

## COMPUTATION AND SUMMARIZATION OF EARTHWORK QUANTITIES\*

Projects containing Regular Excavation and Borrow as pay items shall have compaction (shrinkage or swell) factors, as furnished by the Materials Division, applied to Regular Excavation and Borrow quantities.

When Regular Excavation is to be paid for on a plan quantity basis, and Embankment is a pay item, the contractor shall be responsible for determining the effect of the shrinkage or swell of the material. Reference VDOT's [Road and Bridge Specifications](#), Section 303.

The Materials Division will generally estimate the shrinkage or swell in each cut and recommend an average shrinkage or swell factor to be used throughout the project. On a project having differing soil types, the Materials Division may recommend more than one factor to be applied to the applicable areas of the project. The Materials Division will recommend a compaction factor for borrow based on average shrinkage or swell for the general vicinity.

In the event that the shrinkage or swell factor is not received from the Materials Division by Preliminary Field Inspection Stage, an estimated factor (as provided by Materials Division) shall be used in the interim.

This procedure has been developed to apply shrinkage or swell to excavation quantities in lieu of fill quantities and should prevent large overruns of Borrow quantities during construction.

### PLAN SUMMARY NOTES

The notes shown in the legend should be used to clarify the method of arriving at the individual earthwork totals.

For projects with a pay item for Borrow, the following note is to be shown on the Grading Summary sheet:

"The borrow quantity shown was computed on the basis of the estimated average shrinkage or swell factor for the general vicinity of the project. The contractor will be responsible for determining the actual factor for the site(s) from which he proposes to secure borrow material and shall determine the actual quantity of borrow material needed to complete this project."

For projects with a pay item for Embankment, the following note is to be shown on the Grading Summary sheet:

"The embankment quantity shown has not been adjusted for shrinkage or swell factors. The contractor will be responsible for determining the effect of the shrinkage or swell factor of the embankment material, and no adjustment will be made in pay quantities for this factor. The contractor shall determine the actual quantity of embankment material needed for complete this project."

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\* Added 7/14