

**Oregon Department of Transportation**

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Engineering & Technical Services

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**DATE: Monday, October 2, 2023**

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

State Geotechnical Engineer

**FROM:** Susan C. Ortiz, P.E., G.E. **Phone: 503.428.1344**

State Geotechnical Engineer

Oregon Department of Transportation

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

**To Section Number** Chapter 1.1

**Problem Statement:**

Update general section on what has changed in the 2024 version of the Geotechnical Design Manual.

The current language:

## General

At the direction of ODOT’s Chief Engineer, the *ODOT Geotechnical Design Manual (GDM)* establishes standard policies and procedures regarding geotechnical work performed for ODOT (DES 05-02). The manual covers geotechnical investigations, analysis, design, and reporting for earthwork and structures for highways. The purpose of the GDM is to establish investigation and design standards, furnish information for an optimum design, which will minimize over-conservatism, as well as to minimize under-design and the resulting failures commonly and mistakenly attributed to unforeseen conditions. All State of Oregon projects are required to meet the design standards in the GDM.

Specific changes in the 2023 edition of the GDM are quite significant. Since the establishment of the GDM circa 2006 there have been significant policy, standards, quality control and required documentation changes within ODOT for the geotechnical profession. In an effort to improve quality of project delivery, statewide consistency, and quality control, this edition captures some of these changes by; reordering the Chapters in order of project delivery, emphasizing quality control and quality assurance in Chapter 2, and providing instructions for special efforts to advance the practice of the Geotechnical disciplines.

For the first time since the publishing of the Soil and Rock Classification Manual, there are significant changes. With the publishing of this new version of the Soil and Rock Classification Manual, any projects in development that have not completed the DAP phase will use the current Soil and Rock Classification Manual. The 1987 Soil and Rock Classification Manual will only be available for completion of existing projects that have completed the DAP phase and existing construction projects. The current version of the Soil and Rock Classification and Logging is now Chapter 5 of the GDM. All Geotechnical Reporting Documents thereafter will use the most current version of the GDM. Chapter 5 of the GDM replaces the 1987 Soil and Rock Classification Manual.

An effort is currently underway to combine both geotechnical and structural seismic design criteria in a stand-alone manual. The current Seismic Design, Chapter 13, will be sunset upon the publishing on the *Seismic and Tsunami Design Criteria Manual*, all projects without DAP acceptance will use the Seismic and Tsunami Design Criteria Manual.

Foundation design for bridges, signs, signals, luminaires, sound walls, and buildings have been combined into one chapter titled Foundation Design. Similarly, the previously titled chapters Construction Recommendations and Report have been merged with Geotechnical Reporting and Documentation for a more efficient and succinct manual.

[Table 1.1](#Table_1_1_Technical_Resources), of this chapter, provides a crosswalk between GDM 2022 and the previously published manual as well as the Technical Resource and contact information. The Technical Resources listed in this table should be the first point of contact for project questions, design deviation requests, and any suggestions for manual changes.

Finally, a subsection titled Special Geotechnical Procedures has been added to Chapter 1 to emphasize recent changes and efforts in geotechnical programs.

**Proposal:**

The proposed language:

## General

At the direction of ODOT’s Chief Engineer, the *ODOT Geotechnical Design Manual (GDM)* establishes standard policies and procedures regarding geotechnical work performed for ODOT (DES 05-02). The manual covers geotechnical investigations, analysis, design, and reporting for earthwork and structures for highways. The purpose of the GDM is to establish investigation and design standards, furnish information for an optimum design, which will minimize over-conservatism, as well as to minimize under-design and the resulting failures commonly and mistakenly attributed to unforeseen conditions. All State of Oregon projects are required to meet the design standards in the GDM.

Specific changes in the 2024 edition of the GDM are a refinement of the significant changes and reorganization of the 2023 version. 2024 changes are summarized below.

* Chapter 2.4.2 - Modifies the subsection describing disputes. Return to the original pre-2023 language.
* Chapter 4 -
* Chapter 13.6 - Equation 13.3 can be misleading as it is written. The equation is reformatted for clarification.
* Chapter 16.2.8.1 - Elements of Contract Plans for Retaining Wall Systems - Plans checklist and drafting information is now contained in the GHE CAD manual Retaining Walls chapter. This creates duplicate information and the potential for some level of contradiction if updates are made in one manual and not the other.
* Chapter 16.6.15.4 Geosynthetic Reinforced Soil Integrated Bridge System (GRS-IBS) Bridge Abutment – the “Overview of design and construction constraints for use of GRS-IBS” have been modified to be in alignment with the most recent guidelines from FHWA.

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[Table 1.1](#Table_1_1_Technical_Resources), of this chapter, provides a crosswalk between GDM 2024 and the manual published prior to 2023, as well as the Technical Resource and contact information. The Technical Resources listed in this table should be the first point of contact for project questions, design deviation requests, and any suggestions for manual changes.

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

None

Attached:



**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