



## Certificate of Derogation from a Railway Group Standard

(in accordance with part 6 of the Railway Group Standards Code)

### 1. Type of deviation

Derogation

Deviation Number: **12/227/DGN**

### 2. Details of applicant:

Network Rail (Investment Projects),  
Floor 3, Desk 054, Elder Gate, Milton Keynes, MK9 1EN

The Quadrant: MK, Furzton,

### 3. Your reference number:

Tracker No. 12057

### 4. Status of applicant:

Infrastructure Manager, RSSB Member

### 5. Title of certificate:

Gravesend Station platforms 1, 2 (new platform) and 3 (existing platform 2).

### 6a. Details of Railway Group Standard (RGS):

RGS Number:	Issue No:	Issue Date:	Title:
GI/RT7016	Four	September 2010	Interface between Station Platforms, Track and Trains

### 6b. RGS clause(s):

7.2.1, 2.1.2, 6.3.1 and 11.1.3

### 6c. RGS clause requirements:

"7.2.1 The usable width of a new single face platform shall be nowhere less than:

- a) 3000 mm where the permissible or enhanced permissible speed on the line adjacent to the platform exceeds 100 mph (165 km/h)
- b) 2500 mm at other platforms"

"2.1.2 Station platforms shall not be located on horizontal curves with radii less than 1000 m. Before station platforms are located on curved track, consideration shall be given to the following:

- a) Train to platform stepping distances, taking the types of train likely to call at the platform into account
- b) Visibility (either direct, by means of CCTV screens, or by mirrors) along the length of trains for train crew and station staff responsible for dispatching trains."

"6.3.1 Location of permanent new structures in relation to terminal tracks

6.3.1.1 Permanent new structures, including buildings and columns supporting canopies shall not be located within a zone extending 20 m behind the face of the buffer stop and 5 m either side of the projected centre line of the track approaching the buffer stop. This is referred to in sub-sections 6.3.2 and 6.3.3 as

the 'overrun risk zone'."

#### "11.1.3 Platform cross fall

11.1.3.1 For new platforms and alterations to platforms, the surfacing shall be constructed to provide a fall away from the rear edge of the platform coper or platform edge if there is no separate platform coper.

11.1.3.2 The fall should be at a nominal gradient of 1:40 (within the limits 1:80 and 1:20).

11.1.3.3 If provided, copers for new or altered platforms shall be nominally level from the platform edge to the rear of the coper."

### 7. Scope of deviation:

Gravesend Station platforms 1, 2 (new platform) and 3 (existing platform 2)

ELR HDR

Mileage: 23m 51ch.

### 8. Impacts of complying with the current RGS requirement:

This is an application for an amendment to the derogation obtained July 2011 for Gravesend Station No. 11/069/DGN, Tracker No 8775.

This application reflects the complete derogation requested.

This is an application for deviation from four clauses of Railway Group Standard GI/RT7016 for the proposed platform extensions at Gravesend Station:

- a) Clause 7.2.1 - Platform Width
- b) Clause 2.1.2 - Platform Curvature
- c) Clause 6.3.1 - Buffer Stop Over Run
- d) Clause 11.1.3 - Platform Cross Falls.

#### a) Clause 7.2.1 - Platform Width (Platform 1 and 2 only):

Approximately the last 40 m of the extension to Platforms 1 and 2 will taper from 2.5 m to approximately 2.1 m, and the short linking walkway between Platform 1 and the new Platform 2 will be 2.0 m wide only. Platform 3 is compliant with respect to width, however.

#### b) Clause 2.1.2 - Platform Curvature (Platforms 1, 2 and 3)

The new island platform and the extensions to the existing platforms will all have a radius in places of below 1,000 m, and as low as 270 m at the Country end for approximately 90 m of the platform length. Stepping distances are compliant throughout, however, for all classes of rolling stock operated by Southeastern over the route. (Note: the vertical stepping distance for Class 319 is not compliant at 254 mm. But, although this class is cleared for the route, there are no timetabled services utilising this stock.)

#### c) Clause 6.3.1 - Buffer Stop Over Run (Platform 1 only)

The distance between the road over bridges at either end of the station is not sufficiently long enough to achieve a clear 20 m between the new buffer and the Windmill Street tunnel face. The maximum possible clear distance is 14 m.

#### d) Clause 11.1.3 - Platform Cross Falls (Platforms 1 and 3 only)

The existing platform cross-falls run towards the coper edge and as such are non-compliant. The proposed cross-falls, on the other hand, will of course run away from the coper edge as is required by standard. Where the two meet, however, the tarmac surfacing will need to be laid with a gradual transition from one to the other. Therefore, for that short length of transition, the new cross-fall will not be compliant.

In addition, where the existing platform is to be excavated for the footbridge and lift works and then reinstated to match, it will be non-compliant. If it was to be made compliant, there would be a difference in levels with the adjacent existing platform of up to 140 mm.

Gravesend Station is one of the most tightly constrained stations on the route. It is situated on a curve in a deep cutting, with high retaining walls on both sides, and road over bridges, Darnley Road and Windmill Street, immediately at either end.

Gravesend is presently a four track, two platform station; with two main through roads and two outer loops, the two existing platforms being situated on the loops.

The design proposal currently pending Network Rail's 'approval in principle' involves extending both existing platforms by approximately 45 m at the Country end. (The platforms cannot be extended at the London end due to the immediate proximity of the Darnley Road over bridge.) Platform 1 will become a bay, and will be connected by a continuation of the platform to a new, third single face platform to be constructed over the existing UP Main line. (The former Platform 2 will be renamed Platform 3.) A new DDA footbridge is to be constructed, linking the three.

Thus, Gravesend will become a three track, three platform station; with two main through roads and one terminal bay.

Our design objective has been to maximise the width of all three platforms whilst maintaining compliant stepping distances.

## 9. Proposed alternative actions:

Platform width:

- Reduced width at the Country end is away from the main pedestrian routings to the station buildings via the new footbridge. The narrow section at the extreme end will be lightly trafficked.
- Signs on platform advising passengers, "Caution - Reduced platform width". Southeastern to monitor passenger behaviour.
- Use of on train PIS (text and voice) and on platform CIS.

Platform cross falls:

- Drainage design to ensure transition between new and existing platform does not compromise existing drainage.
- Platform design to ensure smooth and gradual transition.

## 10. Impacts of the alternative actions:

Due to the physical constraints of the station, it is impracticable to provide a compliant solution to GI/RT7016.

A HAZOP risk assessment has been jointly undertaken by Network Rail and Southeastern to evaluate the possible risks associated with deviation from clauses 7.2.1, 2.1.2 and 11.1.3, and to consider possible additional operational controls to mitigate those risks.

A separate technical buffer stop risk assessment (GC/RT5633) has been carried out by the designer in accordance with standards.

The risk assessments took into account operator knowledge of passenger footfall and pedflow at each location.

Network Rail and Southeastern have subsequently jointly concluded and agreed that the risks associated with the proposed deviations from GI/RT7016 are, in fact, tolerable and can be maintained ALARP by adopting and implementing the additional mitigating operational controls identified through the HAZOP risk assessment process.

The output of the risk assessments is set out in Appendices C and D of the attached document.

Southeastern, as Duty Holder, fully supports and endorses this application (see Appendix E of attached document).

For the purposes of the proposed amendment, the HAZOP has been reviewed and the risks and mitigations are considered similarly tolerable for the reduced width of new Platform 2.

The impact of the non-compliances is not deemed to be significant. Network Rail and Southeastern have jointly concluded and agreed that the risks associated with the proposed deviations from GI/RT7016 are tolerable and can be maintained ALARP by adopting and implementing the additional mitigating operational controls identified through the HAZOP risk assessment process.

## 11. What other options have been considered?

Due to the aforementioned topographical constraints, it is not possible to fully comply with the requirements of GI/RT7016 Interface between Station Platforms, Track and Trains, with respect to platform width, platform curvature and buffer stop overrun.

Furthermore, to bring the cross-falls into compliance across the site, the extents of each platform would need to be resurfaced, thereby complicating the interfaces with the station buildings and all other on platform infrastructure, as the levels at the rear of the platforms would need to be reduced by up to 200 mm.

**12. Consultation with affected parties**

TOC - Southeastern

**13. Additional actions/observations:**

Upon receipt, the applicant is required to identify affected, interfacing parties and copy this certificate, together with supporting information, to those parties.

Attachments:

- Southeastern's letter of support dated 10/12/2012
- Network Rail's supporting document: HLOS Train Lengthening Programme – Kent Train Lengthening, Gravesend Station
- Network Rail's drawing Ref. CO00669028-CIV-GR-DRG-001 Rev P04: Gravesend Station, Platforms – Existing and Proposed General Arrangement.

**14. Method of elimination:**

N/A

**15. Start and end date:**

N/A

**16. Signature of applicant:**

Head of Civil Engineering

**Date of application:**

13/12/2012

**17. Lead Standards Committee details:****Name of Committee:**

Infrastructure

**Date of meeting**

06/03/2013

**Minute reference:**

13/INS/03/076

**Authorised by:**

Signed by Philip Hunt on 27/03/2013 on behalf of Cliff Cork

**Date of Authorisation:**

27/03/2013

Cliff Cork

Head of Delivery, Infrastructure and Rolling Stock