CHAPTER 1 INTRODUCTION

GEOTECHNICAL DESIGN MANUAL

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The South Carolina Department of Transportation (SCDOT) Geotechnical Design Manual (GDM) has been established to provide uniform guidance for the development of field explorations. performance limits, design processes, project deliverables and the current use of resistance factors (φ). The GDM applies to all projects on the SCDOT system and when required by SCDOT. The engineer should meet all criteria and practices presented in the GDM, while fulfilling SCDOT's operational and safety requirements. However, the criteria presented in the GDM shall not be considered as a standard that must be met in all circumstances. Engineers must consider economic impacts, aesthetics, the social and cultural resources of the project area, and other relevant factors as appropriate. Requests for modification to the criteria shall be made in writing to the Office of Engineering Support – Geotechnical Design Section (OES/GDS) and shall include a technical justification as to why the modification is necessary. The GDM presents most of the information normally required in the geotechnical design of transportation projects; however, because it is impossible to address every issue that geotechnical engineers will encounter, sound engineering judgment must be exercised when conditions arise that are not specifically covered in the GDM. Frequently, geotechnical engineers must be innovative in their approach to geotechnical design. This may require, for example, additional research into geotechnical literature. Any questions concerning the applicability or interpretation of any procedure, analysis, or method contained in the GDM shall be directed to the OES/GDS for review and comment.

For this Manual, the Geotechnical Engineer-of-Record (GEOR) includes the appropriate Regional Production Group – Geotechnical Design Section (RPG/GDS) and the Geotechnical Engineering Consultant (GEC) whether for design-bid-build or a design build team.

The current version of the GDM was prepared based on the 9th Edition of the American Association of State Highway and Transportation Officials (AASHTO) <u>LRFD Bridge Design</u> <u>Specifications</u> (2020) (AASHTO LRFD Specifications). This edition shall be used whenever the GDM refers to the AASHTO LRFD Specifications. The applicability of future editions and interims shall be determined by the OES/GDS in conjunction with the RPG/GDS when requested in writing from the GEOR.

The criteria presented in this Manual apply to all projects designed for or by SCDOT. However, the <u>Supplemental Design Criteria for Low Volume Bridge Replacement Projects</u> (PCDM-11) supersede the criteria contained in this Manual for the design of Low Volume Bridge Replacement Projects. Where the Low Volume Bridge Replacement criteria doesn't address something, then the criteria contained in this Manual shall apply.

1.2 REVISION PROCESS

The GDM is intended to provide current geotechnical design policies and procedures for use in developing State highway projects. To ensure that the GDM remains up-to-date and appropriately reflects changes in SCDOT's needs and requirements, its contents will be updated on an ongoing basis. Updates and revisions released between editions of the GDM will be published as *Geotechnical Design Bulletin (GDB)* and made available on the SCDOT website. It is the responsibility of the GDM holder to keep their copy of the GDM updated.

It is important that users of the GDM inform SCDOT of any inconsistencies, errors, need for clarification, or new ideas to support the goal of providing the best and most up-to-date information practical. Comments may be forwarded to the OES/GDS.