Title	**Maintain track geometry in a rail environment**		
Level	**4**	**Credits**	**10**

Purpose	People credited with this unit standard are able to: explain track geometry; prepare for track geometry maintenance; maintain track geometry; and check work and complete documentation of track geometry maintenance.

Classification	Rail Transport > Rail Infrastructure

Available grade	Achieved

Guidance Information

1 Assessment against this unit standard is to be carried out within the context of an organisation operating under a current, valid Rail Licence issued in accordance with the provisions of the Railways Act 2005. The organisation's operating rules, codes, and instructions, referred to in this unit standard, are those the organisation has in place to meet the requirements of the Rail Licence.

2 Legislation relevant to this unit standard includes:
Health and Safety at Work Act 2015;
Railways Act 2005.

3 Definitions
Organisational procedures refer to documents that include – worksite rules, codes, and practices; equipment operating instructions; documented quality management systems; and health and safety requirements.
Work plan refers to instructions that may include – work or service order, verbal instruction, formal work plan.

4 Assessment information
All activities and evidence must be in accordance with organisational procedures and work plan.

Outcomes and performance criteria

Outcome 1

Explain track geometry.

Performance criteria

1.1 Track geometry parameters are explained.

Range may include but is not limited to – cant, line, twist, gauge, top, cyclic, tangent, curves, curve transitions, gradient, meterage, versine, rate of change of cant deficiency.

1.2 Factors that influence track geometry are explained.

Range may include but is not limited to – ballast, formation, heat, sleepers, fastenings, rail, joints, adverse weather, drainage.

Outcome 2

Prepare for track geometry maintenance.

Performance criteria

2.1 Safety requirements are followed.

Range personal protective equipment, materials, tools and equipment, communication equipment.

2.2 Hazards are identified and control methods are implemented.

2.3 Rail permission systems are followed.

Range may include but is not limited to – track protection, permit, track access.

2.4 Faults and exceedances in track geometry are identified and assessed for priority.

Range sources of information may include but are not limited to – inspection findings, fault reports, compliance checks.

2.5 Measurements are taken to determine requirements to restore track geometry.

Range may include but is not limited to – cant, line, twist, gauge, top, versine.

2.6 Repair or adjustment methods are identified to enable repairs to be affected.

Range methods may be – manual, mechanical.

2.7 Tools and equipment are selected, and pre-operational check is completed.

Range may include but is not limited to – mechanical handling or lifting devices, hand tools, power tools, small plant, front end loaders, ballast wagons, track machines, tamper.

2.8 Materials are selected and checked.

Range may include but is not limited to – fastenings, rails, sleepers, ballast materials.

Outcome 3

Maintain track geometry.

Performance criteria

3.1 Where required, survey pegs or monuments are used to establish correct rail alignment.

3.2 Methods are used to restore track to required geometry.

Range lifting, lining, gauging, tamping, sighting boards.

3.3 Where required, vertical and horizontal structural and overhead clearances are checked against required standards.

3.4 Ballast profile is restored to track geometry specifications.

3.5 Track geometry is checked for compliance.

Range top, line, cant, gauge, twist.

Outcome 4

Check work and complete documentation of track geometry maintenance.

Performance criteria

4.1 Completed work is checked, and any non-compliances are reported.

4.2 Documentation is completed.

Planned review date	31 December 2026

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 May 2003	31 December 2013
Review	2	21 November 2008	31 December 2023
Review	3	24 February 2022	N/A

Consent and Moderation Requirements (CMR) reference	0013

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering, and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.