Have You Ever Wanted to Design A Model Railroad Track Plan?

by Steve Belforti

The following article is much lengthier than intended. The process of writing it required a fair amount of background and explanations. The intent is to show one way that creating a track plan for a model railroad is much more than simply putting tracks down on a board. It is not meant as a tutorial on how to design a model railroad, there are many other articles, books, videos, clinics, etc., that already discuss that. What it intends is to lead you through a process for creating a plan that can be developed into a full sized model railroad. It is hoped that you will read through the whole article to see how, and potentially that you will find some or all of the process to be applicable to you. The whole point is, ANYONE can create a track plan.

The Amherst Railway Society's Amherst Rail System (ARS) Palmer Division is the HO scale (1:87.1) model railroad layout being constructed in the basement of the Society's Palmer, MA headquarters. The design and concept will eventually be found on the Society's website. The full plan still needs "fleshing out" in the form of track plans for many of locations being modeled. We are looking for anyone interested in helping to create these plans. From concept and design, right through construction and operation, this model railroad is a collaboration of our Members.

Everyone has seen that wonderfully drawn out and artistically enhanced track plan. How many of us have thought to ourselves "I could never do something like that!"? The reality is that ANYONE can design a track plan for a model railroad. The plan does not need to have all the artistic elements of that special one you envy, nor does it have to show every element of what is intended to be built. Track plan design can be as simple as a sketch on a napkin or envelope, to the most detailed computer aided 3D graphic. At its most basic it should be a depiction of the space available and the trackage you wish to put in that space. This does not have to be drawn to scale, though if it can be that will assist in seeing how everything will fit.

Model railroad track planning can be as simple or complex as you want it to be. The purpose is to create a concept to replicate what real railroads need for trackage to be able to run trains, so that it can be built in scale. One could simply replicate what the prototype has already done, or use that as a basis to create the feel of a real railroad. Model railroads can be prototypically accurate, proto freelanced to follow prototype practices, or even complete whimsy. They can also be all of these things and more at once.

The simplest form of track plan would be a singe track flowing through the scene you wish to reproduce in model form. Scenery would be added around this track to replicate what exists in reality, or what you wish to depict based on your ideas and concepts. More trackage can be added to this single track to make places to meet or pass trains (meets are in opposite directions, passes are in the same direction). Sometimes this would be accomplished with two parallel tracks connected with switches at each end. Other times it could be multiple parallel tracks (two or more) going from someplace to someplace. In this scenario there would need to be switches between tracks (crossovers) to allow flexibility for trains to move around each other.

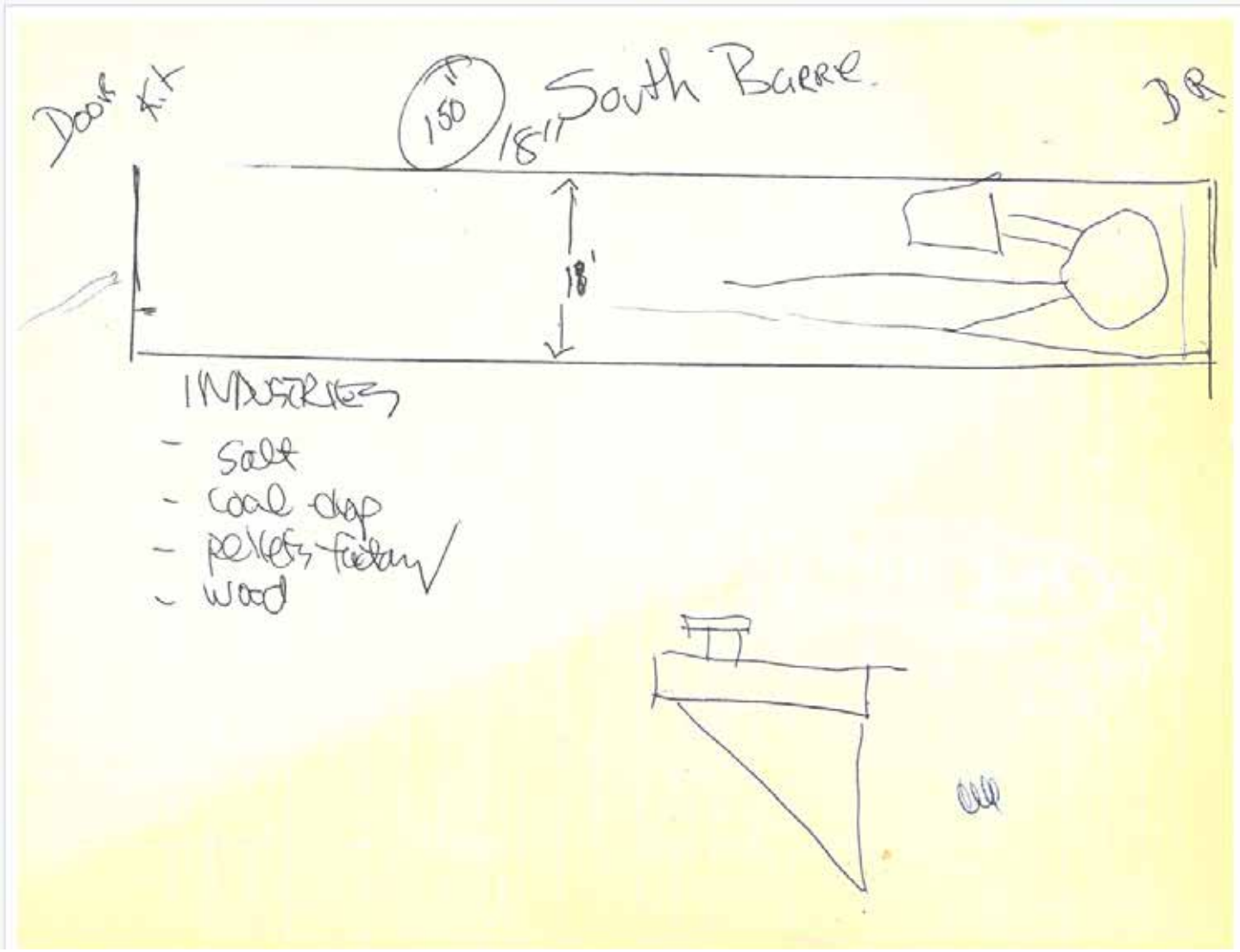
As more elements are added to a scene there might be the need to add even more trackage. Sidings for rail served customers, run around tracks to be able to move a locomotive from one end to another of cars, yard tracks to be able to switch and classify or even to store cars, servicing tracks for locomotives possibly including a turntable or wye, etc. Railroad structures (stations, servicing facilities, towers, etc.), customers structures, bridges, water, tunnels, and roads can be shown to see how they will fit in the scene. By utilizing a drawn out track plan these elements can be shifted and moved around until they make practical sense for the concept of the railroad you are modeling. The beauty of utilizing paper and pencil, or computer pixels, is the ability to make changes quickly and inexpensively.

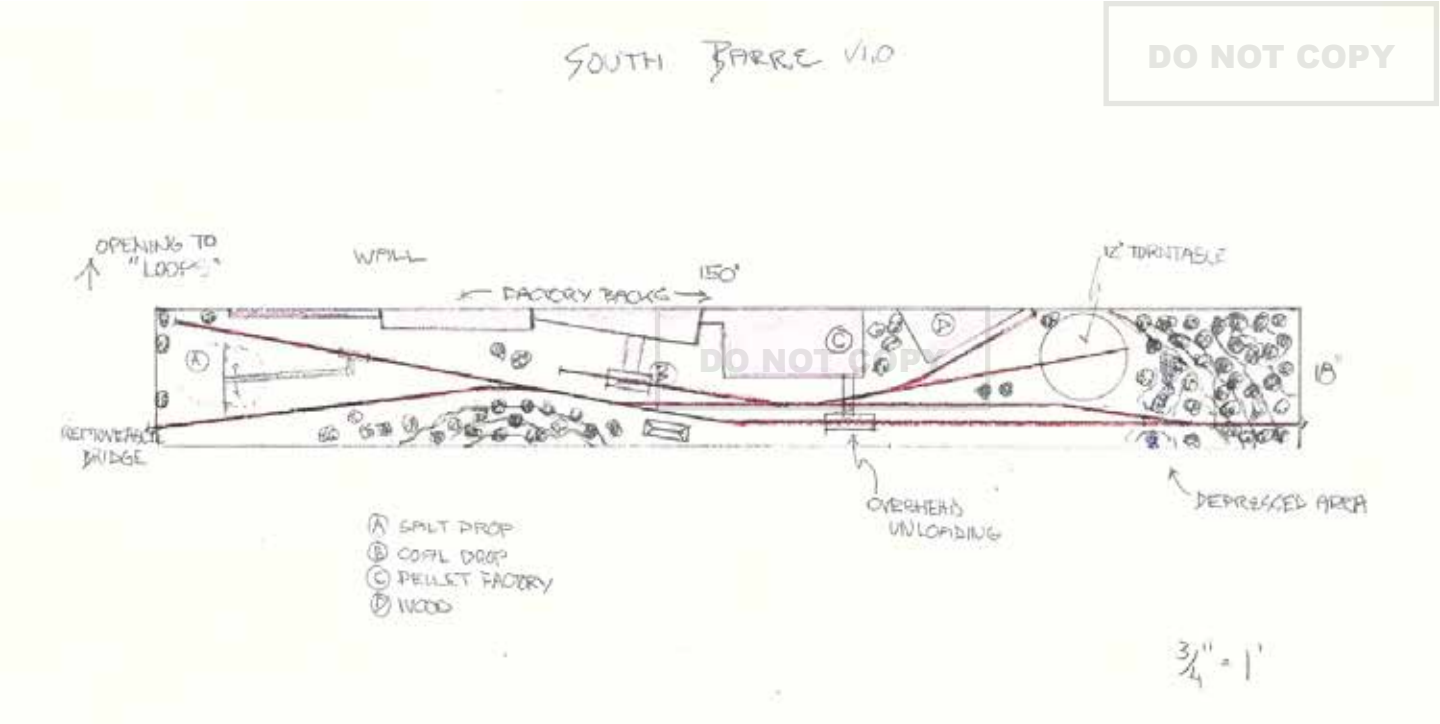
There are many, many, how to books and videos to help you with the design of a model railroad, whether based in prototypical practice or not. Sometimes the best help is to show a version of your concept to others, and open a discussion of what it is you intend to accomplish. Other model railroaders can often be your best resources, pointing out things that you may not have thought of. Because of the collaborative nature of our Palmer Division, design is a series of back and forth discussions that ultimately ends with the plan we will construct.

On the Palmer Division we are proto freelancing five different lines, three of which converge on Palmer, MA. One of these is the former Boston and Albany (B&A, NYC, CR) Ware River Branch, which is now operated as the Mass Central Railroad. This branch will follow much of the prototype (condensed for space constraints) and terminate in South Barre, MA. The prototype railroad operates to Barre, but it left the B&A's right of way at Ware, MA, and from there it follows the former Boston and Maine (B&M) Central Mass main line east. The nature of the space in the Society's Palmer basement means that we can build the end of the line first. This is the story of how the track plan for South Barre was developed.

A call went out to Members, once the space was determined, for track plan concepts to replicate a freelanced version of the end of the line. Once the design elements were discussed, a first concept was created. This was a simple sketch (South Barre concept) showing the rough dimensions, some of the elements desired, and thoughts on construction of the benchwork. One of the initial discussions centered around it being the end of a branch line and the desire for a turntable. This was something not prototypically correct, though on the B&A Ware River line (not a part we are modeling) there was one at Barre Plains. It also would not be necessary for the era's we would be modeling (late steam/transition through modern) as most engines would not need to be turned. There was also discussion about how prototypical the scene should be, and how freelanced it should be to increase the operating potential.

John Sacredote volunteered to produce a drawing depicting the plan as initially discussed (South Barre v1.0). This is where most of you will say "I can't do that!". The truth is, yes you can. There is nothing complex or difficult about this drawing. It depicts a space available for the model railroad and the elements desired to model. The track plan itself is simple lines to indicate track centerlines, with the main entering the scene from the left, and terminating on the right. A circle represents the turntable, and a short run around would allow switching of all industry tracks, facing and trailing point. Buildings are drawn in to indicate industries, and given generic identities. John went further and drew in some contour lines (to indicate landscape rising or dropping from the "track level"), and indicated trees or shrubbery with some green blobs. All of this was drawn to the approximate scale of ¾" = 1' so that the scale of the scene can be contemplated.





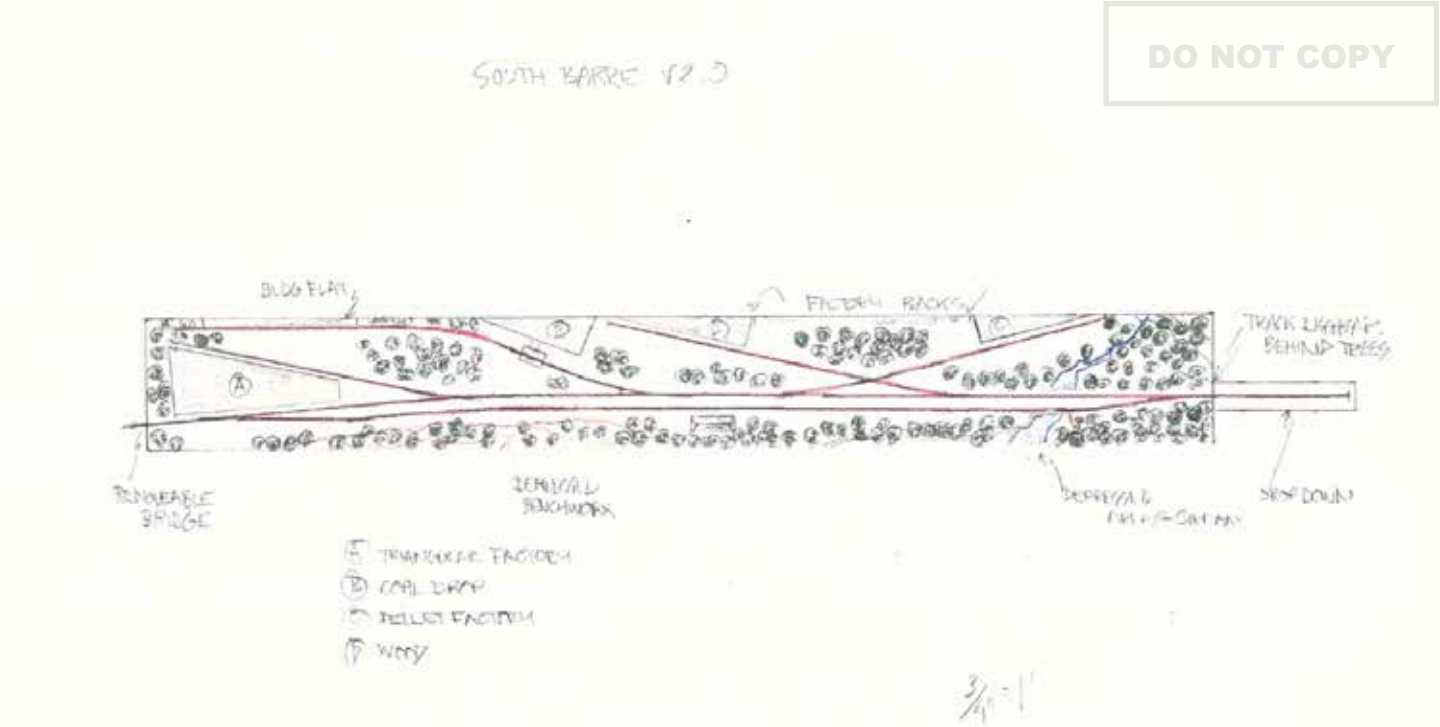
There is nothing in this drawing that is beyond anyone's abilities. It is a series of elements that together create a plan. It becomes a visual aide for discussing how things relate to each other, how a scene can look, how a train can operate. It could have been built as a finished model railroad, or a part of a larger system, just the way it is drawn. For our purposes however, it was created as a concept, to prove or disprove how elements can be utilized to create the scene we will be modeling. John's creation of this plan allowed many to see the vision of what we will be modeling without the need to physically create it all.

Having this plan allowed us to discuss many issues to be addressed. Had the scene been built as "planned" in version 1 it would have been difficult to run around any train longer than 3-4 cars. As this is the end of the branch line every train would need to be able to run around all its cars to be able to return where it originated. A longer run around would greatly assist this. The space constraints mean that there will have to be some kind of lift bridge to the left for trains to arrive from the rest of the layout. There is a physical doorway to the right that must remain accessible at most times, so any run around should have at least one engine length of track to either side of it. After discussion it was decided to stretch the run around to make it as long as possible.

The turntable was another topic for discussion. It had been included as a "want", not because it was prototypical. There really is no need for it operationally, and removing it opened up some real estate that could be utilized in some other way. Also not included in this plan, but having been discussed as the plan was being created, was that the scene would be bordered by a water element. a river or stream, that would flow along the front (fascia) for most of the length of the scene, with the track elevated slightly above it. This would need to flow under the tracks somewhere along the right side of the plan, and removing the turntable and hillside would assist this.

Another element of the prototype scene that was desired to be replicated is a triangular building that would be between the main track and the first siding at the left of the scene. Also, the scene is not deep, 24" at maximum, and desired to narrow to about 15"in the middle, due to the constraints of the aisle space. Because of this a long sweeping shallow curve for the main and passing siding, following the water along the front edge, would look better. Utilizing elevation changes in the trackage would also help set the scene and add variety.

After the discussions John created another drawing (South Barre v2.0). In this version John swept the main track from left to right in a shallow curve with the passing siding to the front of the scene. The water element was introduced on the right, but not as prominent as had been discussed. The triangular building is emplaced at the left end, and an interesting diamond crossing was introduced to add visual interest to the two industry sidings at the right end. The idea of the front of the layout dropping down to a lower fascia is indicated, along with some potential industries. To maximize the length of the run around available through the passing track a possible drop down tail was introduced at the right where the door that must remain unobstructed most of the time is.



This version of the scene captured many of the elements we had discussed, although not all, and was close enough to buildable that we decided it was time to see how it would fit in the allocated space. NO MODEL RAILROAD TRACK PLAN WILL EVER FIT THE REAL LOCATION EXACTLY AS PLANNED. This is a very important concept that MUST be accounted for whenever you begin your track planning journey. Even the most accurate computer based design, utilizing elements scaled from real manufacturers' items, wont precisely fit its allocated space. Once you have a version of a concept plan that you are happy with it is time to lay it out with the actual track elements you will be using.

By now in our project the benchwork for South Barre had been constructed, however this is not required for this step. A cardboard mock up of the space available was taped together on top of the benchwork. This can also be accomplished with the same cardboard, or heavy craft paper, laid out on the floor in the space allotted for the scene. The six switches and several pieces of flex-track were then laid out in the approximate positions shown on the plan. This is the reality check to see if things will fit the space as envisioned in your plan.

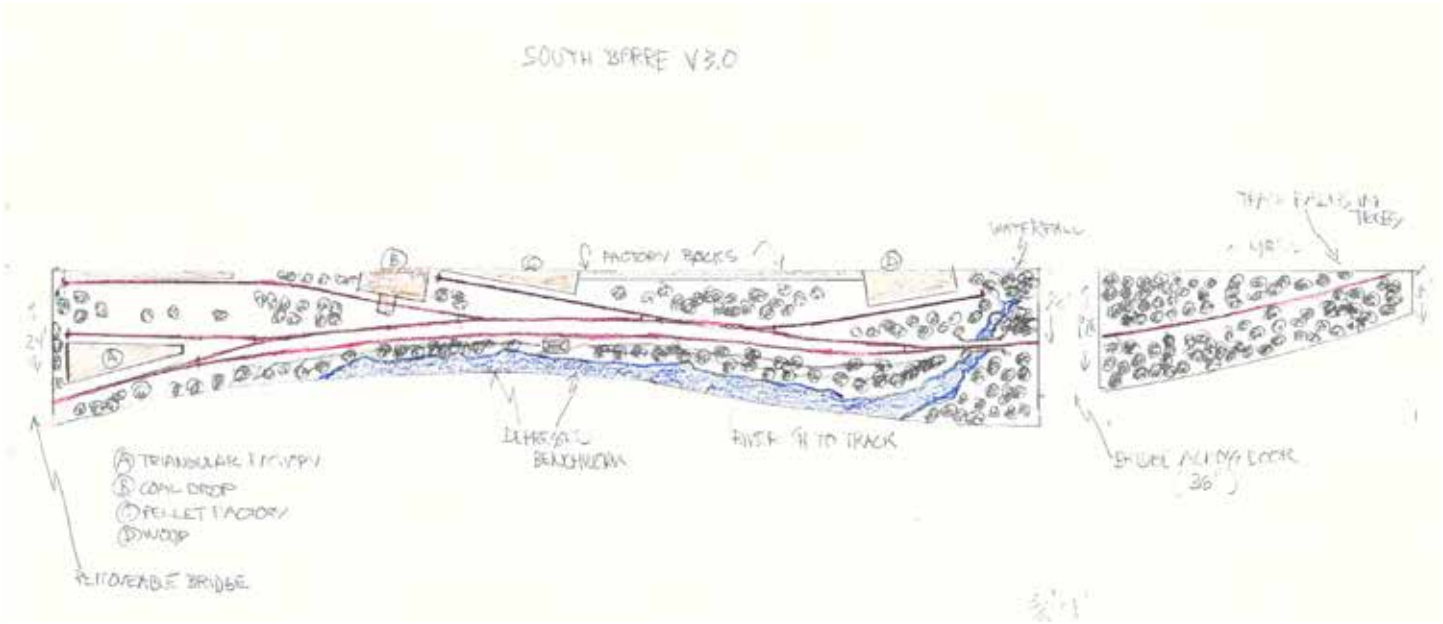
In our case there were some tweaks and adjustments made with the full sized elements to make the whole scene flow better. Moving the center of the main and passing track further back in the scene allowed for a much nicer long flowing curve from left to right. It also allowed the center of the scene to be narrowed adding a little more aisle space. The switch at the right end of the passing track was moved left enough to allow an average engine length between it and the end of the benchwork, eliminating the need for the drop down. The concept of the water flowing along the front edge below the track level was redeveloped.

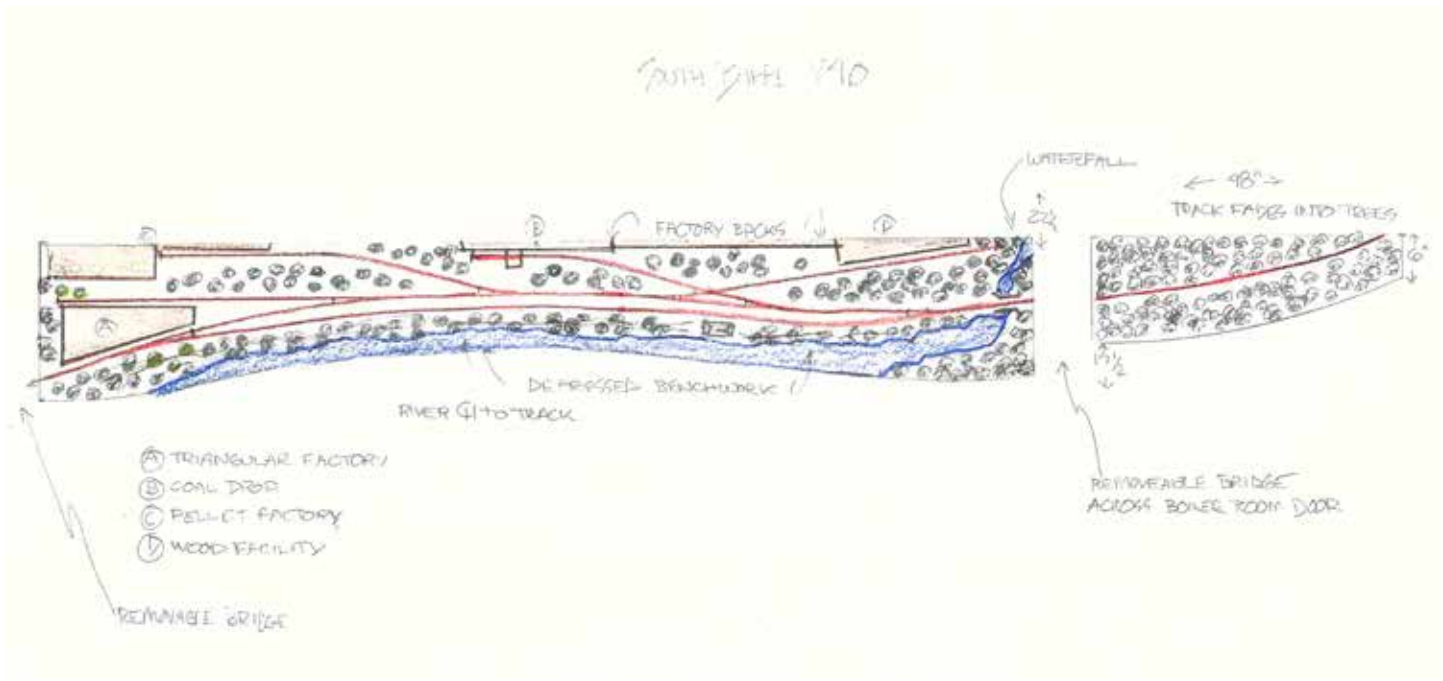
It was also determined that a lift out bridge element could be created allowing an extension across the door at the right to another unutilized short space that would allow the main to continue further, when the bridge was in place, and disappear from the scene behind vegetation. This is the end of the Ware River branch for both the prototype and our version, however in the past it had continued further east. Having this extension allows us to model this reality and we can add another customer that can load (or unload) right from the former main line. Also there is the potential to model a removed turntable and even abandoned servicing facilities in this new space.

John went back to his "drawing board" and created the next, "final" version (South Barre v3.0), showing the changes we desired. This version shows the long sweeping curve of main and passing siding, the extension across the doorway, and the water element along the front fascia. However, somehow this version eliminated the diamond crossing of the sidings that we had added for its interest. Because of the missing diamond this ended up NOT being the "final" plan, though it was very close. We were able to utilize this plan, and the cardboard mock up, to cut out the sub roadbed and begin to lay track.

John graciously drew one more version (South Barre v4.0) which contains all of the design elements. This is still not perfect, nor exactly how it is being built, although it is very close. It does show everything we are attempting to replicate in this scene, and how each element relates. Utilizing the process of drawing track plans we were able to create a scene

that encompassed most of the elements intended to replicate South Barre. These drawings allowed many people to visualize how the scene could look, and allowed us to develop the benchwork and trackage through our discussions.





Do YOU want to try your hand at collaborating in developing a track plan for other parts of the ARS Palmer Division? The only requirement is that you are a member of the Society. All Members are invited to give this a try, no matter your experience. There are several other locations that need participation in the planning process. We are always looking to include our Members in all Society functions. Any Members interested in this opportunity can contact us at: modeling-sig@amherstrail.org.