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Circular Memorandum No. 4 / 2010

TOPIC:	**Survey Audit Outcomes**
DATE:	**18 October 2010**

The 2010 audit program has now largely been finalised. This circular is to advise surveyors of the more significant issues raised in audit reports, with the aim of having members of the profession evaluate their practices for areas of potential risk of error.

The overall impression gained from this round of audits is that a significant number of surveyors are not undertaking appropriate quality assurance in relation to field and office procedures. Surveyors are requested to re-assess their procedures in the light of the following information, to ensure that all the requirements of the Survey Directions are being met.

Requirements

The following requirements have not been adequately met in this round of audits:

- Surveyors must locate all evidence that might impact on the reinstatement of boundaries under survey.
    - Section 3.2.2.3 of the Survey Directions states that "for evidence to be proved satisfactory the search for both primary and secondary evidence shall be extended as far as is necessary to prove that any additional evidence would not materially alter the reinstatement if it was found to be inconsistent with the evidence adopted".
    - In addition, location of evidence must extend to all evidence of occupation and other interests in the vicinity of surveyed boundaries, in particular relating survey marks to adjacent occupation by measurement.
- Reinstatement methodology, where not readily evident from the survey notes without further explanation, must be adequately reported.
- All linear and coordinate values documented in survey notes, whether measured or calculated, must comply with the accuracy requirements of sections 3.1.2 and 3.1.3.
- Surveys must comply with section 3.3.2.1 in relation to the information required to be documented for coordinate and bearing datum and origin.
- The correct term to use in relation to the absolute accuracy of coordinates is 'positional uncertainty'. Section 3.1.2.3 requires a realistic estimate of positional uncertainty (EPU) to be documented with coordinates calculated for lot corners. The term 'estimate' in its common usage denotes a value arrived at by calculation or informed judgement.
- Schedule 2 of the Survey Directions documents the abbreviations able to be used to describe survey marks. Where these are not used the mark must be fully described.
    - All marks must be uniquely identified on the survey notes.

Common Problems

One third of surveys audited in 2010 failed to locate evidence that impacted boundary reinstatement. This is a considerable increase on previous years and indicates that a significant number of surveyors are not undertaking appropriate quality assurance in relation to field procedures. This may extend to inadequate supervision of unqualified field staff.

This problem includes the lack of adequate documentation of occupation in survey notes, both as evidence of boundaries and rights associated with occupation.

Several surveys were encountered with inadequate reporting of reinstatement methodology, including reporting of adoption and compilation of boundaries. This has the potential to make it difficult for users, including registering authorities, to interpret and follow on from that survey.

Several instances of measurement errors in unclosed radiations were found, together with a significant number of calculation errors in linear measurements, comparisons with previous surveys, and coordinates. Again, this points to a lack of adequate quality assurance being undertaken in both the field and office.

In some instances it was impossible to determine the origin marks used for coordinate and bearing datum, and their respective coordinates and positional uncertainties. This is essential information for users of survey notes.

While most EPUs for derived coordinates now appear to be realistic given the origin and survey methodology used, some estimates have failed to incorporate the positional uncertainty of the origin point, resulting in values that are too low. Positional uncertainty is defined in the Survey Directions, being the uncertainty of coordinates relative to the GDA. It is imperative that the EPU incorporate both the positional uncertainty of the origin point and the precision of the field measurement method used, to result in a realistic value.

Some surveyors are using non-standard abbreviations such as ‘d pin’ or ‘IS’, which are difficult to interpret and will become more so as time passes.

Surveys have been encountered with only the traverse marks uniquely identified. All surveyed marks must be uniquely identified for ease of identification on later surveys.

Recommended Practices

Surveyors must undertake a full search of survey records and ensure that all potential evidence indicated in the records is identified. The field search for evidence must be extended as far as necessary to prove that the evidence adopted is not inconsistent with any additional evidence that could be used for reinstatement.

All occupation located on or adjacent to boundaries under survey must be documented in survey notes, together with adequate radiations or offsets to locate occupation in relation to boundary marks.

Surveyors should evaluate their reinstatements from the point of view of an independent party and ensure that all reinstatement methodology is clearly discernable from the survey notes or by an additional report.

Surveyors must have procedures in place, including independent field and office checking processes, to identify errors prior to completion of the survey and certification that the survey is correct.

Where state coordinated marks are used for coordinate or bearing origin, this must be clearly documented, together with the relevant coordinate and bearing information. Where a previous survey is used, the origin mark(s), together with relevant coordinates, positional uncertainties and bearings, must be documented.

The positional uncertainty of the origin point together with the precision of the field measurement method will determine the positional uncertainty of the coordinates derived for lot corners in surveys of land. That is, the positional uncertainty of the origin point must be incorporated into every estimate of positional uncertainty. Coordinates derived from a previously coordinated and registered survey of land must rely on and incorporate the estimate of positional uncertainty shown on that survey.

Surveyors must restrict abbreviations for survey marks to those shown in schedule 2, or otherwise fully describe the marks documented.

Prior to certifying surveys, surveyors should check that every mark surveyed has a unique identifier.

If you have any enquiries please contact John VanderNiet on 6233 8798.

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