# ODOT District Geotechnical Engineers

<table>
<thead>
<tr>
<th>District</th>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-1</td>
<td>Russ Slonecker</td>
<td>419-222-9055 x 236</td>
<td><a href="mailto:Russ.Slonecker@dot.state.oh.us">Russ.Slonecker@dot.state.oh.us</a></td>
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<td>Doug Rogers</td>
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<td>D-5</td>
<td>Nikunj Kadakia</td>
<td>740-323-4400 x 5114</td>
<td><a href="mailto:Nikunj.Kadakia@dot.state.oh.us">Nikunj.Kadakia@dot.state.oh.us</a></td>
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<td>Qi Unterreiner</td>
<td>740-833-8057</td>
<td><a href="mailto:Qi.Unterreiner@dot.state.oh.us">Qi.Unterreiner@dot.state.oh.us</a></td>
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<td>Michelle Porr</td>
<td>937-492-1141</td>
<td><a href="mailto:Michelle.Porr@dot.state.oh.us">Michelle.Porr@dot.state.oh.us</a></td>
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<td>D-8</td>
<td>Joe Smithson</td>
<td>513-932-3030</td>
<td><a href="mailto:Joe.Smithson@dot.state.oh.us">Joe.Smithson@dot.state.oh.us</a></td>
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<tr>
<td>D-9</td>
<td>Chad Mitten</td>
<td>740-774-8978</td>
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<tr>
<td>D-10</td>
<td>Jason Wise</td>
<td>740-373-7317</td>
<td><a href="mailto:Jason.Wise@dot.state.oh.us">Jason.Wise@dot.state.oh.us</a></td>
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<td>D-11</td>
<td>Jim Graham</td>
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<tr>
<td>D-12</td>
<td>Jim Marszal</td>
<td>216-584-2128</td>
<td><a href="mailto:James.Marszal@dot.state.oh.us">James.Marszal@dot.state.oh.us</a></td>
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</tbody>
</table>
ODOT CENTRAL OFFICE GEOTECHNICAL COORDINATORS

Geotechnical Program Coordinator (GPC):

Steve Sommers  614-275-1356  Steven.Sommers@dot.state.oh.us

Foundation Engineering Coordinator (FEC):

Peter Narsavage  614-466-4318  Peter.Narsavage@dot.state.oh.us

Construction Geotechnical Engineer (CGE):

Randy Morris  614-644-6638  Randy.Morris@dot.state.oh.us

Construction Structures Engineer (CSE):

Scott LeBlanc  614-644-6628  Scott.LeBlanc@dot.state.oh.us
What is a Red Flag study?

- Compilation of all existing geotechnical information in the proximity of the site
- Thorough overview of the project area
A Red Flag study does not involve:

- Drilling
- Field sampling
- Detailed field review
Purpose

The purpose of this Red Flag Summary is to identify geotechnical concerns that could cause revisions to the anticipated design and construction scope of work, the proposed project development schedule, the estimated project budget, or the potential impacts of the project on the surrounding area. Of particular concern to geotechnical engineering, “Red Flag” features may include, but are not limited to, known or suspected geologic hazards (e.g., organic soils, karst, rockfalls, landslides, surface and underground mines, poor subgrade conditions, or difficulty in correcting existing surface or subsurface drainage problems).
Team Approach

- Geotechnical Engineer
- Geologist/Engineering Geologist
- Environmental Specialist
Introduction

- Provide a project description
- Define the project limits
  - Include information on location of site
    - USGS Quadrangle, Township, Section No.
- Consider all the reference sources
STA/COL-30

- North & South Corridors
STA/COL-30

- Corridor Boundaries
References

● ODOT Sources
  – Plan views, profiles, and cross-sections
  – Construction diaries and inspection reports
  – Compile information on changes to the plans during construction activities (e.g., slope, spring drains)
  – Interview people knowledgeable with the previous projects
  – Maintenance records
  – Boring logs & lab results on file with OGE
  – History and occurrence of landslides, mine subsidence, and rockfalls
Archived Files

- 21,000 Project Files
- Pilot Study
  - 1,538,000 sheets of 8.5” x 11” records
  - 50,300 plan sheets of 24” x 36” records
- Estimated Value $500 Million
- Production Run for Scanning
  - Cost: $360,000
  - Time: 18 months
Description

- Card Files
1968  Job No.  76855
Year  Changes

File No.  83-33-31

DESIGN BY  RACKOFF  Assoc.

RECON  AUGER  CORE  DRIVE ROD
By  Snyder  Brodsky
Dates  7/3-8/68  7/6-11/68
No. of Holes  8  9
or Soundings
Footage  97.5  118.0
Samples Tested

SITE PLANS
Date Recd  5-29-68
Revised  Plan

Topo Sheet  484-13-NF

Transmittal Date  8/24/68  No. of Tracings  3  Filed with year  5-1-79
Revisions
Remarks
Refer To

<table>
<thead>
<tr>
<th>Auger Data</th>
<th>Core Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Holes</td>
<td>Footage</td>
</tr>
<tr>
<td>8</td>
<td>118.0</td>
</tr>
</tbody>
</table>
Description

- Card Files
- Project Boxes
Description

- Card Files
- Project Boxes
- Plan Sheets
Description

- Card Files
- Project Boxes
- Plan Sheets
- Project Files
ODNR Sources

– Division of Geologic Survey
  
  http://www.dnr.state.oh.us

  • Boring logs on file
  • Measured geologic sections
  • Bedrock Geologic Maps
  • Bedrock Topography Maps
  • Bedrock Structure Maps
    – GIS Example: FRA-270
  • Geologic Map of Ohio
  • Quaternary Geology of Ohio
  • Known and Probable Karst in Ohio
FRA-270 North Outer Belt

- Glacial Deposits
- Bedrock Topography
ODNR cont.

- Bulletins
- Information Circulars
- Report of Investigations
- Location and information on underground mines
- Location and characteristics of karst features
- Landslide maps:
  - GIS Example: Mines
STA/COL-30

- Landslides mapped by USGS (1978)
STA/COL-30
- Underground Mines
- Shafts & Entries
STA/COL-30

- Underground Mines
- Shafts, Drifts, and Slope Entries
- Mine Subsidence Events -- MRM
- Unmapped/Unknown Mine Points
– **Division of Mineral Resource Management**

- Applications and permits files for surface mines (coal & industrial mineral)
  - GIS Example: SMUGM
- Active, reclaimed or abandoned surface mines
- Abandoned Mine Land (AML) sites
- Emergency Projects
STA/COL-30

- Surface Mines
- Borehole Logs
– Division of Soil & Water

- Water well logs
  *GIS Example: WAY-30*

- Soil Surveys
  *GIS Example: Soils*

- Ohio Wetland Inventory Maps
- National Wetland Inventory Maps
- Presence of lake bed sediments, organic soils or peat deposits
WAY-30

- Water Wells
- Cut Slope Heights
Other Sources

- Aerial photographs
- Satellite imagery
- USGS quadrangles
- USGS publications and files
- City and County Engineers
- Academia with engineering or geology programs
- USGS Open File Map Series #78-1057 “Landslides and Related Features”
Geology

- Provide a brief geologic description of the project area
- Provide a description of the hydrogeologic setting
- Describe the characteristics of the soils
- Describe the characteristics of the rock
Plan Observations

- Provide a bulleted list of all pertinent features found during the plan and specification review
- Include findings from previous geotechnical reports or investigations
- Develop profiles to graphically present subsurface conditions (e.g., soil, rock, groundwater)
- Describe soil classifications (types) and problem conditions
- Describe bedrock and problem conditions
Field Review

- Summarize the findings from a complete field reconnaissance
- Provide bulleted items with references to locations
  - GPS coordinates: point, line, area
- Include conditions of embankments, soil & rock cut slopes, surface water erosion, ground water seeps or springs, settlements, surface deformation, abnormal pavement cracking, etc.
District Notations

- *Provide synopsis of information compiled through the District and County Garages*
- *Include construction issues and maintenance problems*
<table>
<thead>
<tr>
<th>Design Issues</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Is there evidence of soil drainage problems (e.g., wet or pumping subgrade,</td>
<td></td>
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<tr>
<td>standing water, the presence of seeps, wetlands, swamps, bogs)?</td>
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<tr>
<td>Is there evidence of any embankment or foundation problems (e.g., differential</td>
<td></td>
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<tr>
<td>settlement, sag, foundation failures, slope failures, scours, evidence of</td>
<td></td>
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<td>channel migrations)?</td>
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<tr>
<td>Is there evidence of any landslides?</td>
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<td>Is there evidence of unsuitable materials (e.g., presence of debris or man-</td>
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<tr>
<td>made fills or waste pits containing these materials, indications from old</td>
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<tr>
<td>soil borings)?</td>
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<tr>
<td>Is there evidence of rock strata (e.g., presence of exposed bedrock, rock on</td>
<td></td>
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<td>the old borings)?</td>
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<tr>
<td>Is there evidence of active, reclaimed or abandoned surface mines?</td>
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<tr>
<td>Is there information pertaining to the existence of underground mines?</td>
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<tr>
<td>Are soil borings needed for pavement design, foundations (bridge, headwall,</td>
<td></td>
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<tr>
<td>retaining wall, noise wall) or slopes?</td>
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<tr>
<td>Does an undercut appear to be needed?</td>
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<tr>
<td>Should the Office of Geotechnical Engineering be contacted to evaluate the</td>
<td></td>
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<tr>
<td>project site?</td>
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<tr>
<td>Are there any other geotechnical issues? Specify.</td>
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</table>
Summary

- Extensive literature search
  - Get as smart as we can!
- Site review
  - Review areas of concern
  - Identify geohazards in the proximity
- Graphical representation of the project area
Deliverables

- plan views
- geologic cross-sections
- boring logs
- soil and rock testing data

This information should be augmented with data from ODOT’s archived files of previous projects in the area. Additional information on soil survey data, glacial deposits, bedrock topography, bedrock structure, and aquifer mapping, etc. should be compiled as a GIS workspace in MS Access.

Both digital ortho-quarter quadrangles and U.S.G.S. quadrangles should be available for base mapping. Copies of the reference maps and ArcView files should be provided.
THANK YOU!