



www.discoverlivesteam.com

© 1999 Do not copy or reproduce.

Track Construction Projects

Site Preparation.

by Ken Denham

Preparing a Site Plan

by Ken Denham

1. Find an existing contour map of the site from a map company listed in the yellow pages; if not available, make your own. Use one spot on the site as a starting point: a manhole cover, big rock, an immovable object, or establish an immovable benchmark at ground level such as a spike in a tree or pole. If the land is fairly level give the point an arbitrary elevation of 10' (this will help avoid the use of negative numbers).
2. Using a leveling instrument and a long tape, mark out a grid with a stake every 50', (or 100' if not much change in elevation) from the starting point so you end up with parallel lines 50' (or 100') apart.
3. Have the surveyor measure the elevation from the benchmark every 10' along the first grid line, (closer if the land is steep). Proceed to the next grid line and repeat until you have all grid lines finished. Then make a scale topographic map with the grid and elevations as shown on the enclosed map. If desired, develop contour lines to the 0.5 or 1.0 foot interval throughout the grid.
Fit the general track plan desired to the grid. Observe the grade in which the track will pass through elevations on the grid. If elevation is gained, or lost, changing 1' up or down in a 100' distance, the grade is a 1% grade, 2 feet in 100' is a 2% grade, etc. When grades over a long distance are necessary, a 1 1/2 % grade is probably ideal. When grades are greater than desired, the track alignment can be adjusted using the grid elevations as a guide. If the track alignment cannot be adjusted, it may be necessary to cut or fill in some areas to maintain the grade desired. The grid elevations will identify areas of cut or fill. Estimated

depths and quantities can easily be determined. This is particularly true when a curve in the track is needed or change of direction. The radius of the curves need to be considered also. A 65' radius curve will usually handle engines with a long wheelbase, possible exceptions being articulated engines.

Your curves need a manageable radius AND a consistent grade elevation.

*See the Article "MINIMUM RADIUS CURVES" from [LIVE STEAM MAGAZINE](#) (June, 1974) which takes the following into consideration:

1. Engines with a pair of center drivers
2. Engines without center drivers
3. Engines with only 2 pair of drivers
4. Engines with 4 wheel leading trucks
5. Engines with 2 wheel pony trucks
6. With trailing trucks
7. The amount of gauge widening on the curves, the lateral motion of the driving wheels, the wheel diameter, and the flange depth.

Ken Denham,
ROCKY
MOUNTAIN
RAILS
Denver,

Colorado.
Clark
Buyalski,
Track Supt.

Thanks to Ed Woodrings of Penn. Live
Steamers for his help.
