL ENGINEERING SERVICES, ENVIRONMENTAL SERVICES, CONSTRUCTION, AND CONSTRUCTION MANAGEMENT SERVICES FOR THE EMERGENCY REPAIR AT THE BALLAST DECK TIMBER TRESTLE LOCATED AT MILEPOST (MP) 4.87 ALONG THE SANTA CRUZ BRANCH RAIL CORRIDOR

WHEREAS, the Regional Transportation Commission (RTC) purchased the Santa Cruz Branch Rail Line (Branch Line) in October 2012;

WHEREAS, the Commission approved the list of qualified firms in 2018 for Civil Engineering, Structural Engineering/Inspections, and Construction Management services;

WHEREAS; in July 2018 the RTC entered into the Administration, Coordination, and License (ACL) Agreement with St. Paul & Pacific Railroad (SPPR)

WHEREAS, the Commission authorized the Executive Director to enter into a contract with the top ranked on-call structure engineering services consultant, RailPros, for bridge inspections and load ratings in 2018;

WHEREAS; RailPros, Inc. deemed the timber trestle at MP 4.87 out of service due to scour damage;

WHEREAS, staff identified high priority bridge repairs based on the 2018 bridge inspections, location, and condition which included the timber trestle at MP 4.87 and awarded a professional engineering services contract to on-call structural engineering consultant STV, Inc in December of 2019;

WHEREAS, in early January of 2020 staff was notified of a landslide caused by an upslope drainage failure west of the branch line adjacent to the timber trestle at MP 4.87;

WHEREAS, severe scour damage to the timber trestle at MP 4.87 was observed by STV in January of 2020 as part of their data collection/inspection efforts for the preparation of construction documents for the phase 1 bridge repairs;

WHEREAS, staff inspected in February 2020 and again with RailPros, Inc. on March 14, 2020 and observed severe scour damage that has progressed since previous inspections, and recommended an emergency repair to the timber trestle because it is in danger of collapsing;

WHEREAS, the RTC policy allows the Executive Director is authorized to take all necessary actions to prevent significant unnecessary loss to RTC shutdown of public services, or to address a situation threatening the health or safety of persons or property, including authorization to contract with a contractor or consultant on a sole source basis, consistent with applicable state or federal law without prior approval from the Board of Directors; and

WHEREAS, in the event such an emergency or urgent need occurs, the Executive Director is required to consult with the Chair of the Board and submit a report to the Commission at its next regular meeting to obtain ratification for those actions;

THEREFORE, BE IT RESOLVED BY THE SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION THAT:

1. The Executive Director is authorized to negotiate, enter into, and amend agreements for professional engineering services, environmental services, construction, and construction management for an amount not to exceed the available budget and programming capacity;

AYES: COMMISSIONERS

NOES: COMMISSIONERS

ABSTAIN: COMMISSIONERS

ABSENT: COMMISSIONERS

Aurelio Gonzalez, Chair

ATTEST:

Guy Preston, Secretary

Distribution: RTC Fiscal, RTC, Contractor, and Consultant Project Managers

Emergency Repair of Bridge at MP 4.87

Chronology of Events

DATE	EVENT
April 2018	RTC established On-Call Engineering list, and authorized contracts with on-call engineering consultants
July 2018	RTC entered into the Administration, Coordination, and License (ACL) Agreement with St. Paul & Pacific Railroad (SPPR)
August 2018	Professional engineering services contract with RailPros, Inc. was executed, with a scope of services of bridge inspections and safe load ratings
December 2018	RailPros notified the RTC and SPPR of the condition of the bridge at MP 4.87, deemed out of service
July 2019	RTC amended Bowman & Williams professional engineering services contract adding RailPros, Inc., as a subconsultant, and adding scope and value to the contract to include details in the plans for a temporary shoring of bridge bents 3 and 4 at MP 4.87 as a first order of work for construction of storm damage sites 1 & 2
December 2019	RTC awarded a professional engineering services contract with on-call structural engineering consultant, STV, Inc. to prepare construction documents for phase 1 of the bridge repairs, including the permanent repair of the bridge at MP 4.87
Jan 5, 2020	RTC was notified by Gary Kittleson, environmental consultant, of a landslide that occurred upslope and west of the branch line, adjacent to the bridge at MP 4.87
Jan 20, 2020 (week of)	STV Inc. inspected the 7 bridges included in the scope of the phase 1 bridge repairs, which included the bridge at MP 4.87
Jan 29, 2020	RTC staff was notified via phone conference of severe scour damage of the bridge at MP 4.87 and recommended staff inspect the bridge
Feb 3, 2020	RTC staff held a field meeting with the farmer (lessee) of the adjacent upslope agricultural property, and inspected the bridge at MP 4.87. Staff observed the 3 westernmost piles had severe scour damage at bent 3 that were worse than previous inspections performed by RailPros in December 2018.
March 3, 2020	Bowman & Williams submitted a request for a contract amendment to the RTC, with added scope for a new temporary shoring plan to be prepared by their subconsultant, RailPros, Inc. that accounts for the additional scour damage. The scope of work included a new detail that had more substantial bracing needed to address scour damage of sequential bridge bents 2 and 3.
March 9, 2020	STV, Inc. provided a draft memo to RTC for review, detailing analysis of previous bridge inspections and field verifications performed in January. The memo recommended that RTC conduct an emergency repair of the bridge.

DATE	EVENT
March 9, 2020	Staff was notified by RailPros, Inc. that due to the new scour observed, the bridge is in extremely vulnerable condition of sudden critical collapse. An inspection was scheduled for March 14, 2020.
March 14, 2020	RTC Engineer, RTC Executive Director, and RailPros Bridge Inspectors performed an inspection of the bridge. Severe scour damage was observed at bents 2, 7, and 8 requiring armoring to prevent further scour damage. Bent 3 had failed and replacement recommended as an emergency repair due to the threat of collapse.



Santa Cruz County Regional Transportation
Commission
Santa Cruz Branch Rail Line

Emergency Bridge Repair at MP 4.87

March 19, 2020
Transportation Policy Workshop

Sarah Christensen, P.E.
Senior Transportation Engineer



Agenda

- Background
- Location
- Bridge Features
- Findings from Mar 14, 2020 Inspection
- Recommended Repair
- Fiscal Impacts
- Schedule/Next Steps
- Questions/Discussion

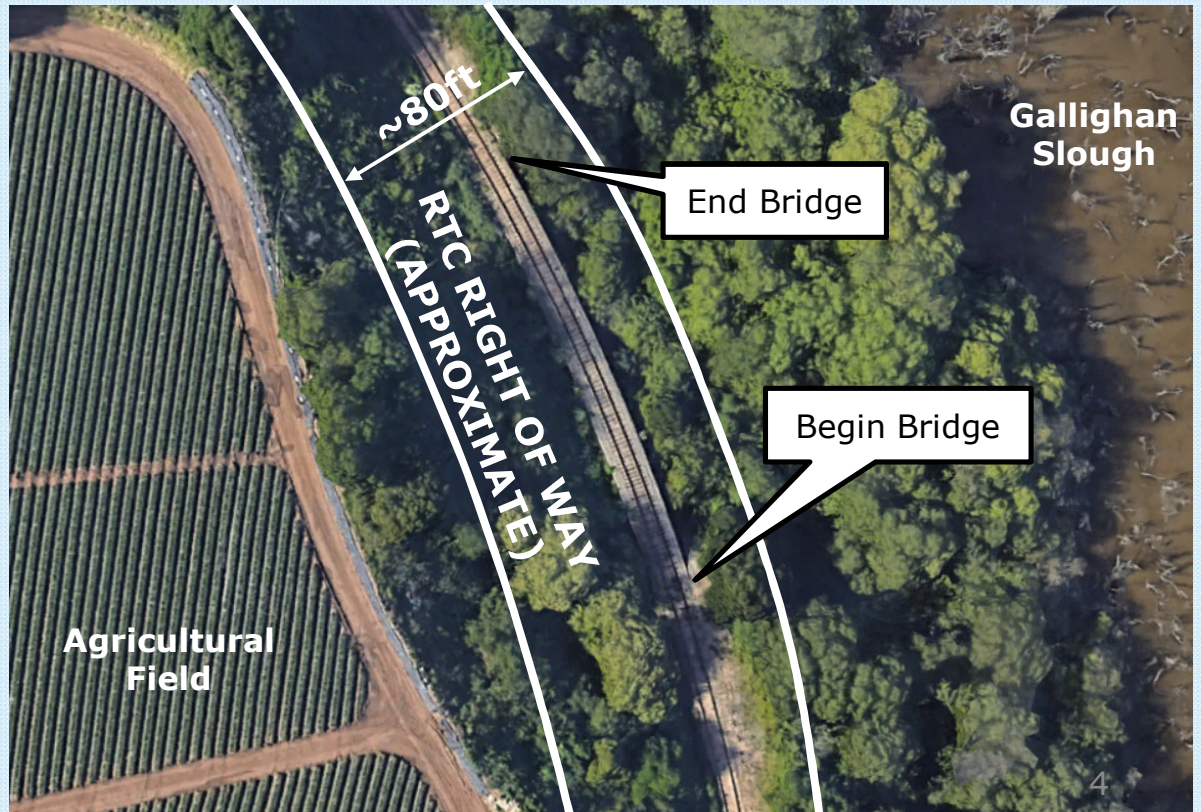


Background

Refer to Handout
Chronology of Events



Bridge Location





Bridge Features

- Ballast Deck
- ~195 ft long
- Over a seasonal drainage/slide
- 13 spans
- Spans are ~15 ft long

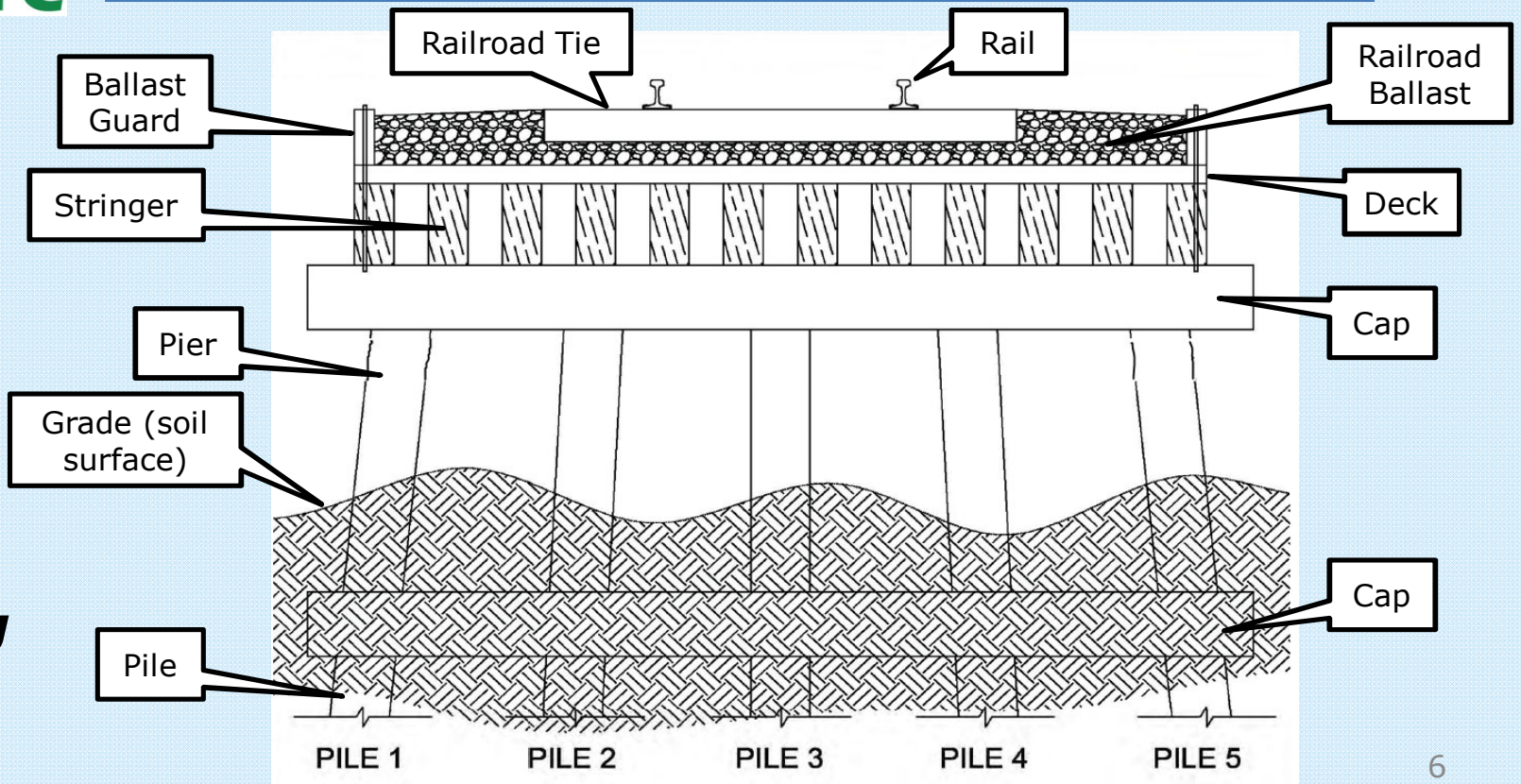


View of Bridge from Agricultural Field, looking east



Bridge Features

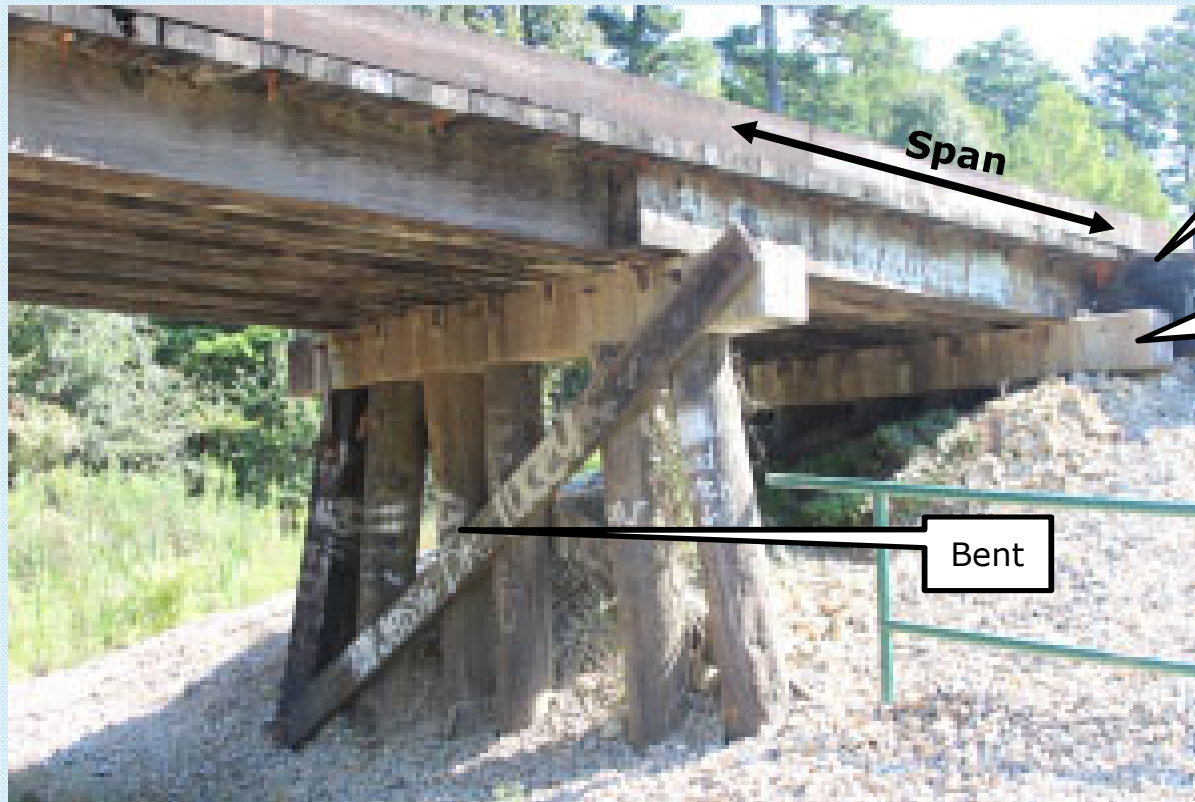
**Cross
Section
of
Bridge
Bent
(looking
North)**





Bridge Features

**Example
Timber
Trestle**



Begin Bridge

Span

Abutment
(at begin/
end bridge)

Bent

Photo Source: ronscloset.wordpress.com

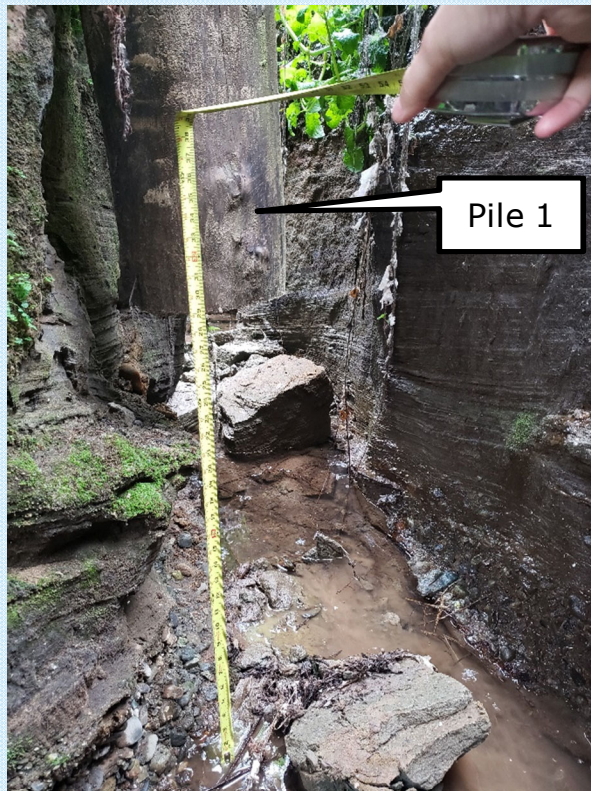


Findings:

March 14, 2020 Inspection



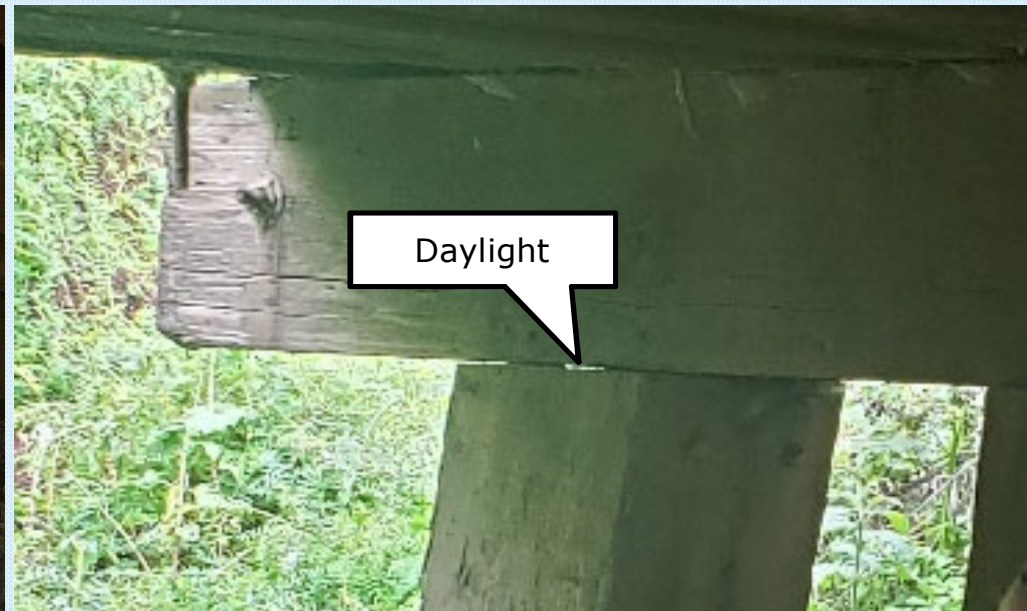
Bent 3 – Pile 1



The bottom of pile 1 measured at 27" above grade (compared to 18" observed on Feb 3, 2020)



Bent 3 – Pile 1



A gap between the pier and cap was observed



Bent 3 – Pile 2

Pile 2 has detached from the cap





Bent 3 – Pile 2



Pile 2 has shifted laterally to the north





Bent 3 – Pile 3



Pile 3
scour
damage



Bent 3 – Remaining Piles



Remaining supporting soil material is eroding away



Anticipated Repair

- Emergency repair recommended to prevent collapse
- Replace bent 3
- Armor (add riprap) bents 2, 7, and 8 to slow down scour damage
- Slope modifications as needed to direct water to existing cross culverts
- Potential for a new culvert(s) under bridge



Construction Sequencing

- Cut back slopes to create a safe working area to access bent 3
- Install falsework
- Remove bent 3
- Pour concrete foundation for new bent
- Install new bent 3 piers and caps
- Remove falsework



Anticipated Construction Sequencing

- Staff does not anticipate this emergency bridge repair will delay construction of storm damage sites 1 & 2
- Once falsework is installed, access to the storm damage repair sites 1 & 2 (separate project) can occur



Contracts Anticipated

Executive Director expects to enter into the following sole-source agreements:

- Professional Engineering Agreement – to prepare bid documents, with RailPros, Inc. (estimate \$50k)
- Environmental Consultant – to prepare emergency permits, with Harris & Associates. (estimate \$50K)
- Construction – priority will be given to contractors who can mobilize quickly. (estimate \$200k)
- Construction Management – to manage construction and inspect work done by contractor, with Rail Surveyors & Engineers (RSE), Inc. (estimate \$50k)



Fiscal Impact

- Approximately \$1.7M of Measure D programming capacity remaining
- FY 19/20 has sufficient budget capacity at this time
- Future actions may be needed to amend the FY 19/20 budget



Update on Schedule

- Engineering Services, Environmental Services, and CM Services Contracts are currently being negotiated and expected to be executed under the RTC Executive Director's authority
- Contractors have been contacted
- Will break ground within 1 week



Next Steps

- Enter into 4 contracts
- Provide staff reports at future Commission regular meetings in accordance with the RTC policies
- Additional authority to enter into contracts and/or amend the budget may be requested as necessary



Questions/Discussion