

Work Type Definition:

Ground Penetrating Radar Survey



I. Description

Investigations using Ground Penetrating Radar (GPR) to identify the material layer profile and thicknesses as requested by the engineer (or project manager) and establish the characteristics of the subsurface materials when requested. Examples of "characteristics" may include pavement types, layers, and distresses (delamination, stripping, cracking, etc.). Note: GIS Locations of the GPR data will also be required via GPS data collection.

II. Standards and specifications

Standards and specifications required for a project under this work type may include the following:

A. All tasks will be performed in accordance with current ASTM, AASHTO, and MnDOT standards

and specifications or approved by Hennepin County engineers. All Hennepin County GIS data must be supplied in:

- UTM coordinates;
- NAD 83;
- GRS 80;
- Horizontal units = meters; and
- Vertical Units (if used) = feet

GIS data may be in either **ARC/INFO** coverages or **ArcView** shapefiles. **No other formats will be accepted.** Coverages may be transmitted in **ARC/INFO** interchange (*.e00) file format. Horizontal positions must be within "sub-meter" accuracy, unless otherwise specified.

III. Provided by Hennepin County

Information to be supplied by Hennepin County for a project may include the following:

- A. A written description of the purpose (and desired depth) of the GPR investigation.
- B. Project Limits: Trunk Highway Number (TH#), beginning and ending Reference Points, description of which lanes, shoulders, and / or miscellaneous areas to investigate.
- C. Available plans showing estimated pavement layer thickness (or other areas of interest as specified per project), alignments and reference posts.
- D. Available information (plans) showing pavement layer material properties.
- E. American Society for Testing and Materials (ASTM), American Association of State Highway & Transportation Officials (AASHTO), and MnDOT Standard Specifications.

IV. Provided by consultant

Deliverables to be supplied by the consultant for a project may include the following:

- A. Spreadsheet(s) containing the subsurface information specified with GPS and MnDOT log point system coordinate information at the beginning and end of the project, at intervals as specified, and at every change in layer thickness more than 1 inch.

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- B. Graphical radar images with descriptions (i.e., noting anomalies, etc.) representing typical material layer configurations, and where significant subsurface anomalies are visible in the radar data
- C. Material identification and layer thickness determined from the in-situ testing must also be included in the spreadsheet(s) at the corresponding location(s). Location information to be submitted in MnDOT specified format.
- D. All GPR data collection files, including calibration files, delivered on a formatted, labeled CD.
- E. Written notes and progress reports generated during the testing.
- F. GPS location data, corresponding to GPR findings and images.
- G. A spreadsheet showing the pavement layer thickness at intervals as specified by Hennepin County.
- H. GPR images or CADD drawings showing typical layer profiles and materials found.
- I. GIS data
- J. A copy of the subsurface material information.
- K. Weekly progress reports, including daily schedules.