

Geotechnical Manual Updates and Drilling Inspections

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INDOT Geotechnical Services Division Website

- Geotechnical Design Manual
- Guidelines and Design Memos
- Construction Forms
- Requirements for Approval

Website can be found at :
<https://www.in.gov/indot/2804.htm>



Aquifer Protection Guidelines

- Revisions were made to the Aquifer Protection Guidelines in response to growing concerns with the settlement of boreholes
- INDOT follows 312 IAC 13 regarding material used to backfill a borehole
- Any other material needs to be approved by INDOT prior to use



Aquifer Protection Guidelines

- Backfilling Revisions:
 - Boreholes depths between 0 to 15 ft (after cave-in)- backfill with salvage soil up to the upper 2.0 ft and then bentonite chips used for the upper 2.0 ft
 - Boreholes depths greater than 15 ft (after cave-in)- the entire hole shall be backfilled with a plugging material
 - Plugging materials must consist of one or a combination of the following:
 - Neat cement with not more than five percent (5%) by weight of bentonite additive
 - Bentonite slurry, which can include polymers designed to retard swelling
 - Pelletized, medium or coarse grade crushed bentonite
 - Other materials approved by the commission as defined in 312 IAC 13

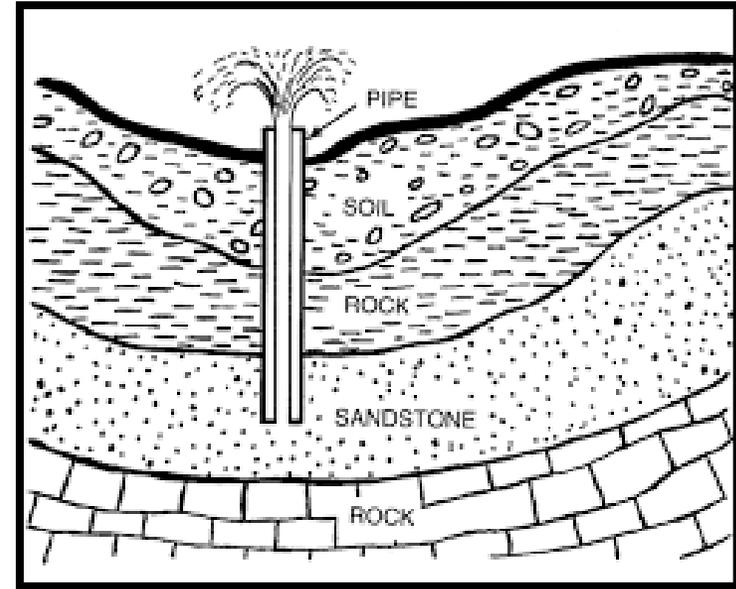
Aquifer Protection Guidelines

- Revised language to include a review of Red Flag Investigation and/or Environmental Document prior to drilling
- Red Flag Investigations give a general overview of the environmental conditions
- Usually one of the first documents to be completed for a project
- Red Flag Investigations include:
 - Infrastructure
 - Water Resources
 - Mining
 - Hazardous Material Concerns
 - Ecological Information
 - Cultural Resources



Aquifer Protection Guidelines

- Additional guidelines were added for backfilling in special conditions such as voids and artesian conditions
- Artesian conditions- use of a heavy grouting mix
- Voids- use of grouting basket or plug



Backfilling with Special Instrumentation

- Piezometer installation and backfilling information has been removed from the Aquifer Protection Guidelines
- Piezometers shall be installed and backfilled in accordance with INDOT Specification 204.04
- Inclinator installation and backfilling has been updated and is still part of the Aquifer Protection Guidelines
- Inclinator installation guidelines follow AASHTO R 45-13
- Inclinator casing shall be abandoned using a bentonite slurry or neat cement within 2 feet of ground surface
- Casing shall be terminated and capped with concrete



Manual Updates

Geotechnical Manual Chapter 3 Subsurface Investigation and Sampling Requirements:

- Pavement Projects (Sections 3.5.5 and 3.5.6)
- High Mast Lighting & Closed Circuit TV Towers (Section 3.5.7)
- Traffic signal Cantilever Structure (Section 3.5.8)
- Traffic Signs & Light Pole (3.5.10)
- Topsoil/Plant Growth Layer Sampling (Section 3.6.6)

Geotechnical Design Manual

- [Chapter 1 Introduction](#)
- [Chapter 2 Geology and Pedology](#)
- [Chapter 3 Geotechnical Investigation and Sampling](#)
- [Chapter 4 Field Identification and In-situ Testing](#)
- [Chapter 5 Lab Testing](#)
- [Chapter 6 Geotechnical Analysis](#)
- [Chapter 7 Design Recommendations](#)
- [Chapter 8 Geotechnical Report](#)
- [Appendix A - Description of Geotechnical Pay Items](#)
- [Appendix D - Schedule of Geotechnical Pay Items](#)
- [References and Appendices 1 - 14](#)
- [INDOT Check List For Retaining Structures](#)
- [Geosynthetics Guidance](#)

Manual Updates

Geotechnical Manual Chapter 5 Lab Testing:

- Topsoil and Plant Growth Layer Testing(5.21)
- Editorial changes to charts and tables

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Website Updates

- Newly added Drilling and Sampling Requirements:
[https://www.in.gov/indot/files/Drilling and Sampling Requirements.pdf](https://www.in.gov/indot/files/Drilling_and_Sampling_Requirements.pdf)
- Newly added Lab Requirements:
<https://www.in.gov/indot/files/LaboratoryRequirements.pdf>
- Found on Geotechnical Services Division Website under Approved Contractors, Consultants, and Materials Section

Approved Contractors, Consultants, and Materials

- [Approved Geotechnical Consultants](#)
- [Approved Geotechnical Laboratories](#)
- [Approved Materials](#)
- [Approved Retaining Wall System Evaluator](#)
- [Drilling and Sampling Requirements](#)
- [Laboratory Requirements](#)

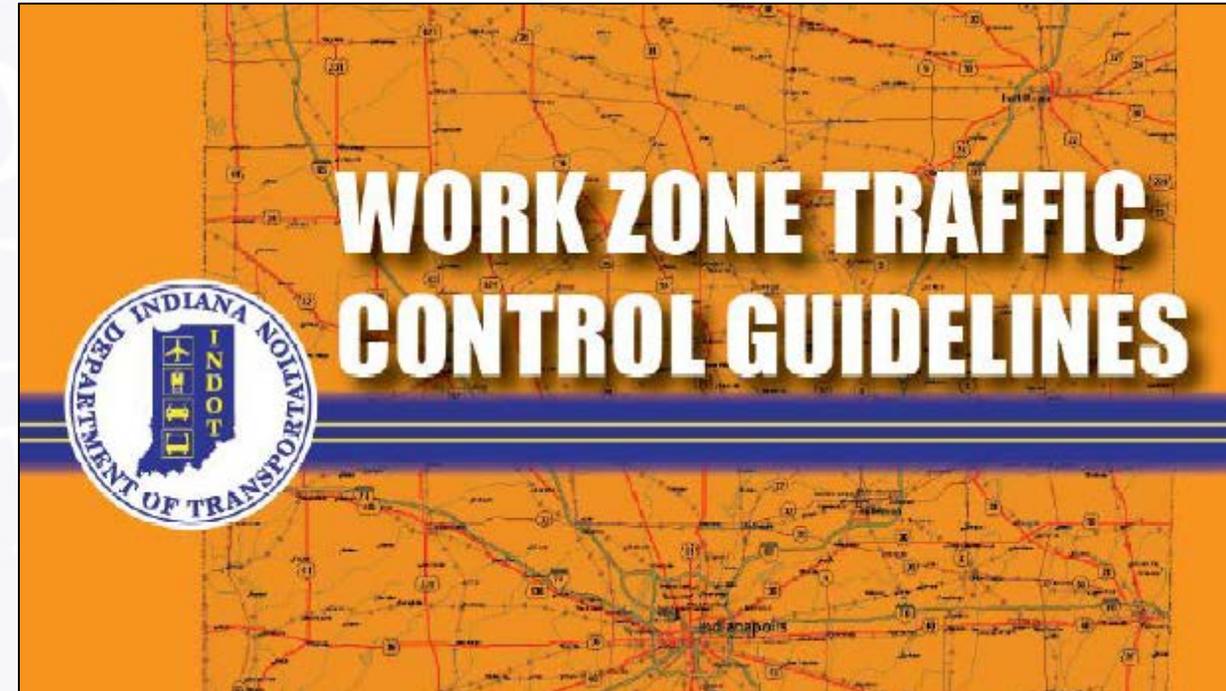
Personal Protective Equipment

- Please make sure anyone who is onsite during drilling has the appropriate Personal Protective Equipment(PPE)
- Proper PPE includes hard hats, reflective shirt, and steel toe boots
- Discretion shall be used for eye protection, hearing protection, and gloves
- INDOT Safety Manual can be found at: https://www.in.gov/indot/files/Safety_and_Health_Manual.pdf



Traffic Control

- Please ensure traffic control is in accordance with: Work Zone Traffic Control Guidelines
- Please ensure flagging operations are correct- flaggers are alert and directing traffic
- INDOT Work Zone Traffic Control Guidelines:
<https://www.in.gov/indot/files/WorkZoneTCH.pdf>



Pavement Core Collector Application

- Reminder- All pavement cores should be documented in the pavement core collector application
- If you need access to the application you can contact me at vleffel@indot.in.gov

