



Track Monitoring Services



Track Monitoring



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Track Monitoring involves checking the geometric position of the rails for any changes in cant that could lead to a serious twist fault developing.

It is imperative that track monitoring is undertaken whenever any work is carried out close to the tracks, where the track could possibly be affected, no-matter how small the risk may first appear to be.

There have been instances where track monitoring has not been carried out sufficiently and serious derailments to trains have occurred, due to a twist fault developing.

We are Network Rail 'Link Up' approved survey company (Link Up ID 24777), and carry out many different methods of track monitoring throughout the UK, for main civil contractors & Network Rail. Our methods range from a basic cross-level, to check cant & gauge, through to sophisticated track survey trolleys. All our track monitoring projects are carried out in line with the guidelines included in NR/BS/LI/045 (Issue 3): Monitoring track over or adjacent to Civil Engineering Works: procedure and intervention levels.

We have been involved in track monitoring for over 10 years, on sites ranging from a simple 3 week, 50m pipe jacking through to a 2 year 5km construction site alongside a very busy railway (see brief case studies below)

Case Study 1:- A pipe is to be jacked through an embankment, approx 10m below the tracks. Using our Amberg track survey trolley, we surveyed the track at 1m intervals for 25m either side of the centerline of the pipe. This took place a few days before any work had started (to provide a record of the 'as is' track condition).

We then installed a combination of [Sentripod](http://www.sentripod.com/) targets & our own manufactured targets; these were fitted to the rails during a night possession. These targets were placed at 1m intervals for 10m either side & again at 3m intervals for a further 15m on all 4 lines.

During the following days 3 sets of readings were taken to the targets, using a total station, set-up in a position of safety trackside, measuring their coordinated position & level. Using this information & the trolley survey information we created baseline readings.

During the duration of the pipe jacking, readings were taken three times a day and all measurement were entered into a spreadsheet and compared against the baseline readings, to check for any movement.

The monitoring continued for 7 days after all work had finished, and then a repeat track trolley survey was completed. All this information was then presented to Network Rail to demonstrate that no disturbance had been caused to the track.

The same method has been employed numerous times where track has been replaced over a new bridge, or where waterproofing has taken place and track reinstated. Additionally, where an 'Under Track Crossing' has been installed beneath existing tracks, monitoring with targets has taken place.



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Case Study 2:- Embankment stabilisation was being carried out on the ECML; which required the 2 outside lines to be monitored daily. The method employed here was to use a conventional 'cross-level' and a 'digital-level' to monitor the cess rails, combining the two results, provided the assurance that the rails were not being affected by the construction works. All data was entered onto a spreadsheet for daily submission to Network Rail and the contractor.

Track monitoring is often overlooked, but great importance must be placed upon it, as if not carried out correctly, Network Rail can shut down the site if they believe that the safe passage of trains could be affected by the works.

We can provide advice on what type of monitoring system will be best for your site, as there are many different factors which determine what system is best suited to your needs.

Considerations include:

- location of works e.g. embankment/cutting,
- width of safe cess,
- safe access to location,
- red zone working prohibitions,
- frequency of train service (passenger & freight),
- conductor rails,
- availability of possessions,
- length of monitoring site (distance & timescale).

We can also use our PTST (portable track survey trolley) to monitor track geometry, it can quickly measure, at very small intervals, the cant/gauge/versine and more importantly the twist over a 3m baseline. By starting the trolley survey at the same position, a direct comparison can easily be provided to show if any twist faults have occurred.

This trolley can be used for carrying out hand-back surveys, as it measures all the variables, simply by being pushed along the track at walking pace. At the end of the survey, the software provides an instant report showing any twist problems.