



Montana Department of Transportation  
PO Box 201001  
Helena, MT 59620-1001

## Memorandum

To: Distribution

From: Paul Ferry, P.E.  
Highways Engineer

Date: August 19, 2008

Subject: Mass Diagram and Grading Frames

Since we are no longer including the mass diagram in the final plans, the information in the Grading Summary will also change. Use the following criteria to determine what information must be shown in the Grading Summary:

- If a project has only one value for shrink (or swell), show only one entry in each column for the total excavation, embankment+, borrow or excess. Indicate the shrink or swell factor in the "Remarks" column.
- If a project has multiple shrink/swell factors, show the station range of each factor and list the individual shrink or swell factor in the "Remarks" column. A single entry will still be shown in each column for the total excavation, embankment+, borrow or excess (similar to how surfacing quantities are shown for a single typical section). Alternatively, a shrink/swell table with station ranges can be shown beneath the frame for clarity.
- If it is determined that a forced balance should be used (e.g. at a bridge), show the station range for the separate areas and place a separate entry in each column for the excavation, embankment+, borrow or excess within that range (e.g. there would be a station range and quantities from the beginning of the project to the bridge end and a separate station range and quantities from the other bridge end to the end of the project).
- If the project has a hard split for different funding or at a reservation boundary, a separate entry should be placed in each column for the quantities in the appropriate station range.
- The note at the bottom of the Grading Summary that states, "See mass diagram for distribution of grading quantities" will be eliminated.
- No changes are necessary on the Additional Grading Summary.

These changes to the Grading Summary should be included in all projects where the Mass Diagram will be eliminated from the contract plans packages.

The 745 CP Transmittal form has been updated with the addition of a line indicating that a mass diagram has been developed for the project. Please create a separate cpb of the mass diagram and provide its DMS file name on the 745 CP Transmittal Form.

If you have questions concerning this, please contact me at 444-6244.

Pf.

Distribution:

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