

Q&A Report:

Skill Share Webinar: Timber Bridge Maintenance

Question Asked	Answer Given
Any good advice on how to replace a cap at an abutment where you can't get around to the backside like you can with a pier cap?	Bench in front with shoring and remove and insert the cap
When would you typically begin preservation procedures (borate and fungicide)? When first seeing signs of decay or well before any signs of decay?	I'd plan on doing it when the rot starts and more proactive on difficult to repair/replace members. But I don't think there would be a disadvantage to do them all early in their life.
Our rot here in San Diego County looks dry. I believe only certain types of rot will look like mud?	environment will dictate what the decay looks like.
Is the borate treatment effective in both wet and dry conditions? Does the member's core have to be dry?	They start to dissolve when the moisture goes above 25% and then go inactive once they dry out. So for the borate rods they do not spread when dry.
Have you yet had to repair decayed timber that appears above a previous dumb-bell / dog-bone splice repair?	Yes, if it is immediately adjacent to the previous repair, you may have to remove the previous repair. If good material exists between the repairs, there would be no concerns with multiple repairs on a pile.
Will you be providing a copy of the presentation in PDF?	yes slide deck and recording and q/A https://www.pavementpreservation.org/video_library/bridge/Local_Agencies_(Sorted).html
Do we have preservation activities to re-seal the timber to prevent rot? I have a covered bridge that may be willing to try this.	For covered bridges I'd recommend painting to help extend the life of the member. For exposed members this is difficult to maintain.
You mentioned disinfecting drill bit when drilling out timber members. What do you recommend for disinfecting the bit? Bleach, Detergent, etc?	Bleach solution.
Is there a cost effective option similar to scabbing in rafters for a timber pier cap (e.g. gluing and lag bolting a 4x12 to both sides of a 12x12)? The situation was an agency had a timber bridge load posted due to a recent load rating using current load rating methods citing bridge geometry (pier cap size and pile spacing) as the justification while the bridge had no visible signs of deterioration.	Yes, but you need to discuss what your long term plans are for the bridge. Temporary options like fish plating would be a good to quickly alleviate the load posting.
Are there any pile repair backfill material recommendations to suffocate the pile other than just sufficient >2' depth?	Typically we've just used the native material. Something that compacts well would be better.

Was the question "What are the costs associated with repair compared to replacement? Life expectancy after repairing?"	It really depends on what the member is and what the condition is. I'd be happy to provide more context but would need some more details. Please feel free to ping me - Travis.Kinney@DEAinc.com
When you fish plate the girders, do you fill the hole with caulking to prevent water intrusion between the steel and timber... thus preventing moisture from getting directly to untreated center wood?	No. Properly tightening the bolt will generally preclude moisture infiltration into the bolted connection provided the timber is sound. Use galvanized or stainless steel fasteners.
You showed a slide where a stringer had checked or cracked horizontally along the neutral axis which is common. Steel stitch plates were added. How did you determine the crack was sufficiently deep to warrant the repair?	This one had cracked all the way through which indicated a load capacity issue. If it is just checked then I wouldn't worry about it.
what are the costs associate with the repair compared to replacement? Life expectancy after repairing?	It really depends on what the member is and what is the condition. I'd be happy to provide more input but would need some more context.
has UHPC being considered as a repair material for repairing the timber piles?	I am not aware of UHPC being used for these applications. While the additional durability qualities of UHPC would offer some benefit, the need for the additional compressive strength is not typically needed. Cost and difficulty of working with product generally would not warrant its use.
Any recommendations for preservation techniques where the top chord is exposed to weather and has open checks? We considered adding flashing, but are also concerned with trapping moisture beneath the flashing.	I would install flashing. You can't keep 100% of the water out, but this would be a good start.
Any advise on addressing issues with timber decking on a pedestrian network. We are seeing quite a bit of checking, cracking, buckling and cupping of more recently installed (> 10 years old) decking.	This isn't a common issue for me. I'd suggest looking into some commercially available sealers.