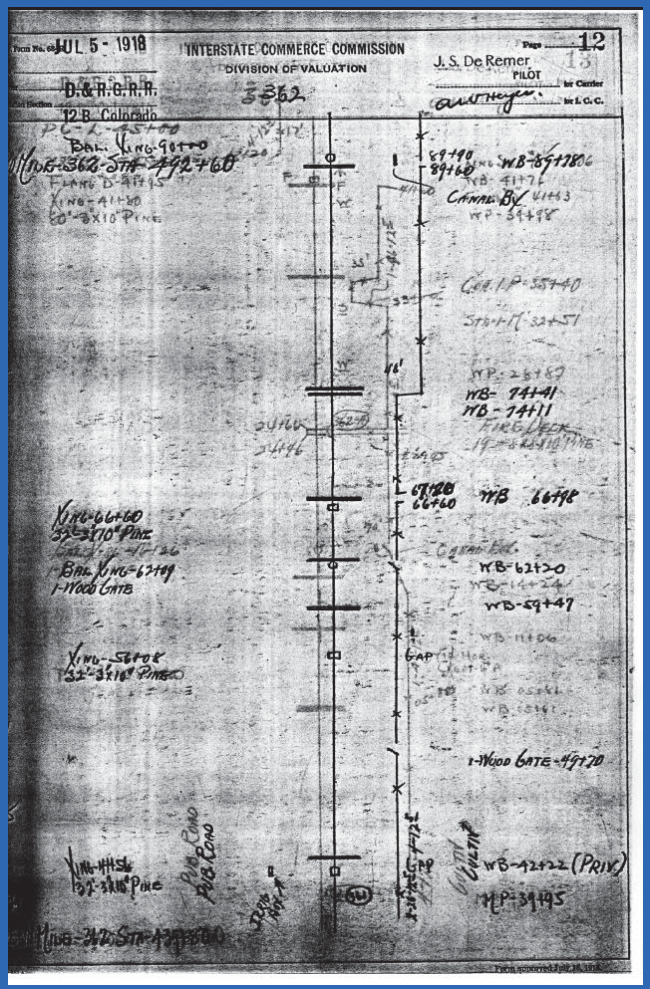
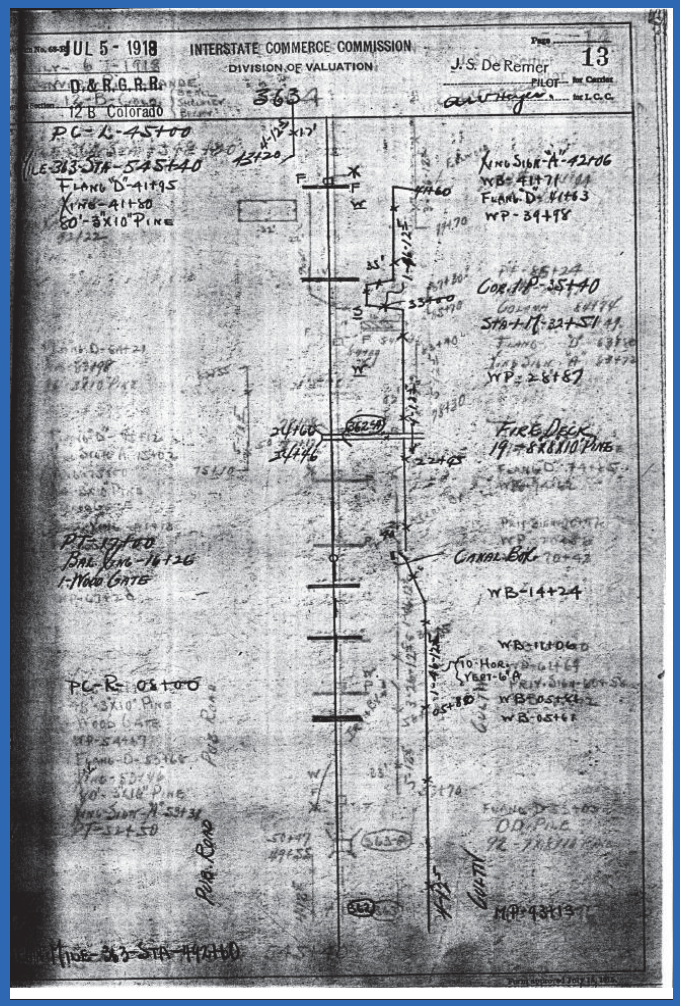
ICC Chaining Notes & Location Sketch (D&RG Ouray Branch - Colorado 1918)





Will It Fit?

Introduction to railroad clearances

Farnsworth GROUP

www.f-w.com

Can You Spot the Clearance Problems?

Clearances

AREMA C-28

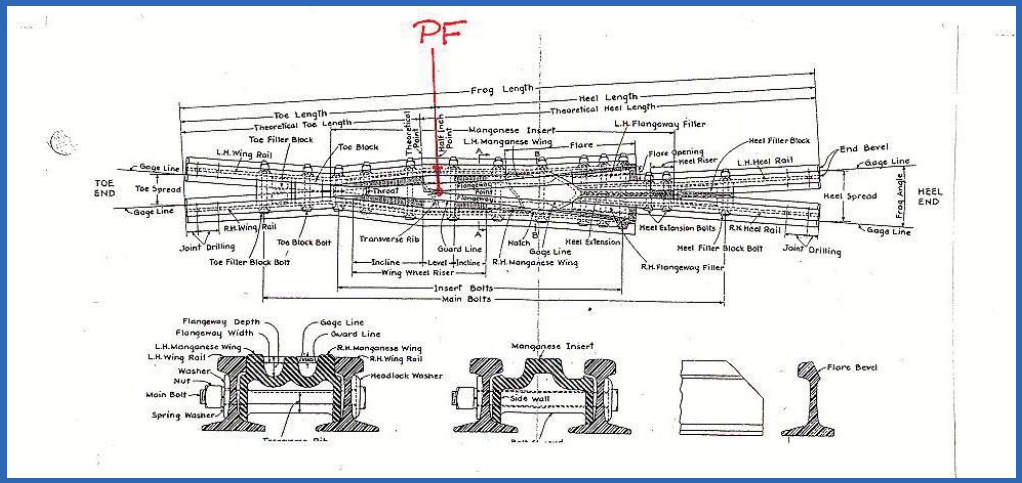
MODULE 12

- Safety Mandates
- Side Clearances
- Overhead Clearance (* NS Bridge Collision clip with stack train in siding)
- Track Clearances
- Overhead Wires (NEC Code)
- Doorways, Openings, Bridges

Turnouts & Switches (AREMA C-5)

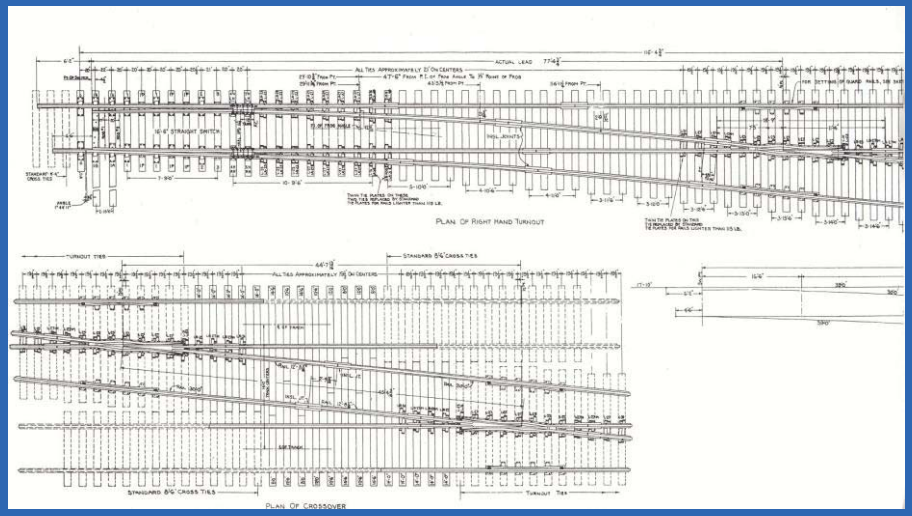
MODULE 3

- Frog Unit Triangle
- Terminology
- Layout Terminology
- Layout Methodology
  - Semi Tangent Method
  - Equivalent Curve Method
  - Significance of long tie / switch ties on grade & alignment



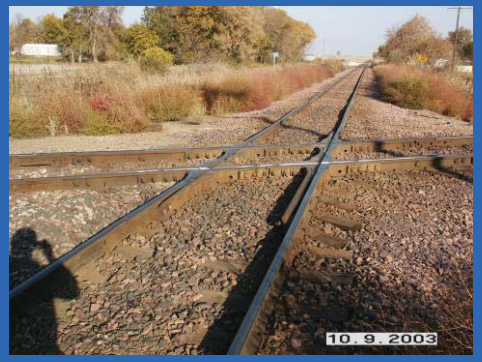
Switch Components / Familiarizations

No field trip for ISPLS

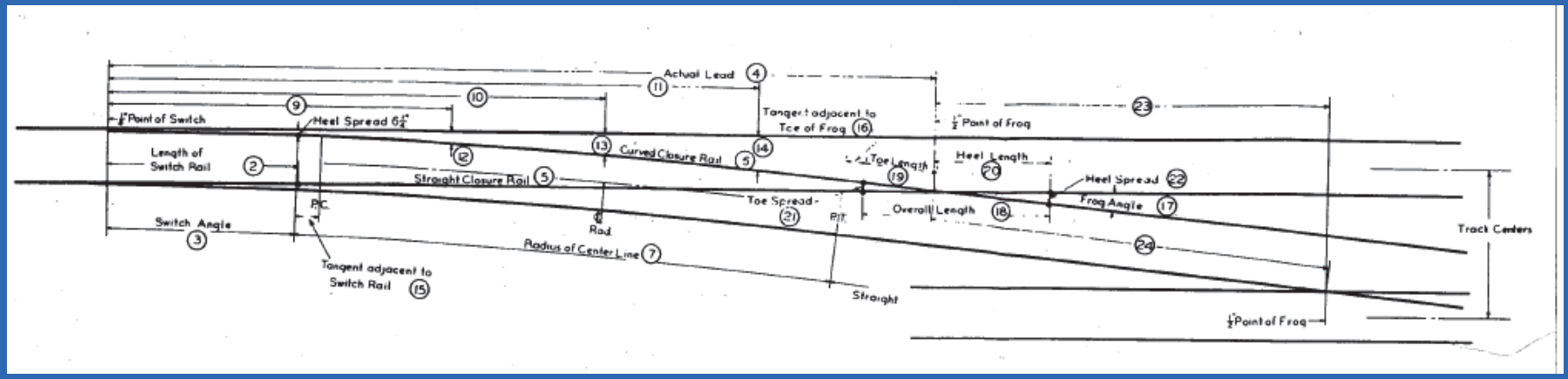


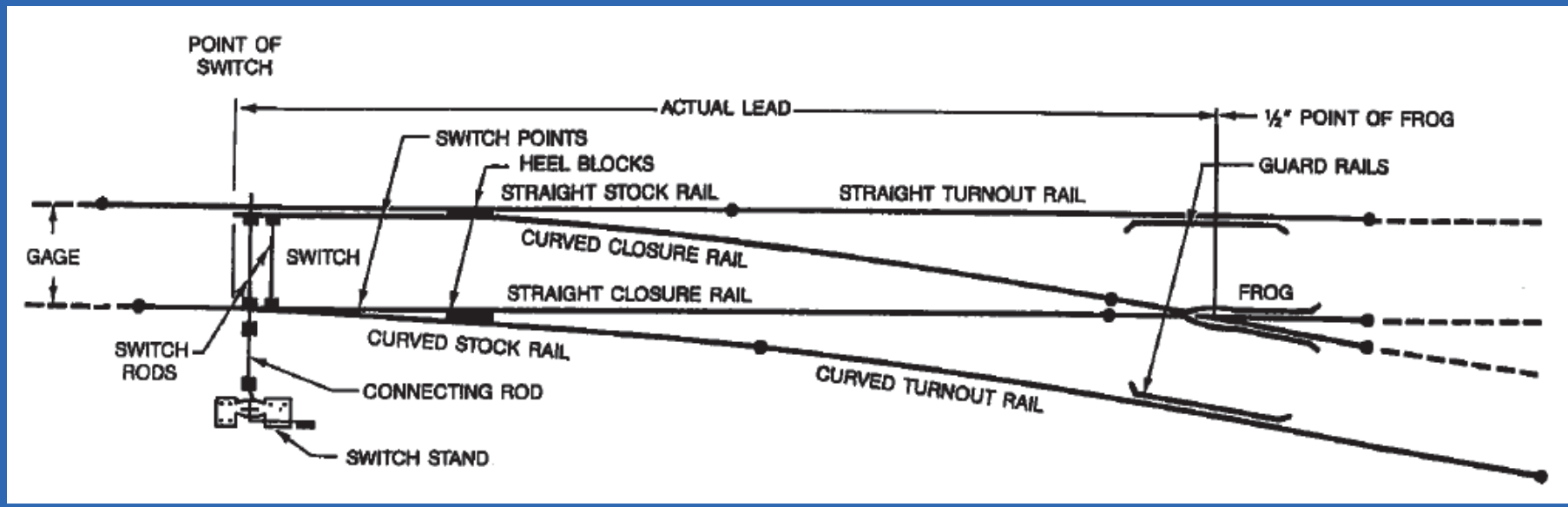
Track & Switch Geometry

- Headblock, Point of Switch HB/Pt Sw
- Point of Frog (PF) =PT-TO
- Turnout Lead
- Size of Turnout (Unit Triangle = Frog #)
- Equivalent Curve vs Switch & Lead Curves
- Rail Size
- Crossing Frogs / DIAMOND$

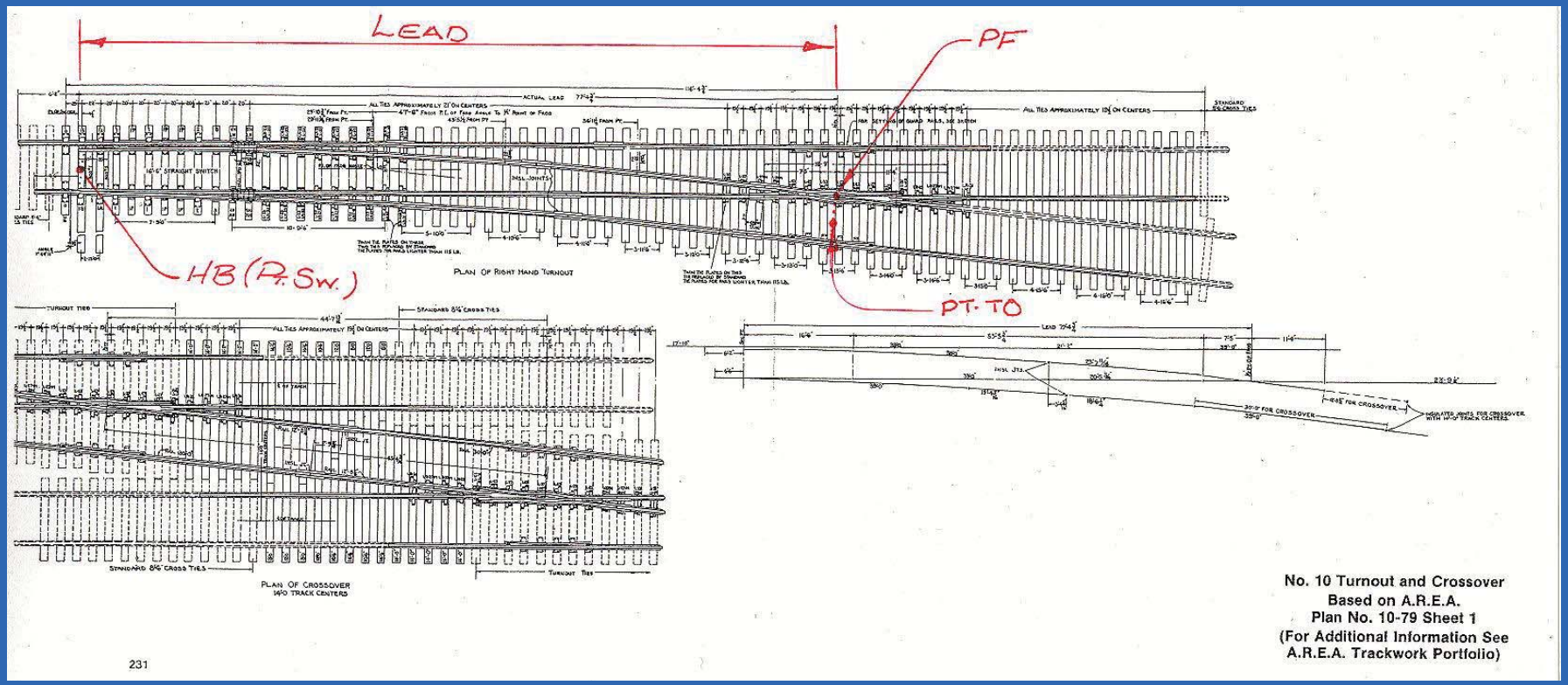


Switch Components



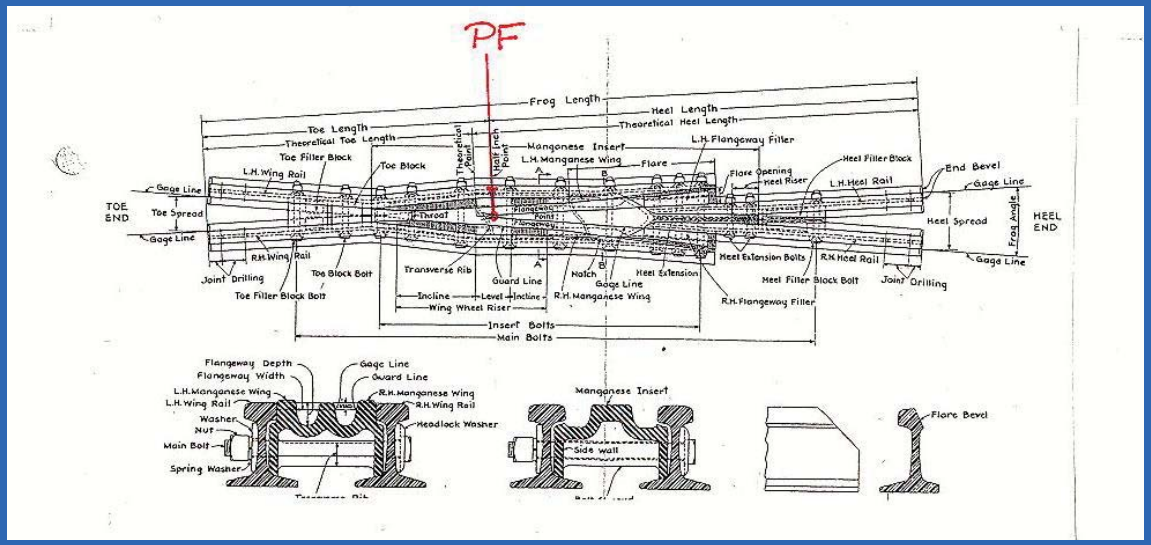


Turnout Standard Plans



No. 10 Turnout and Crossover
Based on A.R.E.A.
Plan No. 10-79 Sheet 1
(For Additional Information See
A.R.E.A. Trackwork Portfolio)

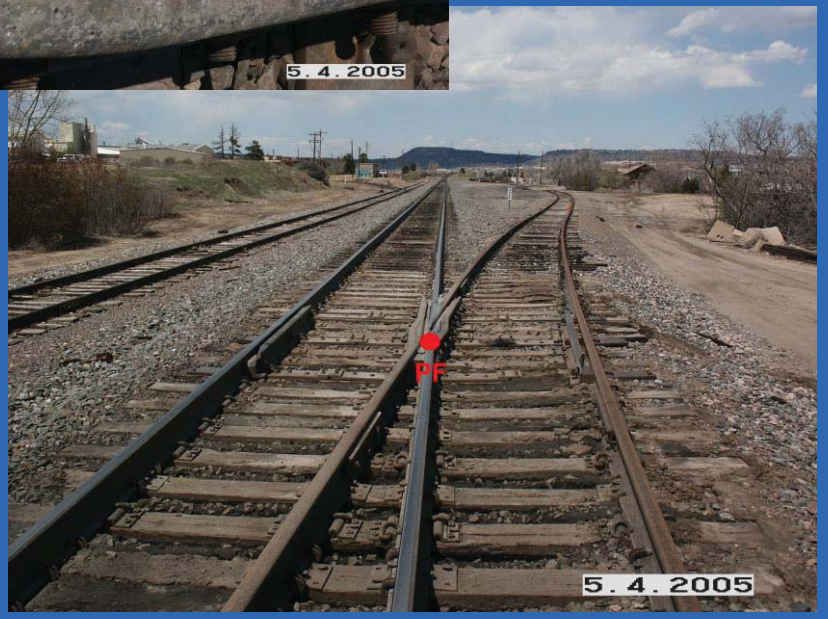
Basic Turnout Geometry

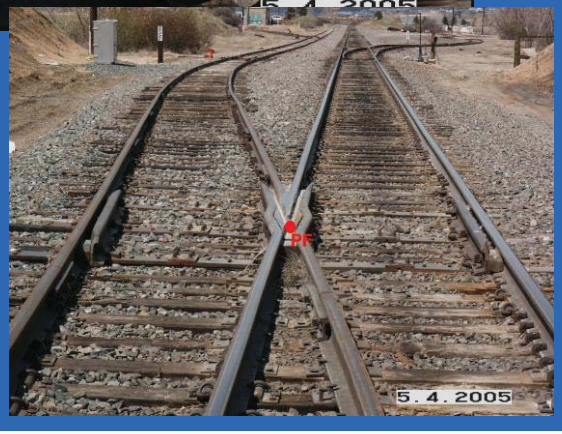


- Simple curves, chord definition (not arc; what's radius good for?)
- The typical boundary surveyor need only be concerned with HB (PtSw), PF, measured lead, frog angle, frog size & description, degree of equivalent curve, switch point length and weight of rail. (This is what you need to communicate to the railroad with!)
- If elevation is important, please note end of long switch ties! (Defines plane)

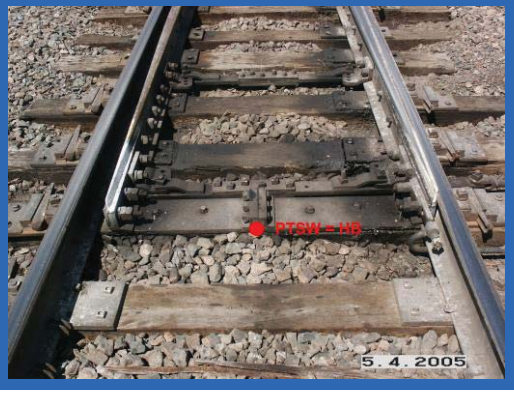
Theoretical PF = PT-TO

(Offset radially 1/2 gauge)



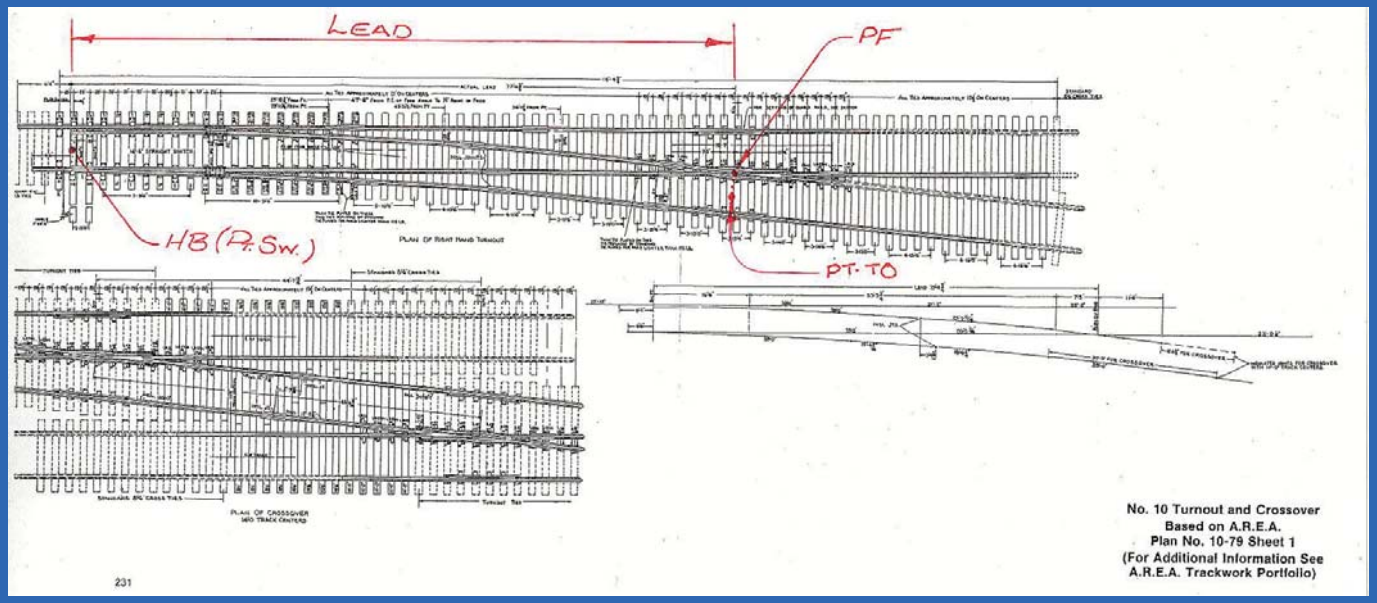


Point of Switch [PTSW] = Headblock [HB]

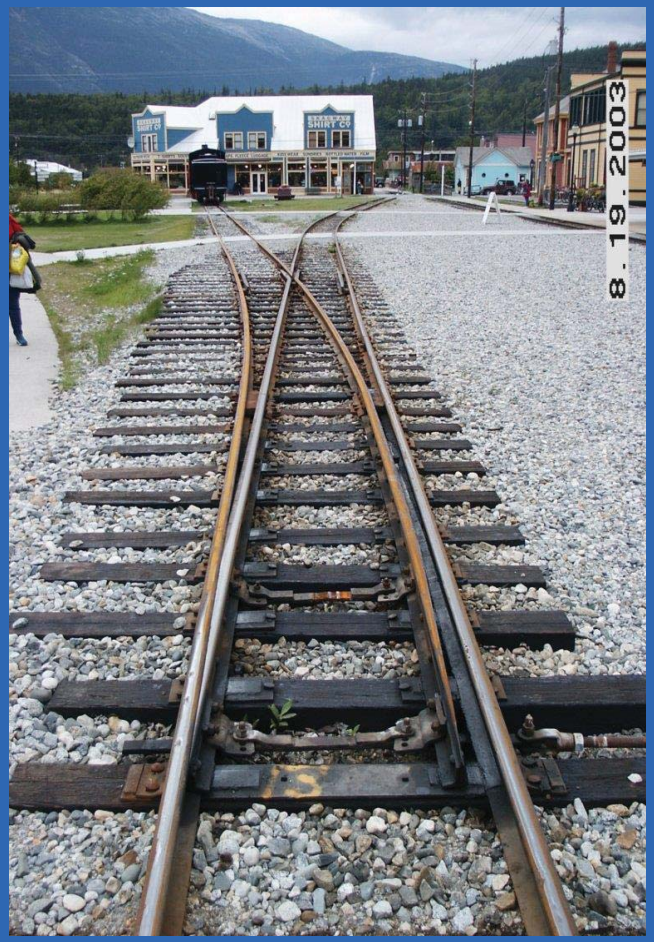


Basic Turnout Geometry

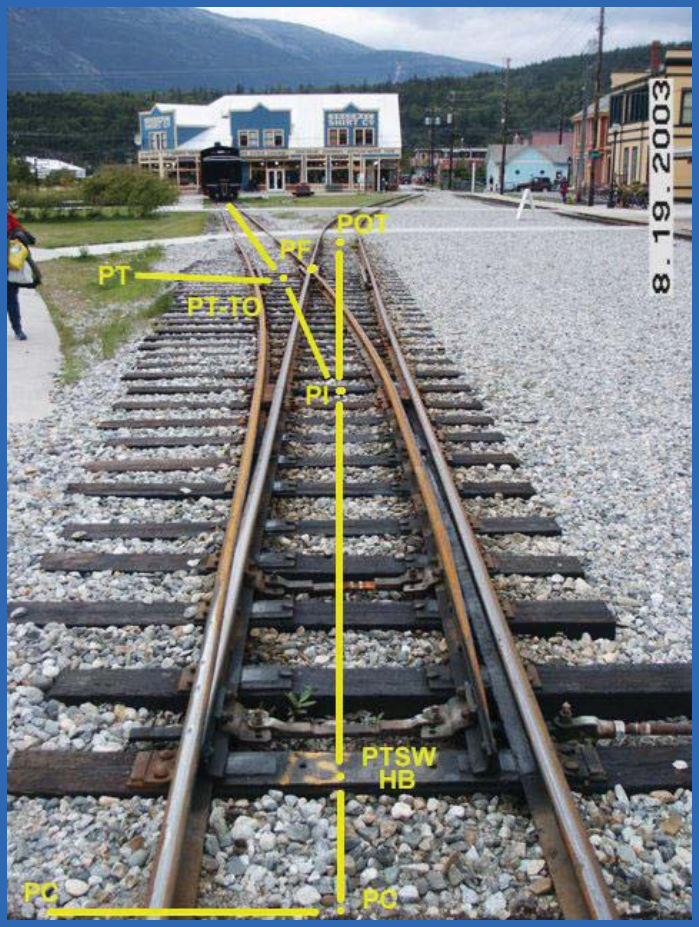
- Simple curves, Chord Definition (not arc; what's radius good for?)
- The typical boundary need only be concerned with HB (PtSw), PF, measured lead, frog angle, frog size & description, degree of equivalent curve, switch point length and weight of rail. (This is what you need to communicate to the railroad with!)
- If elevation is important, please note end of long switch ties!



When Looking at This...

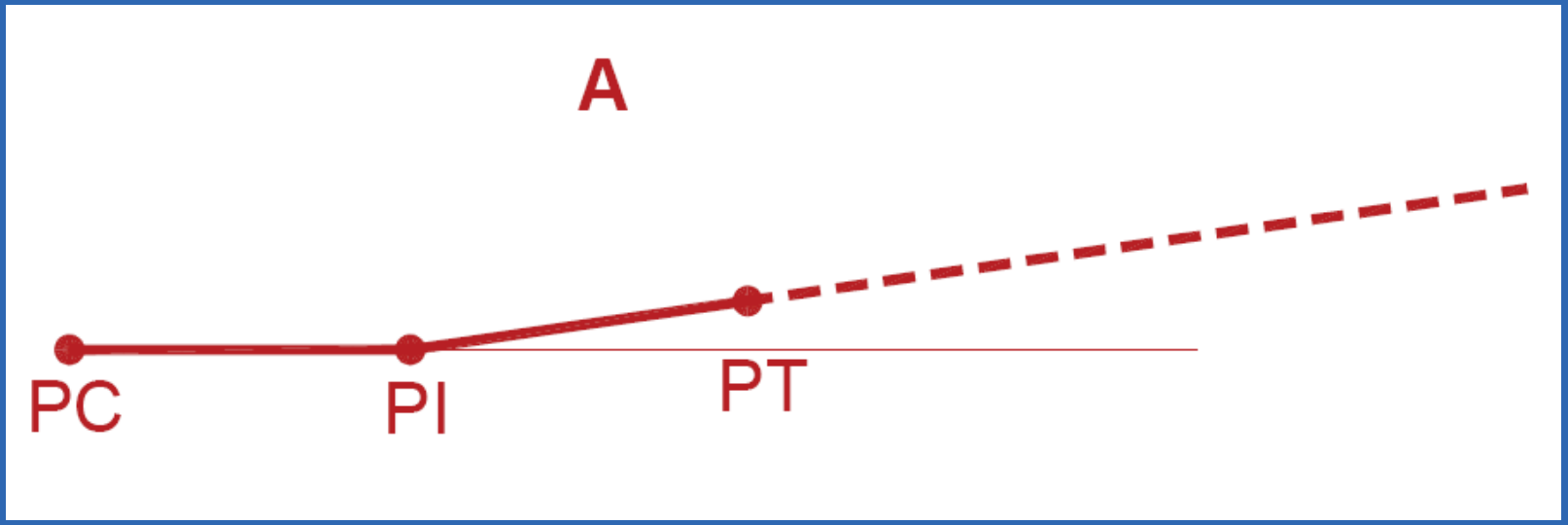


…Think Like This!



Turnout Layout: Construction Step "A"

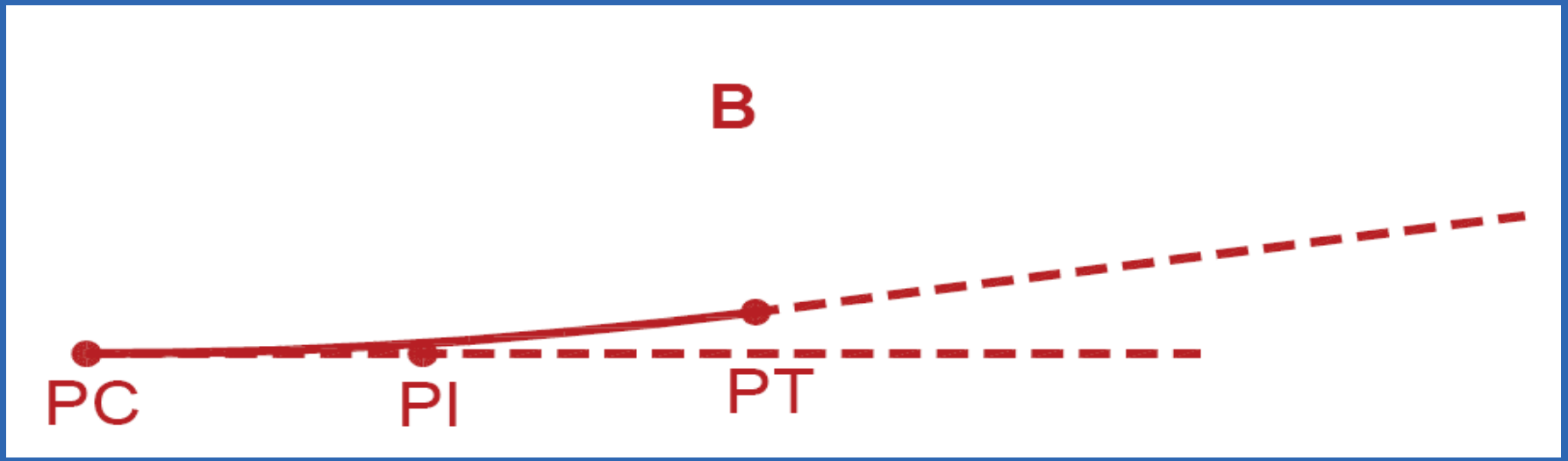
- Pick your tangent baseline to come out of (must match rail)
- Set your PI
- Turn your frog angle delta, using semi-tangent "T" from your standard plans or switch table, establish your PT - TO (Theo. PF)
- Set your PC on the baseline using your semi-tangent distance "T"



Turnout Layout: Construction Step "B"

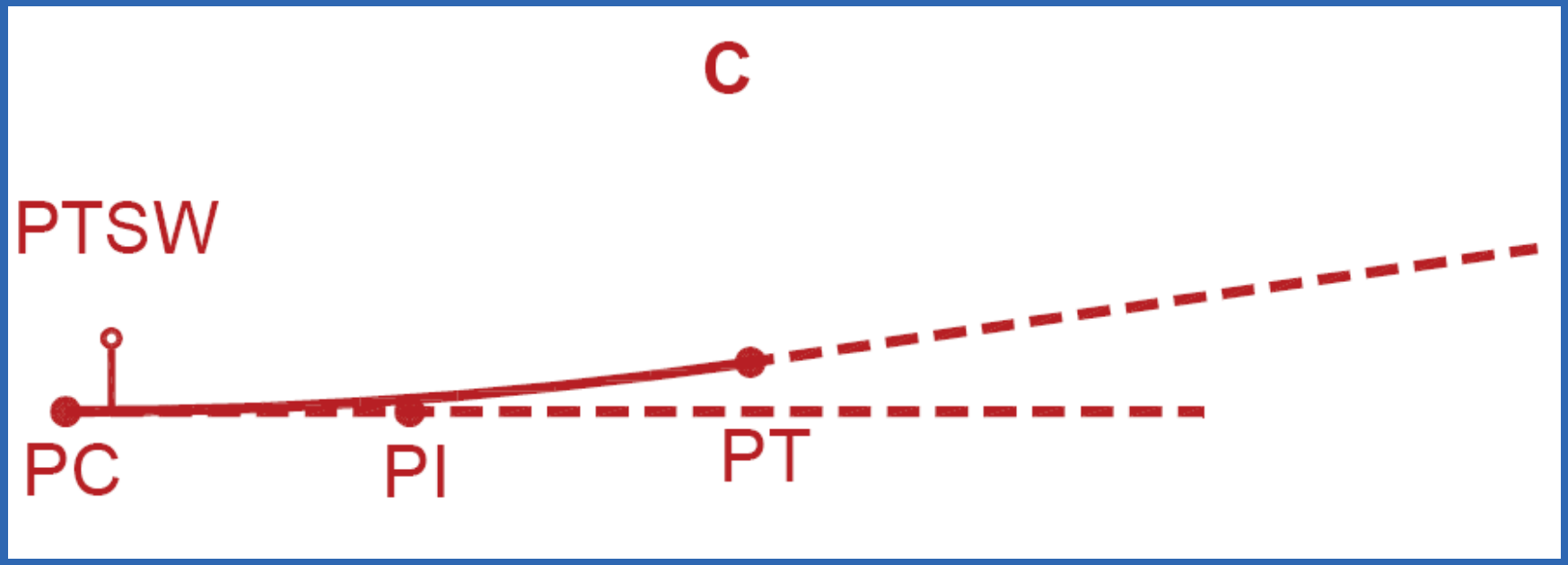
- Lay in your equivalent curve radius *("r")* between the *PC and PT*
  - *i.e. "Fillet the Curve"*
- Equivalent radius is determined by solving for "r". Using either given semi-tangent distance, lead distance or degree of equivalent curve "D"
  - *** beyond the PT a short piece of tangent [20-45 long depending on frog length, PF to HEEL] because actual component is tangent (fixed) as fabricated in the rail mill .

Try to avoid curves between the PF and the end of the largest (17 ft?) Ties...



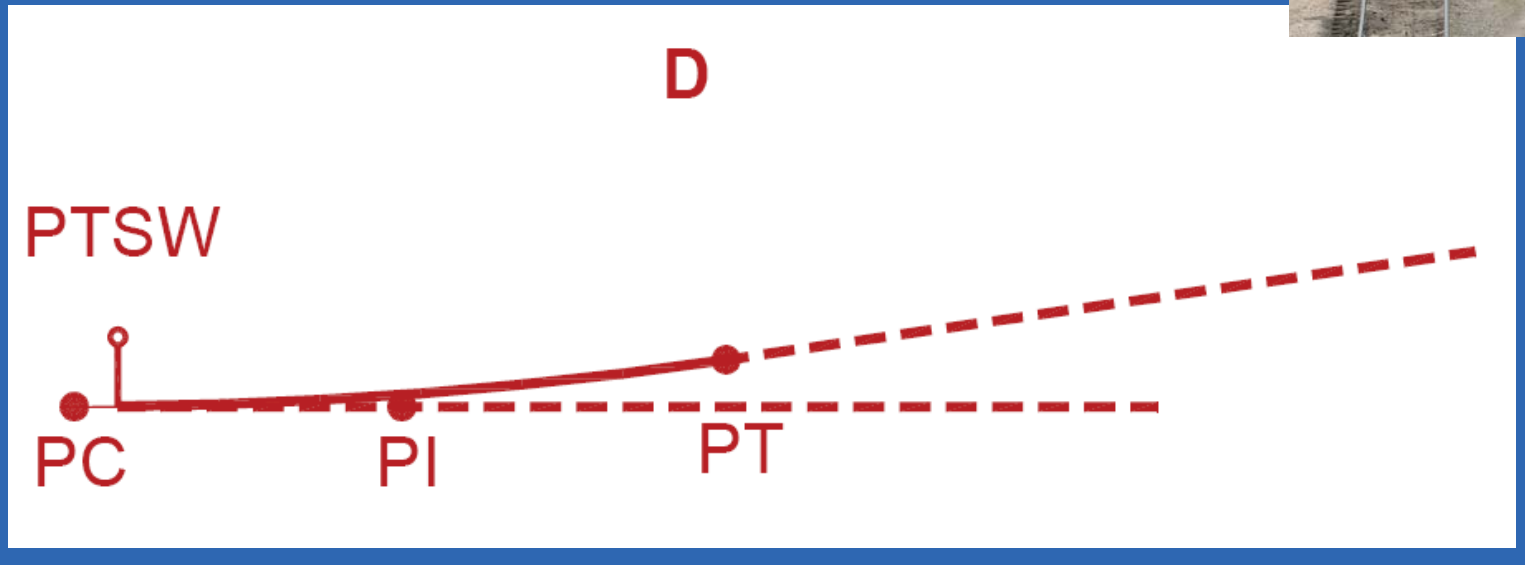
Turnout Layout: Construction Step "C"

- Lay-in your point of switch/ headblock (PTSW=HB)
- Switch symbol is a 6 ft segment (switch rod) topped off by a 2 ft diameter circle (outline of old base of switch stand [thus the lollipop symbol])



Turnout Layout: Construction Step "D"

- Remove the short segment of curve between the PC and PTSW
  - **HB** or **PTSW** is used to label the beginning of a track in a turnout in order to avoid confusion with the Point-of-Spiral **(PS)** in a spiral curve (i.e. PS--PSC--PCS--ST)



Turnout Layout: Construction Step "E"

- Lay out the limits of your long switch ties (8 ft to 17 ft in stepped increments generally as determined by your standard plan for a given turnout
  - ** Switch tie limits (blue dotted line) denotes where both tracks must remain in the same plane and hold the same grade….