

# Montana

## General Engineering Planning and Design Guide

### for Engineering Surveys

<u>Survey notes, minimum requirements</u>	<u>References</u>	✓
	EFH Ch. 1 TR62 NEM 541.3	
▪ Use standard NRCS loose leaf notes, approved forms or electronic recorder.		<input type="checkbox"/> x
▪ All notes should be understandable by a technically competent person who has had no contact with the surveyor or job.		<input type="checkbox"/> x
▪ Numbers and printing should be carefully formed and understandable by anyone.		<input type="checkbox"/> x
▪ Note format should be consistent with the formats in TR-62 and/or EFH Chapter 1.		<input type="checkbox"/> x
▪ Project name (individual or group).		<input type="checkbox"/> x
▪ Job or construction item name.		<input type="checkbox"/> x
▪ Purpose of survey (planning, design, layout, etc.).		<input type="checkbox"/> x
▪ Survey party members and their assignments.		<input type="checkbox"/> x
▪ Date, page numbers.		<input type="checkbox"/> x
▪ Heading for columns describing shots.		<input type="checkbox"/> x
▪ Complete descriptions of benchmarks, references, physical features.		<input type="checkbox"/> x
▪ Designate centerline, right and left, upstream and downstream.		<input type="checkbox"/>
▪ Sketches and description illustrating physical features.		<input type="checkbox"/>
▪ Sketches or descriptions of what markings on stakes mean.		<input type="checkbox"/>
▪ Closure calculations for all traverses.		<input type="checkbox"/> x
▪ Check all calculations. Checker should initial and date each page of notes.		<input type="checkbox"/> x
<b><u>Special Equipment</u></b>		
Electronic distance measuring devices (EDM) should only be used when their use will significantly reduce time and cost of surveys. Conventional level and transit should be used on most jobs. Hand level can be used on small, simple jobs.		

## General - Engineering Surveys

### Completion Checks

- Description of benchmarks used as reference.
- Adequate number of elevations at key points to assure that job will function as designed.
- Adequate number of measurements to assure that key elements of the structure are in accordance with the design.
- Brand names, model numbers, ASTM test designations, and other pertinent data which fully describes manufactured items incorporated in job.
- Notes concerning any changes that vary from the design.
- Signature of person making completion check and date.

### References

- ✓
- x
- x
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x This activity or documentation is usually required on each job.