

# Model Railroad Engineer - Civil SOQ

Jim Wanlass 121050

## Section 1

Prepare one original scale drawing of a model railroad track plan, identifying overall size, scale, track elevations, curve radii, and turnout sizes.

This plan must include:

- A. Adequate terminal facilities for handling freight and/or passenger cars
- B. Adequate terminal facilities for storage and service of motive power
- C. A minimum of one mainline passing siding
- D. Four switching locations, not counting yards, wyes, and reversing loops
- E. Provision for turning motive power.
  - A turntable, wye, or **reverse loop**, which actually changes the way that the motive power faces.
- F. Provision for simultaneous operation of at least two mainline trains in either direction.
  - You don't have to actually build this, just show it on the plan.

(1) See included track plan on page #2 with description. A, B, C, D1, D2, D3, D4 and E are indicated on the track plan and highlighted. F – DCC is used to control the trains. With DCC and the mainline passing siding two train can pass in either direction.

## Section 2

Construct and demonstrate, the satisfactory operation of a completed section of the model railroad and track work described in #1. Containing at least 50 linear feet in HO, with appropriate ballast, drainage facilities, and roadbed profile, which may contain spurs, yards, etc.

The track work must have examples of six of the following features:

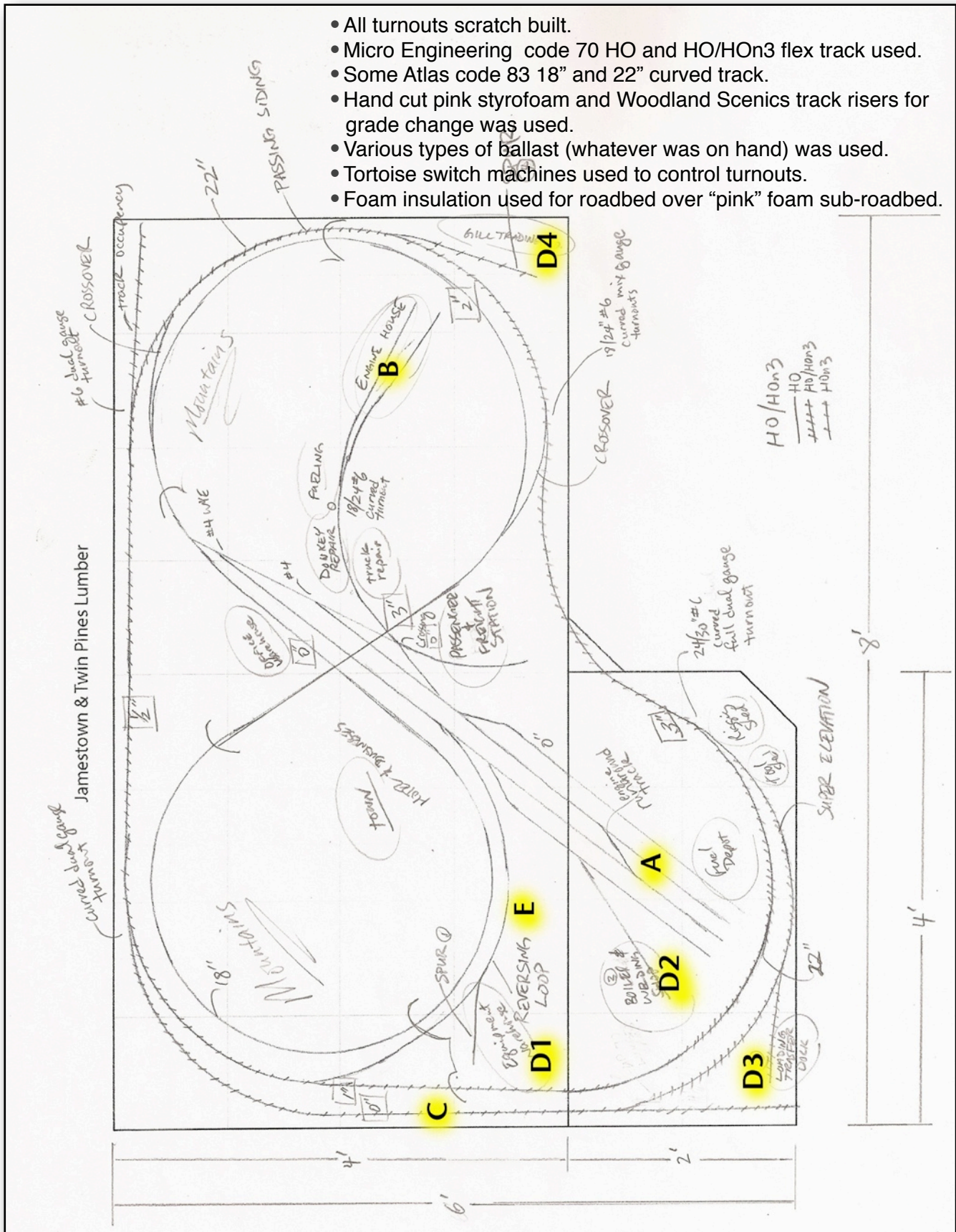
- |   |   |
|---|---|
| <input checked="" type="checkbox"/> <b>Passing Siding</b>   | <input type="checkbox"/> Compound Overhead Wire (catenary)  |
| <input checked="" type="checkbox"/> <b>Spur</b>   | <input type="checkbox"/> Scale Track <ul style="list-style-type: none"><li>• A track with a scale for weighing cars</li></ul>               |
| <input checked="" type="checkbox"/> <b>Crossover</b>  | <input type="checkbox"/> Cog Railway Track  |
| <input checked="" type="checkbox"/> <b>Reversing Loop</b>   | <input type="checkbox"/> Coal Dump Track <ul style="list-style-type: none"><li>• Could also be for dumping something besides coal</li></ul> |
| <input type="checkbox"/> Wye  | <input type="checkbox"/> Ash Pit  |
| <input checked="" type="checkbox"/> <b>Simple Ladder</b> <ul style="list-style-type: none"><li>• A ladder should have a minimum of 3 tracks</li></ul> | <input type="checkbox"/> Service Pit Track  |
| <input type="checkbox"/> Compound Ladder  | <input checked="" type="checkbox"/> <b>Grade Elevation</b>  |
| <input type="checkbox"/> Turntable  | <input type="checkbox"/> Other _____  |
| <input type="checkbox"/> Transfer Table   |   |
| <input type="checkbox"/> Super Elevation  |   |
| <input type="checkbox"/> Simple Overhead Wire - <i>A single overhead wire</i>   |   |

(2) Examples shown on page #3.

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(1) & (5a) Track plan and description.

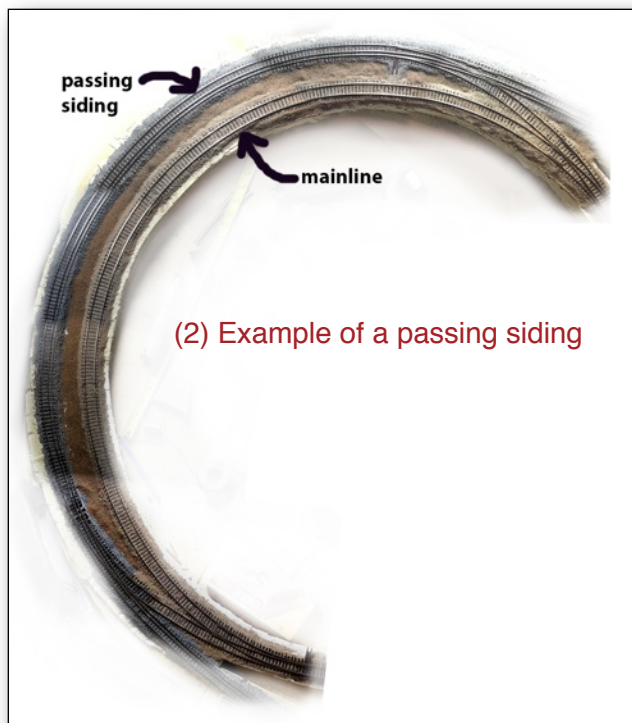




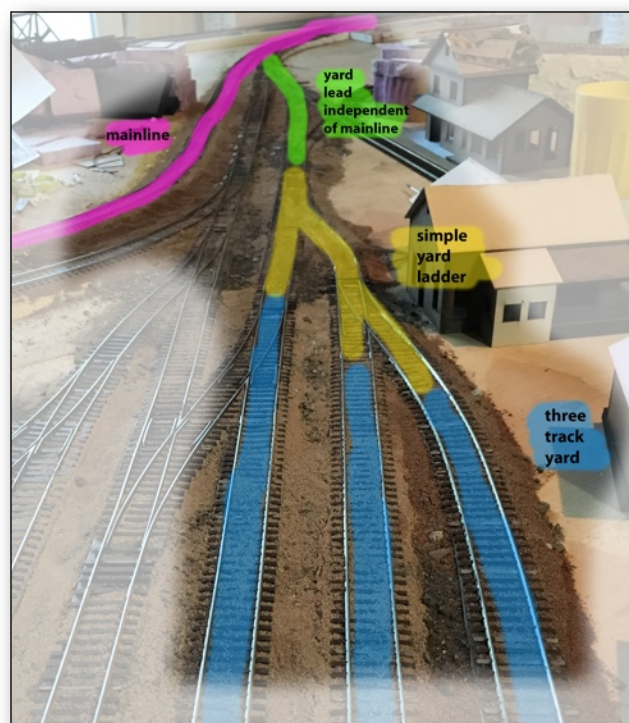
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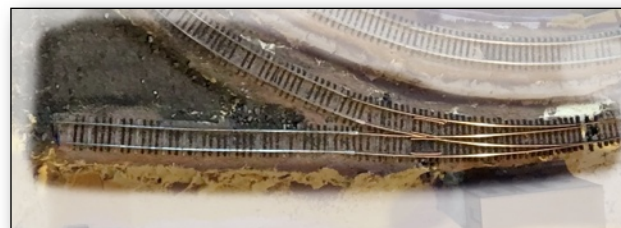
(2) Example of simple ladder



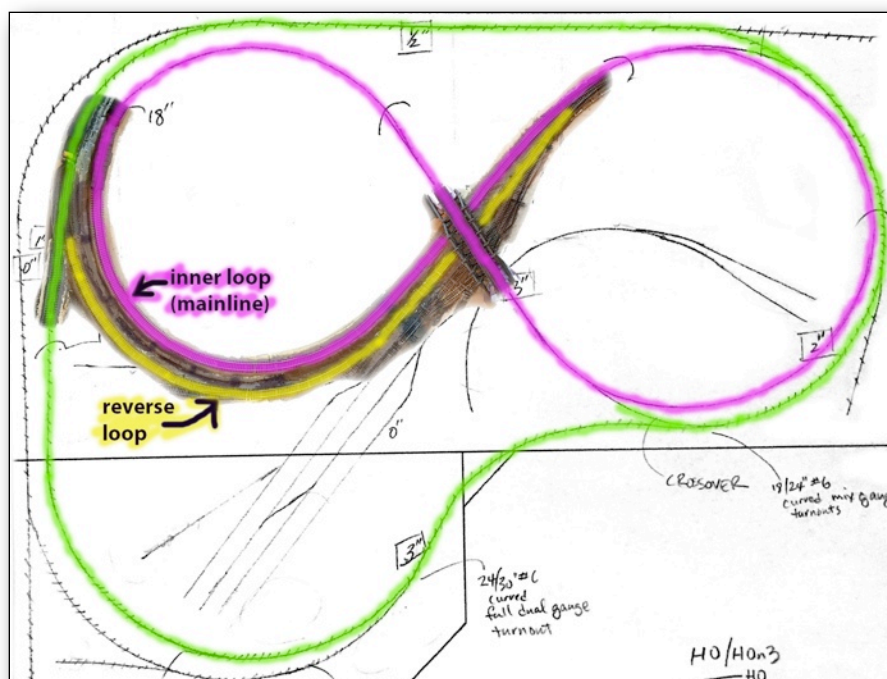
(2) Example of a passing siding



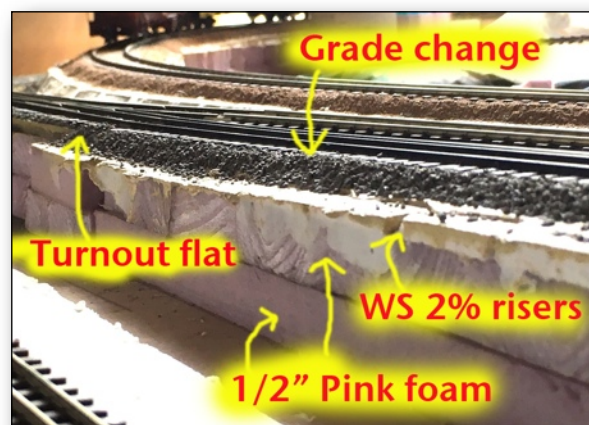
(2) Example of a crossover



(2) Example of a spur



(2) Example of reversing loop



(2) Example of grade elevation

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### Section 3

Construct for Merit Judging, scratch built scale models of any three of the following, and demonstrate their satisfactory operation:

- |  |  |
|--|--|
| <input type="checkbox"/> Turnout                       | <input checked="" type="checkbox"/> Gauge Separation Turnout                                       |
| <input type="checkbox"/> Crossover                     | <ul style="list-style-type: none"><li>• Narrow gauge splitting off from dual gauge</li></ul>       |
| <input type="checkbox"/> Double Crossover              | <input type="checkbox"/> Double Junction Turnout   |
| <input type="checkbox"/> Single Slip Switch            | <ul style="list-style-type: none"><li>• One set of parallel tracks diverges from another</li></ul> |
| <input type="checkbox"/> Double Slip Switch            | <input type="checkbox"/> Three-Way Turnout   |
| <input checked="" type="checkbox"/> Crossing           | <input type="checkbox"/> Spring Switch   |
| <input type="checkbox"/> Gauntlet Track                | <input type="checkbox"/> Operating Switch in Overhead Wire   |
| <input type="checkbox"/> Gauntlet Turnout              | <input type="checkbox"/> Other _____   |
| <input checked="" type="checkbox"/> Dual Gauge Turnout |  |

(3) See included document on pages #6-9 showing my Crossing, Dual Gauge Turnout and Gauge Separation Turnout information and descriptions.

### Section 4

You must win a Merit Award (at least 87.5 points) with the items in section 3 above.

(4) See following Merit Awards for my Crossing, Dual Gauge Turnout and Gauge Separation Turnout.





# Model Railroad Engineer - Civil SOQ

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*National Model Railroad  
Association, Inc.*

## MERIT AWARD

*This Achievement Program Certificate has been awarded to*

Jim Wanlass

*in Recognition of Superior Craftsmanship in  
Construction of a Model in the Structures - Track Category*  
"Dual Gauge Turnout"



**ROCKY  
MOUNTAIN  
REGION**

NATIONAL MODEL RAILROAD ASSOCIATION

**Rocky Mountain Region 5/21/16**

DATE

Gary K. Myers

ACHIEVEMENT PROGRAM CHAIRMAN



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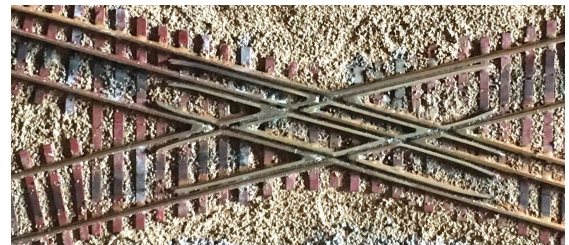
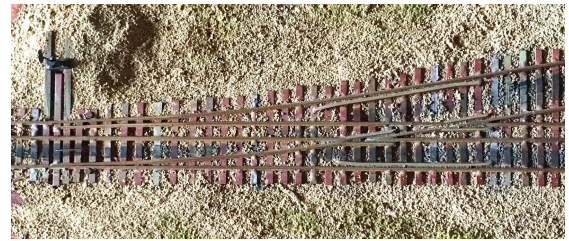
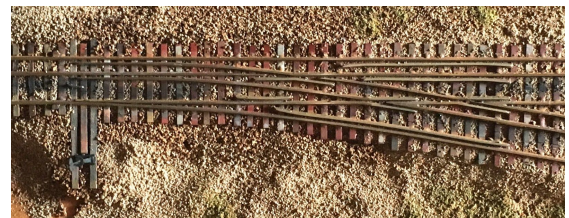
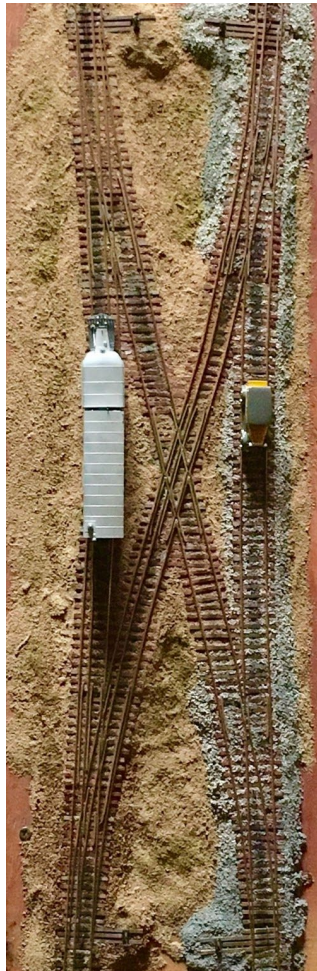
Jim Wanlass

## AP Model Railroad Engineer Civil

3. Construct for Merit Judging, scratch built scale models of any three of the following, and demonstrate their satisfactory operation:  
The three chosen: 1) *Dual Gauge Turnout* 2) *Gauge Separation Turnout* 3) *Crossing*

### **Description**

Originally constructed for part of my layout that is now dismantled, it was convenient to build it on a board then and convenient now for Merit Judging. The whole includes 4 turnouts, a crossing and a narrow gauge transition from right to left but only two turnouts and the crossing are for judging. Using the remote attachments for a Tortoise Switch Machine I was able to control all four turnouts with one switch machine. It also controls powering the frogs for the turnouts. I originally used a Digitrax auto-reverser for the two frogs of the crossing but just "switched it" with a Dual Frog Juicer from Tam Valley Depot. It works much better!





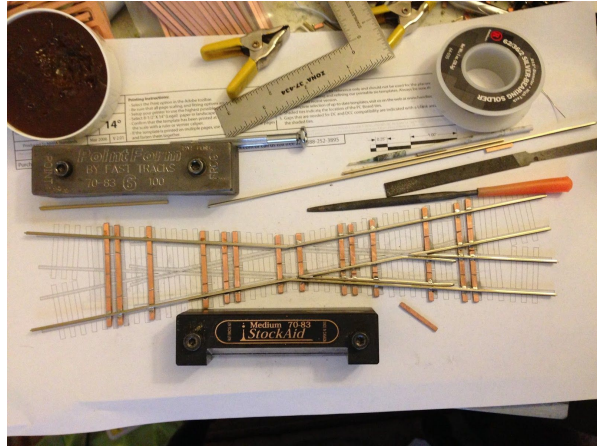
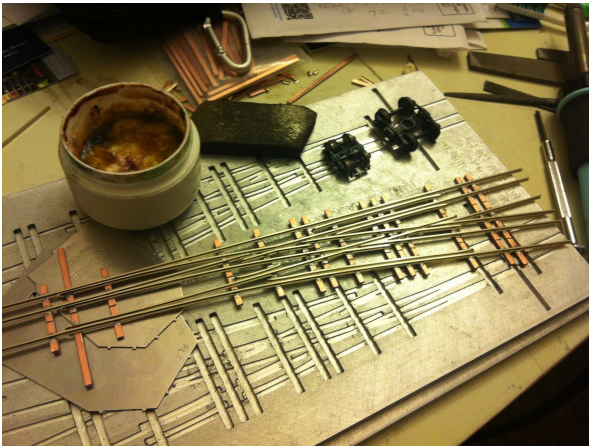
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## **Construction - (0-40 Points)**

I use the tools and templates from Fast Tracks for building my track work. For the turnouts I have a dual gauge jig but for the crossing I don't. It was constructed over the paper template which I had to modify in Photoshop to include a dual gauge in one direction and standard gauge in the other. The photo below only shows a narrow (not dual) crossing a standard gauge but is otherwise the same.

PC board ties and ME code 70 rail was cut to length and filed. Frogs for the crossing are extremely small and care must be taken to get just right. With all rail NMRA Standards gauges were used to ensure accuracy and reliability. HO and HOn3 gauges were both used. A set of HO and HOn3 trucks were also used to check for any snagging or areas that might have issues and small files were used to correct any problems.



## **Detail - (0-20 Points)**

Where PC board ties were not used I filled in the other ties with a combination of styrene and wood strips. I wanted to experiment with how the different materials would look after painting and weathering. For the most part one cannot tell the difference.

I added some details from the proto87 website but the amount of time it took to add them versus the effect was not worth it. They are so small and difficult to even see.

I also added non-operating switch stands. I hate seeing the throwbar "naked" and a non-operating one, in my opinion, is better than nothing at all!



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### **Conformity - (0-30 Points)**

The turnouts and crossing are constructed to represent how the prototype would have built them including guard rails, switch stands, etc.



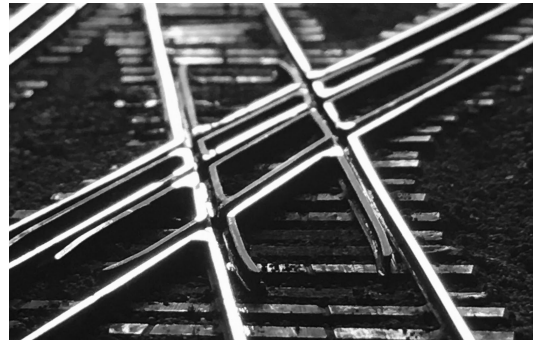
**Prototype**



**My switch stand**



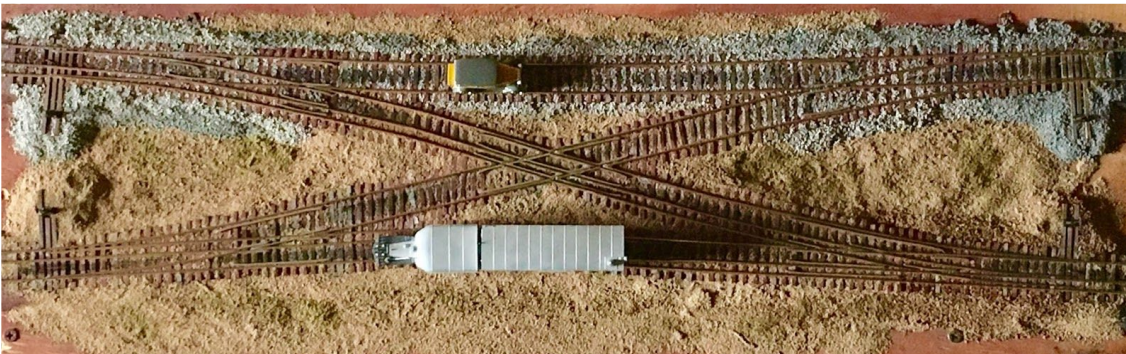
**Prototype**



**My scratch built crossing**

### **Finish and Lettering - (0-10 Points)**

The ties and rails are painted to represent weathered track work. The ties have different colors showing the effects of the weather. The sides of the rail are painted to show rust but the tops are shiny from wheels going across them. The crossing and turnouts being judged are not part of the mainline - they have dirt instead of ballast like the mainline does.





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### **Scratch building - (0-25)**

Everything was scratch built (except items already mentioned-switch stands and some NBW-like details from proto87 that is really hard to see). Strip wood and styrene was cut for ties, PC board ties for ties and electrical contact and Micro Engineering Code 70 rail cut, filed and shaped to conform to the correct shape.



# **Model Railroad Engineer - Civil SOQ**

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## **Section 5**

You must submit a Statement of Qualification (see SOQ below) which includes the following:

- (a) Attachment to the SOQ showing the track plan required in Section 1 above. The attachment should include:
  - Identification of all scratch built features
  - All commercial components used
  - Materials used in building the model(This is just a list of what was used - you don't have to try and figure out how much)  
**See included track plan on page #2 with description.**
- (b) Description of the track work features, methods of construction and identification of commercial components used in Section 3.  
**See included document for Section 3.**
- (c) Verification of the Merit Awards (Photocopies of the certificates or signed judging forms.)  
**See pages #4 & 5 for Merit Awards for Section 4.**
- (d) Witness Certification showing that each of the above models meets all applicable NMRA standards.  
**See attached signed SOQ.**