Cedar Creek - Modeling Water on the 8th Sub

By Rob Spangler

Thu, 2013-05-02 11:18 — wp8thsub

I wanted a project of limited scope that would still provide evidence of progress. Modeling some water sounded like a plan, so I got to work on the Cedar Creek scene from last year's MRH Forum Challenge. For construction of these scene in preparation for water, see http://model-railroad-hobbyist.com/node/8540 .

Site Prep

The scene was almost ready for water, but there were a few additional tasks to be done.

To help impart some apparent depth to the future stream, I airbrushed some Floquil Railroad Tie Brown into the creek bed. I did this while painting some nearby flex track. Darker colors can give the appearance of deeper water when viewed from above. It's important to avoid hard edges so an airbrush is ideal.

Also, the creek bed slopes somewhat, and the intended water material tends to flow downhill if not restrained. Adding "dams" at the location of future rapids helps to hold the "water" so it doesn't migrate too far downstream before setting. I've tried several ways to do this, but here I used some clear caulk (this was Powergrab clear adhesive caulk; other types should work, although I'm not sure I'd trust pure silicone since later materials may not stick to it well). Acrylic gel medium is one alternative, but is pretty much like acrylic caulk to work with in this application, and is much more expensive.

Note that so far I've kept most of the vegetation away from the future stream banks until after the water has been added. The reason for that will become obvious later.

First Pour

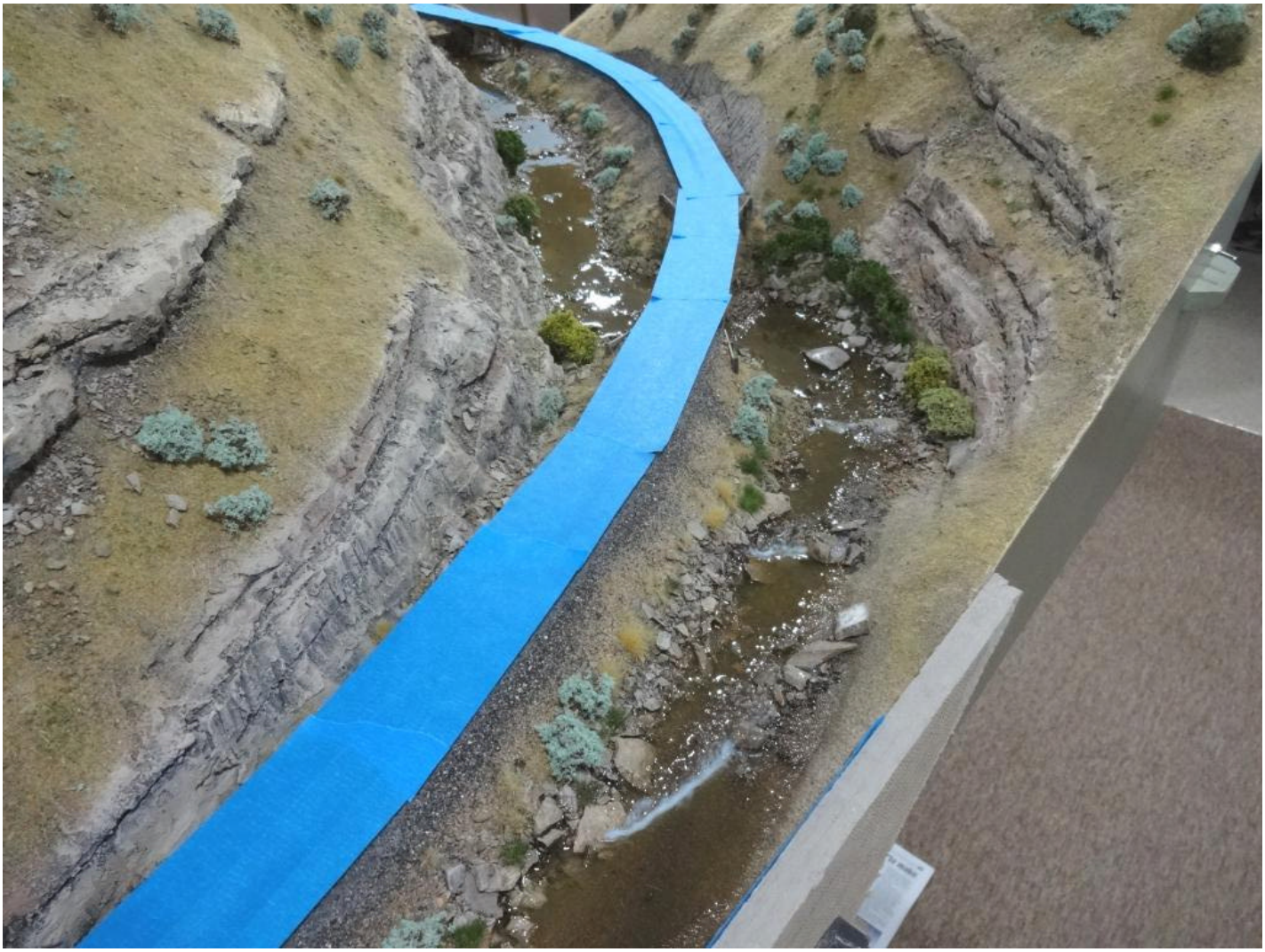
For water, I used tried 'n' true epoxy resin. I've tried several brands which all work interchangeably, including Enviro Tex, Crystal Sheen and this one, "Amazing Clear Cast." It was the brand available at Hobby Lobby where I had 40% off coupons handy.

One thing I've done for ensuring epoxy resin sets up is to make sure you use a bit more (like 1/2% more) "part b" / hardener than "part a" / resin. All the instructions seem to say to mix 50/50, but if you look at the containers you'll probably see more in the part b - I'm assuming this isn't an accident. I've never had a batch fail to set properly with extra hardener. Try for a precise 50/50 mix and you may find yourself with something that won't set up, I know I did when learning to use this stuff. If temperatures are warm enough (see the directions) and you use extra hardener, every batch should set up perfectly within a couple days. *CAUTION - SEE NOTE BELOW*

For mixing, I used the rigid plastic containers from some Hillshire Farms lunch meat, cleaned in the dishwasher first. Any disposable plastic container should work provided it's tough enough not to melt from heat as the resin left in it starts to set. There's just enough heat to affect flimsy plastic.

Here's the first resin pour. Since I wanted the creek to look greenish and somewhat muddy, I added some Testors olive drab enamel military paint. A few drops are plenty. Clear resin is rarely realistic, so look at prototype photos for examples of color. Other Testors paints of use include Dark Tan and Dark Green, and Floquil Pullman Green works great for other parts of my region.

The track was taped as a precaution. Resin that drips into the ground elsewhere can be covered up readily, but I didn't want any stray drops ruining the track weathering or ballast. Also note the newspapers on the floor to protect the carpet. Resin will find a way to leak through any available hole in your scenery, so take care to cover everything below it. Fortunately I had no leaks.



This is the opposite end of the scene. I taped off the ends of the water course, then backed up the tape with some Homasote scraps clamped in place. Homasote is soft enough to deform over irregularities in the fascia and prevent stray resin from going anywhere.

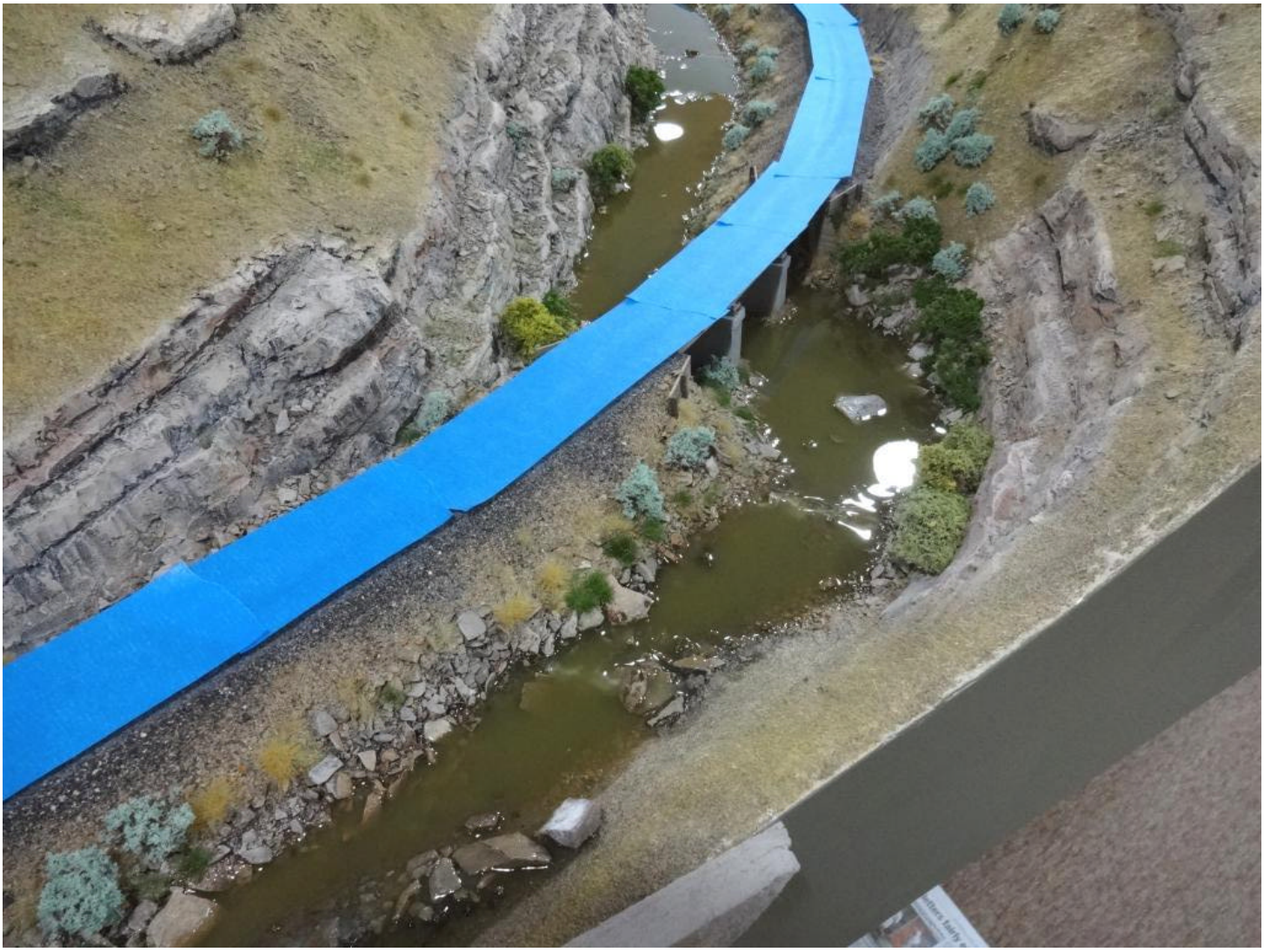
If you get resin on the carpet or your clothes, Goo Gone will take it out as long as the resin hasn't cured.

NOTE As per later posts from Alan ("LK&O"), who is a subject matter expert on the chemistry of such products due to his training and job experience, we can't automatically assume extra hardener should be used due to the chemical processes involved in manufacture. Alan suggests only adding more hardener if a trial batch fails to set when mixed per manufacturer recommendations.

Second Pour

I allowed the initial batch of resin to set up for about three days before applying the next. I mixed both batches the same, including color. Preventing too much color in the first batch keeps the finished creek from getting too opaque later, as the opacity builds up. The first layer was about 1/8" deep, and the second came out somewhat less.

Here's the upstream end of the second pour. After the first one set up, I noted a few places where I could anticipate the next one flowing too much over some elevation changes, so I built up some taller dams with the caulk as needed first. I let the caulk dry for a full day before pouring more resin.



Compare to the previous photos for how much more intense the color looks with the additional thickness of resin.

Downstream again. Things are starting to look good and muddy.

One annoying characteristic of the resin is how it creeps around the edges. It can get into surrounding scenery materials, and soak into something like sand for quite some distance. You can see where it's oozed in these photos. Not to worry, we take care of that next.

Rapids and Touch Up

Whenever water flows sharply downhill, or encounters an obstacle, the resulting turbulence can create a need fo modeling white water. Cedar Creek has some rapids, but no large waterfalls. The major rapids are just a build up of caulk and the resin that flowed over it, plus some paint.

Using a pile of prototype photos, I added whitewater as appropriate using acrylic paint. Acrylic builds up in semi-translucent layers, which is just what we want. Some areas get very little paint, almost as a wash, others get more and still more until the white covers everything.

Also at this stage, I dry brush rock and dirt colors onto any areas where the resin crept out of bounds. As part of my normal scenery finishing, I already used such paint on the rocks anyway, so the new coat blended right in. I eliminated shine around the banks, and also on large rocks emerging above the water surface in mid stream.

Catch Some Waves

As it sets up naturally, epoxy produces a glassy, smooth surface that doesn't represent moving water well. I don't think it looks quite right for anything but truly stagnant places. Trying to texture the resin as it sets is a losing proposition in most circumstances. Fortunately, there are easier ways to handle it.

I like using gloss Mod Podge for ripples. Acrylic gloss medium will also work, but it's less viscous and more prone to filling with bubbles as it's applied. Whichever you like is probably fine. A disposable acid brush works great as an applicator.

I cover nearly the entire surface of the resin with Mod Podge. Ripple patterns can vary depending on stream flow, and brush marks look appropriate around rapids, so adapt the application technique as you go.

Reflecting on the Progress

Given that I'm modeling the 70s, I was unsure if there wasn't another Love Canal situation brewing in the train room from all the chemical processes at work, so I re-entered to check on the Mod Podge only with great trepidation.

Last night I only completed Mod Podge as far as the bridge seen here. I intentionally left the remainder of the surface as-is to illustrate the contrast. The section with the ripples looks to me like moving water, while the rest just doesn't. Also note how the glassy plain resin can reflect hard edges of room features, like the top of a backdrop, light fixtures, and so on. The ripples diffuse such unrealistic reflections so they don't intrude on the scene.

[END]