

# New Jersey Turnpike Authority

P.O. Box 5042, Woodbridge, NJ 07095



June 30, 2022

## Document Change Announcement

### *2007 Procedures Manual*

### *Geometric, Geotechnical, and Miscellaneous Updates*

### *DCA2022PM-01*

**Subject: Revisions to**  
**Section 5 Geotechnical Engineering, Subsection 5.1 Introduction,**  
**Subsection 5.2 Preliminary Design**  
**Subsection 5.3 Phase A**  
**Subsection 5.4 Phase B**  
**Subsection 5.5 Phase C**  
**Subsection 5.6 Phase D**  
**Subsection 5.7 Contract Documents for Bids and Post-Design Services**

#### **Description of Change:**

Updates have been made to the Design Manual related to horizontal and vertical clearances, pavement design, reference corrections, and alignment with previously-issued DCA2021DM-03. Updates have been made to the Procedures Manual to align with previously-issued DCA2017DM-03 related to geotechnical design.

#### **Notice to New Jersey Turnpike Authority Staff and Design Consultants**

Effective immediately, all contracts currently in the design phase shall incorporate the revisions herein. For advertised contracts awaiting the opening of bids this revision shall be incorporated via addendum. Contact your New Jersey Turnpike Authority Project Manager for instruction.

The revisions may be accessed on the Authority's webpage: <https://www.njta.com/doing-business/professional-services>

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## Section 5 - GEOTECHNICAL ENGINEERING

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### 5.1. INTRODUCTION

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#### 5.1.1. General

This Section provides Engineers with an outline of their minimum responsibility for work and deliverables as required by the Authority. The primary intent is to dictate a uniform approach to geotechnical design aspects for Authority projects and stipulate minimum presentation standards for Reports, Contract Plans, and Specifications. This Procedures Manual should be used in coordination with the Design Manual, which provides additional details for the requirements and documentation of foundation design and related decisions.

#### 5.1.2. Geotechnical Engineering Phases

The Geotechnical work shall be conducted in Preliminary and Final Design:

- Preliminary Design – Perform Desk Study
- Phase A – Prepare and submit Phase A Geotechnical Engineering Report, Desk Study and Geotechnical Exploration Plan (GEP)
- Phase B – Perform the Geotechnical Exploration, preliminary design recommendations, and preliminary Phase B Geotechnical Engineering Report.
- Phase C – Finalize design recommendations, plans and specifications, finalize Geotechnical Engineering Reports
- Phase D – Finalizing plans and specifications.

These phases are discussed in detail in subsequent sections.

#### 5.1.3. Hold Points

Hold Points are defined as points in the project development where concurrence must be provided by the Authority for work to date and plans for upcoming work. The end of each phase specified in Section 5.1.2 shall be considered as a Hold Point. The Engineer of Record (EOR) and Geotechnical Engineer (GE) shall be required to address and resolve Authority comments and concerns as they pertain to the phase submissions in order to advance from each Hold Point. Work advanced beyond a Hold Point without Authority permission is performed at the sole risk of the EOR.

#### 5.1.4. Work Plans

Work Plans shall be prepared by the EOR and approved by the Authority before any work begins. The Work Plans shall clearly state the objective of the work, list any project specific assumptions for design, and provide a simple schedule for the completion of the work.

### **5.1.5. Meetings**

Meetings shall be held to discuss geotechnical issues, determine which issues warrant design memoranda, review design memoranda, resolve comments, or provide other geotechnical recommendations, and coordinate with the other disciplines on the Design Team.

The need for meetings shall be made by mutual agreement between the EOR, GE, the General Consulting Engineer and the Authority on an as needed basis. For the purposes of estimating, the EOR and the GE should assume attendance at the Kick-off, Preliminary Design, Phase A, B, and C review meetings.

## **5.2. PRELIMINARY DESIGN**

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A Desk Study shall be performed during Preliminary Design as per the requirements specified in Section 6.3 of the Design Manual. Generally, the GE's contribution to the Preliminary Design Submission shall consist of gathering existing subsurface information, applying a basic geologic understanding to the project, identifying geological hazards and environmental constrains, gathering existing foundation details for reuse options, and determining the suitable foundation options for the alternates being evaluated. The Desk Study shall include discussions as detailed in Section 6 of the Design Manual. The information gathered during the Preliminary Design phase shall serve as the basis to inform the GEP development and other design phases.

## **5.3. PHASE A**

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Requirements for the Phase A deliverables are provided in Section 6.3 of the Design Manual.

### **5.3.1. Desk Study**

The part of the Desk Study performed during Preliminary Design shall be finalized. Additional or more detailed information shall be collected and incorporated into the Preliminary Design work as outlined in Section 6.3.1 of the Design Manual.

### **5.3.2. Geotechnical Exploration Plan**

Geotechnical Exploration Plan (GEP) shall be developed in accordance with Sections 6.3.2 and 6.4 of the Design Manual.

### **5.3.3. Existing Foundation Investigation Plan**

An Existing Foundation Investigation Plan shall be developed for rehabilitation and reconstruction projects where reuse of existing foundations is considered. The plan shall include exploration methods, in-situ tests, geophysical tests, and laboratory tests required to verify the integrity and load carrying capacity of the existing foundations in accordance with Section 6.4 of the Design Manual.

#### **5.3.4. Geotechnical Engineering Report**

The Phase A Geotechnical Engineering Report shall include the Desk Study, GEP, and Existing Foundation Investigation Plan discussed above. The sample table of contents included in Appendix E of the Design Manual shall be utilized for developing this report.

### **5.4. PHASE B**

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Requirements for geotechnical design, drawings, and Phase B Geotechnical Engineering Report is provided in Sections 6.4 through 6.10 of the Design Manual.

#### **5.4.1. Geotechnical Exploration and Existing Foundation Investigation**

The geotechnical exploration and existing foundation investigation including the field work and laboratory testing shall be completed in Phase B unless a multi-phase approach is proposed as per Section 6.3.2 of the Design Manual. Field logs shall be finalized, and typed logs shall be prepared in accordance with the templates provided in Section 6 of the Design Manual. Subsurface profiles and cross sections shall be developed. If additional conditions arise during the Phase A subsurface investigation due to site variability, change in design, or unexpected conditions, the GE shall request, via the EOR, the Authority's approval of a supplemental exploration or investigation.

#### **5.4.2. Preliminary Geotechnical Engineering and Foundation Design**

Geotechnical engineering and foundation design shall be performed in accordance with Section 6 of the Design Manual. This work shall include developing design parameters, performing necessary calculations to develop the design recommendations, and providing design recommendations.

#### **5.4.3. Geotechnical Engineering Report**

The Phase B Geotechnical Engineering Report shall include the necessary information collected for the Phase A Report and the topics included in Appendix E of Section 6 the Design Manual. The necessary information to be included in the report is specified in the Design Manual under each subsection. Design calculations shall be submitted as a separate volume.

#### **5.4.4. Contract Drawings**

The geotechnical- and foundation-related information required for construction shall be included in the Contract Drawings. The necessary information to be included in the Contract Drawings is specified in the Design Manual under each subsection.

## 5.5. PHASE C

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Requirements for finalizing geotechnical designs, drawings, specifications, and the Final Geotechnical Engineering Report are provided in Sections 6.4 through 6.10 of the Design Manual.

### 5.5.1. Geotechnical Engineering and Foundation Design

Geotechnical engineering and foundation design performed during Phase B shall be finalized in accordance with Section 6 of the Design Manual.

### 5.5.2. Geotechnical Engineering Report

The Geotechnical Engineering Report submitted during Phase B shall be finalized as per the design revisions and the Phase B comments from the Authority. The necessary information to be included in the report is specified in the Design Manual under each subsection. Design calculations shall be submitted as a separate volume.

### 5.5.3. Contract Drawings

The Contract Drawings prepared during Phase B shall be revised to include updated design information and incorporate the Phase B comments from the Authority. The necessary information to be included in the Contract Drawings is specified in the Design Manual under each subsection.

### 5.5.4. Contract Specifications

The Contract Specifications shall be prepared for any items that deviate from or are not available from the NJTA Standard Specifications.

## 5.6. PHASE D

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Requirements for finalizing the Contract Documents are provided in Sections 6.4 through 6.10 of the Design Manual. Generally, the GE's contribution to the Phase D Submission will consist of the following items:

### 5.6.1. Contract Drawings

The Contract Drawings prepared during Phase C shall be revised to include updated design information and incorporate the Phase C comments from the Authority. The necessary information to be included in the Contract Drawings is specified in the Design Manual under each subsection.

### 5.6.2. Contract Specifications

The Contract Specifications prepared during Phase C shall be revised to include updated design information and incorporate the Phase C comments from the Authority.

### **5.6.3. Submission**

Drawings, Specifications, and any additional information required under the Consultant's OPS shall be submitted to the Authority as "bid ready" documents. Please note that the Boring Logs shall be included as part of the Contract Drawings.

## **5.7. CONTRACT DOCUMENTS FOR BIDS AND POST DESIGN SERVICES**

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Final Contract Documents shall be prepared and submitted to the Authority, which incorporate the Authority's Phase D comments (if any). The EOR and GE shall be responsible for reviewing Contractor Submittals, Site Specific Work Plans, Requests for Information (RFIs), Changes of Plan, and other issues arising during construction. Geotechnical engineering-related post design services are specified in Section 6.11 of the Design Manual. This work shall be performed in accordance with Section 3.4.6 of the Procedures Manual.