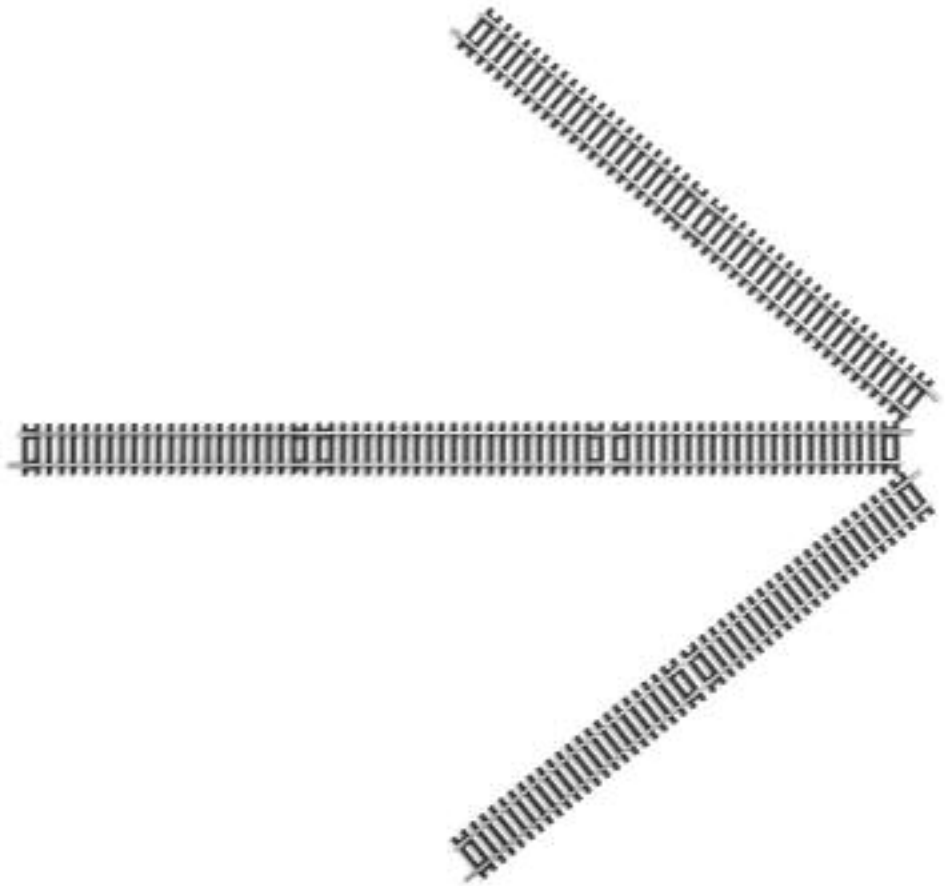
Levels 1, 2 & 3 NVQs in Railway Engineering

7588

National Occupational Standards and Assessment Requirements

www.city-and-guilds.co.uk
September 2004



City & Guilds is the UK's leading provider of vocational qualifications, offering over 500 awards across a wide range of industries, and progressing from entry level to the highest levels of professional achievement. With over 8500 centres in 100 countries, City & Guilds is recognised by employers worldwide for providing qualifications that offer proof of the skills they need to get the job done.

The City & Guilds Group includes City & Guilds Pitman Qualifications, specialising in IT, office-based qualifications and English as a second language awards, and ILM (the Institute of Leadership & Management) providing management qualifications, learning materials and membership services. Land based qualifications are offered through NPTC, also part of the City & Guilds Group. City & Guilds also manages the Engineering Council Examinations on behalf of the Engineering Council.

General information about City & Guilds is available on our website **www.city-and-guilds.co.uk** or from our Customer Relations team at the address below or by phoning 020 7294 2800 or e-mailing **enquiry@city-and-guilds.co.uk**

City & Guilds fully supports the principle of equal opportunities and we are committed to satisfying this principle in all our activities and published material. A copy of our equal opportunities policy statement 'Access to assessment' is available on our website or from the Customer Relations team.

City & Guilds publications are available from our Publication Sales department at the address below or by phoning 020 7294 2850 or faxing 020 7294 3387

First published 2004

City & Guilds
1 Giltspur Street
London, EC1A 9DD
T +44 (0)20 7294 2468
F +44 (0)20 7294 2400
www.city-and-guilds.co.uk

Contents

[This page is intentionally blank]

Foreword

This document provides details of the requirements specific to this N/SVQ qualification which includes:

- the requirements for occupational competence for all those involved in assessing performance
- specific assessment requirements and
- the National Occupational Standards.

It is designed to be used in conjunction with the following documents
the *N/SVQ Candidate Guide and Logbook*
and
the *N/SVQ Centre Guide.*

The guide does not contain details of centre and scheme approval - these may be found in the document: 'Providing City and Guilds qualifications' (stock code EN-00-1111) available free of charge from the Sales Department or your regional/national City & Guilds office (see *Further information* section of this document).

Details of general regulations, registration and certification procedures, including fees, are included in the City & Guilds Directory of N/SVQ Awards. This information also appears on City & Guilds web site http://www.city-and-guilds.co.uk

The following documents also include information on policy and guidance on quality assurance within NVQs and assessors and verifiers should be aware of the contents.

- City & Guilds policy document '*Ensuring Quality*' – aimed at those involved in the assessment and verification of City & Guilds awards. Issued 3-4 times a year (available from Sales Department) NB Edition 12 – December 2001 summarises policy from all previous editions)
- *Joint Awarding Body Guidance on Internal Verification of NVQs,* issued November 2001, published by the DfES, also available on City & Guilds web site.

General NVQ information

Centres should refer to the City & Guilds *Centre Guide for NVQs* available from the City & Guilds website for information on NVQs, the people involved, the assessment process and model recording forms.

Section 1 – Scheme information

1.1 Scope of the awards

The NVQs in Railway Engineering are work-based qualifications designed for those employed within the rail sector. The main objective of the award is to offer the opportunity to prove competence of industrial performance, knowledge and understanding and to recognise the ability of individuals working in the sector.

These awards cover Permanent Way Renewal, Permanent Way Maintenance, Rail Signalling Installation, Rail Signal Maintenance, Rail Telecommunications Installation, Rail Telecommunications Maintenance, Rail Signal Testing, Traction and Rolling Stock, Electrification and Plant occupational areas and is suitable for people involved in the rail transport sector from trainees to managers.

The NVQs in Railway Engineering are available at Levels 1, 2 and 3.

The award has been designed to cover people who are:

- engaged in various sectors of the rail industry who wish to have their competencies assessed for certification purposes
- new employees who have undergone some training and are now acquiring industry experience and wish to demonstrate their competencies for assessment purposes
- other people in the sectors who require a fundamental understanding of industry practices.

Restrictions on entry

There are no restrictions on entry to this award, however candidates should not register for this award if they hold or are registered with City & Guilds or another awarding body for a similar award at the same level.

1.2 Qualification Structure

The awards have been designed to allow progression through the various levels where appropriate. Thus candidates who have achieved units which are common to awards at differing levels can take these units forward for the purpose of certification. The certificate structure requires candidates to complete mandatory units which are common across the three levels together with a choice of optional units.

The certificates referred to in this guide are as follows:

Level 1 NVQ in Railway Engineering (Permanent Way Renewal)
Level 2 NVQ in Railway Engineering (Permanent Way Renewal)
Level 3 NVQ in Railway Engineering (Permanent Way Renewal)

Level 1 NVQ in Railway Engineering (Permanent Way Maintenance)
Level 2 NVQ in Railway Engineering (Permanent Way Maintenance)
Level 3 NVQ in Railway Engineering (Permanent Way Maintenance)

Level 3 NVQ in Railway Engineering (Rail Signalling Installation)
Level 3 NVQ in Railway Engineering (Rail Signalling Maintenance)
Level 3 NVQ in Railway Engineering (Rail Telecommunications Installation)
Level 3 NVQ in Railway Engineering (Rail Telecommunications Maintenance)

Level 3 NVQ in Railway Engineering (Rail Signal Testing)

Level 2 NVQ in Railway Engineering (Traction and Rolling Stock)
Level 3 NVQ in Railway Engineering (Traction and Rolling Stock)

Level 2 NVQ in Railway Engineering (Electrification and Plant)
Level 3 NVQ in Railway Engineering (Electrification and Plant)

Level 1 NVQ in Railway Engineering – (Permanent Way Renewal)

Candidates must achieve all five mandatory units:

Mandatory units

101 Adjust permanent way assets to meet operating requirements
102 Replace permanent way assets and components
103 Install permanent way assets and components
104 Dismantle and remove permanent way assets and components
105 Contribute to effective working relationships

Level 2 NVQ in Railway Engineering – (Permanent Way Renewal)

103 Install permanent way assets and components
105 Contribute to effective working relationships
201 Restore track geometry to operational condition by the manual repair of permanent way assets
202 Identify and deal with hazards in the railway environment
203 Prepare small plant, measuring equipment and tools for permanent way maintenance

Plus three from:
204 Deal with risks arising from contingencies within the railway
205 Assess and prepare permanent way materials, components and equipment for moving
206 Lift and move permanent way materials, components and equipment
207 Inspect the permanent way infrastructure

Level 3 NVQ in Railway Engineering – (Permanent Way Renewal)

301 Monitor the performance and condition of permanent way assets
302 Gather and interpret information needed for permanent way engineering activities
303 Establish track geometry and position
304 Restore track geometry to operational condition by the mechanised repair of permanent way assets
305 Prepare work areas for permanent way engineering activities
306 Secure the work area during and following permanent way maintenance or renewal activities
307 Minimise the effects of hazards in the railway environment

Plus four from:
308 Assess the performance and condition of permanent way assets
309 Undertake detailed inspection of the permanent way infrastructure
311 Control the obtaining and preparing of materials and components needed for the renewal or maintenance of the permanent way
312 Control the preparation of small plant, measuring equipment and tools for permanent way renewal and maintenance
313 Implement and monitor safe working systems for permanent way maintenance or renewal activities
314 Control the use of resources to achieve permanent way engineering requirements
315 Organise and control the work activities of the team
316 Plan permanent way renewal activities
317 Control the assessment and preparation of permanent way materials, components and equipment for moving
318 Ensure that the track is fit for operational purposes following work

Level 1 NVQ in Railway Engineering – (Permanent Way Maintenance)

Candidates will be required to complete all of the following units:

101 Adjust permanent way assets to meet operating requirements
102 Replace permanent way assets and components
104 Dismantle and remove permanent way assets and components
105 Contribute to effective working relationships
106 Undertake routine preventative maintenance of the permanent way

Level 2 NVQ in Railway Engineering – (Permanent Way Maintenance)

105 Contribute to effective working relationships
106 Undertake routine preventative maintenance of the permanent way
201 Restore track geometry to operational condition by the manual repair of permanent way assets
202 Identify and deal with hazards in the railway environment
203 Prepare small plant, measuring equipment and tools for permanent way maintenance

Plus three from:
204 Deal with risks arising from contingencies within the railway
205 Assess and prepare permanent way materials, components and equipment for moving
206 Lift and move permanent way materials, components and equipment
207 Inspect the permanent way infrastructure

Level 3NVQ in Railway Engineering – (Permanent Way Maintenance)

301 Monitor the performance and condition of permanent way assets
302 Gather and interpret information needed for permanent way engineering activities
303 Establish track geometry and position
304 Restore track geometry to operational condition by the mechanised repair of permanent way assets
305 Prepare work areas for permanent way engineering activities
306 Secure the work area during and following permanent way maintenance or renewal activities
307 Minimise the effects of hazards in the railway environment

Plus four from:
308 Assess the performance and condition of permanent way assets
309 Undertake detailed inspection of the permanent way infrastructure
310 Plan permanent way maintenance activities
311 Control the obtaining and preparing of materials and components needed for the renewal or maintenance of the permanent way
312 Control the preparation of small plant, measuring equipment and tools for permanent way renewal and maintenance
313 Implement and monitor safe working systems for permanent way maintenance or renewal activities
314 Control the use of resources to achieve permanent way engineering requirements
315 Organise and control the work activities of the team
317 Control the assessment and preparation of permanent way materials, components and equipment for moving
318 Ensure that the track is fit for operational purposes following work

Level 3 NVQ in Railway Engineering – (Rail Signal Installation)

Candidates will be required to complete all of the following units:

105 Contribute to effective working relationships
352 Interpret detailed information from technical sources for signalling engineering
353 Determine requirements for safe access to work locations for signalling engineering
354 Use allocated resources to achieve signalling engineering requirements
355 Reinstate the work after signalling engineering activities
356 Install signalling equipment
357 Develop yourself in the work place

Level 3 NVQ in Railway Engineering – (Rail Signal Maintenance)

Candidates will be required to complete all of the following units:

105 Contribute to effective working relationships
352 Interpret detailed information from technical sources for signalling engineering
353 Determine requirements for safe access to work locations for signalling engineering
354 Use allocated resources to achieve signalling engineering requirements
355 Reinstate the work after signalling engineering activities
358 Replace signalling components
357 Develop yourself in the work place

Plus one of the following option groups:

Maintenance specific:
359 Carry out planned preventative maintenance of signalling equipment
360 Adjust signalling components and equipment to meet operational requirements
361 Remove signalling components from assemblies or sub-assemblies

Fault finder specific:
362 Diagnose faults in signalling assets

Level 3 NVQ in Railway Engineering – (Rail Telecommunications Installation)

Candidates will be required to complete all of the following units:

105 Contribute to effective working relationships
365 Interpret detailed information from technical sources for telecommunications engineering
366 Determine requirements for safe access to work locations for telecommunications engineering
367 Use allocated resources to achieve telecommunications engineering requirements
368 Reinstate the work after telecommunications engineering activities
369 Install telecommunications equipment
357 Develop yourself in the work place

Level 3 NVQ in Railway Engineering – (Rail Telecommunications Maintenance)

Candidates will be required to complete all of the following units:

105 Contribute to effective working relationships
357 Develop yourself in the work place
365 Interpret detailed information from technical sources for telecommunications engineering
366 Determine requirements for safe access to work locations for telecommunications engineering
367 Use allocated resources to achieve telecommunications engineering requirements
368 Reinstate the work after telecommunications engineering activities
370 Carry out planned preventative maintenance of telecommunications equipment
371 Replace telecommunications components
372 Establish compliance with specifications for telecommunications assets
373 Diagnose faults in telecommunications assets

Level 3 NVQ in Railway Engineering – (Rail Signal Testing)

Candidates will be required to complete all of the following units:

105 Contribute to effective working relationships
357 Develop yourself in the workplace
355 Reinstate the work after signalling engineering activities
363 Conduct specified testing of signalling assets
364 Analyse and interpret the results of signal engineering tests

Level 2 NVQ in Railway Engineering – (Electrification and Plant)

Candidates will be required to complete all of the following units:

105 Contribute to effective working relationships
220 Prepare work sites and materials for electrification and plant activities
221 Carry out planned preventative maintenance procedures
222 Minimise risks to life, property and the environment
223 Deal with risks arising from contingencies

Plus a minimum of three from:

224 Prepare equipment for electrification and plant activities
225 Prepare work sites and loads for moving operations
226 Shape components by material removal using hand tools
227 Shape components by material removal using machine tools
228 Move loads
229 Install electrification and plant assets
230 Adjust electrification and plant assets to meet operating requirements
231 Remove components from electrification and plan assemblies or sub-assemblies
232 Replace electrification and plant assembly or sub-assembly components
233 Restore electrification and plant components to operational condition by repair

Level 2 NVQ in Railway Engineering – (Traction and Rolling Stock)

Candidates to complete all of the mandatory units plus one from group A and one from group B

Mandatory units

208 Deal with straightforward defects in traction and rolling stock assets by adjustment
209 Maintain the condition of the work site, materials and equipment
210 Develop professionally and support good working relationships
211 Support health and safety practices in the workplace
212 Confirm that traction and rolling stock assets comply with operational specifications by the use of simple engineering processes and techniques (CFRS/ECS 6.01)

Optional Units (Group A – one unit to be taken)

213 Prepare for and undertake planned maintenance
214 Prepare for and undertake the removal and replacement of traction and rolling stock components

Optional Units (Group B – one unit to be taken)

215 Organise resources and prioritise routines to undertake planned traction and rolling stock engineering activities (CFRS/ECS 1.19)
216 Prepare and move traction and rolling stock assets, components and equipment
217 Modify or manufacture traction and rolling stock components by material removal using hand tools (CFRS/ECS 3.03)
218 Assemble traction and rolling stock components using simple engineering processes and techniques (CFRS/ECS 3.12)
219 Install new traction and rolling stock components using simple engineering processes and techniques (CFRS/ECS 4.02)

Level 3 NVQ in Railway Engineering – (Traction and Rolling Stock)

Candidates to complete all of the mandatory units, plus one from group A and one from group B

Mandatory units

319 Identify, assess and rectify defects and discrepancies in traction and rolling stock assets (CFRS/ECS 5.07)
320 Establish and maintain the condition of the work site, materials and equipment
321 Develop professionally and support good working relationships
322 Support health and safety practices in the workplace
323 Establish compliance with traction and rolling stock specifications (CFRS/ECS 6.01)

Optional Units (Group A – one unit to be taken)

324 Contribute to the organisation of traction and rolling stock work activities (CFRS/ECS 7.08)
325 Prepare for and diagnose faults in traction and rolling stock assets
326 Organise the removal and replacement of traction and rolling stock components

Optional Units (Group B – one unit to be taken)

327 Plan and manage traction and rolling stock engineering activities
328 Manage the movement of complex traction and rolling stock loads
329 Modify or manufacture traction and rolling stock components by material removal using hand tools (CFRS/ECS 3.03)

330 Assemble traction and rolling stock components (CFRS/ECS 3.12)
331 Prepare and check a programmable controlled system for the operation of traction and rolling stock assets (CFRS/ECS 2.17)
332 Install traction and rolling stock assets and components (CFRS/ECS 4.02)
333 Accept, and return, responsibility for the control of traction and rolling stock assets
334 Provide operational support to users of traction and rolling stock assets (CFRS/ECS 7.09)

Level 3 in NVQ Railway Engineering – (Electrification and Plant)

Candidates will be required to complete all of the following units:

335 Read and extract information from standards, specifications and engineering drawings
336 Plan engineering activities
337 Plan requirements for safe access for work on or near electrification and plan assets
338 Supervise the use of allocated resources to achieve requirements
339 Implement safe access systems for work on or near electrification and plant assets
340 Accept and confirm responsibility for equipment or electrification and plant assets
341 Hand over responsibility for equipment or electrification and plant assets to others

Plus a minimum of four from:

342 Operate items of work equipment and electrification and plan assets that are computer controlled
343 Configure electrification and plant assets for operational use
344 Inspect work equipment and electrification and plant assets
345 Carry out testing of work equipment and electrification and plant assets
346 Analyse test results to determine the performance and condition of electrification and plant assets
347 Diagnose faults in work equipment and electrification and plant assets
348 Determine the feasibility of an electrification and plant component repair
349 Reinstate the work area after electrification and plant activities
350 Contribute to technical leadership on electrification and plant activities
351 Contribute to the organisation of work activities

Additional Units available (These do not form part of the above qualification structure)

401 Plan signal engineering activities (ECS 1.19)
402 Control allocated resources to achieve signal engineering requirements (ECS 1.26) SE12:
403 Establish compliance with specifications for signalling assets (ECS 6.01)
404 Hand over configured signalling assets (ECS 7.01)
405 Hand over signalling assets to the control of others (ECS 7.03)
406 Identify and deal with hazards in the workplace (ECS 7.04)
407 Contribute to technical leadership on signal engineering activities (ECS 7.07)
408 Contribute to the organisation of signal engineering activities (ECS 7.08)
409 Assist with the installation of signalling equipment (ECS 4.02)
410 Assist with planned preventative maintenance of signalling equipment (ECS 5.01)
411 Assist with establishing compliance with specifications for signalling assets (ECS 6.01)
412 Prepare work areas and materials for signal engineering activities (ECS 2.10)
413 Prepare equipment for signal engineering activities (ECS 2.13)
414 Prepare loads for moving (ECS 2.14)
415 Move loads to meet operational requirements (ECS 4.08)
416 Minimise risks to life, property and the railway engineering environment (ECS 7.05)
417 Deal with risks arising from contingencies in the railway engineering environment ECS 7.06)
418 Set up and secure access structures (ECS 4.03)
419 Position and secure temporary support structures (ECS 4.05)
420 Carry out manually applied pressure shaping operations on materials (/ECS 3.16)

421 Carry out machine controlled pressure shaping operations on materials (/ECS 3.06)
422 Carry out manual casting operations (ECS 3.07)
423 Use manually controlled thermal processes to join materials ECS 3.09)
424 Use adhesives to join materials (ECS 3.11)
425 Carry out moulding and laying-up of materials (ECS 3.05)
426 Assemble components to meet requirements (ECS 3.12)
427 Apply surface finishing treatments (ECS 3.14)
428 Dismantle and remove access structures (ECS 4.04)
429 Dismantle temporary electrification and plant arrangements and equipment (ECS 4.06)
430 Dismantle electrification and plant arrangements and equipment (ECS 4.07)
431 Conduct non-destructive testing of rails (ECS 6.02)
432 Plan telecomms engineering activities (maintenance testing) (ECS 1.19)
433 Control allocated resources to achieve telecomms engineering requirements (ECS 1.26)
434 Adjust telecomms components and equipment to meet operational requirements (ECS 5.02)
435 Remove telecomms components from assemblies or sub assemblies (ECS 5.03)
436 Conduct specified testing of telecomms assets (ECS 6.02)
437 Hand over configured telecomms assets (ECS 7.01)
438 Hand over telecomms assets to the control of others (ECS 7.03)
439 Identify and deal with hazards in the workplace (ECS 7.04)
440 Contribute to technical leadership of telecomms engineering activities (ECS 7.07)
441 Contribute to the organisation of telecomms engineering activities (ECS 7.08)
442 Prepare work areas and materials for telecomms engineering activities (ECS 2.10)
443 Prepare equipment for telecomms engineering activities (ECS 2.13)
444 Prepare loads for moving (ECS 2.14)
445 Move loads to meet operational requirements (ECS 4.08)
446 Minimise risks to life, property and the railway engineering environment (ECS 7.05)
447 Deal with risks arising from contingencies in the railway engineering environment (ECS 7.06)

Cross-reference grid of City & Guilds and Centre for Rail Skills unit references

City & Guilds Unit Number	CFRS Reference Number	Unit Title
101	P2	Adjust permanent way assets to meet operating requirements
102	P3	Replace permanent way assets and components
103	P4	Install permanent way assets and components
104	P8	Dismantle and remove permanent way assets and components
105	P10, ST22, E46	Contribute to effective working relationships
106	P1	Undertake routine preventative maintenance of the permanent way
201	P5	Restore track geometry to operational condition by the manual repair of permanent way assets
202	P6	Identify and deal with hazards in the railway environment
203	P7	Prepare small plant, measuring equipment and tools for permanent way maintenance
204	P11	Deal with risks arising from contingencies within the railway
205	P12	Assess and prepare permanent way materials, components and equipment for moving
206	P13	Lift and move permanent way materials, components and equipment
207	P14	Inspect the permanent way infrastructure
208	TRS 201	Deal with straightforward defects in traction and rolling stock assets by adjustment
209	TRS 202	Maintain the condition of the work site, materials and equipment
210	TRS 203	Develop professionally and support good working relationships
211	TRS 204	Support health and safety practices in the workplace
212	TRS 205	Confirm that traction and rolling stock assets comply with operational specifications by the use of simple engineering processes and techniques
213	TRS 206	Prepare for and undertake planned maintenance
214	TRS 207	Prepare for and undertake the removal and replacement of traction and rolling stock components
215	TRS 208	Organise resources and prioritise routines to undertake planned traction and rolling stock engineering activities (CFRS/ECS 1.19)
216	TRS 209	Prepare and move traction and rolling stock assets, components and equipment
217	TRS 210	Modify or manufacture traction and rolling stock components by material removal using hand tools (CFRS/ECS 3.03)
218	TRS 211	Assemble traction and rolling stock components using simple engineering processes and techniques (CFRS/ECS 3.12)
219	TRS 212	Install new traction and rolling stock components using simple engineering processes and techniques (CFRS/ECS 4.02)
220	E7	Prepare work sites and materials for electrification and plant activities
221	E30	Carry out planned preventative maintenance procedures
222	E41	Minimise risks to life, property and the environment
223	E42	Deal with risks arising from contingencies
224	E8	Prepare equipment for electrification and plant activities
225	E9	Prepare work sites and loads for moving operations
226	E12	Shape components by material removal using hand tools
227	E13	Shape components by material removal using machine tools
228	E23	Move loads
229	E24	Install electrification and plant assets
230	E31	Adjust electrification and plant assets to meet operating requirements

231	E32	Remove components from electrification and plan assemblies or sub-assemblies
232	E33	Replace electrification and plant assembly or sub-assembly components
233	E35	Restore electrification and plant components to operational condition by repair
301	P16	Monitor the performance and condition of permanent way assets
302	P19	Gather and interpret information needed for permanent way engineering activities
303	P21	Establish track geometry and position
304	P22	Restore track geometry to operational condition by the mechanised repair of permanent way assets
305	P23	Prepare work areas for permanent way engineering activities
306	P27	Secure the work area during and following permanent way maintenance or renewal activities
307	P28	Minimise the effects of hazards in the railway environment
308	P17	Assess the performance and condition of permanent way assets
309	P18	Undertake detailed inspection of the permanent way infrastructure
310	P20	Plan permanent way maintenance activities
311	P24	Control the obtaining and preparing of materials and components needed for the renewal or maintenance of the permanent way
312	P25	Control the preparation of small plant, measuring equipment and tools for permanent way renewal and maintenance
313	P26	Implement and monitor safe working systems for permanent way maintenance or renewal activities
314	P29	Control the use of resources to achieve permanent way engineering requirements
315	P30	Organise and control the work activities of the team
316	P31	Plan permanent way renewal activities
317	P32	Control the assessment and preparation of permanent way materials, components and equipment for moving
318	P33	Ensure that the track is fit for operational purposes following work
319	TRS 319	Identify, assess and rectify defects and discrepancies in traction and rolling stock assets (CFRS/ECS 5.07)
320	TRS 302	Establish and maintain the condition of the work site, materials and equipment
321	TRS 303	Develop professionally and support good working relationships
322	TRS 304	Support health and safety practices in the workplace
323	TRS 305	Establish compliance with traction and rolling stock specifications (CFRS/ECS 6.01)
324	TRS 306	Contribute to the organisation of traction and rolling stock work activities (CFRS/ECS 7.08)
325	TRS 307	Prepare for and diagnose faults in traction and rolling stock assets
326	TRS 308	Organise the removal and replacement of traction and rolling stock components
327	TRS 309	Plan and manage traction and rolling stock engineering activities
328	TRS 310	Manage the movement of complex traction and rolling stock loads
329	TRS 311	Modify or manufacture traction and rolling stock components by material removal using hand tools (CFRS/ECS 3.03)
330	TRS 312	Assemble traction and rolling stock components (CFRS/ECS 3.12)
331	TRS 313	Prepare and check a programmable controlled system for the operation of traction and rolling stock assets (CFRS/ECS 2.17)
332	TRS 314	Install traction and rolling stock assets and components (CFRS/ECS 4.02)
333	TRS 315	Accept, and return, responsibility for the control of traction and rolling stock assets
334	TRS 316	Provide operational support to users of traction and rolling stock assets

		(CFRS/ECS 7.09)
335	E1	Read and extract information from standards, specifications and engineering drawings
336	E2	Plan engineering activities
337	E3	Plan requirements for safe access for work on or near electrification and plan assets
338	E4	Supervise the use of allocated resources to achieve requirements
339	E5	Implement safe access systems for work on or near electrification and plant assets
340	E6	Accept and confirm responsibility for equipment or electrification and plant assets
341	E40	Hand over responsibility for equipment or electrification and plant assets to others
342	E22	Operate items of work equipment and electrification and plan assets that are computer controlled
343	E25	Configure electrification and plant assets for operational use
344	E26	Inspect work equipment and electrification and plant assets
345	E27	Carry out testing of work equipment and electrification and plant assets
346	E28	Analyse test results to determine the performance and condition of electrification and plant assets
347	E29	Diagnose faults in work equipment and electrification and plant assets
348	E34	Determine the feasibility of an electrification and plant component repair
349	E39	Reinstate the work area after electrification and plant activities
350	E43	Contribute to technical leadership on electrification and plant activities
351	E44	Contribute to the organisation of work activities
352	SE1	Interpret detailed information from technical sources for signalling engineering
353	SE3	Determine requirements for safe access to work locations for signalling engineering
354	SE4	Use allocated resources to achieve signalling engineering requirements
355	SE6	Reinstate the work after signalling engineering activities
356	SE7	Install signalling equipment
357	ST21	Develop yourself in the work place
358	SE11	Replace signalling components
359	SE8	Carry out planned preventative maintenance of signalling equipment
360	SE9	Adjust signalling components and equipment to met operational requirements
361	SE10	Remove signalling components from assemblies or sub-assemblies
362	SE15	Diagnose faults in signalling assets
363	SE13	Conduct Specified testing of signalling assets
364	SE14	Analyse and interpret results of signalling engineering tests
365	T1	Interpret detailed information from technical sources for telecommunications engineering
366	T3	Determine requirements for safe access to work locations for telecommunications engineering
367	T4	Use allocated resources to achieve telecommunications engineering requirements
368	T6	Reinstate the work after telecommunications engineering activities
369	T7	Install telecommunications equipment
370	T8	Carry out planned preventative maintenance of telecommunications equipment
371	T11	Replace telecommunications components
372	T12	Establish compliance with specifications for telecommunications assets
373	T15	Diagnose faults in telecommunications assets

Cross-reference grid of City & Guilds and Centre for Rail Skills unit references **(Additional Units)**

City & Guild Unit Number	CFRS Ref Number	Unit Title
401	SE2	Plan signal engineering activities (ECS 1.19)
402	SE5	Control allocated resources to achieve signal engineering requirements (ECS 1.26)
403	SE12	Establish compliance with specifications for signalling assets (ECS 6.01)
404	SE16	Hand over configured signalling assets (ECS 7.01)
405	SE17	Hand over signalling assets to the control of others (ECS 7.03)
406	ST18	Identify and deal with hazards in the workplace (ECS 7.04)
407	SE19	Contribute to technical leadership on signal engineering activities (ECS 7.07)
408	SE20	Contribute to the organisation of signal engineering activities (ECS 7.08)
409	SE30	Assist with the installation of signalling equipment (ECS 4.02)
410	SE31	Assist with planned preventative maintenance of signalling equipment (ECS 5.01)
411	SE32	Assist with establishing compliance with specifications for signalling assets (ECS 6.01)
412	SE40	Prepare work areas and materials for signal engineering activities (ECS 2.10)
413	SE41	Prepare equipment for signal engineering activities (ECS 2.13)
414	ST42	Prepare loads for moving (ECS 2.14)
415	ST43	Move loads to meet operational requirements (ECS 4.08)
416	ST44	Minimise risks to life, property and the railway engineering environment (ECS 7.05)
417	ST45	Deal with risks arising from contingencies in the railway engineering environment ECS 7.06)
418	E10	Set up and secure access structures (ECS 4.03)
419	E11	Position and secure temporary support structures (ECS 4.05)
420	E14	Carry out manually applied pressure shaping operations on materials (/ECS 3.16)
421	E15	Carry out machine controlled pressure shaping operations on materials (/ECS 3.06)
422	E16	Carry out manual casting operations (ECS 3.07)
423	E17	Use manually controlled thermal processes to join materials ECS 3.09)
424	E18	Use adhesives to join materials (ECS 3.11)
425	E19	Carry out moulding and laying-up of materials (ECS 3.05)
426	E20	Assemble components to meet requirements (ECS 3.12)
427	E21	Apply surface finishing treatments (ECS 3.14)
428	E36	Dismantle and remove access structures (ECS 4.04)
429	E37	Dismantle temporary electrification and plant arrangements and equipment (ECS 4.06)
430	E38	Dismantle electrification and plant arrangements and equipment (ECS 4.07)
431	P15	Conduct non-destructive testing of rails (ECS 6.02)
432	T2	Plan telecomms engineering activities (maintenance testing) (ECS 1.19)
433	T5	Control allocated resources to achieve telecomms engineering requirements (ECS 1.26)
434	T9	Adjust telecomms components and equipment to meet operational requirements (ECS 5.02)

435	T10	Remove telecomms components from assemblies or sub assemblies (ECS 5.03)
436	T13	Conduct specified testing of telecomms assets (ECS 6.02)
437	T16	Hand over configured telecomms assets (ECS 7.01)
438	T17	Hand over telecomms assets to the control of others (ECS 7.03)
439	ST18	Identify and deal with hazards in the workplace (ECS 7.04)
440	T19	Contribute to technical leadership of telecomms engineering activities (ECS 7.07)
441	T20	Contribute to the organisation of telecomms engineering activities (ECS 7.08)
442	T40	Prepare work areas and materials for telecomms engineering activities (ECS 2.10)
443	T41	Prepare equipment for telecomms engineering activities (ECS 2.13)
444	ST42	Prepare loads for moving (ECS 2.14)
445	ST43	Move loads to meet operational requirements (ECS 4.08)
446	ST44	Minimise risks to life, property and the railway engineering environment (ECS 7.05)
447	ST45	Deal with risks arising from contingencies in the railway engineering environment (ECS 7.06)

Section 2 – Assessment Requirements

The following has been extracted from the CFRS Centre for Rail Skills assessment strategy as being relevant to centres.

The rail industry is already monitored and regulated (**See Appendix 1)** with regard to safety, costs and performance. These assessment requirements recognise that current monitoring and regulation strengthens the assessment process. Reports produced by these regulatory bodies will contribute to the risk rating of centres offering rail qualifications.

2.1 Internal Verification

The following sets out the rail industry's specific requirements for internal verification

- The centre will appoint IVs who will be responsible for regularly sampling **(See Appendix 2, A)** evidence of assessment decisions made by all assessors. This will include observing "new/less experienced" assessors more frequently than experienced assessors. It is expected that the frequency of such assessments will gradually reduce over time in relation to the performance of the assessor and the assessment of risk. IVs must keep detailed records of this process.

- IVs must sample the quality of assessors' judgments at an interim stage; this will enable IVs to pick up problems at an early stage and so avoid the situation of turning down final decisions (the size of the sample to be increased if anomalies are found). Satisfactory evidence from the sampling during the interim stage may be used as part of sampling on completion**.**

- IVs must carry out an in-depth verification of a representative sample of candidates. The sample needs to include those NOS units where evidence from incident, audit and quality control reports indicate possible lapses of competence. Evidence of this process must be recorded and IVs will be expected to explain the factors that led them to their decisions on the sample in each case. Their reasoning should include, for example, the relationship between the size of the sample and the frequency of assessments. This rationale will be provided to the EV.

- In order to assist in their work IVs will have access to all appropriate available evidence about the organisation that directly employs the candidate including reports from: -
    - Health and Safety Executive (HSE)
    - Railway Safety
    - London Underground Ltd (LUL)
    - Network Rail
    - Relevant company reports

  Or their successor organisations.

2.2 Assessment Environment

Each unit includes a statement that describes the most appropriate method of assessing the unit. It will also specify if simulation can be used.

Where evidence is not generated using the identified appropriate method, perhaps because of technological improvements in operations, it is a requirement that:

- the assessor seeks approval from the internal verifier, prior to assessment, and

- all such occurrences are brought to the attention of the EV prior to assessment taking place**.**

2.2.1 Performance Evidence

The prime method for generating evidence of competent performance should always be through naturally occurring work.

Performance Evidence may be: -

- evidence of the way the candidate carried out the activity such as assessor observations
- documented witness testimonies, which may include observation by a supervisor, line manager or similar
- candidates reports authenticated by a supervisor or line manager
- products of the candidates work e.g. items produced or worked on or documents produced as part of a work activity
- simulation (**see C**)
- Video footage of candidates work

Performance evidence is often applicable to more than one unit and should be used in any unit wherever it is relevant.

2.2.2 Knowledge and Understanding

Knowledge and Understanding are key components to competent performance. It is unlikely that performance evidence alone will provide sufficient evidence. Satisfactory evidence of a candidate's knowledge and understanding can be achieved in a number of ways:

- questioning will normally be used to establish that the candidate has sufficient knowledge and understanding to perform competently
- documented witness testimonies, which may include questioning by a supervisor, line manager or similar
- candidates reports authenticated by a supervisor or line manager may, in some cases, demonstrate suitable knowledge and understanding. A qualified assessor will need to confirm that such evidence is acceptable.

Exceptionally, questioning may be used to infer competent performance across the scope, approval for this must be granted by the IV in advance and justification recorded for review by the EV.
Where questioning is used a copy of the questions asked and the candidates' responses must be retained.

2.3 Appropriate use of simulation

A significant proportion of assessments that occur in the rail industry are in relation to safety important and safety critical activities, where less than competent performance can result in the breakdown of safe systems and cause danger. Rail industry workers need to be competent, not just in normal conditions, but in ones that are described as;
"abnormal, degraded and emergency conditions."

Of course, where actual workplace performance evidence is available to demonstrate an individual's competence in abnormal, degraded and emergency conditions, then it should be

used. However, competency may be assessed in simulated conditions in situations of rarely occurring activity.

The main instances of such activity are those that are infrequent, unpredictable or where performance could compromise the safety of the candidate and/or others.

Where simulation is considered necessary, assessors must be confident that the simulation replicates the workplace to such an extent that the competences gained will be fully transferable to the workplace. Assessors must clearly identify those aspects of the working environment that are critical to performance.

The factors which must be present are: -
- demands upon the technical knowledge e.g. use of equipment
- ability required in real life e.g. carrying out work on actual work systems
- recognised pressures or constraints pertinent to the situation being assessed e.g. time

Where simulation is involved the assessor must obtain the agreement of the IV and the EV before assessing any candidates.

2.4 The occupational competence requirements of Assessment and Verification staff

Assessment and verification must be carried out by competent assessors and verifiers who hold or are working towards nationally recognised assessor/verifier units (formerly D32, D33 & D34 or their successors A1, A2 & V1).

In addition to achieving the appropriate assessment and verification qualifications, assessors and verifiers must be able to demonstrate that they can meet the following criteria for occupational competence regardless of which NVQ/SVQ they are assessing.

2.4.1 Assessors

Assessors must have occupational competence in relation to the specific N/SVQ units that they are to assess.

They will have one or more of the following characteristics:

- have undertaken the activity that they are assessing in the **preceding five years;**
- have performed the activity in the past and **are currently supervising or training** people in the activity;
- would be regarded as **technical experts** because they currently directly manage the quality of the activity to be assessed;
- can **fully demonstrate sufficient technical expertise** to make them a credible assessor.

In addition, assessors will be familiar with the specific systems and equipment that are being used as part of the assessable activity and have a sound, in-depth knowledge of the national occupational standards being used.

2.4.2 Internal Verifiers

Internal verifiers must have either occupational competence in relation to the specific units that they are to verify or work in partnership with a technical expert for advice, sampling evidence for technical content.
The IVs and EV will have the following characteristics:

- have undertaken the activity that they are verifying in the preceding **ten years**,

or

- have experience within the last **five years** of directly supervising or training those carrying out the activity they are to verify

or

- be regarded as **technical experts** because they currently directly manage the quality of the activity to be verified

or

- be able to **demonstrate sufficient technical expertise** to make them a credible verifier

or

- carry out the verification process with input from a technical expert who meets the above criteria.

In addition, IVs will have a sound, in-depth knowledge of the National Occupational Standards being used.

All assessors and verifiers have a responsibility to candidates as well as to the industry and City & Guilds to ensure that both their assessment and verification skills and their occupational competence remain current. CFRS fully endorses the principle of **Continuing Professional Development** (CPD) and requires that there are procedures in place to allow assessors and verifiers to do this.

2.5 Enhanced Quality Assurance

The City & Guilds has in place a system of Data analysis and risk rating of centres to meet this requirement. It enables External Verifier activity to be focused according to centre risk rating.

Appendix 1 - Organisations involved in the regulation and monitoring of the rail industry

The industry is bound by law to comply with the Railway Safety Case Regulations and Railway (Safety Critical Work) Regulations, which require workplace assessments as well as the general requirements of the H&SAWA to ensure its workforce is trained and competent to do their job. Safety standards require regular risk based knowledge tests and periodic workplace assessments of competence. Qualified assessors carry out these assessments.

Her Majesty's Railway Inspectorate (HMRI) on behalf of the Health & Safety Executive (HSE) conducts audits and inspections to confirm compliance with the regulations and also following significant incidents. Their Inspectors will use "Developing and Maintaining Staff Competence" as a benchmark to judge the adequacy of arrangements in railway safety cases, industry standards and assessing compliance with relevant legislation in these areas.

Railway Safety is charged with managing the production and upkeep of Railway Group Standards – mandatory standards which are intended to facilitate safe operation of the network and to which all operators must comply. They audit to check compliance with the standards, including the competence of people.

Network Rail, LUL and their supply chains conduct audits and inspections to confirm compliance with Railway Group and Line Standards. As from Spring 2003 all Infrastructure companies and their supply chain will be subject to audit to ensure their people are competent to National Occupational Standards.

Company internal audits are carried out to minimise the risk of non-compliance with any of the above. Internal auditors who are independent of the line of work carry out these audits.

All audits, inspections and incident investigations result in reports, which include any area for improvement and any failures identified in competence and the management of competence.

These in - built checks provide an advantage, which the rail industry has over many other sectors of the economy, when it comes to systematic quality controls of assessment.

Appendix 2 - Additional Information

1. Sampling

Sampling should take into account the following:

- The smaller the candidate group size the larger the sample as a portion of group size.
- The type and spread of candidates, for example; across gender, ethnic groups, those with learning difficulties and disabilities.
- The experience of the assessor and how often they carry out assessments.
- The sample will include examples of all assessment methods evidenced.
- The sample will include examples of units which are infrequently assessed.

2. Communication

CFRS will communicate the successes and the experiences gained through implementing NVQs and SVQs particularly where companies have been able to enlist the monitoring and regulation which is part and parcel of the rail industry to support the NVQ/SVQ procedures.

Effective and appropriate communication is essential to the working of this Assessment Strategy. To that end it is recommended that EVs promptly communicate issues and problems to IVs and each other through meetings or similar arrangements to ensure consistency of assessment. Similarly, IVs must communicate effectively both with EVs and assessors, promptly and fully.

3. Use of up to date standards

Assessment Centres must ensure that they are using the current versions of the National Occupational Standards. City & Guilds must check this through verification visits. All standards produced by CFRS will be dated and the dates of all currently accredited standards will be published on the CFRS website www.cfrs.org.uk.

All assessment centres should ensure that:

- all assessors are using currently accredited standards
- all individuals will know and understand which National Occupational Standards they are being assessed against.

Where assessors or verifiers believe that the standards could be changed to make them easier to understand or easier to use in the assessment process they should make contact with Centre for Rail Skills to suggest the change in wording. This should be done in writing or by email to enquiries@cfrs.org.uk.

All suggestions received by Centre for Rail Skills will be evaluated as part of the regular standards review programme.

Level 1/2/3 NVQ in Railway Engineering Knowledge evidence recording sheet
(this should be copied for each unit)

Knowledge reference	Method(s) used			Candidate's Evidence location	Assessor Reference	Result	Date assessed
	Written	Oral	Inferred				
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							

	Name	Signature	
Candidate:			Date:
Assessor:			Date:
Internal Verifier			Date:
External Verifier			Date:

Section 3 – Key Skills

3.1 Key Skills Signposting

Achievement of a Key Skill qualification is based upon the provision of evidence by a candidate who shows that he or she has carried out certain required activities. The tables within this document indicate where there are opportunities for candidates to provide evidence which will enable them to achieve Key Skill units *while working towards* a National Vocational Qualification (NVQ).

The identification of such opportunities is called 'signposting'. Certain activities required by NVQs are central to Key Skills and, as a result, if the candidate has met the indicated vocational requirement of the unit, the relevant aspect of a Key Skill may also be achieved.

Some of the Key Skills units may be achieved as a complete unit due to the diversity of skills required in the NVQ unit. However, it is possible to achieve parts of units if a candidate's evidence for the NVQ does not fulfil all the requirements in the relevant Key Skills unit. Where individual parts of units can be gained, this is detailed in the Key Skills column.

Levels 1, 2 and 3 NVQs in Railway Engineering

Opportunities for generation of Key Skills evidence:

The following table lists the opportunities for generation of Key Skills evidence for each unit in the award.

Railway Engineering Unit	Communication	Working with Others	Problem Solving	Application of number	IT
101	C1.1,C1.2, C1.3, C2.1a,C2.2, C2.3	WO1.1,WO1.2, WO2.1, WO2.2			
102	C1.1,C1.2, C1.3, C2.1a,C2.2, C2.3	WO1.1, WO1.2, WO2.1, WO2.2	PS1.1, PS1.2, PS1.3		
103	C1.1, C1.2, C1.3, C2.1a, C2.2, C2.3	WO1.1, WO1.2, WO2.1, WO2.2	PS1.1, PS1.2, PS1.3		
104	C1.3, C2.3	WO1.1, WO1.2, WO2.1, WO2.2			
105	C1.1, C2.1a	WO1.1,WO1.2, WO1.3,WO2.1, WO2.2,WO2.3			
106	C1.1, C1.2, C1.3, C2.1a, C2.2, C2.3	WO1.1, WO1.2, WO2.1, WO2.2			
201	C1.1, C1.2, C1.3, C2.1a, C2.2, C2.3	WO1.1, WO1.2, WO2.1, WO2.2			
202	C1.2, C2.2		PS1.1, PS1.2, PS1.3		
203	C1.2,C1.3, C2.2, C2.3	WO1.1, WO1.2, WO2.1, WO2.2	PS1.1, PS1.2, PS1.3		
204	C1.2, C2.2	WO1.1, WO1.2, WO2.1, WO2.2	PS1.1, PS1.2, PS1.3		
205	C1.1, C1.2, C2.1a, C2.2	WO1.1, WO1.2, WO2.1, WO2.2	PS1.1, PS1.2, PS1.3	N1.1, N1.2	
206		WO1.1, WO1.2, WO2.1, WO2.2			
207	C1.1,C1.2, C1.3,C2.1a, C2.2, C2.3				
208	C1.1, C1.2, C1.3, C2.1a, C2.2, C2.3	WO1.1, WO1.2, WO2.1, WO2.2			
209	C2.1a	WO2.1, WO2.2	PS2.1, 2.2, 2.3		
210	C1.1, C1.3,C2.1a, C2.3				
211	C1.2, C2.2		PS1.1, 1.2, 1.3		
212	C1.2, C1.3, C2.2, 2.3		PS1.1, 2.1		
213	C2.2, 2.3		PS2.1,2.2,2.3	N2.1,2.2, 2.3	
214	C1.1,1.2,1.3,2.1a, 2.2,2.3	WO1.1,1.2,2.1.,2.2	PS1.1,1.2,1.3		
215	C2.2,2.3		PS2.1,2.2,2.3		
216	C1.1,1.2,2.1a, 2.2	WO1.1,1.2,2.1.,2.2		N1.1,1.2	

217	C1.2		PS1.1		
218	C1.2		PS1.1		
219	C1.2		PS1.1		
220	C2.1a,2.3		PS1.1,1.2,1.3		
221	C1.1,1.2,1.3,2.1a, 2.2,2.3	WO1.1,1.2,2.1,2.2			
222	C2.1a,2.2	WO2.1,2.2,2.3			
223	C1.2,2.2		PS1.1,1.2,1.3		
224	C1.3,2.2		PS2.1,2.2,2.3		
225	C1.1,1.2,2.1a,2.2	WO1.1,1.2,2.1,2.2	PS1.1,1.2,1.3	N1.1,1.2	
226	C1.2		PS1.1		
227	C1.1,2.2		PS1.1,1.2,1.3, 1.4	N2.1	
228		WO1.1,1.2,2.1,2.2			
229	C1.2		PS1.1		
230	C1.1,1.2,1.3,2.1a 2.2,2.3	WO1.1,1.2,2.1,2.2			
231		WO1.1,1.2,2.1,2.2			
232		WO1.1,1.2,2.1,2.2			
233		WO1.1,1.2,2.1,2.2			
301	C2.2, C2.3				
302	C2.2, C2.3		PS2.1, PS2.2, PS2.3	N2.1, N2.2, N2.3	
303	C2.2, C2.3	WO2.1, WO2.2		N2.1, N2.2, N2.3	
304	C1.3, C2.2	WO2.1, WO2.2	PS2.1, PS2.2, PS2.3		
305	C2.1a	WO2.1, WO2.2	PS2.1, PS2.2, PS2.3		
306		WO2.1, WO2.2	PS2.1, PS2.2, PS2.3		
307	C2.2, C2.3		PS2.1, PS2.2, PS2.3		
308	C2.2, C2.3				
309	C2.2, C2.3		PS2.1, PS2.2, PS2.3		
310	C2.2, C2.3		PS2.1, PS2.2, PS2.3		
311	C2.2, C2.3		PS2.1		
312	C2.2, C2.3		PS2.1		
313	C2.1a, C2.2, C2.3	WO2.1, WO2.2			
314	C2.1a, C2.3		PS2.1, PS2.2, PS2.3		
315	C2.1a, C2.2, C2.3	WO2.1, WO2.2, WO2.3	PS2.1, PS2.2, PS2.3		
316	C2.2, C2.3		PS2.1, PS2.2, PS2.3		

317	C2.2, C2.3	WO2.1, WO2.2	PS2.1, PS2.2, PS2.3	N2.1, N2.2, N2.3	
318	C2.1a, C2.2, C2.3	WO2.1, WO2.2			
319	C2.1a, C2.2		PS2.1		
320	C2.1a	WO2.1, WO2.2	PS2.1, PS2.2, PS2.3		
321	C2.1a, C2.2	WO2.1, WO2.2, WO2.3, 3.1,3.2,3.3			
322	C1.2, 2.2		PS1.1,1.2,1.3		
323	C2.1a. C2.2		PS2.1,2.2		
324	C2.1a, 2.2,2.3	WO2.1, WO2.2, 2.3	PS2.1, 2.2,2.3		
325	C2.2, 2.3		PS2.1,2.2		
326	C2.3	WO2.1, WO2.2,	PS2.1, 2.2,2.3		
327	C2.2, 2.3		PS2.1,2.2,2.3		
328	C2.1a,2.2	WO2.1,2.2	PS1.1,1.2,1.3	N1.1,1.2	
329	C2.2		PS2.1,2.2,2.3		
330	C2.2		PS2.1, 2.2,2.3		
331	C2.2		PS2.1, 2.2,2.3		IT1.1,2.1,2.2
332	C2.2		PS2.1,2.2,2.3		
333	C2.1a,2.2	WO2.1,2.2,2.3			
334	C2.1a,2.2	WO2.1,2.2,2.3			
335	C2.2,2.3	WO2.1,2.2,2.3	PS2.1,2.2,2.3	N2.1,2.2,2.3	
336	C2.2,2.3		PS2.1,2.2,2.3		
337	C2.1a,2.2,2.3		PS1.1,1.2		
338	C2.1a,2.2		PS2.1,2.2,2.3		
339	C2.1a,2.2,2.3	WO2.1,2.2			
340	C2.1a, C2.2				
341	C2.1a,2.2	WO2.1,2.2,2.3			
342	C1.1,2.2		PS1.1,1.2,1.3		
343	C2.1a,2.2,2.3		PS2.1,2.2,2.3		
344	C1.1,1.2,1.3,2.1a, 2.2,2.3		PS1.1,1.2,1.3		
345	C1.2,1.3,2.2,2.3	WO1.1,1.2,2.1,2.2			
346	C2.2,2.3				
347	C2.2,2.3		PS2.1,2.2,2.3		
348	C1.1,1.2,1.3,2.1a,2.2,2.3	WO1.1,1.2,2.1,2.2			
349	C1.1,1.2,1.3,2.1a,2.2,2.3	WO1.1,1.2,2.1,2.2			
350	C2.1a,2.2,2.3	WO2.1,2.2,2.3	PS2.1,2.2,2.3		
351	C2.1a,2.2,2.3	WO2.1,2.2,2.3	PS2.1,2.2,2.3		
352	C2.2		PS1.1,1.2,1.3	N2.1	
353	C21.22,.23		PS1.1,1.2		
354	C21.a,.22,.23		PS1.1,1.2		
355	C21.a,2.3		PS1.1,1.2,1.3		
356	C21.a,2.2,2.3		PS2.1,2.2,2.3		
357	C21.a,2.3		PS2.1,2.2,2.3		LP2.1,2.2,2.3
358	C1.1,1.3,2.2		PS2.1,2.2,2.3	N2.1	
359	C21.a,2.2,2.3				
360	C21.a,2.2,2.3				
361	C2.2			N2.1	
362	C1.1,1.3,2.2		PS1.1,1.2		
365	C2.2		PS1.1,1.2,1.3	N2.1	
366	C2.1a				

367	C21.a,.22,.23		PS1.1,1.2		
368	C21.a,2.3		PS1.1,1.2,1.3		
369	C21.a, 2.2,2.3		Ps2.1,2.2,2.3		
370	C21.a, 2.2,2.3				
371	C1.1,1.3,2.2		PS2.1,2.2,2.3	N2.1	
372	C1.1,1.3,2.2		PS1.1,1.2,1.3	N2.1	
373	C1.1,1.3,2.2		PS1.1,1.2		

Section 4 – National Occupational Standards

Standards supplied by CFRS (Centre for Rail Skills). www.cfrs.org.uk. Due to the volume of National Occupational Standards they are not contained in this document but are available to download as separate documents from the City & Guilds website www.city-and-guilds.co.uk. The standards are divided up into the following subjects:

Maintenance and Renewal of the Permanent Way – Levels 1, 2 & 3

Rail Signal Engineering – Level 3

Telecomms Engineering – Level 3

Maintenance and Repair of Traction and Rolling Stock – Levels 2 & 3

Further information

Further information regarding centre/scheme approval or any aspect of assessment of our qualifications should be referred to the relevant City & Guilds regional/national office:

Region	Telephone	Facsimile
City & Guilds Scotland	0131 226 1556	0131 226 1558
City & Guilds North East	0191 402 5100	0191 402 5101
City & Guilds North West	01925 897900	01925 897925
City & Guilds Yorkshire	0113 380 8500	0113 380 8525
City & Guilds Wales	02920 748600	02920 748625
City & Guilds West Midlands	0121 359 6667	0121 359 7734
City & Guilds East Midlands	01773 842900	01773 833030
City & Guilds South West	01823 722200	01823 444231
City & Guilds London and South East	020 7294 2820	020 7294 2419
City & Guilds Southern	020 7294 2724	020 7294 2412
City & Guilds East	01480 308300	01480 308325
City & Guilds Northern Ireland/ Ireland	028 9032 5689	028 9031 2917
City & Guilds Customer Relations Unit	020 7294 2800	020 7294 2400

Website www.city-and-guilds.co.uk

The National Occupational Standards have been produced by the Centre for Rail Skills (CFRS) who can provide advice on learning, apprenticeships and careers within the industry.

Centre for Rail Skills
PO Box 39685
LONDON
W2 1XR

http://www.cfrs.org.uk

Stock code: SP-13-7588