

# Hatfield-2502: Identification of problem soils

## Identification of problem soils

### Challenge

|                                                                                                                                                                                                                                                                 |                                                                                                                         |                                 |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|
| <b>Challenge ID:</b>                                                                                                                                                                                                                                            | HCP-2502                                                                                                                | Originator:                     | Onshore: Hatfield |
| <b>Title:</b>                                                                                                                                                                                                                                                   | <b>Identification of problem soils.</b>                                                                                 |                                 |                   |
| <b>Theme:</b>                                                                                                                                                                                                                                                   | ON 2.5: Surface Geology Mapping - Engineering geological evaluation                                                     |                                 |                   |
| <b>Consortium Lead:</b>                                                                                                                                                                                                                                         | Arup                                                                                                                    | <b>Interviewed Company:</b>     | Arup              |
| <b>Geography:</b>                                                                                                                                                                                                                                               | ON.REG.00 - Generic onshore                                                                                             |                                 |                   |
| <b>Challenge Description</b>                                                                                                                                                                                                                                    |                                                                                                                         |                                 |                   |
| What is not possible / not adequately addressed at present?                                                                                                                                                                                                     |                                                                                                                         |                                 |                   |
| Need for improved identification of problem soils (expansive, collapsible, soluble, aggressive-saline, dispersive-erodible, compressible, organic).                                                                                                             |                                                                                                                         |                                 |                   |
| What effect does this challenge have on operations?                                                                                                                                                                                                             |                                                                                                                         |                                 |                   |
| Reduces uncertainty, improves decision making for field development.<br>Early identification of constraints and opportunities.                                                                                                                                  |                                                                                                                         |                                 |                   |
| Thematic information requirements:                                                                                                                                                                                                                              | Ortho base images<br>Lithology, structural geology, surficial geology<br>Terrain information<br>Topographic information |                                 |                   |
| What do you currently do to address this challenge?                                                                                                                                                                                                             |                                                                                                                         |                                 |                   |
| How is this challenge conventionally addressed?                                                                                                                                                                                                                 |                                                                                                                         |                                 |                   |
| Geotechnical Desk Study<br>Ground investigations and boreholes<br>Geological maps<br>Field geological mapping<br>Geophysics<br>Remote Sensing (multispectral) analysis                                                                                          |                                                                                                                         |                                 |                   |
| What kind of solutions do you envisage could address this challenge?                                                                                                                                                                                            |                                                                                                                         |                                 |                   |
| DEM analysis<br>High Resolution stereo DEM<br>Multispectral and hyperspectral<br>Automated classification processing<br>Geophysics                                                                                                                              |                                                                                                                         |                                 |                   |
| What is your view on the capability of technology to meet this need?                                                                                                                                                                                            |                                                                                                                         |                                 |                   |
| Are you currently using EO tech? If not, why not?                                                                                                                                                                                                               |                                                                                                                         |                                 |                   |
| Best suited to use of high resolution optical imagery and high resolution DEM. Currently only rarely used because of perceived high cost. There is a need to educate industry to the cost-benefit value of using this data early on in project lifecycle - data |                                                                                                                         |                                 |                   |
| <b>Challenge Classification</b>                                                                                                                                                                                                                                 |                                                                                                                         |                                 |                   |
| Impact on Lifecycle (0=none, 4=high):                                                                                                                                                                                                                           |                                                                                                                         | Climate / Topography / Urgency: |                   |
| Pre-license:                                                                                                                                                                                                                                                    | 1                                                                                                                       | Climate class:                  | Generic climate   |
| Exploration:                                                                                                                                                                                                                                                    | 2                                                                                                                       | Topographic class:              | Not specific      |
| Development:                                                                                                                                                                                                                                                    | 3                                                                                                                       | Seasonal variations:            | Any season        |

|                                           |                                                                                              |                     |                                                  |
|-------------------------------------------|----------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------|
| Production:                               | 2                                                                                            | Impact area:        | Environmental, Health and Safety, Cost reduction |
| Decommissioning:                          | 1                                                                                            | Technology urgency: | 3 - Immediately (0-2 years)                      |
| <b>Challenge Information Requirements</b> |                                                                                              |                     |                                                  |
| Update frequency:                         | Snapshot                                                                                     |                     |                                                  |
| Data currently used:                      | Air photo interpretation<br>DEM analysis (ASTER, SRTM, High res optical DEM)<br>Google Earth |                     |                                                  |
| Spatial resolution:                       | Regional to License                                                                          |                     |                                                  |
| Thematic accuracy:                        | Not specific                                                                                 |                     |                                                  |
| Required formats:                         | Not Specific                                                                                 |                     |                                                  |
| Timeliness (Vintage):                     | Reference data                                                                               |                     |                                                  |
| Geographic extents:                       | License                                                                                      |                     |                                                  |
| Existing standards:                       | None                                                                                         |                     |                                                  |

## Relevant products

### Content by label

There is no content with the specified labels