

GEOTECHNICAL ENGINEERING PROCEDURES GUIDANCE

Geotechnical Design

For geotechnical design and construction support contact the Geotechnical Team Member. All geotechnical design will be conducted by either an in-house geotechnical engineer or a GCA Consultant approved by the Geotechnical Team Member.

Project Elements Requiring Geotechnical Evaluation

Highway Program Project Managers and Designer should request assistance from the Geotechnical Section for project that will include any of the following:

- Retaining walls and noise walls
- Large culverts
- Roadway embankments (cuts or fills)
- Building foundations
- Sign, luminaire, and traffic signal foundations
- Over steepened slopes (slopes steeper than 2H:1V)
- Reinforced soil slopes
- Slope failures
- Rock cuts and bedrock blasting
- Roadways off existing alignment

Geotechnical Plans

All geotechnical plan sheets are developed and maintained by the Geotechnical Section. The inclusion of these sheets in the final plan set is determined by the project requirements. The sheets that are intended for use in the final plan set will also be included in the final geotechnical report. Plans developed and maintained by the Geotechnical Section are:

- Boring Location Plan – may be combined with the Highway Plans
- Interpretive Subsurface Profile Sheet – only for buried structures
- Boring Logs Sheets -if needed
- Specialty Plan Sheets - retaining walls, reinforced soils slopes, geocell applications and others as determined by the Geotechnical Team Member.

These plan sheets will be the responsibility of the Geotechnical Team Member and the geotechnical detailer. The need for these sheets will be discussed with the Project Manager and Designer during the design phase.

Presentation of Geotechnical Information on Highway Plans

In some cases, geotechnical information will be included on the Highway Plans. The Geotechnical Section will work with the Highway Designer and Detailer to accurately represent the geotechnical information on these plans.

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- *Title Sheet* - The geotechnical standard symbols should be included in the Plan Legend on the Title Sheet.
- *Plan/Profile Sheets* – For Highway projects, the geotechnical explorations should be shown on the plan portion of the Plan/Profile sheets. For large culvert and other specialty projects (i.e., retaining walls, reinforced soil slopes) the Geotechnical Section will develop a separate Boring Location Plan to incorporate this information in the final plan set.
- *Cross Sections* - For Highway projects, all explorations should be graphically shown on the Cross Section sheets. The explorations should be located at the station closest to the station of the exploration and at the offset where they were drilled.

See the [Preparation of Plans Guidance](#) for more information of what should be provided for project plans.

Project Geotechnical Report

The Geotechnical Team Member will produce a Final Geotechnical Design Report providing recommendations for the geotechnical related aspects of the project. This report will include the information necessary to develop the final design of the project and minimize claims for differing site conditions. The information included in this report should be incorporated into the final plans for advertisement of the project. The Final Geotechnical Design Report is posted to the MaineDOT website when the project is advertised.

Special Provisions

Any Special Provisions necessary for geotechnical items will be developed by the Geotechnical Team Member and will be included in the Final Geotechnical Report as an appendix. Special Provisions will be provided to the Designer and Project Manager during the design phase of the project.

Construction Support

The Geotechnical Section provides submittal review support during project construction. Project Residents should send the following submittals to the Geotechnical Team Member for review and comment: blasting plans, retaining wall designs, light pole, sign, and signal foundation designs, specialty geotechnical geotextiles and geosynthetic fabrics.