Safety Verification under ROGS – Southend Pier New train introduction

Southend Pier Railway has procured two new battery trains.

Replace existing diesel trains which date from 1986.

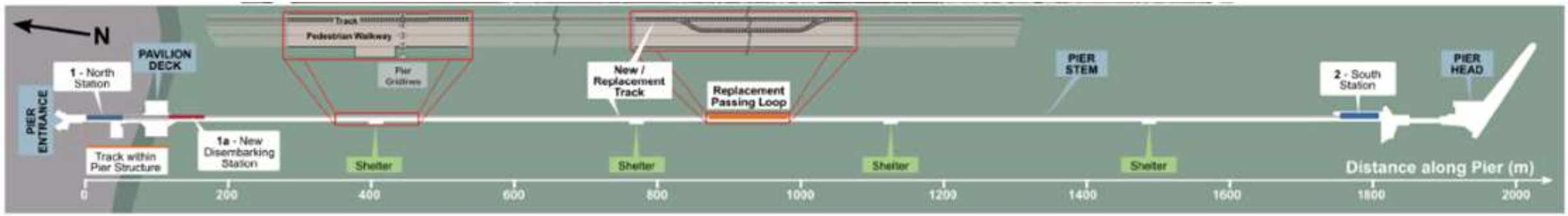
I am acting as Independent Competent Person to complete the Safety Verification process under ROGS.

The introduction of new rolling stock can lead to **new or altered risks**.

SPR is listed as a **non-mainline** Transport Undertaking (TU) on the ORR exclusion list.

SPR is listed as a '**lower-risk TU**' in ROGS because it does not run at speeds above 40 kilometres per hour. A low-risk TU must still have a **written SMS**.

A low-risk TU introducing new vehicles must have a **safety verification** process, involving an **independent competent person**.



Southend Pier extends 2.16km into the Thames Estuary

3 ft gauge railway operates almost the full pier length

Stations at shore (North) and pier head (South) ends of pier

Single track, passing loop in middle

Carries passengers, oversize loads, staff and goods

Two trains supplied by Severn Lamb, each 6 cars, 51.5m in length

- Designed for maritime environmental conditions
- Capacity 208 passengers
- 12 wheelchair spaces per train
- Restricted loading gauge
- 2 double-doors per side per car (24 door sets total)
- 2-axle roller-shutter bin wagon on each train
- New trains meet RVAR with exemptions
- Appearance in keeping with Victorian aesthetic of pier

Operation of new trains

- Seasonal operation
- Clock face timetable
- Up to 18 return trips per day per train in peak season
- Two train operation in peak season
- Recharge overnight
- Themed events – LEDs
- Line of sight control – fitted with slow down & stop system

ICP must be appointed early in the project. To consider design, set standards, provide assurance that inspection and assessment plan are enacted safely.

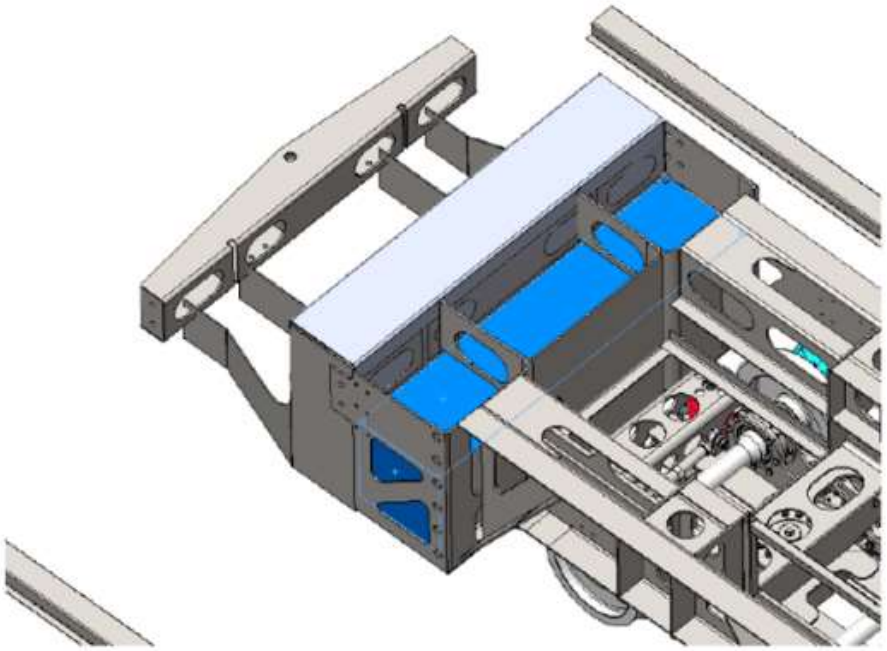
ICP does not duplicate the functions / activities of the project team.

ICP reviews the design, build, testing, commissioning and entry into service of the rolling stock.

Witness testing and reviews changes to SMS.

Examples of risks introduced by the new trains (1)

Batteries and battery charging arrangements

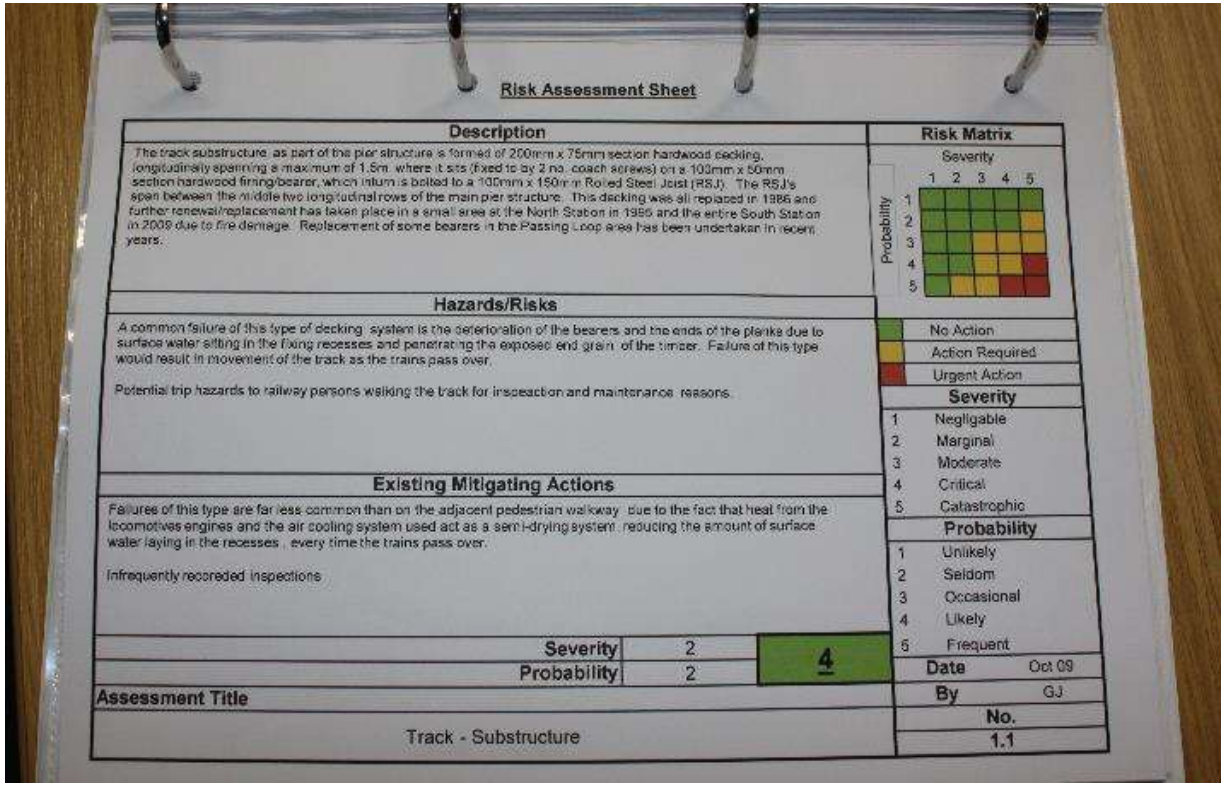


View of battery compartment with Li-ion battery pack highlighted (blue)

Train geometry different to earlier trains

Examples of risks introduced by the new trains (2)

Revised operating procedures and SMS



Risk Assessment Sheet

Description

The track substructure, as part of the pier structure is formed of 200mm x 75mm section hardwood decking, longitudinally spanning a maximum of 1.5m where it sits (fixed to by 2 no. coach screws) on a 100mm x 50mm section hardwood firring/bearer, which in turn is bolted to a 100mm x 150mm Rolled Steel Joist (RSJ). The RSJ's span between the middle two longitudinal rows of the main pier structure. This decking was all replaced in 1986 and further renewal/replacement has taken place in a small area at the North Station in 1995 and the entire South Station in 2009 due to fire damage. Replacement of some bearers in the Passing Loop area has been undertaken in recent years.

Hazards/Risks

A common failure of this type of decking system is the deterioration of the bearers and the ends of the planks due to surface water sitting in the fixing recesses and penetrating the exposed end grain of the timber. Failure of this type would result in movement of the track as the trains pass over.

Potential trip hazards to railway persons walking the track for inspection and maintenance reasons.

Existing Mitigating Actions

Failures of this type are far less common than on the adjacent pedestrian walkway due to the fact that heat from the locomotives engines and the air cooling system used act as a semi-drying system reducing the amount of surface water laying in the recesses, every time the trains pass over.

Infrequently recorded inspections

Severity	2	4
Probability	2	

Assessment Title

Track - Substructure

Risk Matrix

Severity 1 2 3 4 5

Probability 1 2 3 4 5

No Action
Action Required
Urgent Action

Severity
1 Negligable
2 Marginal
3 Moderate
4 Critical
5 Catastrophic

Probability
1 Unlikely
2 Seldom
3 Occasional
4 Likely
5 Frequent

Date Oct 09
By GJ
No. 1.1

Point motor cover out of gauge to new train

If you are

- A non-mainline Transport Undertaking
- Deemed as lower-risk by DfT/ORR

And

- You are introducing new or significantly altered Rolling Stock or Infrastructure

You **must appoint** an **Independent Competent Person** to complete Safety Verification.

You are in breach of your **legal obligations** otherwise.

17TH ANNUAL UK LIGHT RAIL CONFERENCE

FRAZER-NASH CONSULTANCY
A KBR COMPANY

Q & A

Hugh O'Neill
Managing Consultant
Frazer-Nash Consultancy

Please come see us at the Frazer-Nash stand in the exhibition hall