



Issue

Adding technology to existing road layouts without acquiring additional land can result in equipment having to be installed on earthworks slopes. This generally requires some kind of structure in the form of a retaining wall or elevated platform in order to generate a level area for the new equipment



Mitigation

Design

Most grillages are located on steep embankments and are difficult places to work. The embankments may be classed as too steep to work on.

Provide access walkways to avoid the need for vegetation clearance which may be necessary in advance of access in order to mitigate risks of trip and health hazards.

Some matrix signals require frequent visits for fault rectification which is essential when the VMS may form part of the implementation of mandatory highway restrictions or 'Red X' signage on smart motorways. Assess the potential to provide space for maintenance vehicles to reduce the need for lane closures and night-time working.

Construction

Consider modularised ERA components that could be lifted into place and also include full edge protection pre-installed. Look for opportunities to add in access routes whilst the area is under extended traffic management for the construction works.

Maintenance / Operations

Where feasible, provide access for maintenance workers to mitigate risks during inspections. Consider enlarging the spaces beneath grillages to reduce confined space issues.

LINKS

SHW Series 1500 Highway Communications
NG1508 Installation of Cabinets and Signal Posts
<http://www.standardsforhighways.co.uk/ha/standards/mchw/vol2/pdfs/NG1500.pdf>

Case Study

In this example the sign gantry and communications equipment is mounted onto a grillage on the motorway batter. This gantry is also located between the main carriageway and an off slip. Grillages are classed as structures and therefore require 2-yearly general (visual) and 6-yearly principal (touching distance) structural inspections. The area below the gantry is classed as a confined space and access into this area is difficult.



Significant Risks

Activity / Incident	Risk	Persons Affected	Likelihood / Severity
Construction	Fall from height	Construction personnel	L:Medium S:Medium
Access for inspection and maintenance	Slips, trips and falls	O&M personnel	L:Medium S:Medium
Access for inspection and maintenance	Asphyxiation in confined space beneath platform	O&M personnel	L:Medium S:High



Please submit examples of similar issues or best practice to the Whole Life Design Group at tx@jacobs.com for consideration for incorporating and dissemination to designers