

**Oregon Department of Transportation**

Delivery & Operations Division/

Engineering & Technical Services

7163 ­‑ Geotechnical Engineering,

Engineering Geology & Hazmat Section

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FILE CODE:

**DATE: Tuesday, October 3, 2023**

**TO:** Susan C. Ortiz, P.E., G.E.

 State Geotechnical Engineer

**FROM: Steven Preszler, PE Phone:** Click here to enter phone #

 **Project Manager**

 Marion County Public Works

**SUBJECT: Proposed Revision to Geotechnical Design Manual**

 **To Section Number** Click or tap here to enter section number

**Problem Statement:**

Equation 13.3 can be misleading as it is written. The equation is reformatted for clarification.

#### 13.6.1.1 Shallow Foundations

For evaluating shallow foundation springs, the structure designer generally requires values for the dynamic shear modulus, G, Poisson’s ratio, and the unit weight of the foundation soils. The maximum, or low-strain, shear modulus can be estimated using index properties and the correlations presented in Table 13.2. Alternatively, the maximum shear modulus can be calculated using Equation 13.3, if the shear wave velocity is known:

Equation 13.3

Gmax = γ /g(Vs)2

Where:

 Gmax = maximum dynamic shear modulus

 γ = soil unit weight

 Vs = shear wave velocity

 g = acceleration due to gravity

**Proposal:**

#### Shallow Foundations

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Equation 13.3

$$G\_{max}= \frac{γ(V\_{s})^{2}}{g}$$

Where:

 Gmax = maximum dynamic shear modulus

 γ = soil unit weight

 Vs = shear wave velocity

 g = acceleration due to gravity

**Analysis / Research / Other Supporting Data:**

[ ] None

[ ] Attached:

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*

**Geotechnical Engineering, Engineering Geology & HazMat Section Response:**

[ ]  Accepted for consideration as submitted

[ ]  Accepted for consideration as noted

[ ]  Proposal tabled, see Remarks

[ ]  Proposal not accepted, see Remarks

**Remarks:**

[Enter Remarks here]

Susan C. Ortiz, PE, GE Tom Grummon

State Geotechnical Engineer State Foundation Engineer