



**Land & Property
Information**

A division of the Department of **Finance & Services**

REGULATORY IMPACT STATEMENT

Surveying and Spatial Information Regulation 2012

*A Regulation under the
Surveying and Spatial Information Act 2002*

Submissions accepted until: **Wednesday 1 August 2012.**

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CONTENTS

1. INTRODUCTION	
1.1. Title and proponent of the proposed Regulation	1
1.2. Why the Regulation is being made?	1
1.3. Status of the proposed Regulation	1
2. LEGISLATIVE BACKGROUND	1
2.1. Surveying and Spatial Information Act 2002	1
3. OBJECTIVES OF THE PROPOSED REGULATION	2
4. ASSESSMENT OF OPTIONS TO ACHIEVE OBJECTIVES	2
4.1. Remake the Regulation	2
4.2. Code of Practice	4
4.3. Allow Regulation to Lapse	4
5. SUMMARY OF MAIN DIFFERENCES BETWEEN CURRENT AND PROPOSED REGULATION	5
6. IMPACT ASSESSMENT OF THE PROPOSED REGULATION	16
6.1. Impact of individual clauses of the proposed Regulation	16
6.1.1 Part 1 Preliminary	16
Objective of Part	16
Overview of provisions	16
Proposed amendments	16
Assessment of costs and benefits of proposed amendments	16
6.1.2 Part 2 Survey Practice	17
Division 1 General duties of surveyor	17
Objective of Part	17
Overview of Provisions	17
Proposed amendments	17
Assessment of costs and benefits of proposed amendments	17
6.1.3 Division 2 Adoption of datum lines and bench marks	17
Objective of Part	17
Overview of provisions	18
Proposed amendments	18
Assessment of costs and benefits of proposed amendments	18



6.1.4	Division 3 Measurement and calculations	18
	Objective of Part	19
	Overview of provisions	19
	Proposed amendments	19
	Assessment of costs and benefits of proposed amendments	20
6.1.5	Division 4 Use of survey marks and monuments	20
	Subdivision 1 Surveys generally	20
	Objective of Part	20
	Overview of provisions	20
	Proposed amendments	20
	Assessment of costs and benefits of proposed amendments	21
6.1.6	Subdivision 2 Surveys to be lodged with public authorities	21
	Objective of Part	21
	Overview of provisions	22
	Proposed amendments	22
	Assessment of costs and benefits of proposed amendments	22
6.1.7	Division 5 Boundaries formed by tidal & non-tidal waters and other natural features	23
	Objective of Part	23
	Overview of provisions	23
	Proposed amendments	23
	Assessment of costs and benefits of proposed amendments	24
6.1.8	Division 6 Field notes	24
	Objective of Part	24
	Overview of provisions	24
	Proposed amendments	24
6.1.9	Division 7 Survey plans	24
	Objective of Part	24
	Overview of provisions	24
	Proposed amendments	24
	Assessment of costs and benefits of proposed amendments	25
6.1.10	Division 8 Public surveys	26
	Objective of Part	26
	Overview of provisions	26
	Proposed amendments	26
	Assessment of costs and benefits of proposed amendments	26
6.1.11	Part 3 Administration	26
	Objective of Part	26
	Overview of provisions	26
	Proposed amendments	27
	Assessment of costs and benefits of proposed amendments	27
7.	CONSULTATION	27



1. INTRODUCTION

1.1. Title and proponent of the proposed Regulation

The *Surveying and Spatial Information Regulation 2012* has been developed by the Surveyor General and Land and Property Information, a Division of the Department of Finance and Services, and is proposed by the Minister for Finance and Services, the Hon Greg Pearce, MLC.

1.2. Why the regulation is being made?

The proposed Regulation will replace the existing *Surveying and Spatial Information Regulation 2006*. The existing Regulation is to be repealed on 31 August 2012 under the *Subordinate Legislation Act 1989* as part of the Government's commitment to review Regulations every 5 years to ensure they remain relevant.

1.3. Status of the proposed Regulation

The attached Regulation is a draft. It has been released with this Regulatory Impact Statement so that interested parties can review and provide comment and suggestions. Submissions received will be considered and may result in amendments to the proposed Regulation. The Regulation will be finalised and published on the NSW Legislation website to enable it to commence on 1 September 2012.

2. LEGISLATIVE BACKGROUND

2.1. Surveying and Spatial Information Act 2002

The *Surveying and Spatial Information Act 2002* incorporates all aspects of the regulation and oversight of land and mining surveying in NSW. The major objective of the Act is to ensure the maintenance and on-going development of the State control survey network, which provides a reliable and accurate spatial referencing system underpinning surveying, land information and mapping systems in NSW.

To achieve this objective the Act requires that surveyors must be registered and must comply with minimum standards of education. The Act establishes the Board of Surveying and Spatial Information (BOSSI) to oversee the registration of surveyors, set professional education requirements and conduct disciplinary investigations to ensure consistency and quality in the delivery of surveying services.

In addition, the Act enables the Surveyor General to establish permanent survey marks throughout the State. To foster effective State survey co-ordination, all surveys made by or on behalf of a public authority are to be carried out to a high standard and are to be made by reference to a consistent datum.

The Regulation sets the standards for surveying of property cadastral boundaries. The standards relate to the accuracy of measurements, the calibration of equipment and the marking of surveys. Maintaining the standards assures the competency of surveyors and allows cadastral boundaries to be traceable and reliable.



3. OBJECTIVES OF THE PROPOSED REGULATION

The objectives of the proposed *Surveying and Spatial Information Regulation 2012* are to:

- Facilitate the implementation, maintenance and management of cadastral survey standards under the Surveying and Spatial Information Act 2002.
- Maintain the positional integrity of the cadastre to assure public confidence in the land titles system in New South Wales.
- Ensure uniform outcomes for the marking of surveys.
- Cater for evolving technologies, such as Continuously Operating Reference Stations (CORS)
- Enhance the standards of accuracy required where Global Navigation Satellite Systems (GNSS) are used.
- Encourage standardised forms and styles for all survey marks to facilitate electronic lodgment and examination of surveys.
- Encourage integration of spatial information with street addressing for the benefit of emergency services and for the community generally.

4. ASSESSMENT OF OPTIONS TO ACHIEVE OBJECTIVES

4.1. Remake the Regulation

The State Control Survey network identifies the parcels within the Torrens land title system as well as numerous other land information systems. There is a recognised need for an accepted set of technical standards and specifications for horizontal and vertical control surveys to ensure the integrity of the cadastral network.

Adherence to a reliable set of standards for survey control provides significant savings, both at the local level and, more broadly, for the community. Each time that a survey is undertaken the surveyor must investigate the existing boundaries and relate them to adjoining boundaries and monuments.

All survey information required before undertaking a survey is held on public record, generally at Land and Property Information NSW, a division of the Department of Finance and Services. The Regulation supports the process where new survey information is added to existing information on land parcels and stored on public record available for future use. This system ensures the verification of property boundaries when original survey marks are lost or destroyed and ensures that surveyors take due regard for the property rights of adjoining owners, as evidenced in previous plans of survey.



The State Control Survey provides a high degree of spatial accuracy and integrity to all surveys and can be used to check results. The State Control Survey is a network of permanent survey marks of standard form being points of known horizontal position and/or height throughout the State. This network is essential if information held in Government and private Land Information Systems (LIS) is to be compatible. It provides the foundation for the integration of all spatial information.

This enables surveyors to use the State Control Survey confidently, knowing that the information held has been captured using proven survey techniques, adjusted using a least squares method and classified according to accuracy of the results. The geodetic network provides a fundamental reference framework that is highly accurate and is the basis of the State Control Survey. Where the State Control Survey has been extended to a locality, the surveyor will be able to use that information and build onto the network. The provision of height control is very important for engineering works in all developments, particularly for water, sewerage and drainage design and other public infrastructure.

Avoiding duplication of surveys has a direct economic advantage. The State Control Survey has approximately 235,000 survey marks forming a network that covers the entire State. This network provides a foundation layer for all Land Information Systems. It ensures that all measurements and dimensions are compatible and there is a spatial relationship for all boundary information. The proposed Regulation emphasises the use of the network and ensures that additional information regarding growth of the network is recorded on the public record. This is designed to eliminate the duplication of effort for placing permanent marks. Subsequent surveys using the network should be cheaper.

By using a land tenure system that is based upon survey for all parcels, high levels of consumer confidence are attained and greater efficiencies from using new technologies can be achieved. A system of land parcel boundaries based upon a State Control Survey provides a significant cost saving through the minimisation of fieldwork necessary for boundary reinstatement.

In the absence of Regulations, it could be expected that disputes would arise from poorly or incorrectly marked boundaries. Even if the level of disputes rose to twice or three times that of the present number, this would unjustifiably add substantial costs to the community.

The Regulation offers the best option to ensure that recognised standards are maintained and enforced. It ensures sound surveying practices are used while retaining sufficient flexibility to adapt to new technologies as they are introduced.



4.2. Code of Practice

An alternative to statutory regulation would be an industry Code of Practice administered by either the Board of Surveying and Spatial Information or an industry group, such as the Institution of Surveyors NSW Incorporated. The Code would incorporate matters dealt with in the Regulation. However, it would be a voluntary code with no compulsion to adopt and would therefore be difficult to enforce. Unless all surveyors agreed to adopt the voluntary Code of Practice there would be a decline in the integrity of the land tenure system and an increase in problems, litigation and loss of confidence in the land titles system, which is guaranteed by the State.

The standards for the knowledge base and professionalism would still be set by a body, presumably the Board of Surveying and Spatial Information before the granting of Certificates of Competency and Registration as a surveyor. The Board would rely on the Surveyor General's Directions, the Registrar General's Directions for Plans and the Code of Practice to provide a guide for acceptable survey practice.

To give the Code of Practice the power of enforcement by the Board, amendments to the *Surveying and Spatial Information Act 2002* would be necessary. Some criteria for determining the accuracy of surveys would need to be set before the Board could determine a survey as "failing to comply". In effect, standards equating to those imposed by the Regulations would need to be developed and maintained.

The difficulty of enforcing a voluntary code would lead to a gradual decline in standards, eventually eroding the integrity that has been built up in the State Control Survey over many years.

Adopting a Code of Practice would rely on the ability of the Institute of Surveyors, or other surveyor body, taking account of the community good ahead of the interests of individual surveyors or the relevant association.

Rather than providing savings and efficiencies, reliance on a Code of Practice would prove to be more costly. Survey costs would rise, as less reliance could be placed on surveys prepared under the Code. More significantly, the community would bear the cost of the gradual decay of the State Control Survey and the cadastre that underpins the Torrens land title system.

This Option is not considered viable.

4.3. Allow regulation to Lapse

Generally speaking in a deregulated industry all outcomes from survey activities would be prearranged between the surveyor and their client, based on cost and the level of service required. The success of this model relies on the consumer knowing what services to expect and demanding that the surveyor provide them.

Often consumers of survey services do not fully appreciate the various levels of services available.



In a deregulated environment penalties for non-compliance would not be an issue as there would be no minimum standards for compliance. The Torrens Title system of land tenure in New South Wales relies on every title being based upon an accurate plan of survey. Having confidence and security in the land tenure system is a fundamental prerequisite to economic development. If standards for cadastral survey services are not set, the future economic development of New South Wales may be impeded or jeopardised.

In a deregulated environment surveys would be prepared for individuals without consideration of the community good. There would be no incentive to place survey marks or tie surveys into the State Control Survey, leading to its rapid decline. Boundary disputes would proliferate as surveys would be prepared without due regard to the interests of adjoining property owners.

This option is not considered to be viable.

5. SUMMARY OF MAIN DIFFERENCES BETWEEN CURRENT AND PROPOSED REGULATION

The proposed Regulation remakes the current *Surveying and Spatial Information Regulation 2006* with a number of minor changes aimed at ensuring better control of the state survey network.

A summary of the proposed changes is set out below:

Current Regulation	Proposed Regulation	Reason for change
1 Name of Regulation	Surveying and Spatial Information Regulation 2012	
2 Commencement	Date of Commencement – 1 September 2012	
4 Mining Surveys	CI 4(3) amended to note that the <i>Survey and Drafting Directions for Mine Surveyors (NSW-Coal)</i> is to be taken to be an order in respect of certain mining surveys. CI 4(4) amended to note that the <i>Surveyors (NSW) Metalliferous and Extractive Industries</i> is to be taken to be an order in respect of certain mining surveys. References to repealed Acts have been updated.	Updated to include references to current orders issued by the Survey General and to remove references to repealed Acts.

Current Regulation	Proposed Regulation	Reason for change
<p>5 Definitions</p> <p><i>Bench Mark</i> – not currently defined.</p> <p><i>Compiled</i> – not currently defined.</p> <p><i>Compiled plan</i> – not currently defined.</p> <p>SCIMS not currently defined.</p> <p><i>Surveyor- General</i> - not currently defined.</p> <p><i>Road</i>- current definition “includes any road, street laneway, pathway, or other means of access, either existing or proposed”.</p> <p><i>Established survey mark</i> -currently refers to certain marks described in the register of public surveys.</p> <p><i>Reference station</i> - currently refers to certain marks described in the register of public surveys.</p> <p><i>Survey Drafter</i> – current Regulation includes a definition and refers to a formal Board determination.</p>	<p>The following definitions have been added:</p> <p><i>Bench Mark</i> – defined to be a survey mark referred to in Sch1, which prescribes the types of marks that can be used as a bench mark.</p> <p><i>Compiled</i> – lot or parcel, linked to the definition of “compiled plan” (see below).</p> <p><i>Compiled plan</i> – defined to be a plan prepared on the basis of information recorded on plans held on public record, not on the basis of a survey of the land...</p> <p>SCIMS – defined to be the information management system known as the “Survey Control Information Management System”.</p> <p><i>Surveyor-General’s directions</i> – defined to be the directions of the Surveyor General published on the LPI website.</p> <p>The following definitions have been amended:</p> <p><i>Road</i>- amended to include “other means of public access...”</p> <p><i>Established survey mark</i> - reference to register of public surveys replaced with reference to SCIMS.</p> <p><i>Reference station</i> - reference to register of public surveys replaced with reference to SCIMS.</p> <p>The following definition has been deleted: <i>Survey Drafter</i></p>	<p><i>Bench Marks</i> – The types of survey marks that can be used as a bench mark are to be defined by the Regulation, necessitating a definition.</p> <p><i>Compiled</i> – (see below).</p> <p><i>Compiled plan</i> –The Regulation makes reference to “compiled plans” in Clauses 26 and 60 as well as in Form1 in Sch6 (Survey certificate), necessitating a definition.</p> <p>SCIMS – The Regulation makes reference to information relating to survey marks being recorded in SCIMS, rather than the register of public surveys.</p> <p><i>Surveyor-General’s directions</i> – defined to be the directions of the Surveyor General published on the LPI website.</p> <p><i>Road</i> - The amendment reduces the current requirements for marking roads by limiting the other forms of access that fall within the definition of a road.</p> <p><i>Established survey mark</i> - as records relating to survey marks are held by the Surveyor General in SCIMS, the amendment provides a more accurate definition. Reference station – see above.</p> <p><i>Survey Drafter</i> – The Board has not determined the relevant experience necessary to qualify as a Survey Drafter, hence no current requirement for a definition.</p>

Current Regulation	Proposed Regulation	Reason for change
<p>6 General principles of survey</p> <p>6(1) – (f) Currently prescribes six general principles to be applied when a surveyor carries out a survey.</p> <p>6(f) where required, a surveyor must prepare a survey plan.</p>	<p>An additional principle has been added as cl 6(d) requiring that when carrying out a survey the surveyor must ensure the MGA co-ordinates and AHD values derived for the survey are correct.</p> <p>Old cl 6(f) now cl 6(g) – Where required, a surveyor must prepare and certify a survey plan</p>	<p>Historically, surveys were primarily concerned with calculating the dimensions of a parcel of land. Today, the emphasis is on positioning/location.</p> <p>It is a current requirement for all survey plans prepared by a surveyor to include a Survey Certificate. This requirement is to be included as part of the general survey principles.</p>
<p>10 Surveys for identification or re-marking</p> <p>10 (3) – Plans of identification need only comply with certain specified clauses.</p>	<p>New cl 10(3) - providing that a survey made for the remarking of a parcel may not be used for the purpose of any disposition of land or any interest in land.</p> <p>Renumbered as 10(4) – Plans of identification now also to comply with clauses 23, 24 and 25.</p>	<p>This requirement was previously included in the regulation as a Note. It is now included as a specific clause.</p> <p>Clauses 23, 24 and 15 require a surveyor to check angular work and relate to accuracy of angular and length measurements. These clauses should also apply to surveys for identification or remarking.</p>
<p>12 Datum line</p> <p>12(2)b) – requires that , for rural surveys, the bearing used for orientation must be within 1000 m of 2 established survey marks.</p> <p>12(4) - currently requires that MGA co-ordinates used to determine the orientation of a survey are to be obtained from the register of public surveys.</p>	<p>New Cl 12(2)(c) added to require that where a rural survey is not within 1000 metres of 2 established survey marks, the bearing used for orientation may be adopted from 2 survey marks that have a horizontal position equal to or better than Class D.</p> <p>New Cl 12(3) - added to require that the survey marks used to define the datum line must have an approved mark status of Null, Not Found or Found intact.</p> <p>Re-numbered as cl 12(5) and reference to public survey updated to refer to SCIMS</p>	<p>The clause has been amended in recognition of the fact that established survey marks, being marks classified as Class C or better, may not always be accessible in rural areas.</p> <p>In SCIMS survey marks are allocated a Class as well as a status. Status relates to whether a mark has been located. Marks used to orient a survey must be of an accepted Class and must also have a satisfactory Status.</p> <p>SCIMS contains coordinates and related information for survey marks.</p>
<p>13 Bench marks</p> <p>13 - Currently imposes a standard for verifying the accuracy of heights derived from a bench mark.</p>	<p>New cl 13(6) added requiring the position of bench marks to be determined by a survey technique equal to or better than that derived from using hand held GNSS.</p>	<p>The bench marks used to establish height levels must be able to be easily located. To ensure the requirement to locate bench marks is not too onerous the clause enables bench marks to be located by GNSS.</p>

Current Regulation	Proposed Regulation	Reason for change
<p>18 Surveys for affecting interests</p> <p>18 – Sets out requirements for surveys carried out for the purpose of defining an affecting interest, such as an easement or covenant.</p>	<p>Subclauses have been rearranged and renumbered.</p> <p>New cl 18(5) added requiring that where a survey is carried out only for the purpose of creating an affecting interest, the area of the site of the affecting interest must be shown for each lot, or group of lots, held in separate ownership (except where the affecting interest comprises a physical feature or structure only (such as a track in use or party wall)).</p>	<p>Subclauses have been rearranged for better clarity.</p> <p>Requiring the area of an affecting interest to be shown on the survey plan will enable the land owner and future purchasers to appreciate the extent of the affectation and will assist in the task of valuing the affecting interest.</p>
<p>19 Re-survey of property boundaries</p> <p>19 – When a surveyor makes a resurvey the survey plan must disclose the extent of any discrepancies in the marking of the survey.</p>	<p>New provision added as cl 19(2) (b) requiring a plan of resurvey to disclose the position of any existing road formation and fencing.</p>	<p>The position of roads and fencing is an important consideration in re-establishing boundaries. Requiring them to be shown on a plan of resurvey will help to ensure that the original boundaries have been adopted and will assist in identifying whether there are any discrepancies.</p>
<p>24 Accuracy of angular measurements</p> <p>24(2) – Currently requires that the angular misclose must not exceed 20 seconds plus $10\sqrt{n}$ seconds or 2 minutes (whichever is the lesser).</p>	<p>24(2) has been amended to require that the angular misclose must not exceed 10 seconds plus $10\sqrt{n}$ seconds or 2 minutes (whichever is the lesser).</p>	<p>The accuracy has been amended to reflect the accuracy that can be obtained from modern instrumentation.</p>
<p>25 Accuracy of length measurements</p> <p>25(2) currently requires that all lengths should be measured to an accuracy of 10 mm + 15 parts per million or better at a confidence interval of 67%.</p>	<p>cl 25(2) has been amended to require all lengths to be measured to an accuracy of 10 mm + 50 parts per million or better at a confidence interval of 95%.</p>	<p>The amendment will ensure a higher level of accuracy is obtained to better meet community expectations for accurate boundary definition given increasing pressures on land use. It reflects the accuracy obtainable from modern instrumentation.</p>
<p>26 Checking accuracy of measurements</p> <p>26(2) currently requires that the internal closure of any survey is to be calculated and must not exceed a specified tolerance.</p>	<p>Cl 26(2) amended to require calculation of the internal closure of any survey, and of each parcel of land surveyed.</p> <p>New cl 26(3) added to require that where complete dimension of a compiled or partially compiled parcel are shown in a survey plan the surveyor must calculate the closure of the parcel. A table has been added setting out the allowable tolerance of the misclose vector, which will depend on the</p>	<p>Requiring the internal closure of all survey work to be calculated allows an additional check to ensure the accuracy of the measurements.</p> <p>Where dimensions are available, checking the accuracy will give more integrity to the residue. In the electronic environment parcels without dimensions will be unable to be validated.</p> <p>As this requirement only applies where complete dimensions of are</p>

Current Regulation	Proposed Regulation	Reason for change
	<p>age of the survey on which the compiled parcels are based and on the nature of the terrain.</p> <p>New cl 26(4) provides that if the misclose vector calculated as specified above exceeds the relevant lengths provided for in the table, the surveyor must resolve the inaccuracy by surveying additional boundaries or explain the discrepancy in a comprehensive report.</p>	<p>available additional cost will be minimised.</p> <p>This requirement will identify parcels that require further survey investigation. This investigation can be carried out at the time of the survey or when otherwise more appropriate</p>
<p>28-30 Boundary Marks</p>	<p>28 Boundary Marks Provisions relating to boundary marks removed from existing clauses 28 -30 & 36 and amalgamated in new cl 28.</p> <p>(1) Surveyor must mark with boundary marks:</p> <ul style="list-style-type: none"> • boundaries between parcels; • each corners <p>(2) Boundary marks must be discernible.</p> <p>(3) Reference mark to be used where boundary mark on corner not practicable.</p> <p>(4) New provision added requiring that where a boundary is a bank or MHWMM liable to erosion the boundary mark must be placed a safe distance from the MHWMM or bank and the distance to the boundary must be noted.</p> <p>(5) Makes provision for the marking of an unfenced boundary in a rural survey.</p> <p>(6)No further marking of a corner is required on a rural survey where a fence post is on a corner at which a reference mark has been placed</p> <p>(7) Size of marks placed in ornamental structures to be reduced to minimise damage.</p>	<p>Clauses amalgamated for clarity and consistency.</p> <p>Previously cl 29(1), relating to rural surveys, however, provision should also apply to urban surveys. Previously cl 30(1)</p> <p>Previously cl 36(1)</p> <p>Previously cl 30(2)</p> <p>Boundary marks placed on a bank or MHWMM boundary are likely to be lost through erosion etc.</p> <p>Previously cl 29(2)</p> <p>Previously cl 30(3)</p> <p>Previously cl 36(2)</p>

Current Regulation	Proposed Regulation	Reason for change
<p>28 Marking of urban survey</p> <p>28 (1) currently requires that certain reference marks be placed where an urban survey abuts a road.</p>	<p>Renumbered as: 29 Marking of urban surveys</p> <p>cl 29(1) amended to require certain reference marks to be placed in respect of an urban survey that abuts a road, other than a road used to provide a means of pedestrian access only.</p>	<p>Road is defined in cl 5 to include pathways. The amendment in cl 29(1) provides an exception to the requirement to mark roads in respect of roads used only for pedestrian access.</p>
<p>29 Marking of rural surveys survey</p> <p>29(5) currently requires additional reference marks to be placed where a boundary exceeds 2400 metres</p>	<p>Renumbered as; 30 Marking of rural surveys</p> <p>cl 30(4) amended to ensure requirement for additional marking applies to boundaries exceeding 2400m, whether or not the boundary includes one or more bends.</p> <p>cl 30(6) added to require additional reference marks:</p> <ul style="list-style-type: none"> • where land abuts a road, at the extremity of the land surveyed; • at each road intersection; • where land has a stream frontage greater than 500 metres, near each stream bank and side boundary intersection. <p>cl 30(c) added to require the survey plan to show:</p> <ul style="list-style-type: none"> • the width of roads that abut the land surveyed; • connections across abutting roads, where survey marks are available. 	<p>Previously 29(5) with amendment to clarify intention of requirement.</p> <p>The requirements for additional marks to be placed for large parcels of land will assist landowners to better identify their boundaries on the ground.</p> <p>Added to ensure complete information is provided on the survey plan. The information will help to ensure adjoining plans better relate to each other</p>
<p>30 Corners to be marked with Boundary Marks</p> <p>Each corner of land surveyed to be marked with a boundary mark.</p>	<p>Now clause 28. See above.</p>	
<p>31 Roads to be marked with reference marks</p> <p>Placement of reference marks at intersections where intersection cut off or rounded off.</p>	<p>Cl 31(2)(a)(i) where a road intersection is cut off a reference mark is to be placed at either end of the triangle, or at the intersection.</p> <p>Cl 31(2)(a)(i) where a road intersection is rounded off a reference mark is to be placed at either end of the tangent point, or at the intersection.</p>	<p>Corrects an anomaly in the previous Regulation to re-instate usual practice.</p>

Current Regulation	Proposed Regulation	Reason for change
<p>35 Surveyor to note nature and position of survey marks</p> <p>35(1)(b) - Surveyor to note, in field notes and on the survey plan, the MGA co-ordinate of permanent marks</p>	<p>CI 35(1)(b) amended to require field notes and survey plan to also note MGA co-ordinates of bench marks. The survey method used to determine to co-ordinates is also to be noted.</p> <p>CI 35(1)(e) added to require that where the purpose of a survey is to limit height and depth, the AHD values of permanent marks or bench marks are to be stated, along with an estimate of their accuracy.</p> <p>CI 35(6) added to require that the position of each benchmark is to be determined by a survey technique equal to or better than that derived by hand held GNSS.</p>	<p>No current requirements for surveyor to note MGA co-ordinates for bench marks. Knowing the method used to calculate co-ordinates will help a user assess their likely accuracy.</p> <p>Clause 35 does not currently require AHD values are to be shown.</p> <p>Enables bench marks to be located by a cost effective means.</p>
<p>36 Marking of survey boundaries</p> <p>36(1)and 36(2) - Survey boundaries must be marked with boundary marks</p>	<p>Clause deleted. Provision amalgamated within clause 28.</p>	<p>Clauses amalgamated for clarity and consistency.</p>
<p>Clauses 37 - 41</p>	<p>Clauses renumbered 36-40 without further amendment</p>	
<p>42 Surveys redefining or creating multiple parcels, roads or affecting interests.</p> <p>42(2) - Survey to be related to minimum number of survey marks where survey redefining or creating a road.</p> <p>42(3) - Requires 2 of more permanent survey marks for surveys creating an affecting interest.</p>	<p>Renumbered as: 41 Surveys redefining or creating multiple parcels (etc)</p> <p>CI 41 (3) amended to apply only where the survey redefines a formed road, or creates a road.</p> <p>CI 41(4) amended to apply only to affecting interest exceeding 200 m.</p> <p>New cl 41(5) added requiring a survey creating an affecting less than 200 m to connect to two permanent survey marks, if permanent survey marks are available within 300 m.</p>	<p>Current requirement to place survey marks at frontage of unformed roads can be unnecessary.</p> <p>Previous requirement too onerous in respect of small affecting interests.</p> <p>By requiring smaller affecting interests to be connected if permanent survey marks are available encourages survey co-ordination without the cost of mark placement for a small survey.</p>

Current Regulation	Proposed Regulation	Reason for change
<p>43 Connection to permanent survey marks.</p> <p>43(1) - Permanent survey marks must each be connected to separate corners.</p> <p>43(3) - Measurements between all permanent survey marks and the land surveyed must be proved by closed survey.</p>	<p>Renumbered as: 42 Connection to permanent survey marks</p> <p>CI 42(1) amendment to require that the permanent survey marks are to be connected to separate corners by direct lines.</p> <p>CI 42(3) amended to delete the words "Measurement between"</p>	<p>The benefits of relating the survey to more than one survey mark can be lost where the connection is by a series of circuitous lines rather than by direct line.</p> <p>Amended to clarify that the connection between a permanent survey mark and the land surveyed is to be checked.</p>
<p>44 New permanent survey marks</p> <p>44(1) - Sets out the requirements for locating new permanent survey marks.</p> <p>44(2) - Where two permanent survey marks used have accurate AHD values, all permanent survey marks placed for the survey must be given accurate AHD values as well.</p>	<p>Renumbered as: 43 New permanent survey marks</p> <p>New cl 43(1)(b) added requiring that permanent survey marks must be placed in a position that will ensure that it is unlikely to be disturbed.</p> <p>CI 43(2) amended to apply the requirement relating to AHD values to urban surveys only.</p>	<p>Aligns with the requirement for reference marks and standard practices. Ensures ongoing integrity of the cadastre.</p> <p>The availability of permanent survey marks with AHD values assists surveyors to propagate heights in urban areas.</p>
<p>45 Definitions</p>	<p>Renumbered as: 44 Definitions</p>	<p>No amendment made</p>
<p>46 Surveys where boundary includes tidal or non-tidal waters or other natural features</p>	<p>Renumbered as: 47 Surveys where boundary includes tidal or non-tidal waters or other natural features</p>	<p>No material amendments made</p>
<p>47 First survey of boundary adjoining Crown reserve or Crown road</p> <p>Prescribed requirements for first survey of a Crown Road or Reserve adjoining a water boundary</p>	<p>Renumbered as: 45 First survey of boundary of land adjoining Crown reserve or Crown Road</p> <p>Two additional requirements added to CI 45(2):</p> <ul style="list-style-type: none"> * the position of any existing road formation or fencing must be shown on the survey plan, * The boundary need not be marked but a reference must be placed at the terminals and each interval of 1000m. 	<p>Assist with identifying potential boundary irregularities</p> <p>Reinstates a provision inadvertently omitted from 2001 Regulation</p>

Current Regulation	Proposed Regulation	Reason for change
	<p>New provision added as: 46 First survey of mean-high water mark boundary or bank</p> <p>First survey of a MHWM boundary or bank must be defined with sufficient accuracy to enable it to be re-established despite potential for natural changes.</p> <p>Approval to be obtained from Minister administering the Crown Lands Act to first survey of mean high water mark boundary.</p>	<p>The first definition of a water boundary must be surveyed and not shown merely as a natural feature.</p> <p>In view of the modified doctrine of accretion and erosion (s 55N <i>Coastal Protection Act</i>) need confirmation of the definition of the first water boundary.</p>
<p>48 Changes in boundaries formed by tidal waters</p> <p>48(1) - Where a change in a MHWM boundary occurred by means of natural, gradual and imperceptible accretion or erosion the changed position is to be shown on the plan. If the change was not natural, gradual or imperceptible the previous position is to be adopted.</p>	<p>cl 48(1) - (3) amended to require that where s 55N of the <i>Coastal Protection Act 1979</i> applies to a MHWM boundary to modify the doctrine of accretion and erosion, the position of the boundary is to be shown as it was before the change.</p>	<p>Amended for clarity and to ensure that s 55N is properly taken into account on the redefinition of a water boundary.</p>
<p>60 Survey plan to indicate name of locality, street address and type of survey</p> <p>60 - Plan to shown name of locality assigned by GNB and the name of any roads assigned by local roads authority</p>	<p>60 Survey plan to indicate name of locality, street address and type of survey</p> <p>cl 60(a) amended to require that either the suburb or locality assigned to the area by the GNB must be shown</p> <p>cl 60(c) added to require that where available, the street addresses must be shown on the survey plan in the format required by the Surveyor-General's directions.</p>	<p>Community benefit in tying the street address with the new lot fabric.</p> <p>Enables a layperson to more easily identify new parcels of land.</p>
<p>61 Method of recording datum line</p> <p>61(2) – Co-ordinates, and an estimate of their accuracy, to be taken from the register of public surveys.</p>	<p>cl 61(3) amended to delete reference to register of surveys and replace with reference to SCIMS.</p>	<p>Details for survey marks are contained within SCIMS, being the database used for recording co-ordinates.</p>
<p>62 Method of recording bench marks</p> <p>62 – Prescribes the method of recording bench marks on the survey plan</p>	<p>cl 62(b) added to require the survey plan to indicate the level of accuracy of each bench mark.</p> <p>cl 62(d) amended to require the level of accuracy for new permanent marks (used as bench marks) to be determined by the surveyor.</p>	<p>Having this information on the survey plan enables future users to assess the reliability of the survey.</p> <p>Corrects an anomaly in the current Regulation.</p>

Current Regulation	Proposed Regulation	Reason for change
<p>64 Method of showing boundaries generally</p> <p>64(1)(a) - Survey plan to show nature of boundaries, whether defined by a various specified survey methods.</p> <p>64(1)(c) – Plan to show description of substantial structures within one metre of the boundary.</p>	<p>cl 64(1)(a) added to require the survey plan to show sufficient information to connect all survey marks (other than bench marks) shown on the plan by bearing and distance.</p> <p>cl 64(1)(b) amended to add the words “or co-ordinates” among the list of methods used to define boundaries.</p> <p>Now cl 64(1)(e). Amended to require the location, as well as the description, of substantial structures within one metre of a boundary.</p> <p>cl 64(1)(f) added to require that where there are no substantial structures within one metre of the boundary an appropriate statement is to be included to confirm this.</p> <p>cl 64(1)(g) added to require complete dimensions of each parcel of land surveyed.</p> <p>cl 64(1)(h) added to require complete dimensions of each compiled or partially compiled parcel, where available.</p>	<p>Enables survey marks to be located, for the continued enhancement of the cadastre. Enables plans to be examined electronically.</p> <p>Amended to reflect new technologies used to define boundaries.</p> <p>Minor amendment.</p> <p>Added for completeness and to prevent unnecessary requisitions being sent to the surveyor during plan examination.</p> <p>To ensure that the geometry of the parcel is shown on the current plan for the land. Enables electronic examination and evaluation of the plan.</p>
<p>65 Method of showing natural feature boundaries</p> <p>65(b) - Natural features boundary must be indicated by a line generally following the line of the boundary.</p> <p>65(c) natural feature boundary to be approximated by bearings and distances.</p>	<p>cl 65(b) amended to require natural feature boundary to be indicated by an irregular line generally following the position of the boundary.</p> <p>cl 65(c) amended to require boundary to also be indicated by a series of straight lines by bearing and distances that accurately describe and locate each change in direction.</p>	<p>To clarify the description of the boundary for the layperson.</p> <p>To clarify the method of providing the mathematics of the boundary so that it can be re-established despite changes to the natural feature.</p>
	<p>cl 65(d) added to require the connection between terminals of the natural feature in cases where more than 10 straight lines have been used to define the boundary.</p>	<p>Added to enable a mathematical check and for ease of use of the plan.</p>
<p>69 Surveyor to report on doubts discrepancies and differences</p>	<p>cl 69(2) added to require that discrepancies in excess of 40mm + 200ppm must be disclosed.</p>	<p>To ensure consistency, a tolerance triggering the need for a survey report has been specified.</p>

Current Regulation	Proposed Regulation	Reason for change
<p>70 Surveyor to furnish survey certificate</p> <p>70(1) – Survey certificate to be provided on or with a survey plan</p>	<p>cl 70(1) amended to require that a plan prepared by a surveyor must be endorsed with, or accompanied by, a survey certificate, where it is;</p> <ul style="list-style-type: none"> • a survey plan; • a compiled plan; • a plan partly surveyed and partly compiled. 	<p>The amendment clarifies that a survey certificate is required for all plans prepared by a surveyor, whether or not the plan was surveyed or compiled.</p>
<p>71 Standards for public surveys</p> <p>71 - Public surveys to be carried out in accordance with standards in <i>Standards and Practices for Control Surveys</i>.</p>	<p>cl 71 updated to provide that public surveys must be carried out in accordance with Version 1.7 of the <i>Standards and Practices for Control Surveys</i> (SP1) and such other version of those Standards, as approved.</p>	<p>Updated to refer to latest Version of the <i>Standards</i>. <i>Standards</i> are currently under review. Surveyor General to approve any later version before it can be used as a standard for public surveys.</p>
<p>75 Formal Board determinations</p> <p>75 – Sets out the types of determinations that can be made by the Board.</p>	<p>Minor amendments made to the wording of the clause.</p>	<p>Minor amendment.</p>
	<p>New standards prescribed as: Schedule 1 – Bench marks</p> <p>Schedule 1 provides standards for the form and style of bench marks.</p>	<p>Defines the form and style of bench marks to be used for stratum surveys to enable testing in the electronic environment.</p>
<p>Sch 1 – Forms</p> <p>Form 1 – Survey Certificate</p>	<p>Renumbered as: Sch 6 – Forms Form 1 – Survey certificate – updated to allow survey certificate to be given where all or part of a plan has been compiled.</p>	<p>The amended certificate will reflect the manner in which the plan was prepared.</p>



6. IMPACT ASSESSMENT OF THE PROPOSED REGULATION

This part of the regulatory impact statement;

- Discusses the provisions of the proposed Regulation;
- Weighs up the costs and benefits of the proposed changes to the Regulation on the surveying industry, land owners, government and the general community.

6.1 Impact of individual clauses of the proposed Regulation

6.1.1 Part 1 Preliminary

Objective of Part

Includes machinery provisions and enables the Surveyor General, by order, to make directions relating to the conduct of mining surveys.

Overview of provisions

Clause 4 enables the Surveyor General, by order, to make directions relating to the conduct of mining surveys.

Clause 5 defines a number of terms used throughout the Regulation.

Proposed amendments

Clause 4 has been updated to refer to the Surveyor General's current directions for mining surveyors.

The proposed Regulation includes a number of new definitions in clause 5 including:

Bench Marks – The types of survey marks that can be used as a bench mark are to be defined by the Regulation, necessitating a definition.

Compiled and Compiled plan – The Regulation makes reference to “compiled plans” in Clause 26 and in Form 1 in Sch 6 (Survey certificate), necessitating a definition.

SCIMS – The Regulation makes reference to information relating to survey marks being recorded in SCIMS, rather than the register of public surveys.

Surveyor-General's directions – defined to be the directions of the Surveyor General published on the LPI website.

Road - The amendment reduces the current requirements for marking roads by limiting the other forms of access that fall within the definition of a road.

Established survey mark - as records relating to survey marks are held by the Surveyor General in SCIMS, the amendment provides a more accurate definition.

Assessment of costs and benefits of proposed amendment

The amendments to the definitions have been made for clarity and to reflect existing terminology (i.e. inclusion of a definition for SCIMS). The amendments do not give rise to any costs.



6.1.2 Part 2 Survey Practice

Division 1 General duties of surveyor

Objective of Part

To ensure:

- that all surveys are carried out to a consistent and reliable standard appropriate for the nature of the survey being undertaken;
- that boundaries are not only located on the ground but are connected to the State control network; and
- the proper co-ordination of surveys by requiring that surveyors comply with requisitions from the Surveyor-General and the Registrar-General.

Overview of provisions

A key objective of the Act, as stated in clause 2A(c) is to provide for the maintenance of the State cadastre and to ensure its integrity. To achieve this, clause 6 of the Regulation sets out the general principles of a survey. When undertaking a survey a surveyor must not only locate boundaries on the ground but must connect those boundaries to the State control survey (cl 7). The boundaries that are determined must be checked for accuracy and the details recorded on the ground in the form of survey marks, in field notes and, where necessary, on a survey plan. This allows the survey to be re-established in the future.

The Regulation allows a lesser standard for certain classes of survey not requiring the same degree of accuracy.

Proposed amendments

Clause 6(d) has been added to require that when carrying out a survey the surveyor must ensure the MGA co-ordinates and AHD values derived for the survey are correct.

Clause 6(g) requires that where a survey plan is to be prepared it must also be certified.

Assessment of costs and benefits of proposed amendments

Adherence to a reliable set of standards for survey control provides significant cost savings, ensuring that plans for adjoining parcels can be easily compared and assessed for compatibility. The amendments to clause 9 reflect current practice. A surveyor's role is not only to locate boundaries on the ground but to ensure boundaries are connected to the State control survey. There are no additional costs associated with these proposed amendments.

6.1.3 Division 2 Adoption of datum lines and bench marks

Objective of Part

To ensure that the datum line and bench mark from which a survey is based is:

- reliable; and
- traceable.



Overview of provisions

Establishing a datum line and bench mark is paramount to the reliability of the survey. To maintain a reliable survey control network boundaries must not only be accurately measured but must be related to established points in the existing survey control network. To achieve this, the datum line and bench mark must be based on the most reliable, up-to-date information available.

Clauses 12 and 13 set minimum standards for locating and recording the datum line and bench marks adopted for a survey.

Proposed amendments

Clause 12(2)(c) provides that in the case of a rural survey that is not within 1000 metres of two established survey marks, the bearing used to orient a survey can be taken from 2 surveys that have a horizontal position equal to or better than Class D.

Clause 12 currently requires that marks used to orient a survey must be of an acceptable Class. New sub-clause 12(3) will require that these marks also have an acceptable status. An acceptable mark status is defined to be one that is noted in SCIMS as being OK (assumed satisfactory), N (Not found) or F (Found intact).

Clause 12(5) has been updated to require that the MGA co-ordinates used to determine the orientation of a survey must be obtained from SCIMS, rather than the register of public surveys as previously required.

Clause 13(6) has been added to require that where a bench mark is used to establish height in a survey, its location must be determined. To ensure that the requirement to locate the bench mark is not too onerous, the location is to be determined by a survey technique equal to or better than that derived by hand held GNSS.

Assessment of costs and benefits of proposed amendments

Without rules for adoption of a datum line and bench mark it would not be possible to establish or maintain a co-ordinated survey network. The amendment to clause 12(2) ensures that surveys are carried out to a standard fit for the purpose, with a lesser standard allowable in rural areas. This amendment is a cost saving.

Requiring the position of bench marks to be determined will assist future users to locate the marks. Since the location can be determined by GNSS, the new requirement is easily achievable with modern technology.

6.1.4 Division 3 Measurement and calculations

Object of Part

To ensure that surveys can be compared by requiring that;

- equipment used to measure and calculate boundaries is appropriate for the purpose and accurate;
- measurements are made in a standardised manner;
- measurements and calculations made are checked for accuracy according to standard minimum requirements.



Overview of provisions

Division 3 specifies a minimum outcome that is required for all surveys. The Regulations do not tell a surveyor how to do a survey, instead they specify a minimum outcome that is to be obtained. A surveyor can perform a survey using a variety of methods and equipment. Clause 14 requires that whatever equipment is used it must be appropriate and its accuracy must have been determined according to specified standards. Clause 22 allows GNSS equipment to be used but when it is, the surveyor must use an approved technique that provides sufficient accuracy. Clauses 23-26 – require a surveyor to check the accuracy of measurements to minimum standards.

Proposed amendments

Clause 18(5) has been added to require that where a plan has been prepared for the purpose of creating an affecting interest, such as an easement, the area of the site of the affecting interest must be shown on the survey plan for each lot, or group of lots, held in separate ownership. The area need not be shown where the affecting interest comprises a physical feature or structure only.

Clause 19(2)(b) has been added to require that on a re-survey of land the surveyor must disclose on the survey plan the position of any existing road formation and fencing.

The 2006 Regulation required, at clause 24(2), that the angular misclose must not exceed 20 seconds plus $10\sqrt{n}$ seconds or 2 minutes (whichever is the lesser). The proposed Regulation tightens the allowable accuracy and now requires that the angular misclose must not exceed 10 seconds plus $10\sqrt{n}$ seconds or 2 minutes (whichever is the lesser).

The level of accuracy required for length measurements has also been amended. Clause 25(2) now provides that in making a survey, a surveyor must measure all lengths to an accuracy of 10mm + 15 parts per million or better at a confidence interval of 95%, whereas the confidence interval required by the 2006 Regulation was 67%. This amendment maintains the integrity of the cadastre over short distances. It ensures that appropriate survey equipment and survey techniques are used, according to the nature of the survey.

Clause 26(2) has been amended to require that the closure of any survey and of each parcel of land surveyed must be within the allowable tolerance. This will ensure that more survey information is included on a survey plan, allowing for seamless integration with the electronic environment.

Clause 26 currently requires a surveyor to check surveyed measurements by closure, to ensure their accuracy. There is no requirement for the dimensions of a compiled lot to be checked for accuracy. Clause 26 has been amended to require that where complete dimensions of any compiled or partially compiled parcel are shown in the survey plan, the surveyor must check the dimensions by closure. (Clause 64(1)(h) has also been amended to require a survey plan to show the complete dimensions (including bearings and distances), if available, of each compiled or partially compiled parcel included in the plan). The length of the misclose vector obtained by calculating the closure must not exceed the amount specified in the table included in the clause, having regard to the age of the survey plan from which the dimensions were obtained and the nature of the terrain.



Assessment of costs and benefits of proposed amendments

The requirement to note additional information with regards to easements will not impose any significant cost as the information would have been obtained during the course of the survey. Having the information on the public record will be of benefit for the affected parties.

The expected new levels of accuracy reflect current technologies that are readily available. The accuracy required ensures reliable surveys and is easily achievable using available equipment.

Requiring dimensions for compiled parcels to be included on the survey plan puts more information on the public record and will enable plans to be examined within an electronic framework. Compiled parcels are only required to be checked by closure where complete dimensions are available, thereby ensuring that the cost of compliance is kept to a minimum.

6.1.5 Division 4 Use of survey marks and monuments

Subdivision 1 Surveys generally

Objective of Part

To provide consistent forms, styles and methods of marking surveys so there is:

- uniform understanding of how to recognise various types of marks;
- consistent and durable marking;
- reliable way of relocating boundaries;
- confidence for land owners in being able to identify their boundaries.

Overview of provisions

Subdivision 1 of Division 4 prescribes a standard form and style for survey marks. Standardisation is important as it enables a surveyor to locate marks placed by other surveyors, maybe many years earlier, and to identify the nature of the marks placed.

As well as prescribing forms and styles of marks the Regulation prescribes where and how boundaries are to be marked. This is fundamental to the land development process and enables developers to construct buildings and infrastructure with confidence that works placed are within the boundaries of the land.

Proposed amendments

For clarity, the previous clauses 28, 29, 30 and 36 have been amalgamated and re-grouped to ensure that related provisions are placed together. The new clause 28 deals with boundary marks and incorporates provisions previously contained in clauses 29, 30 & 36. A new requirement has been added as clause 28(4) requiring that where a water boundary is liable to erosion the boundary mark must be placed on the side boundary a safe distance back from the MHWM or bank. The distance from the MHWM or bank must be calculated and noted on the survey plan.

An amendment has been made to clause 29, in relation to the marking of urban surveys, to provide that the requirement to place reference marks for a survey that abuts a road does not apply where the road is used as a means of pedestrian access only.



A number of new provisions have been added to clause 30 in relation to the marking of rural surveys. Clause 30(4) requires that additional reference marks are to be placed where a boundary exceeds 2,400m. For the purpose of determining whether a boundary exceeds 2400m, the boundary need not be a straight line but may include a bend or bends.

Clause 30(6) has been added to require that where a boundary to be marked is a road frontage, reference marks are to be placed:-

- at each road intersection; and
- at each extremity of the land surveyed; and
- near each stream bank and side boundary intersection if a stream frontage is greater than 500 metres.

A new provision has been added as clause 30(7) requiring that, in a rural survey, the survey plan must show:

- the width of all roads that abut the land surveyed; and
- connections across the abutting roads at locations where survey marks are available.

Clause 31(3)(a) has been amended to require that where a road intersection is cut off or rounded off a reference mark is to be placed at either end of the tangent point or base line of the triangle. This will allow only one reference mark to be placed at an intersection rather than two.

Clause 35(1)(b) has been amended to require that the MGA co-ordinates of permanent survey marks and bench marks placed and found must be noted on the survey plan, together with an indication of the survey method used to determine the co-ordinates, and an estimate of their accuracy. The co-ordinates of any permanent survey mark or bench mark must be determined by a survey technique equal to or better than that derived by using hand held GNSS.

A new requirement has been added as clause 35(1)(e) to provide that if the survey is to limit the height or depth, then the AHD values of any permanent survey mark or bench mark placed by the surveyor must be noted, together with an estimate of the accuracy of the AHD values.

Assessment of costs and benefits of proposed amendments

The proposed amendments impose some additional costs in the marking of creek boundaries and long rural boundaries but, having regard to the size of the surveys affected by this new requirement, any additional cost will be minimal. The requirements for additional marking ensure permanent and durable marks are placed at the time of survey, providing benefits for current and future landowners with minimal additional cost. The proposed amendments to the requirements for marking will avoid confusion and enable boundaries to be more easily discernible.

6.1.6 Subdivision 2 Surveys to be lodged with public authorities

Objective of Part

To ensure permanent survey marks are placed with new subdivisions of land so that:-

- new surveys are linked to the State Control Survey.
- the State Control Survey is maintained and developed as land use intensifies.



Overview of provisions

Where a survey plan is to be put on public record and lodged with a public authority clause 41, 42 and 43 require the placement of a minimum number of permanent survey marks, depending on the number of parcels re-defined or created by the plan. The clauses detail how the permanent survey marks are to be connected to the survey and impose certain requirements as to where permanent survey marks must be placed. Permanent survey marks are uniquely numbered and managed through SCIMS under direction from the Surveyor General. This co-ordinated reference system provides a valuable asset that forms the basis for all spatially related information.

Proposed amendments

In the 2006 Regulation the clauses within this Part were numbered 41-44. They have been renumbered 40-43.

Clause 41(3) has been amended. The requirement to relate a survey redefining a frontage of a road to two permanent survey marks applies only to a formed road. The provisions dealing with the placement of marks for affecting interests of 200 metres or less have been amended.

Clauses 41(4) and (5) now require that a survey creating an affecting interest that exceeds 200m must be connected to at least 2 permanent survey marks. An affecting interest of 200 metres or less must connect to two marks only if there are two permanent survey marks within 300 metres of the affecting interest.

Clause 42(1) has been amended to require that the permanent survey marks that are required to be connected to a survey must be connected to separate corners by direct lines.

The wording of clause 42(3) has been amended to clarify that the connection between a permanent survey marks and the land surveyed must be checked. Clause 43(1)(b) has been added to require that permanent marks must be placed in a position that will ensure it is unlikely to be disturbed.

An amendment has been made to the requirement for accurate AHD values for all permanent survey marks where at least two other marks have accurate AHD values. The requirement now only applies to urban surveys.

Assessment of costs and benefits of proposed amendments

The amendments to clause 42, requiring permanent survey marks to be connected by direct lines to separate corners, is made for clarification and reflects best surveying practice to ensure a more reliable survey.

The majority of the other amendments made to the Part save rather than impose additional costs. Restricting the requirement for permanent marks along a road frontage only to formed roads will prevent unnecessary marks being placed. The requirement to place marks for small easement has been removed. Instead the survey will be required to connect to permanent marks, if they are available, to ensure that the cost of complying with the Regulation is comparable to the nature of the survey involved.



6.1.7 Division 5 Boundaries formed by tidal & non-tidal waters and other natural features

Objective of Part

To address the need for accurate and reliable boundary definition for water boundaries and boundaries formed by other natural features, given that these boundaries are:-

- an interface between private and public (crown) land;
- continually changing;
- intensively and actively used; and
- have multiple uses and different users.

Overview of provisions

Generally, the bed of a tidal stream and land below the MHWL is Crown Land.

Boundaries formed by tidal & non-tidal waters and other natural features affected by natural events such as flood and erosion. Whether or not a parcel boundary is changed by a natural event will depend upon the common doctrine of accretion and erosion and statutory requirements such as s.55N of the *Coastal Protection Act 1979* that has modified the common law doctrine.

As the bed of a tidal stream and land below the MHWL is generally Crown land there is a community need for accuracy with regard to these boundaries. This Division imposes specific requirements for marking natural boundaries to ensure that they can be re-established over time despite the physical changes that may have occurred. Changes in tidal boundary are required to be approved by the Minister administering the *Crown Lands Act 1989*.

Proposed amendments

A new provision has been added, as clause 46, requiring that any survey for the subdivision of land adjoining an existing MHWL boundary or bank that has not previously been defined by survey must be defined with sufficient accuracy to enable the boundary to be re-established despite any natural changes that may occur. Approval to the definition is to be obtained from the Minister administering the *Crown Land Act 1989*.

Clause 45 (previously clause 47) has been amended in subclause (2) to require the position of any existing road formation or fencing to be shown in any survey for the redefinition or subdivision of land adjoining an existing Crown reserve or Crown road fronting a lake, stream or natural feature.

In view of s.55N of the *Coastal Protection Act 1979*, clause 48 has been amended to clarify that the changed position of an accreted boundary can only be shown if s.55N can be satisfied. If not, the position of the boundary as it was before the change must be adopted.

Assessment of costs and benefits of proposed clauses

The proposed amendments to Division 5 do not require any additional survey work to be carried out during the survey of any natural feature boundary. The amendments formalise the approval requirements, but do not impose any obligation to obtain approvals not already required.



6.1.8 Division 6 Field notes

Objective of Part

To ensure that the surveyor keeps and maintains field notes so that:-

- an accurate record of the survey is retained; and
- boundaries are traceable.

Overview of provisions

A survey plan is only a representation of the cadastral survey work undertaken. Field notes show how the survey work was done and are the true record of the survey. The Division ensures that field notes are made and retained in accordance with minimum standards.

Proposed amendments

No amendments made.

6.1.9 Division 7 Survey plans

Objective of Part

Prescribes key elements that must be included on a survey plan and provides a standardised method of recording the information so that the plan:-

- provides an appropriate summary of observations made in the field
- can be readily and easily interpreted by subsequent uses,
- can be examined against set standards prior to registration.

Overview of provisions

Division 7 prescribes minimum standards for the preparation of survey plans and identifies key elements that must be contained in the plan. A survey plan must be produced in a structured way so that it can be read and understood by a variety of users, not just the surveyor who prepared it. A survey plan contains a large amount of information, which needs to be presented in a concise uncluttered manner. To ensure this outcome can be achieved the Regulation prescribes standardised methods for showing boundaries and identifies conventional signs and symbols that are to be used when preparing a survey plan.

Proposed amendments

Clause 60(c) has been added to require that the survey plan must include the complete street address of all parcels (if available), in a format required by the Surveyor General's directions.

Where a survey plan includes a compiled or partially compiled lot, it must indicate whether the terrain is level/undulating or steep/mountainous (cl 60(d)). This provision relates to the new requirement in clause 26(3) for compiled lots to be checked by closure, where dimensions are available.

A new sub-clause has been added to clause 62 requiring that the level of accuracy of each bench mark must be stated on the survey plan. An anomaly within the clause has also been corrected. Clause 62 now requires that the survey plan state the accuracy of the height of all permanent marks used as bench marks, as determined by the surveyor rather than as described in SCIMS.



A new requirement has been added to clause 64 providing that the survey must show sufficient information to connect all survey marks (other than bench marks) shown on the plan, by bearing and distance (cl 64(1)(a)).

The current Regulation requires that the survey plan must describe any substantial structures within one metre of the boundary of the land surveyed. The proposed Regulation amends this provision to require the survey plan to show the description and location of substantial structures within one metre of the boundary (cl 64(1)(e)). Further, where no substantial structures are required to be shown the survey plan must include a notation that there are no such structures or that the boundary is unfenced. (cl 64(1)(f)).

Clause 65 deals with the method of showing natural feature boundaries. The proposed Regulation requires that to show a natural feature boundary the survey plan must indicate the boundary by an irregular line that generally follows the position of the boundary (cl 65 (b)). In addition, the boundary must be shown by a series of straight lines, by bearings and distances, that accurately describe and locate each change in direction of the natural feature (cl 65(c)). Where more than 10 straight lines have been used to define the natural feature boundary a connection between the terminals of the natural feature must be shown (cl 65(d)).

Clause 69 currently requires the surveyor to disclose any doubts or discrepancies that arise during the process of undertaking a survey. What is a discrepancy is left to the discretion of the surveyor, which can lead to considerable differences of approach. Clause 69 has been amended to require that a surveyor must disclose discrepancies in excess of 40mm and 200ppm.

The current Regulation requires that a survey plan must be endorsed with or accompanied by a survey certificate. There is some confusion as to whether a survey certificate is required for a compiled plan and, if so, whether the certificate can be amended to indicate the parts of the plan based on survey and the parts based on compiled information. Clause 70 has been amended to specify that a survey certificate is required with a survey plan, a compiled plan and a plan relating to land partly surveyed and partly compiled. The Form of survey certificate, set out in Sch 6, has also been amended accordingly.

Assessment of costs and benefits of proposed amendments

One of the most significant amendments in this part is the proposal to require street addresses to be shown on a survey plan. The amendment will assist the process of co-ordinating street addressing and will be of benefit to land owners by linking street addresses to the new lot fabric created by a subdivision. It is acknowledged that the street address may not always be determined at the time the survey plan is prepared. To prevent unreasonable cost and delay to a land owner subdividing property the Regulation requires the street address to be provided only where available, thus minimising the cost of compliance.

Most of the other amendments require additional information to be shown on the survey plan. This information would have been obtained as part of the field work when the survey was undertaken. Requiring it to be included on the plan makes it available to assist preparation of future surveys in the vicinity of the surveyed parcel, providing ongoing cost savings for the community with little additional cost at the time of the plan preparation.



The proposed Regulation further standardises the method of showing boundaries, particularly water boundaries. These requirements will not impose additional costs but will be of general benefit in making plans more consistent and easier to interpret, reducing ambiguity in the use of terminology that could otherwise develop over time. Further standardization will enable plans to be lodged electronically and to be examined automatically.

6.1.10 Division 8 Public surveys

Objective of Part

To ensure that all plans prepared by government agencies are carried out in accordance with a high level of accuracy to enhance the quality of the cadastre throughout NSW.

Overview of provisions

Surveys are regularly prepared by government agencies during the course of development of railways, roads and other public infrastructure. The *Surveying and Spatial Information Act 2002* requires all public surveys to be carried out by reference to the same datum, being the Geocentric Datum of Australia. The Regulations impose a high standard for public surveys to ensure that the survey work involved in public works also provides an ongoing benefit to the community.

Proposed amendments

Clause 71 currently requires public surveys to be carried out in accordance with the Standards and Practices for Control Surveys published by the Inter-Governmental Committee on Surveying and Mapping. The Standards are currently under review by the ICSM. Clause 71 has been amended to require compliance with version 1.7 of the Standards, with the Surveyor General able to approve compliance with a later Version, if they are suitable for the purpose required.

Assessment of costs and benefits of proposed amendments

The amendment updates reference to the current ICSM Standards and does not impose any additional burden on the preparation of public surveys.

6.1.11 Part 3 Administration

Objective of Part

To prescribe the procedural matters needed to support the Board of Surveying and Spatial Information in the exercise of its functions to ensure:

- efficient operation of Committees;
- appropriate qualifications for surveyors;
- ongoing professional development of surveyors; and
- appropriate procedures for dealing with complaints against surveyors.

Overview of provisions

To ensure that the profession is represented on the Board clause 73 prescribes the professional associations able to nominate a person for appointment to the Board on behalf of mining surveyors and land surveyors. Clause 74 details the meeting procedures for Committees established to assist in the exercise of the Board's functions and clause 75 identifies the matters in respect of which the Board can make resolutions. Procedural matters dealing with the Registration of surveyors are dealt with in Division 3.



Proposed amendments

A minor drafting amendment has been made to clause 75. Otherwise, no material amendments have been made to Part 3.

Assessment of costs and benefits of proposed amendments

The minor drafting amendment does not give rise to any costs.

7 CONSULTATION

During 2010 - 2012 presentations were made to various surveying groups within New South Wales to determine if practicing surveyors had issues or problems with the current Regulation. The presentations were made to the following groups:

- ACT Division of ISA,
- Association of Public Authority Surveyors (APAS),
- Central Western Group of ISNSW,
- Country Surveyors Association,
- Cumberland Group of ISNSW,
- Hunter Manning Group of ISNSW,
- Murray Group
- Association of Consulting Surveyors NSW (ACS NSW)
- Government Surveyors
- North Coast Group of ISNSW,
- South Coast Group of ISNSW,
- Sydney Group of ISNSW
- Survey Mapping & Managers Forum (SMMF)

During the consultation process and presentations to the various surveyor groups a questionnaire was circulated to each group to determine the issues and/or problems encountered by practicing surveyors. The same questionnaire was used for each group to get a consistent summary of issues and problems from each group. Three hundred and fifty six (356) completed questionnaires were returned.

The draft regulation prepared by the Parliamentary Counsel's Office will be circulated to industry groups and government agencies/sectors. The following organisations will be referenced for comment.

- Board of Surveying and Spatial Information
- Institution of Surveyors New South Wales Incorporated
- Inter-Governmental Committee on Surveying and Mapping (ICSM)
- Surveyor General of Victoria
- Surveyor General of South Australia
- Surveyor General of the ACT
- Director of Surveys Queensland
- Surveying and Mapping Industry Council
- Roads and Maritime Services
- University of Newcastle
- University of NSW



Australian Institute of Mine Surveyors Limited (AIMS)
Survey and Mapping Managers Forum
Association of Consulting Surveyors New South Wales Incorporated.
Association of Public Authority Surveyors (APAS)

Submissions will be taken until Wednesday 1 August 2012.