Shared Learning

COSTAIN

The Thameslink Programme Issue Date: 11th April 2016 - For further info contact sharon.fink@networkrail.co.uk

Issue Number: TLP054 Title: Gate Detachment

Overview of Event:

During nightshift works at London Bridge a vehicle access gate detached from the gate post and fell to the ground in an uncontrolled manner. The gate was in a fully opened position when it fell from position A to position B below. The gate that fell was made up of two sections and was 4m wide x 2.9m high with an approximate weight of 400kg. There had been a requirement to widen the gate and it had undergone a change to the original design.

There were no injuries however there was a high potential of significant injury to persons working in and passing through this area, particularly those involved in driving mobile plant, vehicle management and site security.

General Key Messages:

- Temporary works design: when modifications are made on site, temporary works teams should be consulted with regards the requirement for a re-design
- Inspection regimes: inspection regimes for temporary structures should be in place and documented as determined from the planning of the works
- Traffic routes: routes should be wide enough for the purposes of its use and where routes are used for plant & machinery consideration should be given to the protection of any gates / hoardings with appropriate warning signs / posts
red for permanent works being left in a temporary state should be understood and communicated to

Photo of Event :

Photo showing position of gate in
normal position A and detached position B

Photo of top hinge of gate that failed

Actions Taken As a Result of the Investigations:

- Temporary works designs are now required to specifiy the details concerning the fabrication of the gate post of leafs
- Procurement process checked to make sure that CE marking and relevant BS EN is a requirement when plant / equipment is being purchased / hired in.
- Temporary works are to be inspected at all stages of construction and before loading.

Causes:

Immediate Cause - The gate to gate post hinge fixing failed.

Root and Underlying Causes

Design: There was a change in the original Temporary works design of the gate posts which originally specified that the gates were to be hung on square hollow section (SHS) 120mm (4mm thickness) steel posts and not the 80mm (3mm thickness) steel posts which were being used when the gate fell. There was a CAT1 design check certificate in place for the original installation. The original gate design detailed 2 No. gates of 2150mm width hung on 120 x 120 x 4mm steel posts.
The Post wall failed and not the hinge. Tests will be done on the steel post and weld to establish the mechanical failure mode.

Design: The permit to load did identify the Post size changes and there was a hand written design change which stated the dimensions of the gate posts were now 80mm.This was agreed with the temporary works design team of these changes. There was no reference to the thickness of the steel which was originally 4mm and not 3mm thickness used on the modified gate post. The Temporary Works Supervisor & Co-ordinator signed off the permit to load and therefore approved the construction as fit for purpose (including any deviation & any additional work contributing).

Design: There is evidence of heavy 'wear & tear' of pin & ringbolt. There is a standard nylon wheel which was to be used to assist in opening / closing the by-fold gate. This was not specified on the original design.

Procedure: There was a failure to implement an inspection regime to check the gates on a weekly basis. The TWC stated on the permit that ongoing weekly inspections were required.