

## **SEMMMS A6 to Manchester Airport Relief Road**

### **Settlement on the Existing A555 (PB21\_02)**

## SEMMMS A6 to Manchester Airport Relief Road Failure of existing A555 Attenuation Tank

### 1 Introduction and background

- 1.1 CEC acting on behalf of SMBC in maintaining the existing section of the A555 have reported on an area of highway pavement which has settled. The location of this subsidence and extent is shown below:-



- 1.2 The initial investigations conducted by Jacobs on behalf of CEC have concluded the subsidence has been caused by failure of the pipe connection to a drainage attenuation tank which is located at a depth of 5.0m below the pavement. This has allowed water to permeate into the embankment fill material and caused a washout. At this location the A555 is supported on RECO<sup>1</sup> retaining walls including supporting the bridge carrying the A555 over Earl Road. This is the southern access to Stanley Green Business Park.

- 1.3 The RECO design is based on the RECO panels being supported vertically by horizontal straps as shown, thus any reduction in the friction between the straps and the fill could affect the integrity of the retaining walls and the Earl Road overbridge.



- 1.4 Discussions between Cheshire East and Stockport have resulted in responsibility for undertaking the remedial works to the A6MARR team.

### 2 Extent of the problem

- 2.1 It is the opinion of Jacobs that there has been subsidence on the off side of half of the pavement on the on slip from A34 to A555. This can be seen by visual inspection of the surface. It is hypothesised that there is a similar scale of void on the inside lane of the A555, however this has not materialised as visual settlement.

<sup>1</sup> RECO is a brand name for Reinforced Earth Company

- 2.2 CCTV survey of the drainage connection to the attenuation tank shows confirmation of a broken pipe which is leaking water into the fill material include the special fill to the RECO retaining wall.
- 2.3 There is continuous leaking of water through the face of the support to Earl Road Bridge. This is shown below.



- 2.4 CMS have been instructed to carryout weekly monitoring of the surface of the road and the face of the retaining wall. To date no significant further movement has been noted.

### **3 Implication for the A6MARR**

- 3.1 The current traffic flows on this section of the A555 and A34 on slip are currently low. However once the A6MARR is opened to traffic these flows increase thus increasing the loading on the pavement.
- 3.2 The settlement of the pavement has made the existing termination of the safety fence ineffective. Continued water seepage into the ground from the failed pipe may ultimately undermine the RECO wall straps which could result in a failure of the retaining wall supports.
- 3.3 If the remedial works are not carried out as part of the A6MARR scope then at some stage after opening the A555 will need to be closed to allow the fundamental failure to be corrected. Some localised work will be required to fill the current depressions and repair the safety anchor blocks.

### **4 Extent off work required.**

- 4.1 It is necessary to repair the broken pipe to prevent further leakage. This will involve rebuilding a number of drainage chambers and the connection to the attenuation pond. This work will require substantial temporary works such a cofferdam. For safety

reasons it is anticipated that this length of the A555 will be closed. The extent of the work required to the RECO walls will only be known once the area is exposed.

## **5 Programme and Financial Implications**

5.1 The scope of work required for this section of the A555 is currently limited to resurfacing the slip road and the A555. Additionally the A6MARR will be providing a cycle / footway eastbound carriageway which requires work to the existing parapet railings.

5.2 If the remedial work to the attenuation pond is undertaken by the A6MARR project and if done under a full closure of the A555 from the A34 to Wilmslow Road then all this work would be done at the same time and should not impact on the scheduled opening of the A6MARR. It is likely this would be undertaken in the spring of 2017.

5.3

[REDACTED]

## **6 Programme Board Decision**

6.1 To approve including the remedial works within the Scope of the A6MARR project.

6.2

[REDACTED]

6.3

[REDACTED]