

Shared Learning

COSTAIN

The Thameslink Programme

Issue Date: 21st Dec 2015 - For further info contact sharon.fink@networkrail.co.uk
Issue Number: TLP048 Title: Bomag Roller Overturn

Overview of Event:

A Bomag 80 roller compactor was operating on the construction site at London Bridge in one of the arches rolling crushed stone which had previously been graded by the 3t excavator. As the operator reversed the roller he turned the steering wheel to reposition the roller back on to uneven ground at the end of a ramp which caused the roller to turn over.

The operator was not injured. He was wearing his safety belt which prevented him from falling out of the machine. The rollover protection system (ROPS) was in place and remained intact. There was some minor damaged to the roller.

General Key Messages:

- Limitations of Plant being used on sites should be understood and factored into planning of the works
- Plant Operators should be competent, aware of the limitation of the plant they are operating and observant of the environment they are working in
- Supervisors should understand the risks associated with using alternative plant and seek authority to do so

Causes:

Immediate - The immediate cause for the overturn was due to the operator reversing the Bomag 80 up onto the ramp with a gradient exceeding the Bomag 80 specification & turning the steering wheel to reposition the roller with the back roller sinking into soft ground which then caused the roller to offset its centre of gravity resulted in the rollover.

Root and Underlying Causes

The principal cause of the event was that the wrong piece of equipment had been selected for the task. The compactor was operated in an area that contained a ramp with a gradient of 29.7 degrees which exceeded the manufacturer's operating instructions and therefore inadequate to ensure the safe operation of the compactor. This is considered an area with a significant hazard of rollover. There are safer alternatives where operators are not put at risk because they are not riding the equipment. Other findings included :

- Design: There was no specific design for the installation an access / egress ramp for the plant to traverse. The task of installing temporary ramps has identified that reliance on the experience & competence of the plant operators to build temporary ramps without any formal inspections or guidelines on how these ramps were made seemed to be the established method of work.
- Communication: The Task Briefing Sheet originally included that a Bomag 120 smooth drum roller was to be used. The supervisor chose to use a Bomag 80 instead due to no availability of a Bomag 120 at the time. This task was undertaken without the agreed plant to be used as stated on the TBS. Note: the Bomag roller also had the same gradient restrictions as the Bomag 80.
- Procedure: It was not addressed in the WPP / TBS to inspect the area prior to the roller compactor operating in the area which would have identified the requirement for the roller to compact the ramp again after it was cut up from other plant.
- Error-proofing conditions: The machine operator did not perceive or fully appreciate how the ground conditions would impact on the safe operation of the roller, despite having the required knowledge, training and CPCS competency card.

Photo of Event :



Actions Taken As a Result of the Investigations:

- Positive communications about wearing seat belts and having the roll over protection in place was shared as it prevented injury in this event.
- Ride on rollers have been replaced for specific works with remote controlled plant.
- The risk assessment for the selection of plant has been reviewed by the engineering team.
- Supervisors have been advised that all access ramps are to be constructed to a maximum of 20% (1 in 5) for a typical 1-5t dumper and that all access ramps to be compacted (8 passes per 100mm layers)
- Supervisors have been advised that where the TBS states an item of plant / equipment to be used and they need to utilise a different type then they must carry out a point of work risk assessment and seek advice if required.