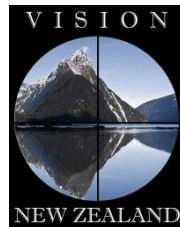


# **REPORT to the Council of the NZIS on RPSurv CERTIFICATION**

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## 1. INTRODUCTION

In 2012 and 2013, the New Zealand Institute of Surveyors (NZIS) undertook a comprehensive strategic review of its direction. The review resulted in a consultation document that was subsequently adopted by members. In this document, the vision of the NZIS was articulated as:

*“An internationally recognised professional organisation that promotes growth, innovation, excellence and community needs for all facets of surveying and spatial science in New Zealand.”*

As part of the implementation of this vision, the NZIS undertook to:

*“Review and evolve the NZIS Strategic Plan so that it reflects positively the long term vision to accommodate professional expertise across the wide spectrum of spatial science activity”, and to*

*“Develop a certifications model that meets the public need to identify trusted professional advisors and drives enhanced membership capability.”*

The way ahead, then, involves not only an expanded membership base for the Institute so that it becomes the professional home of choice for all spatial science practitioners, but also a clear public perception of professional competence. With these directions in mind, the author has been given the task of assessing the Registered Professional Surveyor (RPSurv) certification process. The detailed Terms of Reference (ToR) are outlined in Appendix 1.

In considering the NZIS Vision statement and RPSurv certification, cognisance is taken of the arguments raised in Coutts (2013) where he notes that the fundamental requisites of a profession lie in two areas, namely depth of education, and extent of service to the community. Coutts argues (rightly) that education appropriate to a profession has generally been considered to be of a higher nature and should be “formal, complex, lengthy and of practical use to society”. He notes that proof that one has reached an appropriate level of education and learning has typically been through formal examinations administered by either a university and/or by a professional body. Coutts further notes that the service element of a profession should be seen both in motivation and in actions. It is carried out impartially in order to benefit society. The professional person is expected to use the complex body of knowledge that defines his/her profession, apply it to a problem on behalf of a client, and arrive at a solution that is not influenced by his/her personal interests.

In preparing this report, it has been assumed that the NZIS competence interviews (currently known as the professional entrance examinations) not only form the basis for initial professional certification but also the foundation upon which RPSurv rests. It is also assumed that RPSurv is the premier form of certification offered by the NZIS.

This report begins by reviewing the reasons why the RPSurv post nominal was created, it then moves to a comparison of NZIS membership categories with those of other, like minded New Zealand professions, before considering the membership categories offered by the Surveying and Spatial Sciences Institute (Australia). It then looks at the existing RPSurv certification process, comparing it against the one used by the Institute of Professional Engineers New Zealand (IPENZ) for their CPEng qualification. Finally, it pulls all this information together in order to make a series of recommendations both on the future use of the name RPSurv and as to future RPSurv certification. From these recommendations, a new RPSurv accreditation policy has been drafted – this is shown in Appendix 4.

## 2. NZIS BACKGROUND TO THE CREATION OF RPSurv

The RPSurv post nominal was adopted in 2005, three years after the passing of the Cadastral Survey Act 2002. This Act not only removed the statutory protection awarded to the NZIS, thus leading to voluntary membership of the Institute, but also introduced the term “Licensed Cadastral Surveyor” (LCS). While, in effect, there was a grand-parenting option for former Registered Surveyors to gain a License, the retention of the License required demonstrated on-going cadastral surveying expertise. Over time a substantial number of former Registered Surveyors failed to meet the new requirements for Licensing and thus, despite their specialist expertise in other surveying related areas, were in danger of being left with the MNZIS post nominal only.

It was obvious to the NZIS Council that an additional new form of professional recognition was required, not only to recognise the professional skills of the non-cadastral members and so obviate the risk of a significant loss of membership, but also to deal with the long-running debate over compulsory CPD. In addition, and at the same time, a new professional cadastral surveying organisation was established in New Zealand (the Institute of Cadastral Surveyors), which offered its members competing (but limited) services when compared to the NZIS. The NZIS Council recognised that it needed a distinctive membership category to set it apart from this new competitive organisation.

In 2003 the NZIS adopted the post nominal “Chartered Professional Surveyor” (CPSurv), thus piggy-backing, firstly, on the Chartered Professional Accountant (CPA) brand being promoted by the accounting profession and, secondly on the CPEng brand being developed by the engineering profession. Unfortunately, the Royal Institute of Chartered Surveyors (RICS) challenged the use of the word “Chartered” and was prepared to follow this through to a full legal challenge. Rather than take the financial risk required to defend its position, the NZIS backed away from this post nominal and sought another that would not only be attractive to members but would also avoid legal challenge. The name “Registered Professional Surveyor” (RPSurv) was endorsed by Council following the compilation of the results of an extensive questionnaire sent to members. It was intended that the distinctive elements of RPSurv would be:

- Professional equivalence with the CPEng.
- A highly regarded professional qualification that would be distinctive, attractive to members, and would be able to be marketed to certain client groups as suitable for use in their various codes of practice. For example, it was always the intent that RPSurv be marketed to local authorities as a suitable substitute for CPEng in the signing of sub-divisional engineering works.
- The premier professional qualification able to be obtained by an NZIS member. As such it needed to reflect a significant step above that which was required at the time either for licensing, or NZIS membership.

It is important to note that the title RPSurv was selected at a time when regulation of the surveying profession within New Zealand had undergone change. The focus was on finding a post-nominal that would appeal to Registered Surveyors for whom “Registration” had become a legislative thing of the past. The only legislative protection that would be provided in the future was for the name “Licensed Cadastral Surveyor”. While the need to broaden NZIS membership had been recognised for many years by the Institute, it was not the focus at this particular time. The title thus has a strong connection to traditional surveying but a weaker connection to the wider spatial sciences. Furthermore, the areas in which “Advanced Competence” were to be demonstrated have a more traditional (pre-2005) focus rather than one that was more forward looking.

### 3. MEMBERSHIP/CERTIFICATION CATEGORIES WITHIN OTHER NEW ZEALAND PROFESSIONS

For the purposes of comparing professional membership/certification requirements, four “like” professions have been selected: law, engineering, architecture and planning. Unlike the NZIS, some of these have titles and membership categories that are accorded statutory protection.

3.1 Law. The legal profession in New Zealand has only one level of professional recognition, this being achieved when one is admitted to the bar as a barrister and solicitor. To practise law in New Zealand one must:

- complete a Bachelor of Laws Degree (LLB) approved by the New Zealand Council of Legal Education (NZCLE); and
- complete the Professional Legal Studies Course at either the Institute of Professional Legal Studies or College of Law; and
- obtain a certificate of completion from the NZCLE; and
- obtain a certificate of character from the Law Society; and
- be admitted to the roll of barristers and solicitors of the High Court of New Zealand; and
- hold a current practising certificate issued by the Law Society.

All New Zealand LLB degrees require four years of full-time study to complete. Typically, the Professional Legal Studies Course is a further three to six months in duration.

The NZ Law Society has an associate membership category available to those with the appropriate academic qualifications but not currently practising in NZ, or for those who may be experienced legal executives.

While full professional status is achieved by meeting the requirements listed above, there is a widely acknowledged difference in competence between a solicitor just admitted to the bar (a junior solicitor) versus one with some years of legal experience. While the legal profession recognises this difference, it does not have a formal membership category or certification criteria that reflect this difference. The legal profession thus does not have an equivalent post-nominal to RPSurv.

3.2 Engineering. IPENZ has three generic levels of recognition for its members: Professional Engineer, Engineering Technologist and Engineering Technician. The following chart shows these categories of membership.

<b>Generic Title</b>	<b>Professional Engineer</b>	<b>Engineering Technologist</b>	<b>Engineering Technician</b>
<b>Exemplifying Qualification</b>	Washington Accord degree 4-yr Bachelor of Engineering (BE)	Sydney Accord degree 3-yr Bachelor of Engineering Technology (BEngTech)	Dublin Accord degree 2-yr Diploma of Engineering (NZDE)
<b>IPENZ Membership Class</b>	Professional Member <b>MIPENZ</b>	Technical Member <b>TIPENZ</b>	Associate Member <b>AIPENZ</b>
<b>National Register Title</b>	Chartered Professional Engineer	Engineering Technology Practitioner <b>ETPract</b>	Associate Member <b>AIPENZ</b>



membership include Retired Architect Member, Architecture Graduate Membership, Academic Membership, Allied Professional Membership, and Affiliated Membership.

It is of interest to note that Affiliated Membership may be awarded to:

- (i) Any person who is not a registered architect but who is the employee of an NZIA Practice; or
- (ii) Any person who is a registered architect in a jurisdiction other than New Zealand or Australia and is approved by Council as being accepted for Affiliated Membership; or
- (iii) Any person who is employed by an organisation which shares an interest of the Institute, and is approved by Council as being accepted for Affiliated Membership.

The primary pathway to becoming a Registered Architect is via a recognised 5-yr Masters degree, plus at least three years of work experience. While other qualifications will be considered, there is no pathway for a non-university graduate to become a Registered Architect. Once one has achieved the status of Registered Architect, no higher post-nominal is available.

3.4 Planning. The NZ Planning Institute (NZPI) has five membership categories: Student, Graduate, Associate, Full, and Full (Alternative Entry). Associate Membership is for those who do not have a recognised planning degree but who work in a field related to planning.

Full Membership is granted to those who hold a recognised NZPI planning degree (either 4-yr full-time in duration for an undergraduate degree, or a 2-yr full-time Master's degree) and at least three years of planning work experience, two of which must be in New Zealand. Once full membership is achieved, there is no higher post nominal available.

The Full Membership (Alternative Entry) Option does not require the completion of an NZPI recognised degree but does require at least seven years of work experience in planning. Under this option, no statement is made about the need (or otherwise) for a tertiary degree. However, this option is presently under review and is likely to change.

3.5 Conclusions. A comparison with the four like-minded professions in New Zealand listed here leads to the following useful conclusions.

- (i) For the majority, no distinction is made between full membership and professional competence. A full member has met stated academic and experience requirements and is thus deemed to be fully competent in his/her professional activities. This parallels the situation with surveyors in New Zealand prior to the 2002 Cadastral Survey Act.
- (ii) For the majority, full membership is the highest professional status that is available. Even though there may be a tacit recognition that a newly entered (Registered) member may lack the professional capability of a member with greater experience, this distinction is not formally recognised.
- (iii) Full professional status is generally accorded as of right only to those members who have either graduated with a minimum of a 4-yr degree in their professional discipline, or have equivalent academic standing. Engineering and Planning are the only disciplines where this requirement appears to have been relaxed slightly. In the

case of the former, rigorous competency tests are required at every upgrade step. Indeed, it is unclear if, in recent years, the upgrade path from Certified Engineering Technician to CPEng has ever been achieved in practice without significant additional tertiary study. In the latter case, a review is underway that may well result in a movement towards a minimum tertiary degree. The general intent of Sub-Item 1.1 in the existing Council Policy 10, namely of requiring an academic qualification of BSurv (or equivalent) as a general prerequisite for RPSurv recognition is confirmed as being the norm for other like professions.

- (iv) The engineering profession most closely represents the surveying profession in terms of its pathways to becoming a Professional Engineer. This is unsurprising given that this was the intent of RPSurv when first implemented. In 2002 the NZIS Council was concerned that surveyors may be squeezed out of local authority engineering work – a concern that remains to this day.
- (v) With the exception of the NZPI, where no statement of reciprocity is made, the other three professions studied have reciprocal recognition arrangements with their Australian counterparts. The author's recent personal experience in being part of the Engineers Australia accreditation team at the University of Melbourne, confirms their strict requirement for the completion of a 4-yr degree as a minimum academic requirement for moving to full professional recognition.



#### 4. THE SURVEYING AND SPATIAL SCIENCES INSTITUTE (SSSI)

The title, Surveying and Spatial Sciences, reflects a marriage of surveying (in its traditional sense) with the rapidly developing area of spatial (or geospatial) science. The former encompasses, traditional forms of spatial measurement (e.g., EDM, GPS, topographic surveying), cadastral surveying, and land development whilst the latter encompasses new forms of spatial measurement (e.g., terrestrial and airborne laser scanning, remote sensing), and spatial analysis via Geographic Information Systems (GISs). The skill sets are complementary, but different. The former is very much focussed towards “on the ground”, or “on the construction site” measurement and analysis, the latter very much “in the office” digital integration and analysis. The former typically deals with data sets, the latter, typically with data bases.

The SSSI came to fruition in Australia, after considerable acrimony. This marriage, between the Institute of Surveyors Australia (ISA) and the Spatial Sciences Institute, was finally consummated about five years ago although even today pockets of unrest still exist, particularly in New South Wales. It is of interest to note that in terms of surveying practice NSW comes closest of all the Australian States to matching practice in New Zealand – at least in terms of breadth and depth. It is also the state in which the surveying profession has typically been the strongest.

Much of the unrest hinged around possible loss of financial assets (from ISA to SSSI), loss of voice and, most importantly, a perceived lowering of entry standards. This latter concern was voiced by surveyors (with their 4-yr degrees) as they saw a much more open entry process being established to accommodate those with an SSI background, some of whom had limited tertiary academic qualifications. In addition to the SSSI, there is now also an Institute of Surveyors, NSW, Australia, which acts as the professional home for the surveyors in that state who have not joined the SSSI. It is a robust professional group with its various membership groupings (minus RPSurv) identical to those currently found in the NZIS. It is an unfortunate fact of history that the formation of the SSSI caused a splintering of the ISA.

The SSSI has five professional streams (or commissions): Land Surveying, Remote Sensing and Photogrammetry, Engineering and Mining Surveying, Spatial Information and Cartography, and Hydrographic Surveying. Parenthetically, it is the author’s view that with the exception of NSW, the lack of a Land Development option merely reflects the fact that this element of practice has traditionally not had the surveyor participation in Australia that it has had in New Zealand.

The SSSI offers full membership to those with a minimum 3-yr spatial Bachelor’s degree and at least one year’s work experience. It has Associate Membership for those with a spatial diploma or advanced diploma, as well as Affiliate Membership (for those with no formal qualifications), and Graduate Membership. The degree requirement for a full member appears to be rigid in that there is no indication of a pathway from Associate Membership to Full Membership without additional study. There is no equivalent post-nominal to RPSurv.

While it may be tempting to seek membership/ accreditation solutions that parallel those adopted by the SSSI and integrate with them, at least four risks associated with this course of action need to be weighed very carefully.

- (1) New Zealand surveyors predominantly practice in NZ and must compete with other NZ professions, both for members and for professional recognition. It would be self-defeating to adopt standards that matched those used by an Australian institution if they led to a significant downgrading of the profession in NZ – at least as seen by NZ clients and other professional associations.

- (2) There is good evidence to suggest that the surveying profession in NZ has traditionally been stronger than its Australian counterpart, both in terms of the breadth of work undertaken by the surveyor and its public standing. This is not only reflected in the breadth and depth of Otago's BSurv degree versus its Australian counterpart degrees, but also in the overall vibrancy of the profession. The author has recently assessed the University of Melbourne's 5-yr Geomatic Engineering programme (3-yr Bachelor degree followed by a 2-yr Masters degree) and not only found it to be less demanding than Otago's 4-yr BSurv, but also weak in its land development and cadastral studies curriculum elements.
- (3) There is the risk of creating a pool of disaffected members such as has happened with the NSW division of the ISA.
- (4) Based upon feedback from Australian employers, the quality of the NZ surveying graduate is typically considered superior to the Australian model. If this is translated into professional practice, then it reinforces the view that on average, the NZ surveyor operates at a higher (or at least broader) knowledge level than his/her typical Australian counterpart.

## 5. THE EXISTING RPSurv CERTIFICATION PROCESS

When the RPSurv post-nominal was created, existing Registered Surveyors who had at least three-years of post-registration experience were able to be “grand-parented” across to this status provided they could identify at least two areas of advanced competence from the list found under Clause 1.3 of NZIS Policy 10 (2009). No additional assessment was required. This status has been able to be maintained provided the NZIS CPD criteria have been met and the requisite annual fee paid. Unlike CPEng requirements, reassessment at regular intervals has not been required and thus there has been no guarantee on-going professional competence.

For those few who have not been grand-parented but have since been admitted to RPSurv status (only 10 of 192 responding to a questionnaire on the subject – see Strang, 2013), NZIS Policy 10 (2009), has been used as the basis for admission. This policy requires:

- (1) That an applicant have a BSurv (Otago) or equivalent. [Comment: The 4-yr tertiary degree was a deliberate requirement so as to maintain comparability with CPEng].
- (2) Has met the Institute’s Professional Entrance Examinations (or equivalent) by being competent in spatial measurement and at least three other surveying related disciplines. [Comment: When these criteria were established, spatial measurement was considered to be a core competency for all members wishing to advance to RPSurv status].
- (3) Has advanced competence in at least two of the areas listed under Clause 1.3 of Policy 10. The list of these areas is reproduced below. [Comment: This list was deliberately broad in order to capture the full range of technical, professional and management activities in which a mid-level practitioner or senior practitioner might engage].
- (4) Has advanced competence to work with integrity, a high degree of professionalism and ethical behaviour.
- (5) Is committed to the application, maintenance and on-going enhancement of these criteria. [Comment: The only annual test currently applied here is via the requisite number of CPD points].
- (6) Can demonstrate conduct and achievement of these criteria for a period of not less than three years since achievement of NZIS Member status.

The areas in which advanced competence can be demonstrated are (c.f., Clause 1.3):

Cadastral surveying	Mining surveying
Hydrographic surveying	Geodetic Surveying
Urban design	Subdivisional engineering
Resource management and planning	Photogrammetry
Remote sensing	Geographic information systems
Engineering surveying	Project management
Other relevant expertise.	

The documentation required, while not overly demanding, is provided through a set of “Guidance Notes for RPSurv Applicants”. The full text of Policy 10 and the Guidance Notes are shown in Appendix 2.

## 6. THE CPEng CERTIFICATION PROCESS

As outlined earlier in this document, and in terms of professional certification, it has always been the intent that RPSurv be regarded as equivalent to CPEng. For this reason the CPEng certification process is outlined below.

In order to achieve CPEng, a candidate must:

- (1) Be a Professional Member of IPENZ (MIPENZ). Such members typically have a 4-year engineering degree following by 4-5 years of mentored employment (see Sec. 2.2). Membership is then confirmed following an IPENZ competence assessment process.
- (2) Submit a portfolio of evidence to prove that the overall standard of competence required has been achieved. The portfolio centres on a self-evaluation by the applicant, supported by a work history summary, continuing professional development (CPD) records and referee reports.
- (3) Have their portfolio of evidence assessed against the following competence standards.
  1. Comprehend, and apply knowledge of, accepted principles underpinning widely applied good practice for professional engineering.
  2. Comprehend, and apply knowledge of, accepted principles underpinning good practice for professional engineering that is specific to New Zealand.
  3. Define, investigate and analyse complex engineering problems in accordance with good practice professional engineering.
  4. Design and develop solutions to complex engineering problems in accordance with good practice for professional engineering.
  5. Be responsible for making decisions on part or all of one or more complex engineering activities.
  6. Manage part or all of one or more complex engineering activities in accordance with good engineering management practice.
  7. Identify, assess and manage engineering risk.
  8. Conduct engineering activities to an ethical standard at least equivalent to the relevant code of ethical conduct.
  9. Recognise the reasonably foreseeable social, cultural and environmental effects of professional engineering activities generally.
  10. Communicate clearly with other engineers and others that he or she is likely to deal with in the course of his or her professional engineering activities.
  11. Maintain the currency of his or her professional engineering knowledge and skills.
  12. Exercise sound professional engineering judgement

The specific details on how these competencies are assessed can be found in Appendix 3.

## Notes and Comments

- There is no specified period of experience after admission to MIPENZ that an application can be made to become CPEng accredited, although one would generally assume this to be some two to three years subsequent.
- Competence is assessed in one or more of the broad engineering disciplines such as mechanical, civil, structural, chemical, electronics, etc., etc. However, the competence criteria typically work best for civil and structural engineers who undertake project work that requires reasonably complex calculations.
- The CPEng post-nominal does not indicate the discipline in which accreditation has been awarded. Each Member is ethically bound to perform engineering activities only in areas within which they are currently competent. As engineers change careers or their knowledge becomes outdated they must cease to practice in areas in which they are no longer up to date.
- Reassessment of all CPEng accredited members is undertaken every six years.
- The CPEng certification model not only requires a heavy administrative overhead to maintain, but the reassessment provisions are difficult to meet for those in academia and in senior management positions. Indeed, the author has anecdotal evidence to the effect that senior engineers in management positions, particularly in the non-civil and structural disciplines, find the reassessment provisions to be inflexible and poorly designed.

## 7. PULLING IT TOGETHER: OBSERVATIONS AND RECOMMENDATIONS

### 7.1 Relevant Observations

Observation 1. The original intent of implementing the RPSurv post-nominal as the premier level of professional certification offered by the NZIS, is confirmed in that it:

- (a) Recognises the reality of the difference in professional capability between a newly minted member of a professional body and one who has significantly more experience. This is a distinctive difference that is not recognised in the legal, planning, and architectural professional structures.
- (b) Offers a distinctive certification that is broad, is marketable to members, already has some local authority recognition and sets the NZIS well apart from the Institute of Cadastral Surveyors.
- (c) Can be marketed readily as equivalent to CPEng, where advantageous to do so. To some extent, and if done well, it allows the NZIS to piggy-back on CPEng status.

By-in-large NZIS members have not complained about the use of the name RPSurv or the intent in its establishment, merely about its lack of recognition amongst key clients. Such recognition, however, seems now to be growing. In addition, and because of the past high bar to MNZIS (generally jumped only by those who wish to become Licensed Cadastral Surveyors), there has been little motivation to take the extra step to RPSurv (Strang, 2013).

Observation 2. It is instructive to observe that although IPENZ is a much larger organisation than the NZIS, it uses CPEng to encompass all the engineering sub-disciplines without the need for a more specific certification. This appears not to have created any significant issues within the engineering profession's client groups. Certainly, simplicity of name leads to greater ease in marketing. However, given the genesis of the name RPSurv (see Section 2) the question must be asked if it reflects adequately a wider spatial science view of the world. Three possible actions can be taken.

1. Continue to use RPSurv recognising the breadth inherent in the FIG definition of a surveyor where such a person has the, "*academic qualifications and the technical expertise to conduct one or more of the following activities:*
  - *to determine, measure and represent land, three-dimensional objects, point-fields and trajectories;*
  - *to assemble and interpret land and geographically related information,*
  - *to use that information for the planning and efficient administration of the land, the sea and any structures thereon; and,*
  - *to conduct research into the above practices and to develop them"* (FIG, 2004).
2. Devise a new name that is more generic – possibly something along the lines of GSProf (Geospatial Professional). While this might fully encompass all members, the work done thus far in promoting RPSurv would be lost. The problem with RPSurv appears not to be the name itself, but rather the motivation and incentives for members to move to this level of professional standing. Alternatively, the new name could be used for those without a conventional surveying background but with particular skills in the geospatial domain. This would then not only necessitate the promotion of two quite different titles, but may also create a sense that the Institute is not a fully integrated organisation. In effect, it would risk a "them" and "us" type of outcome.

3. Add some indication of area of expertise (such as professional stream) to the RPSurv post-nominal, e.g., RPSurv (Hydro). While such streams could match those used for Licensing, they would probably need to be broadened to reflect a senior professional's career development into, for example, an executive management role.

Observation 3. Within New Zealand and with the exception of, firstly, the NZPI (currently under review) and, secondly, IPENZ (where a theoretical, but very difficult pathway exists), there is no comparable professional organisation that will confer its highest professional status on anyone other than the holder of a relevant 4-yr, full time tertiary degree, or equivalent. While a degree of this nature does not necessarily indicate professionalism, it does show a capacity for higher level thinking - a view that is consistent with Coutts (2013). Those without such an academic background are variously known as Technical Members, Associate Members or Affiliated Members. The SSSI allows full membership/certification on the basis of a 3-yr degree plus relevant experience - but then it has no post nominal equivalent to RPSurv.

Observation 4. The IPENZ Competence Standards for Professional Engineers are considerably more robust than the NZIS's RPSurv Admission Policy (Policy 10). The former lay out measures for assessing competence, with expected behaviours, whilst the latter lay out professional expectations, but yet without stating how these might be expressed in practice. The SSSI Certification Procedures Manual shows similar weaknesses to the NZIS's Policy 10. If the NZIS is to have a clear and robust certification procedure, the IPENZ standards would appear to form a reasonable model from which to start. However, in making this observation, it is important to remember the criticisms of this model (see Section 6).

Observation 5. The new certification model proposed by the NZIS necessitates a two-step process in moving from MNZIS to RPSurv with some form of Licensing or Certificate of Competency being the intermediate step. In order to implement the NZIS Vision statement, both steps will require robust accreditation processes. Any recommendations made here with respect to the second step in this process may require some modification once the first step has been finalised.

## 7.2 Recommendations

1. On balance, it is recommended that RPSurv be retained as the premier post-nominal for **all** for members of the Institute and that it not encompass specific certifications. This offers simplicity, continuity and the ability to build upon an existing foundation. It also offers a higher level of professional standing than is available through the SSSI. While a member will need to declare his/her area(s) of expertise for certification purposes, it is recommended that these certifications not be attached to the post-nominal itself, thus easing the pathway for the inclusion of members with, for example, executive management skills. Trying to explain RPSurv (Exec) or RPSurv (Mgmt) to a client could be a challenge!! Each member must understand that he/she is ethically bound to perform activities at this level only in areas within which current competence exists.
2. It is recommended that the normal minimum academic requirement for achieving RPSurv status be a 4-yr, full time tertiary degree or a 3-yr degree plus one year of postgraduate study. While not precluding alternative pathways, such a requirement is consistent both with all other like New Zealand professions, and with the findings of Coutts (2013).

3. A work experience requirement of at least three years post-certification/licensing is also recommended. These requirements are consistent with present practice, with the new NZIS certification model, and with CPEng requirements. They also draw a distinction between a base level of professional competence and a more advanced professional capacity – a distinction that is tacitly recognised in other professions, but not formally acknowledged.
4. That a new set of advanced competency criteria be developed and that these form the basis for a new admissions process. A possible set of criteria, largely drawn from other best practice documents are shown in Appendix 4.
5. The list of technical areas in which “Advanced Competence” can be demonstrated are dated and should be reviewed to give it a more future looking focus.
6. That RPSurv competency is re-assessed on a regular basis (perhaps every six years). Given the pace of change on all fronts, the idea of a once and for all time professional certification, is long gone. In addition, careers move and develop over time. In order to avoid untoward cost (the NZIS is a small organisation), effectiveness, efficiency and simplicity should be the underlying principles in the design of any such re-assessment process. A possible process is also shown in Appendix 4.

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## **APPENDIX 1 Terms of Reference**

The focus of this review will be on our highest certified qualification. What is referred to as the NZIS RPSurv Certification. The review will focus on:

- how the NZIS RPSurv Certification process compares alongside like-minded organisations in NZ and Australia (does it still meet the modern expectations of both our members – including spatial, and our communities);
- is there a need to evolve from a general RPSurv qualification to a more specific standing certification (how RPSurv could best represent the wants of each professional stream and allow for such input);
- identifying any RPSurv capability gaps that may exist; and
- outlining or suggesting “good practice” improvements, as applicable.

*The review will not look into:*

- the NZIS Admissions procedure (for NZIS membership); or
- the marketing of RPSurv

## APPENDIX 2 Existing NZIS Policy 10: Admission as Registered Professional Surveyor

1.10.2009:pt 2 – 10.1

### 1. Definition

The Registered Professional Surveyor (RPSurv.) Distinction is conferred at Council's discretion on a Member who meets the following criteria:

- is academically qualified.
- is competent in spatial measurement and three other surveying related disciplines.
- has advanced competence in some recognised areas of surveying.
- has advanced competence to work with integrity and a high degree of professionalism and ethical behaviour.
- is committed to the application, maintenance and on-going enhancement of these criteria.
- can demonstrate conduct and achievement of these criteria for a period of not less than three years since achievement of NZIS Member status

#### 1.1 Academically Qualified means:

having a BSurv (Otago) or equivalent.

#### 1.2 Competent in spatial measurement and three other recognised areas of surveying means:

having passed the Institute's Professional Entrance examinations or considered equivalent by Council under Sec 2.3

#### 1.3 Advanced Competence means:

being able to prove advanced competence in at least two areas from the list below, and can demonstrate a high level of professionalism

- Cadastral surveying
- Mining surveying
- Hydrographic surveying
- Geodetic surveying
- Urban design
- Subdivision engineering
- Resource management and planning
- Photogrammetry
- Remote sensing
- Geographic (spatial) Information Systems
- Engineering surveying
- Project management
- Other relevant expertise

#### 1.4 Professionalism and ethical behaviour means:

Competent to demonstrate professionalism and professional conduct through understanding and performance of the following characteristics:

- Personal integrity
- Fidelity and honesty
- Capability awareness
- Continued education
- Respect of the Profession
- Good business practice, including:
  - Clear and maintained conditions of engagement
  - Communication
  - Conflict of interest awareness

- Respect for others work and business
- Impartiality in the management of contracts

## 2. Applications

Applications for the distinction shall include the following:

- Copy of qualifications held by the applicant (BSurv. etc).
- A written statement of the competence achieved in the required disciplines. Full details of experience and responsibility must be provided as competence will be assessed on depth of experience and levels of responsibility.
- A written synopsis of the three years experience at advanced competence level in the selected disciplines. Detailed descriptions of the complexities of relevant projects must be provided in order to show applicants have a thorough understanding of their disciplines.
- A written analysis of their actions and conduct over this period related both to specific projects and wider activities demonstrating professionalism and ethical behaviour. Detailed descriptions that illustrate ethical and professional conduct must be provided to demonstrate awareness of the high ideals required for conferment of this distinction.
- Evidence of CPD undertaken over the preceding two years.
- Names and contact details of two appropriate referees who can attest to the competence and professionalism of the applicant.

Applications may be supported by appropriate plans, documents and images etc that relate specifically to the demonstration of achievement of competence, ethical behaviour or professionalism required for the conferment of this distinction.

Applications are required to be on the appropriate form and be accompanied by the appropriate fee. All required documents listed here and supporting information should be in electronic form only. Acceptable formats are MSWord, PDF, JPG or TIFF and should be supplied on CD or DVD.

The application fee for Registered Professional Surveyor will be over and above the normal annual subscription payable for membership of the NZIS.

## 3. Use of Title

The distinction of Registered Professional Surveyor is conferred only on individuals. The Members who rightfully claim the distinction need to exercise care in the use of the term in promoting their organisation so as to not mislead about the nature of what they are and what they provide.

## 4. Application Renewals

As the distinction is valid for 1 year, all holders are required to re-apply annually.

An application will be renewed provided the holder has achieved the required level of CPD, payment of the annual fee is received before 1 July of the next financial year and there are no grounds under Sec 5 to refuse renewal.

Renewal forms will be posted to holders together with their NZIS membership forms.

## 5. Non-renewal

In order to protect the integrity of the distinction it is proposed that the following may be, but are not limited to, grounds for non-renewal:

- Being subject to a written complaint to the National Manager in any previous 2 year period (whether upheld or not). These complaints could be from NZIS members or any other person
- The up-holding of a complaint by the NZIS Council
- Being subject to disciplinary action by the Cadastral Surveyors Licensing Board

- Convicted of any offence, that may be derogatory to the profession of surveying or the reputation of the NZIS and is punishable by imprisonment.
- Non-compliance with current CPD policy

The default stand-down period is a minimum of 2 years, which would be determined by the NZIS Council, and there is no automatic right that any re-application will be granted. All such cases will be subject to final approval by NZIS Council.

## **6. Re-Applications**

Registered Professional Surveyors who have let their distinction lapse for a period of less than 3 years may re-apply under Sec 4.0.

This allows a Member some latitude for overseas travel etc (i.e. allowing for 2 years travelling etc and then sufficient time to obtain the CPD points.

## **7. Disciplinary Action**

Any Member who claims the distinction of Registered Professional Surveyor without proper authority will be deemed to be in Breach of the Rules (section 23) and subject to disciplinary action under Part IV of the Rules.

#### Guidance Note for RPSurv Applicants

Applicants for RPSurv should review Rule 5, specifically subsection 5.1.1 and Policy 10 (as adopted in December 2009). These are found in the handbook section on the NZIS website [www.surveyors.org.nz](http://www.surveyors.org.nz).

In terms of content Council are not really looking so much at the weight of evidence as a measure of competency but at the variety of work and the levels of complexity. A good discussion and demonstration of these are required. This includes a full description of responsibilities and roles held during the conduct of project.

Applications should contain the necessary detailed descriptions of the complexities of relevant projects in order to show that they have a thorough understanding of the selected disciplines. This requires a broad reflective statement of how applicants see their competence in these fields.

Additionally, each application is assessed for comprehensive understanding of the professional and ethical behaviour and understanding of the applicant pursuant to the high ideals of the profession and as outlined in the rules.

It is difficult to provide guidance regarding size of an application as each Member's credentials vary, but it is considered that advanced competence must be established in two specialist areas as well as clear demonstration of the professionalism.

A recent application that was well received by the assessment team was in the order of 12 to 15, A4 sides which addressed in detail the criteria discussed above. Supplementary information was appended for reference such as reports, plans and published papers.

Applicants are recommended to include a statement about those times/projects during their careers when things have not gone smoothly. These often provide the best examples of when advanced competencies and professionalism are needed and applied and when they are stretched in their actions.

Applicants should also submit and plans or examples to support that they have achieved an advanced level of competency.

## **APPENDIX 3. IPENZ Competency Standard for Professional Engineers**

The following competence standard sets the entry standard for engineers seeking formal peer recognition as a competent professional engineer by undertaking an IPENZ competence assessment. The competence standard sets the standard for initial registration as a Chartered Professional Engineer (CPEng), and the standard for entry into the class of Professional Member with IPENZ ENGINEERS NEW ZEALAND and informs entry into the International Register for Professional Engineers (IntPE).

### **COMPETENCE STANDARD**

To meet the minimum standard a person must demonstrate that he/she is able to practice competently in his/her practice area to the standard expected of a reasonable professional engineer.

The extent to which the person is able to perform each of the following numbered elements in his/her practice area must be taken into account in assessing whether or not he/she meets the overall standard.

#### **1. Comprehend, and apply knowledge of, accepted principles underpinning widely applied good practice for professional engineering**

• Has a Washington Accord degree or recognised equivalent qualification or has demonstrated equivalent knowledge and is able to:

- Identify, comprehend and apply appropriate engineering knowledge
- Work from first principles to make reliable predictions of outcomes
- Understand assumptions and constructs of mathematical or theoretical models and is able to determine the relevance of their use in given situations
- Seek advice, where necessary, to supplement own knowledge and experience
- Read literature, comprehend, evaluate and apply new knowledge

#### **2. Comprehend, and apply knowledge of, accepted principles underpinning good practice for professional engineering that is specific to the jurisdiction in which he/she practices (for CPEng assessment this relates to the jurisdiction of New Zealand)**

- Understands and operates within the legal and regulatory framework in the jurisdictions in which she/he practices
- Understands and applies appropriately the special engineering requirements operating within the jurisdictions in which he/she practices
- Understands and applies codified knowledge such as standards, IPENZ practice notes, codes of practice etc.

#### **3. Define, investigate and analyse complex engineering problems in accordance with good practice for professional engineering**

- Identifies and defines the scope of the problem
- Investigates and analyses relevant information using quantitative and qualitative techniques
- Tests analysis for correctness of results
- Conducts any necessary research and reaches substantiated conclusions

#### **4. Design or develop solutions to complex engineering problems in accordance with good practice for professional engineering.**

- Identifies needs, requirements, constraints and performance criteria, including as appropriate the need to design for safety, constructability, maintainability etc
- Develops concepts and recommendations that were tested against engineering principles
- Consults with stakeholders
- Evaluates options and selects solution that best matched needs, requirements and criteria
- Plans and implements effective, efficient and practical systems or solutions

- Evaluates outcomes against original specification or design brief

**5. Be responsible for making decisions on part or all of one or more complex engineering activities**

- Takes accountability for his/her outputs and for those for whom he/she is responsible
- Accepts responsibility for his/her engineering activities

**6. Manage part or all of one or more complex engineering activities in accordance with good engineering management practice**

- Plans, schedules organises and monitors progress of projects or activities to deliver specified outcomes within time constraints
- Applies appropriate quality assurance techniques
- Manages resources, including personnel, finance and physical resources
- Manages conflicting demands and expectations

**7. Identify, assess and manage engineering risk**

- Identifies risks which impact on people, property and the environment
- Develops risk management policies, procedures and protocols to manage safety and hazards during construction/fabrication and product life cycles
- Manages risks through ‘elimination, minimisation and avoidance’ techniques
- Designs for safety during construction/fabrication, operation, maintenance and de-construction/decommissioning

**8. Conduct engineering activities to an ethical standard at least equivalent to the relevant code of ethical conduct**

- Understands IPENZ and/or CPEng codes of ethics
- Behaves in accordance with the relevant code of ethics even in difficult circumstances (includes demonstrating an awareness of limits of capability; acting with integrity and honesty and demonstrating self-management)
- Informs decision makers of significant consequences from not following advice (e.g., relating to risks, safety etc)

**9. Recognise the reasonably foreseeable social, cultural and environmental effects of professional engineering activities generally**

- Considers long term issues and impact(s) of own engineering activities, such as use of materials, waste during fabrication/construction, energy efficiency during use, obsolescence and end-of-life issues.
- Considers and takes into account possible social, cultural and environmental impacts and consults where appropriate
- Considers Treaty of Waitangi implications and consults accordingly
- Recognises impact and long-term effects of engineering activities on the environment
- Recognises foreseeable effects and where practicable seeks to reduce adverse effects

**10. Communicate clearly with other engineers and others that he or she is likely to deal with in the course of his or her professional engineering activities**

- Uses oral and written communication to meet the needs and expectations of his/her audience
- Communicates using a range of media suitable to the audience and context
- Treats people with respect
- Develops empathy and uses active listening skills when communicating with others
- Operates effectively as a team member

**11. Maintain the currency of his or her professional engineering knowledge and skills**

- Demonstrates a commitment to extending and developing knowledge and skills
- Participates in education, training, mentoring or other programmes contributing to his/her professional development
- Adapts and updates knowledge base in the course of professional practice
- Demonstrates collaborative involvement with professional engineers (New Zealand engineers for CPEng assessments)
- Awareness and application of recent developments within his or her own practice area

## **12. Exercise sound professional engineering judgement**

- Demonstrates the ability to identify alternative options
- Demonstrates the ability to choose between options and justify decisions
- Peers recognise his/her ability to exercise sound professional engineering judgement.

## **DEFINITIONS**

### **i. Complex engineering activities**

Complex engineering activities means engineering activities or projects that have some or all of the following characteristics:

- Involve the use of diverse resources (and, for this purpose, resources includes people, money, equipment, materials and technologies);
- Require resolution of critical problems arising from interactions between wide ranging technical, engineering and other issues;
- Have significant consequences in a range of contexts;
- Involve the use of new materials, techniques, or processes or the use of existing materials, techniques, or processes in innovative ways.

### **ii Complex engineering problems**

Complex engineering problems have some or all of the following characteristics:

- Involve wide-ranging or conflicting technical, engineering, and other issues;
- Have no obvious solution and require originality in analysis;
- Involve infrequently encountered issues;
- Are outside problems encompassed by standards and codes of practice for professional engineering;
- Involve diverse groups of stakeholders with widely varying needs;
- Have significant consequences in a range of contexts;
- Cannot be resolved without in-depth engineering knowledge.



## **APPENDIX 4. Suggested Policy for Admission to RPSurv**

### **Preamble**

The RPSurv assessment process will normally follow some years after an NZIS Certificate of Competence has been awarded. The intent of this policy is to ensure that those awarded the post nominal RPSurv not only operate at, but are recognised as operating at high professional levels in their sphere of expertise. Because it is difficult to anticipate all situations that may arise, the criteria outlined below should not be viewed as being rigid in their application, but rather as allowing the flexibility needed to accommodate a wide range of professional circumstances. For example, those in the academic community may not be able to point to a recent example of a technical project undertaken for a client. However, they will be able to provide other evidence of advanced professional expertise in some area of surveying and/or spatial science. The same may be true for those in senior management roles in large organisations that support surveying or spatial analysis related functions. It is the applicant's responsibility to demonstrate that they meet the spirit and general intent of the stated criteria.

### **1. Definition**

The post nominal, Registered Professional Surveyor (RPSurv) is conferred at Council's discretion on a voting member who normally meets the following criteria:

- Holds a relevant tertiary degree or degrees that require 4-years of full-time study to complete.
- Has been awarded a Certificate of Competence by the Institute, or some equivalent qualification offered by another professional body.
- Is able to demonstrate advanced competence (see Section 2, below) in one or more recognised areas of surveying and spatial science practice.
- Is able to demonstrate integrity and a high degree of ethical behaviour (see Section 3, below).
- Is committed to the on-going enhancement of his/her professional skills (see Section 4, below).
- Has demonstrated conduct and achievement of these criteria for a period of not less than three years after being awarded a Certificate of Competence by the Institute.

Note: At the time of adoption of this policy, those currently holding RPSurv status will continue to retain that status but will become subject to its renewal provisions.

Recognised areas of surveying/spatial science include, but are not necessarily limited to: Cadastral surveying and land administration, Sub-divisional engineering design, Planning and urban design, Mining surveying, Hydrographic surveying, Terrestrial positioning and measurement, spatial information management and analysis, Airborne/space positioning and measurement, Project management.

### **2. Advanced Competence**

To meet the standard of advanced competence, a person must be able to demonstrate the following characteristics as are appropriate to his/her practice area.

#### **2.1 Knowledge comprehension and application**

- 2.1.1 Understands and operates within the relevant legal and regulatory practice framework
- 2.1.2 Understands and applies appropriately any general and special local practice requirements
- 2.1.3 Understands and applies codified knowledge such as standards, practice notes, codes of practice
- 2.1.4 Can work from first principles to make reliable predictions of outcomes
- 2.1.5 Understands assumptions and is able to determine their impact in given situation

- 2.1.6 Seeks advice, where necessary, to supplement own knowledge and experience
- 2.1.7 Reads literature, and is able to comprehend, evaluate and apply new knowledge

## **2.2 Problem analysis**

- 2.2.1 Able to identify and define the scope of challenging professional problems
- 2.2.2 Investigates and analyses relevant information using appropriate analysis techniques
- 2.2.3 Where appropriate tests solutions for correctness of results
- 2.2.4 Conducts any necessary research and reaches substantiated conclusions

## **2.3 Problem solution**

- 2.3.1 Identifies needs, requirements, and constraints in developing solutions to challenging professional problems
- 2.3.2 Develops an appropriate range of solutions with options and recommendations
- 2.3.3 Consults with stakeholders
- 2.3.4 Evaluates options and selects the solution best matched to needs, requirements and criteria
- 2.3.5 Plans and implements effective, efficient and practical solutions
- 2.3.6 Evaluates outcomes against original specification or design brief

## **2.4 Project Management**

- 2.4.1 Takes accountability for his/her outputs and for those for whom he/she is responsible
- 2.4.2 Accepts responsibility for his/her professional activities
- 2.4.3 Plans, schedules organises and monitors progress of challenging professional problems, projects or activities to deliver specified outcomes within time constraints
- 2.4.4 Applies appropriate quality assurance techniques
- 2.4.5 Manages resources, including personnel, finance and physical resources
- 2.4.6 Manages competently conflicting demands and expectations

## **2.5 Risk Management**

- 2.5.1 Identifies risks which impact on people, property and the environment
- 2.5.2 Develops risk management policies, procedures and protocols for both project and workplace health and safety risks
- 2.5.3 Manages these risks effectively through appropriate strategies and techniques

## **2.6 Project Outcomes**

- 2.6.1 Within the external constraints imposed, delivers projects in a manner that demonstrates a high level of professionalism
- 2.6.2 Where appropriate, undertakes quality assessment.
- 2.6.3 Peers recognise his/her ability to exercise sound professional judgement.

## **2.7 Personal Skills**

- 2.6.1 Uses oral, written and digital communication to meet the needs and expectations of his/her audience
- 2.6.2 Communicates using a range of media suitable to the audience and context
- 2.6.3 Treats people with respect
- 2.6.4 Able to listen to others and correctly interpret what is being said.
- 2.6.5 Operates effectively as a team member

## **3. Integrity and Ethical Behaviour**

To meet these standards, a person must be able to demonstrate the following characteristics

### **3.1 Ethical standards**

- 3.1.1 Understands and operates in accordance with the NZIS code of ethics
- 3.1.2 Will not accept assignments beyond his/her professional competence unless making satisfactory arrangements to consult with persons appropriately qualified
- 3.1.3 Provides impartial advice
- 3.1.4 Informs relevant parties of significant consequences from not following advice (eg, risks, safety)

### **3.2 Foresees outcomes**

- 3.2.1 Considers long term issues related to sustainable development.
- 3.2.2 Considers and takes into account possible social, cultural and environmental impacts and consults where appropriate
- 3.2.3 Considers Treaty of Waitangi implications and consults accordingly
- 3.2.4 Recognises the impact and long-term effects of activities on the environment
- 3.2.5 Recognises foreseeable effects and where practicable seeks to reduce adverse effects

## **4. Enhancement of Professional Skills**

- 4.1 Demonstrates a commitment to extending and developing knowledge and skills by meeting the Institute's CPD criteria
- 4.2 Participates in education, training, mentoring or other programmes contributing to his/her professional development
- 4.3 Adapts and updates knowledge base in the course of professional practice
- 4.4 Demonstrates collaborative involvement within the profession
- 4.5 Demonstrates an awareness and application of recent developments within his or her practice area

## **5. Renewal Provisions**

All holders of RPSurv are required to reapply annually. Such renewal will occur automatically provided the applicant:

- 5.1 Has met the Institute's CPD criteria
- 5.2 Has not been the subject of a written complaint to the Institute's National Office in the previous two-year period
- 5.3 Has not had a complaint upheld against him or her by the NZIS Council
- 5.4 Has not been subject to disciplinary action by either the Cadastral Surveyor's Licensing Board or some other legal entity.
- 5.5 Has not been convicted of any offence that may be derogatory to the profession of surveying or the NZIS.
- 5.6 Where required, has been satisfactorily re-assessed against the above competence criteria

Where renewal does not occur automatically, Council will consider the matter and, if deemed appropriate may impose a default stand-down period. Renewal thereafter will be at the discretion of the NZIS Council.

Those who have let this distinction lapse for a period of two years or less due to travel, illness or some other circumstance considered appropriate by Council may reapply under the above provisions.

## **6. Documentation**

Council wishes to see evidence that RPSurv applicants can operate at a high professional level and can do so across a range of situations, activities and projects. Such documentation is likely to vary according to the applicant's background and skill area(s). However, the ethical, and enhancement of professional skills

elements of the policy, being common to all applicants, are more rigid in their application. With the above in mind, and for new applicants, Council will typically require:

1. A current résumé or curriculum vitae
2. A certified copy of academic transcript(s), unless supplied previously
3. The applicant to hold a current Certificate(s) of Competence
4. A personal statement outlining the particular sub-discipline area(s) in which the applicant considers that he/she has advanced competence.
5. Either a journal outlining significant projects that the applicant has completed in the period between being awarded a Certificate of Competence and his/her RPSurv application or completion of the appropriate NZIS templates. The journal should include a brief description of the project, the applicant's role in it (with particular regard to the issues listed under Clauses 2 and 3 of this Policy), and the length of time needed for its completion.
6. At least three detailed examples of the types of projects described under Clause 2 of this Policy, including documentation and plans, as appropriate. A good discussion of each project is required in which the applicable elements of Clauses 2 and 3 are highlighted clearly. Some reflection on each project is also required (e.g., lessons, learned, particular issues that arose, etc). All of the above should normally be submitted in digital form.
7. Letters from two referees in good professional standing who are familiar with the applicant's skills and work and who will attest to these.
8. That appropriate documentation is available to demonstrate that the requirements of Clause 4 of this Policy have been met.
9. A signed declaration to the effect that the applicant has not been subject to, nor is currently the subject of any complaint, disciplinary action or offence such as are outlined in Clause 5 of this Policy.

For an existing member who already holds RPSurv status, but is seeking renewal of this status, the requirements of Clauses 4, 5, 7, 8, and 9 should be met, except that the journal required under point 5 above can reflect work undertaken in any three or more of the previous five years. In addition, and if relevant, it would be helpful if the applicant were to elaborate on career path changes and/or new capabilities developed since his/her previous assessment.

## Appendix 5. NZIS Membership Options

While outside the formal scope of this review some additional comments are made about other NZIS membership categories. In making these comments, it is recognised that the Institute wishes ease the pathway to membership and establish either a Licensing or Certificate of Competency process as an intermediate step between membership and RPSurv. It is also recognised that the post-nominal MNZIS has limited public recognition. Indeed, those who have not sought RPSurv status have typically been content to use either “Registered Surveyor” (despite it now having no legal or professional status) or “Licensed Cadastral Surveyor”. However, surveying is a profession and the NZIS does represent itself as a body of professional people. With these issues in mind, the following points seem relevant.

- (1) Notwithstanding the desire to broaden NZIS membership, unless there is a substantive test on an applicant’s professionalism, it is difficult to sustain a claim to being a professional body when admission is on the basis of experience only. In this context, “professionalism” is understood to be as outlined in Coutts (2013). The requirement for seven years of experience, for example, could be met by one year of experience seven times over! The risks associated with such a low barrier to entry are significant, namely:
  - lack of credibility as viewed by other like-minded professional groups.
  - a weakening in NZIS arguments to have RPSurv be equated to CPEng for local authority certification purposes. In reality any damage to the professional credibility of the organisation as a whole inevitably affects the credibility of all of its post nominal awards.
  - members who would not be appropriate within a professional organisation.
  - a belief amongst retired members who can no longer maintain either a Certificate of Competency or RPSurv status that NZIS membership no longer has any real status value.
  - alienation of existing members who have not understood the enormity of the changes being made.

Having been involved in educating surveyors for over 20 years, the author is strongly of the view that some minimum tertiary qualification should be established as a starting point for full membership. Something at an NZCLS or NZDS level, with appropriate experience, might suffice provided some reasonably complete assessment of competence and character is also undertaken.

- (2) Given new entry standards either as outlined above, or as outlined in “The Way Ahead”, a three-step pathway to RPSurv, namely Membership ==> Certificate of Competency ==> RPSurv, seems reasonable. It offers an attainable intermediate step for a trainee professional person whilst recognising that they still have a considerable distance to travel before achieving their full professional potential.
- (3) While this report has not given specific consideration to the detailed criteria used for awarding a Certificate of Competency in each of the professional streams, it is suggested that the Cadastral Stream be slightly widened by including the words, “Land Administration”, i.e., the Cadastral and Land Administration Stream. Professional competence requires not just the capacity to undertake cadastral surveys, but also to

understand the nuances of land law and land administration, at least as practised in New Zealand. While this may seem like a matter of semantics, it actually aligns the stream much more closely with international terminology – particularly as used within the United Nations, the World Bank and the International Federation of Surveyors. It thus offers the prospect of improved marketing opportunities for NZ cadastral surveyors.

- (4) While the Positioning and Measurement Stream, rightly includes geodetic competence, it is difficult to see why it might include remote sensing and photogrammetry. The latter two disciplines are quite separate areas of professional skill and should be treated as such. In reality, the stream would far more logically include engineering surveying!
- (5) As a further observation, consideration should be given to changing the Land Development Stream to Sub-divisional Engineering Design (thus giving a specific competency with which to approach local authorities with regard to sub-divisional engineering sign-off), and then create a new Planning and Urban Design Stream. In the author's judgment, the profession needs to capture the new high ground of urban design before another group wrests the initiative away from it.