

National Diploma in Surveying (Level 6) with an optional strand in Mine Surveying

Level 6

Credits 250

This qualification has been **reviewed**. The last date to meet the requirements is 31 December 2020.

Transition Arrangements

This replaced qualification version 7 was re-published in April 2018 to extend its last date for assessment from 31 December 2019 to 31 December 2020.

This qualification has been reviewed and replaced by the New Zealand Diploma in Surveying (Level 6) [Ref: 2959].

The last date for entry into programmes leading to the replaced qualification was 31 December 2016.

Please note that the optional strand of this qualification was replaced by the New Zealand Certificate in Mine Surveying (Level 6) [Ref: 3166]

Changes to structure and content

- Standards 5095, 5268, 17742, 17745, 19355 and 21614 were removed and replaced by 91426, 91575, 29087, 29087, 91631, 91412 respectively — see table below.
- The overall credit value of the qualification has changed from 252 to 250 credits.

People currently working towards achievement of the replaced qualification may either complete the requirements for that qualification or transfer their results to the replacement qualification. However, as there are substantial differences between the new and replaced qualification and therefore any transition will be complex; it is recommended that candidates complete the qualification in which they are enrolled. For assistance please contact the Infrastructure ITO at the contact details given below.

For detailed information see [Review Summaries](#) on the NZQA website.

This qualification contains compulsory expired or expiring unit standards that have been replaced. For the purposes of this qualification, people who have gained credit the replacement unit standards are exempt from the requirement to gain credit for the expired or expiring standards – see table below.

Credit for	Exempt from
29410	11152 & 23871

Credit for	Exempt from
29411	11153
29786	2785

This qualification contains assessment standards that replace either expiring or expired unit standards. For the purposes of this qualification, people who have gained credit for the replaced standards are exempt from the requirement to gain credit for the replacement assessment standards.

Credit for	Exempt from
5095	91426
5268	91575
17742	29087
17745	29087
19355	91631
21614	91412

Version 6 of this qualification includes standards 5095, 5268 which expire in 31 December 2015; standard 19355 which expires in 31 December 2016; and both 17742 and 17745 which expire in 31 December 2017. Candidates enrolled in programmes leading to version 6 of this qualification must either complete these standards, prior their expiring dates or transfer to a programme leading to this version of qualification.

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	April 1998	December 2004
Revision	2	December 1998	December 2008
Revision	3	July 2001	December 2008
Revision	4	March 2003	December 2013
Review	5	September 2008	December 2014
Revision	6	November 2011	December 2019
Review	7	November 2015	December 2019
Republished	7	April 2018	December 2020

Standard Setting Body

Infrastructure ITO (Connexis)
 PO Box 2759
 Wellington 6140
 Telephone 04 499 9144
 Email qualifications@connexis.org.nz
 Website www.connexis.org.nz/

National Diploma in Surveying (Level 6) with an optional strand in Mine Surveying

Level	6
Credits	250

Purpose

This National Diploma recognises the skills and knowledge required by the New Zealand Institute of Surveyors for survey technicians working in construction and land development contexts. People who have been awarded this qualification are able to undertake field and office work associated with land surveying.

The Compulsory section recognises skills and knowledge related to working safely in a surveying workplace; generic skills in communications, computing, and trigonometry; knowledge of land administration; and core technical skills in geodetic surveying, land administration, subdivision design, and survey practice.

The Elective section enables candidates to select surveying and related skills appropriate to their workplace or specialty area.

The Mine Surveying Optional Strand recognises competence in underground surveying work. The compulsory standards in the Mine Surveying Optional Strand may be presented as evidence to Occupational Safety and Health (OSH) for mine survey regulatory purposes.

In addition optional standard 21281, *Interpret and test for gases in an underground extraction site*, may be presented as evidence to OSH for gas testing regulatory purposes relating to coal or gassy mines. This standard is not a requirement for the award of this qualification, with or without the Mine Surveying Optional Strand.

This diploma builds on the National Certificate in Surveying (Assistant) (Level 3) [Ref: 0432] and can lead to the Bachelor of Surveying degree available at the University of Otago.

Special Notes

People who have been awarded this qualification meet the educational criteria for admission as a technical associate of The New Zealand Institute of Surveyors Inc. (NZIS). Other categories of NZIS membership may be available to holders of this qualification subject to compliance with NZIS Rules.

Entry requirements:

- a minimum of 48 NCEA Level 2 credits in four subjects including 20 credits in trigonometry, geometry, and algebra, and credits in English, graphics and design, computing, and/or physics, or demonstrate equivalent knowledge and skills.

Candidates for this qualification who intend to enrol for the Bachelor of Surveying degree at Otago University should contact the School of Surveying at the university regarding credit exemptions for the degree before selecting elective standards for this qualification.

People wishing to undertake the Mine Surveying Optional Strand will need to have access to an underground extractive site. Please contact the Extractive Industries Training Organisation (EXITO) for assistance at www.exito.org.nz.

Credit Range

	Compulsory	Elective	Mine Surveying Optional Strand
Level 2 credits	12	-	10
Level 3 credits	49	0-8	-
Level 4 credits	64	0-8	15
Level 5 credits	43	0-8	
Level 6 or above credits	46	28-36	35
Minimum totals	214	36	60

Requirements for Award of Qualification

Award of NZQF National Qualifications

Credit gained for a standard may be used only once to meet the requirements of this qualification.

Unit standards and achievement standards that are equivalent in outcome are mutually exclusive for the purpose of award. The table of mutually exclusive standards is provided on the New Zealand Qualifications Authority (NZQA) website: <http://www.nzqa.govt.nz/qualifications-standards/standards/standards-exclusion-list/>.

Reviewed standards that continue to recognise the same overall outcome are registered as new versions and retain their identification number (ID). Any version of a standard with the same ID may be used to meet qualification requirements that list the ID and/or that specify the past or current classification of the standard.

Summary of Requirements

- Compulsory standards
- Elective – A minimum of 36 credits as specified

The following strands are optional

- Mine Surveying Optional Strand

Detailed Requirements

Compulsory

The following standards are required

Computing and Information Technology > Computing > Generic Computing

ID	Title	Level	Credit
2785	Create a computer spreadsheet to provide a solution for organisation use	3	5
18756	Use and maintain a computer database for business reporting and decision making	3	4

Engineering and Technology > Engineering > Generic Engineering

ID	Title	Level	Credit
11414	Prepare working drawings for an engineering project	4	6

Engineering and Technology > Highway Construction and Maintenance > Temporary Traffic Management

ID	Title	Level	Credit
5627	Operate as a Traffic Controller (TC) for low volume and Level 1 roads	3	4

Engineering and Technology > Technology > Design and Visual Communication

ID	Title	Level	Credit
91631	Produce working drawings to communicate production details for a complex design	3	6

Humanities > Communication Skills > Reading

ID	Title	Level	Credit
2990	Read texts to research information	3	4

Humanities > Communication Skills > Writing

ID	Title	Level	Credit
3488	Write business correspondence for a workplace	2	6
9685	Write an analytical report	5	5

Planning and Construction > Surveying > Geodetic Surveying

ID	Title	Level	Credit
23859	Demonstrate knowledge of geodetic reference systems and describe the New Zealand geodetic datums	6	4
26298	Perform and explain geodetic computations	6	5

Planning and Construction > Surveying > Subdivisional Design

ID	Title	Level	Credit
11153	Design infrastructure and services for subdivisions	6	15

Planning and Construction > Surveying > Survey - Land Administration and Applied Resource Management

ID	Title	Level	Credit
8782	Demonstrate knowledge of land legislation and land development in New Zealand in a surveying context	5	12
8784	Demonstrate knowledge of the New Zealand surveying system	5	6
23872	Describe land administration in relation to land development and surveying	4	6

Planning and Construction > Surveying > Survey Practice

ID	Title	Level	Credit
8764	Produce a topographical survey plan	5	8
8766	Survey and set out building and construction control	5	6
8798	Work safely in a surveying workplace	3	6
8799	Calculate areas, contours, and volumes for survey purposes	3	8
8800	Apply mathematics to surveying	4	15
8801	Use contemporary software to carry out survey computations	4	6
23873	Confirm the reliability of existing land survey marks	6	12
23874	Produce survey data for a cadastral dataset	6	10
23875	Demonstrate knowledge of, and set up, survey instruments and targets	3	8
23876	Demonstrate knowledge of, perform, and record linear field measurements for survey practice	4	8
23877	Explain, perform, and record angular field measurements using standard surveying instruments	4	6
23878	Determine differences in height for survey practice	4	7
23879	Demonstrate knowledge of safety for survey practice	2	6
23880	Explain and use the Global Positioning System (GPS) for survey practice	4	10
23881	Demonstrate knowledge of legislation for survey practice	5	6

Sciences > Mathematics > Trigonometry

ID	Title	Level	Credit
91575	Apply trigonometric methods in solving problems	3	4

Elective

A minimum of 36 credits

- Of which a minimum of 28 credits at Level 6

Engineering and Technology > Civil Engineering > Civil Engineering - Generic

ID	Title	Level	Credit
11417	Establish characteristics of soils for engineering purposes	4	9
11422	Describe engineering solutions for mitigating the effects of natural hazards	5	7

Engineering and Technology > Engineering > Generic Engineering

ID	Title	Level	Credit
11402	Demonstrate knowledge of engineering projects and the role of project management	6	3
11405	Prepare estimates of engineering project costings	5	4
11406	Demonstrate knowledge of engineering contract law and documentation	6	4

Engineering and Technology > Highway Construction and Maintenance > Temporary Traffic Management

ID	Title	Level	Credit
5628	Operate as a Site Traffic Management Supervisor (STMS) for low volume and Level 1 roads	5	3

Engineering and Technology > Infrastructure Works > Generic Infrastructure Works

ID	Title	Level	Credit
6450	Apply plans and specifications to calculate quantities for infrastructure works projects	5	4

Engineering and Technology > Infrastructure Works > Infrastructure Works Supervision

ID	Title	Level	Credit
6442	Supervise daily activities on an infrastructure works site	4	16

Humanities > Communication Skills > Interpersonal Communications

ID	Title	Level	Credit
1304	Communicate with people from other cultures	3	2
1312	Give oral instructions in the workplace	3	3

Māori > General Education Māori > Māori Geography

ID	Title	Level	Credit
6147	Analyse the different views Māori and Pākehā have in relation to the natural world	3	4

Planning and Construction > Surveying > Geodetic Surveying

ID	Title	Level	Credit
23860	Demonstrate knowledge of, and calculate on, map projections	6	4
23861	Explain height differences, and carry out a levelling survey, for geodetic surveying	6	4
23862	Demonstrate knowledge of GNSS, and carry out a geodetic control network survey, for geodetic surveying	6	8

Planning and Construction > Surveying > Geographic Information Systems and Cartography

ID	Title	Level	Credit
23863	Demonstrate knowledge of spatial information systems	5	9
23864	Demonstrate knowledge of data capture, and acquire and load data for a spatial information system	6	15
23865	Present information from a spatial information system	6	8

Planning and Construction > Surveying > Subdivisional Design

ID	Title	Level	Credit
11152	Assess a site for subdivision and prepare the proposed subdivision plans and design report	6	15
23870	Establish quality requirements, manage, and monitor the installation of subdivision infrastructure	6	18

Planning and Construction > Surveying > Surveying - Photogrammetry and Remote Sensing

ID	Title	Level	Credit
23882	Demonstrate knowledge of the principles of remote data acquisition and its use in New Zealand	6	18

Planning and Construction > Surveying > Survey - Land Administration and Applied Resource Management

ID	Title	Level	Credit
8772	Demonstrate knowledge of land administration requirements for subdivisions	5	6
8779	Implement a resource consent in a surveying context	6	3
8785	Demonstrate knowledge of legislation as it relates to Māori land and survey practice	4	3
8786	Describe Māori land judicial and administrative systems and prepare an application for a partition	5	6
23871	Prepare and present a resource consent application in a surveying context	6	5

Planning and Construction > Surveying > Titles and Survey Compliance

ID	Title	Level	Credit
23885	Create digital cadastral datasets for submission as e-surveys	5	12

Sciences > Science > Earth and Space Science

ID	Title	Level	Credit
91412	Investigate the evidence related to dating geological event(s)	3	4

Social Sciences > Social Science Studies > Geography

ID	Title	Level	Credit
91426	Demonstrate understanding of how interacting natural processes shape a New Zealand geographic environment	3	4

Mine Surveying Optional Strand

The following standards are required

Engineering and Technology > Extractive Industries > Extractive Industries Management

ID	Title	Level	Credit
29087	Survey and produce statutory mine plans	6	20

Engineering and Technology > Extractive Industries > Surface Extraction

ID	Title	Level	Credit
15665	Demonstrate knowledge of the geology of surface extraction	4	5
17696	Describe and apply basic skills and knowledge required to work at a surface extraction site	2	4

Engineering and Technology > Extractive Industries > Underground Extraction

ID	Title	Level	Credit
7146	Demonstrate basic knowledge and ability required to work in an underground mine	2	6
15666	Demonstrate knowledge of geology for underground extraction	4	10
17741	Demonstrate specialist underground survey techniques	6	15

Optional standard

The following standard is optional and is not required for the award of the qualification. However, it may be required in some mine surveying employment contexts.

Engineering and Technology > Extractive Industries > Underground Extraction

ID	Title	Level	Credit
21281	Interpret and test for gases in an underground extraction site	4	15

Credit Transfer Arrangements

For the purposes of this qualification, candidates may claim exemptions for a maximum of 80 credits against specified standards in the compulsory and elective sections.

Exemptions will apply only for the purposes of award of this qualification and will not appear on the Record of Achievement.

The exemptions must be applied for on the application form in the Appendix and should be reported as part of the normal reporting of results. The current NZQA credit fees will apply. The fee must also be paid before the application is processed.

Candidates may use subject passes from the Consortium of Polytechnics Diploma in Engineering (Civil) as specified in the table below.

Consortium of Polytechnics Programme Code	Consortium of Polytechnics Subject	Exempt from
DCE4.452	Land Surveying	23875, 23877
DCE4.456	Geotechnical Engineering 1	11417
DCE4.459	Geology	5095, 21614
DCE5.552	Civil Drawing	11414
DCE5.553	Structural Drawing	19355
DCE5.556	Engineering Surveying	23876, 23878
DCE6.651	Contract Administration	11405, 11406

Candidates may use subject passes from the Otago University Bachelor of Surveying degree as specified in the table below.

BSurv Paper	Subject	Exempt from
SURV 111	Introductory Surveying	8764, 8798, 8799
SURV 112	Computational Methods for Surveyors	2785, 8801
SURV 113	Communication	1312, 2990, 3488
SURV 114	Introduction to Land Administration and Planning	23872

Transition Arrangements

Previous versions of the qualification

Version 6 was issued following a revision to remove and replace expiring standards and update revised or reviewed standards.

Changes to structure and content

- Standard 11132 was replaced by standard 26298.
- The titles of standards 3488, 6442, and 6450 were updated.
- The level of standard 1304 increased from 2 to 3.
- The level of standard 6450 increased from 4 to 5.
- The credit values of standards 6442 and 6450 were updated.
- Expiring standards 5269, 6360, 8643-8646, 11102, 11104-11107, and 11109 were removed from the Elective section of the qualification.
- The classifications of standards 6442 and 6450 were updated.

For detailed information see [Review Summaries](#) on the NZQA website.

This qualification contains standards that replace earlier standards. For the purposes of this qualification, people who have gained credit for the expiring standards are exempt from the requirement to gain credit for the replacement standards – see table below.

Credit for	Exempt from
209	2785
6363	21614
7483	19355
8765	23874
8773	23871
8774	23875
8775	23876
8776	23877
8777	23878
8783	23872
8787, 8788, and 8982	23882
11131	23859, 23860
11132	26298
11133	23861, 23862
12632	21281
16668	23882
16669	23864

People currently working toward version 5 may choose to complete that version or transfer their results to version 6.

People who want to complete version 5 should note that standard 11132 in the Compulsory section will expire on 31 December 2012 and standards 5269, 8643-8846, 11102, 11104-11107, and 11109 in the Compulsory section will expire on 31 December 2013. Assessment against these standards must therefore take place before these dates.

All new trainees will be enrolled in programmes or courses leading to the award of this version.

It is the intention of InfraTrain New Zealand that these transition arrangements are fair and do not disadvantage any existing candidate. Candidates who believe that they have been disadvantaged by these transition arrangements should, in the first instance, contact InfraTrain New Zealand at the address below.

Version 5 was issued following a planned review of the qualification, a review of surveying standards, and taking account of industry requirements to provide a pathway to the surveying degree, provider requirements to ensure candidates have competence in complementary mathematical skills, and the continued relevance of the Mine Surveying Optional Strand.

Version 4 was issued following a revision to update the change of responsibility from the Design and Construction Consultants Industry Training Organisation to InfraTrain New Zealand. At the same time standards were updated and the credit total decreased from 288-367 to 285-364.

Version 3 was issued following the inclusion of the Mine Surveying Optional Strand.

Version 2 was issued to remove some standards in the domains of *Algebra*, *Calculus*, *Physics*, *Science - Core*, *Probability*, and *Statistics* from the compulsory section; *Communication Skills* standards were changed to meet industry needs; and the minimum total credit was reduced.

Version 1 of this qualification replaced the New Zealand Certificate in Land Surveying.

It is not intended that anyone is disadvantaged by this review, and the above arrangements have been designed for a smooth transition. However, anyone who feels they have been disadvantaged may appeal to InfraTrain New Zealand.

Other standard setting bodies whose standards are included in the qualification

NZ Extractive Industries Training Organisation
NZQA

Certification

The certificate will display the logos of NZQA, InfraTrain New Zealand and the organisation that has been granted consent to assess against standards that meet the requirements of the qualification (accredited).

Classification

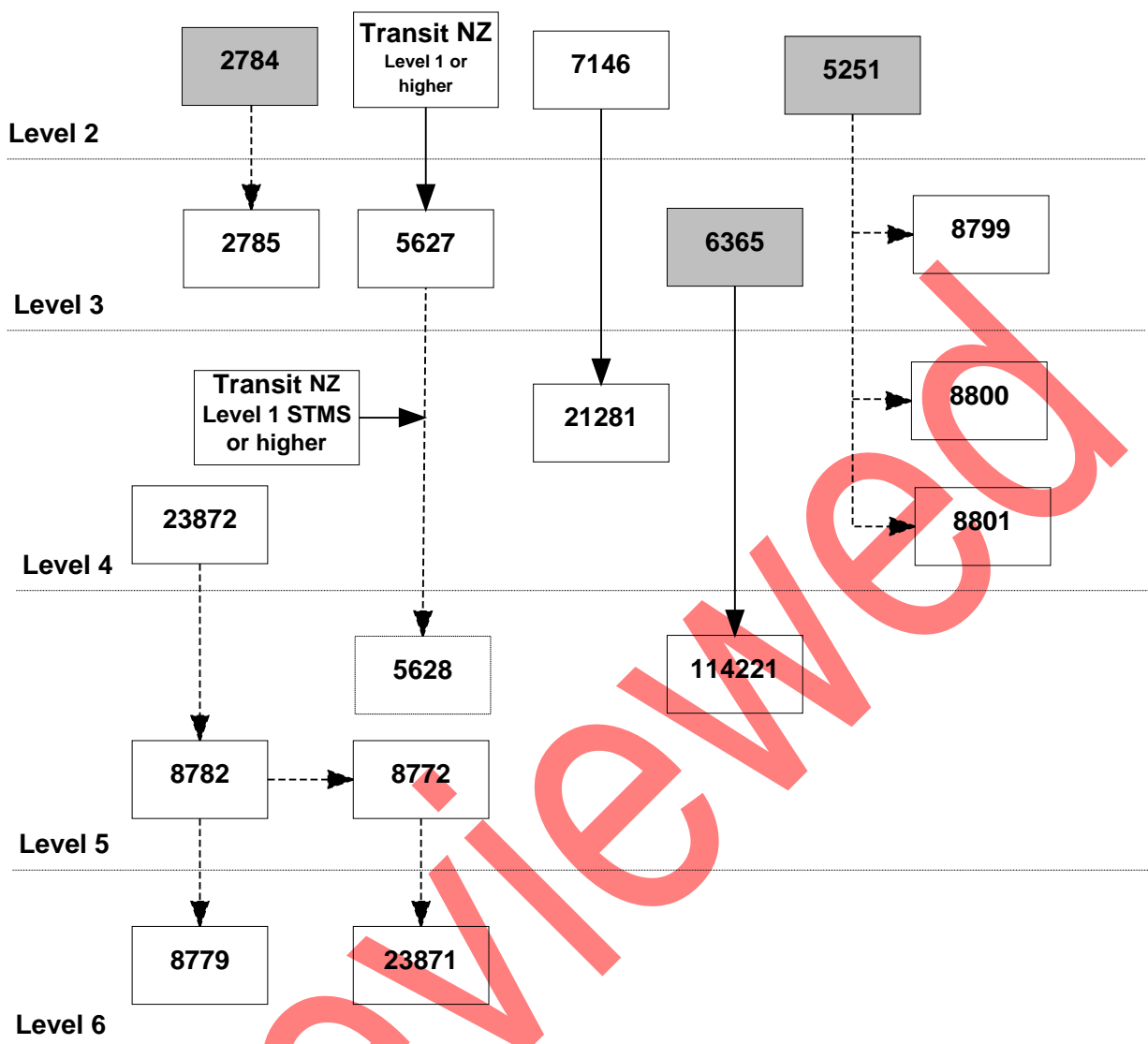
This qualification is classified according to the classification system listed on the Directory of Assessment Standards (DAS) and the New Zealand Standard Classification of Education (NZSCED) system as specified below.

DAS Classification		NZSCED	
Code	Description	Code	Description
231	Planning and Construction > Surveying	031101	Engineering and Related Technologies > Geomatic Engineering > Surveying

Quality Management Systems

Providers and Industry Training Organisations must be granted consent to assess by a recognised Quality Assurance Body before they can register credits from assessment against standards. Organisation with consent to assess and Industry Training Organisations assessing against standards must engage with the moderation system that applies to those standards. Consent to assess requirements and the moderation system are outlined in the associated Consent and Moderation Requirements (CMR) for each standard.

Prerequisite Diagram



Key

- Standard is in Mine Surveying Strand
- Standard is elective in qualification
- Standard not included in qualification
- Prerequisite standards
- Recommended standards

Application Form for Credit Exemptions National Diploma in Surveying (Level 6) with an optional strand in Mine Surveying

To be completed by applicants and processed through InfraTrain New Zealand.

Section A is to be completed by applicants.

Section B is to be completed for papers where evidence is available that the applicant has passed the papers.

Section C must be signed by a responsible person at the accredited provider or ITO to certify that the results recorded are correct.

Section D must be signed by a responsible person at InfraTrain to certify that the ITO has approved the credit exemptions.

THE USUAL CREDIT FEE WILL APPLY AND MUST BE PAID BEFORE THE APPLICATION IS PROCESSED

Completed forms are to be sent to:
Tertiary Records
New Zealand Qualifications Authority
PO Box 160
WELLINGTON

Section A – Personal Details

PLEASE USE BLOCK LETTERS

Surname (family name)	First Names (given names). Enter all names in full
<input type="text"/>	<input type="text"/>
Record of Achievement ID	Date of Birth
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> 19 <input type="text"/> <input type="text"/>
	Day Month Year
Institution which is processing the application:	<input type="text"/>

Section B – Confirmation of Academic Record

AN APPROPRIATELY RESPONSIBLE PERSON AT THE ACCREDITED TRAINING PROVIDER OR ITO MUST SIGHT ORIGINAL RESULT NOTICES.

Candidates who hold specified subject passes from the Consortium of Polytechnics Diploma in Engineering (Civil) or from the Otago University Bachelor of Surveying degree may apply for credit exemptions towards specified standards in the compulsory and elective sections of this diploma.

A maximum of 80 credits may be used for credit transfer.

InfraTrain New Zealand will consider and approve the credit exemptions before applications are sent to NZQA for processing.

Credit for					Exempt from		
Qualification	Component	Level	Credit	Year Issued	Id	Level	Credits

Section C – Declaration by Accredited Provider/Industry Training Organisation

This is to certify that the original results notice/s in Section B have been sighted.

SIGNED BY PROVIDER/ITO: _____

NAME (please print): _____

DESIGNATION: _____

DATE: _____

Section D – Declaration by InfraTrain New Zealand

This is to certify that the credit exemptions in Section B have been verified.

SIGNED BY ITO: _____

NAME (please print): _____

DESIGNATION: _____

DATE: _____