



New South Wales Government

Surveyor General's Directions

No. 7

Surveying Regulation Applications





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1. Introduction

This direction has been modelled on the Surveying Regulation 2001. Each clause is dealt with only if it is considered additional advice or direction is required to clarify the wording of the regulation itself, or its application by the Surveyor General on the advice of the Board of Surveying and Spatial Information. Issues are dealt with in ascending clause order as they appear in the Surveying Regulation 2001.

This direction is to be used in conjunction with other Surveyor General's Directions.

2. Interpretation

Clause 4 Definitions

To assist the interpretation and application of the Surveying Regulation 2001 the following additional explanations are given:

- "Accurate Height" An accurate height for the purpose of Clause 33 and 46 is a permanent mark with AHD values in SCIMS with a Vertical Class of L2A, LA, LB, LC, LD, A or B (see Appendix B, Direction No 4 - Using SCIMS) or other heights as approved.
- "Accuracy" means closeness of a measurement to the 'true' value being the value related to the National Primary Standard.
- "Precision" is generally defined as the repeatability of readings as displayed by measuring equipment, or the internal consistency of a measuring procedure, and would usually be quantified in terms of the standard deviation or uncertainty of a set of observations.
- "Azimuth" An angle measured clockwise from True North.
- "Bench Mark" means a fixed point of durable nature which has a known elevation in relation to a datum.
- "Established Permanent Survey Mark" is "a permanent survey mark, the horizontal position of which is precisely determined as approved by the Surveyor General". For a permanent mark to have its position approved, it must be recorded in the Survey Control Information Management System (SCIMS), with a Horizontal Class of 3A, 2A, A, B or C (see Appendix B of Direction No 4 - Using SCIMS).
- Permanent marks with Horizontal Class of D, E or U are **NOT ESTABLISHED** and cannot be used to adopt MGA orientation.
- "Orientation" The alignment of directions related to a specified origin.

Clause 8 Surveyor to record survey marks



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Clause 8 requires the type of survey to be shown on the survey plan. The purpose of this is to assist the correct application of the Regulation in regard to urban (city and suburban) surveys or rural surveys. To help simplify the intent of this clause surveyors are asked to show "Urban" or "Rural" on the survey plan rather than research the zonings of the land according to the environmental planning instrument. Surveys of Land zoned "Rural Residential" for smaller rural homesites are classified as being "Urban Surveys"

Clause 9 Surveyor to record nature of boundaries

Clause 9(1)(c) was amended in October 1994 to emphasise the location of substantial structures near boundaries. Substantial structures in this context are fences, walls, buildings etc. Eaves and gutters are generally not considered to be substantial structures. However, if they encroach over a boundary, then the plan must be noted accordingly.

Clause 9(3) was amended in October 1994 to emphasise that walls must not be called "Party Walls" unless there are easements for support already existing, as referred to in the Conveyancing Act, 1919, or there is an intention to create such easements.

If there are no easements and there is no intention to create easements, then the wall must not be referred to as a "party wall". In this case it may be called centre of wall or face of wall etc as the case may be.

Clause 11 Notice of entry

The Surveying Regulation 2001, requires that a surveyor registered under the Surveying Act 2002 sign the "Notice of Entry" Form 2.

Form 2 should be used in conjunction with the identity cards issued by the Board of Surveying and Spatial Information. The identity card helps to prove the authenticity of the notification prior to entry on the subject land. When entering upon the land, occupants and property must be treated with the utmost respect. The surveyor must give at least 24 hours notice prior to entry and entry can only be effected during daylight hours.

Surveyors must give priority to the safety of all members of the field party and the public when entering land. This is particularly the case when entering the rail corridor and areas in the immediate vicinity of traffic. When entry to land that comprises the rail corridor, surveyors are instructed to obtain the written approval from the relevant rail authority and abide by their instructions and guidelines. (See Appendix B).

Clause 13 Surveyor to obtain information

This clause of the Regulation is fundamental to all surveys. The cause for most requisitions is the lack of a proper search being conducted before the survey is undertaken. The clause was amended slightly in October 1994 to emphasise the need to obtain all available information that is held on public record, ie held in government departments or public authorities. Surveyors are instructed to obtain all information that is necessary to locate and relocate boundaries of land to be surveyed.

As is current practice, other sources pertinent to the survey such as existing field books, should also be obtained if necessary.

Prior to every survey, a search must be undertaken to obtain the latest survey information. This includes the cadastral search at the Land Titles Office (LTO) and the Survey Control search from the Survey Control Information Management System (SCIMS), (see Direction No. 4 for a full description).



Clause 14 Equipment for measurement of surveys

The approved procedure for verification is given in Surveyor General's Direction No. 5 "Verification of Distance Measuring Equipment" and Direction No. 9 "Global Positioning System (GPS) Surveys."

Clause 16 Measurement by remote-sensing methods

If any other methods are proposed to be used, written approval of the Surveyor General is required. Applications must be supported by full documentation outlining the method and procedures to be used and forwarded to the Cadastral Management Unit (see Appendix C).

Clause 19 Re-survey of property boundaries

This clause is designed to support the hierarchy of evidence as follows.

1. natural features
2. original crown marking of grant boundaries
3. monuments
4. original undisturbed marking of private surveys
5. occupations
6. measurements.

The relative importance of each matter is subject to other evidence to the contrary.

It is a principal of law that a transfer or conveyance is construed more strongly against the grantor.

A thorough review of the hierarchy of evidence is outlined in "Legal Aspects of Boundary Surveying as Apply in NSW" by Hallman and "Some Aspects of Title Boundary Location in NSW" by K E Hamer.

For the purposes of clause 19(2), the report to the Surveyor General should be sent to the Cadastral Management Unit (see Appendix C).

When the error is proven, the original crown plan will be amended and the amended plan will be refilmed and scanned in order to convey the latest information on the public record.

No charge will be incurred for amending Crown Plans.

Clause 24/25 Surveyor to check angular work and Calculation of complete angular close

All angular work must be checked on large surveys and where practical on small surveys. The method used for checking may be as follows:

- 1) complete angular close, or
- 2) comparison with the State Control Survey, or
- 3) astronomical observations.

It is at the surveyors discretion to determine the most appropriate method to check angular work.

Clause 26 Checking and accuracy of all measurements

The accuracy classifications were reduced from four categories to two in October 1994. The limit for the misclose vector of any survey covering various terrains is as follows:



- a) 15mm + 100 ppm of the perimeter for level or undulating country
- b) 15mm + 150 ppm of the perimeter for steep or mountainous country.

For a survey with a perimeter of 850m covering level and undulating country, the misclose vector must not exceed (15mm + 85mm), ie 100mm.

Similarly, a survey with a perimeter of 850m covering steep or mountainous country, the misclose vector must not exceed (15mm + 127.5mm), ie 142.5mm.

Clause 27 Accuracy of length measurements

The confidence with which a length is measured is dependent upon the verification of measuring equipment, correct field procedure and well maintained equipment.

All surveyed lines (eg boundary lines) must attain an accuracy of 6mm + 30 ppm. For example, a boundary line 100m in length should be measured within a range of $\pm(6\text{mm} + 3\text{mm}) = \pm 9\text{mm}$ of the true value.

Clause 28 Identification or re-marking surveys

All remarking and identification surveys must use appropriate equipment and field techniques so that boundaries are accurately measured (Clause 27) and redefined.

Clause 29 Surveys not requiring strict accuracy

To enable the regulation flexibility to cater for new technology (specifically GPS), clause 29 was amended in September 1996. If a survey of land results on a plan being lodged on public record, the Surveyor General has the flexibility of setting standards that are more appropriate to the survey technique used and the land use involved.

The class of surveys for which the Surveyor General has approved directions under Clause 29(5)(a) are specified in Appendix D.

Clause 30 Procedure for adopting datum line

If it's not on MGA, why not?

Established permanent marks which are used to adopt MGA orientation must have coordinates with a Horizontal Class of 3A, 2A, A, B or C. Permanent marks with Horizontal Class of D, E or U cannot be used to adopt MGA orientation. However, if unestablished permanent marks are in the immediate vicinity of the subject survey, it is desirable to connect by closed survey and show the measurements on the survey plan.

The third permanent mark used to verify the orientation does not have to be within 300m for a Urban survey or 1000m for a Rural survey. Often, distant trigonometrical stations are available to verify the orientation.

If the verifying connections reveal differences in excess of 20mm + 100ppm between any of the three established permanent marks connected, then the surveyor has two options as shown in Clause 30(4)(a) or (b):



- a) The surveyor must connect to an additional established permanent mark. The observed measurements must be proved by closed survey and shown on the plan of survey. The adopted permanent marks must also be clearly indicated on the plan, or;
- b) Forward a report of the survey to the Surveyor General.

In this case the report should be forwarded to the Manager, Survey Services, Sydney (see Appendix C). The report must clearly state the mark details, the size of the difference and an explanation for the difference.

When a report is forwarded, the surveyor must note the plan with "SG REPORT" after the Surveyors' Reference.

All surveys **MUST** have MGA orientation if the survey is within 300m of 2 established permanent marks for a urban survey, or 1000m of two established permanent marks for a rural survey.

Surveyors may go beyond the 300 and 1000 metre limit in order to connect their survey to MGA to maximise the benefits to the cadastre, and to all other users of the survey information. **It should be noted that marks connected beyond 300m or 1000m do not count towards the number of permanent marks to be connected in accordance with Clause 33(4-3).**

Exemption Policy - Clause 30

Exemptions are only be given for the **field component** required for each survey. It is assumed that if the field component has been performed, then office calculations and procedures should reflect the field component.

Exemptions from the provisions of Clause 30 will not be given unless it can be proven that:

- 1) Policy 3 criteria apply, or
- 2) connection to a third established permanent mark is not possible, or
- 3) exceptional circumstances exist.

POLICY 3:

The survey must be of a minor nature (eg dual occupancy or boundary adjustments). The dominant Deposited Plan (DP) must be on MGA orientation derived from the connection from established permanent marks.

If the previous two points apply, it is sufficient to connect to at least 3 suitably located unestablished permanent marks, connected in the dominant DP, and adopt the bearing as shown on the dominant DP.

In order to streamline procedures for exemptions under this policy, surveyors need not apply for an exemption number. The notation "POLICY 3" should be placed after the Surveyor's Reference.

If the examining officer considers that the survey does not comply to "Policy 3" guidelines, then a requisition will be forwarded to the surveyor seeking connection from established permanent marks.

Policy 3 guidelines

1. The dominant DP must have direct connections from at least 3 established permanent



marks.

2. The subject survey is an interpolation of the existing cadastre within the dominant DP.

Exemptions from Clause 30(3) of the Surveying Regulation 2001 with regard to **verification to a third established mark** are granted to allow for destroyed or disturbed permanent marks within the network. If a mark is found destroyed or disturbed, written notification must be sent to the Surveyor General if the Survey Control Information Management System (SCIMS) does not record the mark with the appropriate notation. Clause 4I of the Surveying Regulation states that a registered surveyor must notify the Surveyor General as soon as practicable after they place a permanent mark or become aware that a permanent mark has been removed, damaged, destroyed, displaced, obliterated or defaced. Compliance with clause is a condition of registration as a surveyor.

Surveyors requiring exemptions for **verification to a third mark** or **exceptional circumstances** should apply to the Cadastral Management Unit, Bathurst, giving details of the required exemption (see Appendix A).

Clause 33 Connection of surveys and marks

This clause refers to the connection of surveys to the State Survey Control Network.

The existing network should be used where ever it is available, and if not available provision made for future extension.

Most surveys must connect from or place and connect to at least 2 permanent marks unless an exemption is granted. In that case, if PM's are available within the distances specified, then connections must be made. If no PM's are available, then PM's need to be placed. Emphasis is placed on using existing established or unestablished marks in preference to placing more permanent marks.

Subdivisions of 2 lots or more including dual occupancies must connect or place and connect to 2 permanent marks. No exemptions will be granted.

Surveys to define "cut off corners" must connect from 2 permanent marks if they exist within the distance specified.

Clause 33(4) of the Regulation allows the substitution of a maximum of 2 existing permanent marks, where they are suitably located to the subject survey. To be suitably located to the survey, the permanent marks must be within 300 metres for a city survey or 1000 metres for a country survey.

Clause 33(5) of the Regulation states that surveys creating or redefining roads will be required to place at least 2 permanent marks for every road in the subdivision except for minor cul-de-sacs. Minor cul-de-sacs in this context are shorter than 100 metres in length. However if the control network design deems it prudent to place additional permanent marks in minor cul-de-sacs, then these should be placed to complement the final network.



Areas used for access within "neighbourhood and community developments" are treated the same as roads. Therefore permanent marks must be placed and/or connected in accordance with all the provisions of clause 33.

Clause 33 (6) of the Regulation requires all easement surveys to connect, or place and connect a minimum of 2 permanent marks

Clause 33 (7) of the Regulation states that all measurements **between permanent marks** must be proved by closed survey and shown on the survey plan. Any new permanent marks placed should have connections to at least two adjacent permanent marks and not be left unchecked at the end of a radiation.

The connections between permanent marks are required to be shown on the plan as direct connections expressed to the nearest millimetre and nearest second or half the least count of the instrument used.

No exemption will be granted from showing the complete information on the survey plan.

Clause 33(8) of the Regulation requires the propagation of AHD levels. This can be achieved by either spirit levelling or trigonometrical levelling. The specifications for Class B trigonometrical levelling are outlined in Surveyor General's Direction No.3, Part 2.

Urban surveys within or city and suburban surveys are required to propagate AHD values for all permanent marks placed if the 2 permanent marks used for MGA orientation have accurate AHD values.

There is no requirement to propagate the AHD values for permanent marks placed in country surveys. If the height can readily be propagated then it would be prudent to do so.

Clause 33(9) emphasises that permanent marks must be located in positions suitable for their inclusion in the State Control Survey. In order to achieve this, they must be placed at road junctions, intersections, angles or crests of hills as to be intervisible.

Clause 33(10) Once a mark is placed, the surveyor **must** forward the locality sketch plan to Survey Services, Sydney within 2 months after placement (see Appendix C). The locality sketch plan should comply to the approved standard (see Surveyor General's Direction No. 2). Lodgement of locality sketch plans is a condition of annual registration as a land surveyor. Therefore, surveyors should treat this requirement seriously.

Clause 33 If an exemption is required for any part of the Regulation an Exemption Request Form (see Appendix A) should be forwarded to the Cadastral Management Unit.

Clause 35 Urban surveys

The October 1994 amendments increased flexibility for marking surveys by allowing a reference mark to be used up to 30 metres from the point to which it refers. Generally speaking, each survey has a minimum of 2 extremities where it abuts a road, therefore the surveyor must place or connect reference marks at both of these extremities. Only where an existing reference mark is within 10 metres of the extremity of the land being surveyed, can the reference mark be re-referenced.

Clause 43 Requirements relating to reference marks

In addition to the reference marks shown under subclause 43, the following reference mark is



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approved by the Surveyor General in accordance with subclause 43(1)(h).

5) Non corrosive metal rivets used in the following manner:

- hole drilled with a 6mm drill bit (not a small star drill) to a depth of 10mm and rivet driven with hammer to point of refusal
- a wing not less than 10mm deep and 80mm long be directed to the drill hole and rivet
- the centre of the rivet head is to be the mark adopted (centre punch marks are not to be used)
- the plan must be noted "drill hole, rivet & wing". This will advise subsequent users that if the rivet is dislodged, the remaining mark will be a drill hole and wing.

If a surveyor requires any other type of reference mark to be approved, then an application to the Surveyor General showing the details of the proposed mark should be forwarded to the Cadastral Management Unit (see Appendix C).

Clause 46 Surveyor to record datum used for levelling

All height determinations are to be related to the Australian Height Datum. However, if a surveyor wishes to use another datum, approval for the use of such datum is required from the Surveyor General.

The application for this approval should be made to the Cadastral Management Unit using the Exemption Request Form (see Appendix A).

Clause 47 Bench marks for determining height or depth

For the purpose of Clause 47(4), the following marks are approved to be used as benchmarks:

- a) a triangle cut into a kerb or other substantial structure not less than 6mm deep with sides not less than 80mm long, or
- b) a reinforced concrete block in the form of a truncated pyramid 400mm long, 150mm square at the lower end and 100mm square at the upper end with a galvanised nail or other non-corrosive metal spike not less than 80mm long inserted in the block, or
- c) in rural areas only, a bench at least 100mm x 100mm cut in the base of a tree with a galvanised iron nail or non corrosive metal spike, not less than 80mm long, inserted vertically.
- d) a non corrosive metal plug with a minimum cross sectional area of 50mm² and no less than 80mm long securely fastened to a substantial structure.

If a surveyor requires any other type of bench mark to be approved, then an application to the Surveyor General showing the details of the proposed mark should be forwarded to the Cadastral Management Unit (see Appendix C).

Clause 55 Location and relocation of mean high-water mark boundary



Where the approval for the determination of Mean High Water Mark is required, applications should be made in accordance the Surveyor General's Direction No. 6 "Water as a Boundary - Procedures".

Clause 57 Determination of Landward boundary of reservation or crown road fronting a natural feature.

The landward boundary of the road or reservation along a watercourse or other natural feature must be located in the same position as that of the original grant. If there is erosion or accretion affecting the crown road or reservation, then the road or reservation either "wins" or "loses" depending on the circumstances. The landward boundary is held fixed from the time of the first grant.

The surveyor must represent the original position of the landward boundary by using right lines (ie straight lines). If the reserve or road of stipulated width fronts **tidal waters** (i.e Mean High Water Mark) then all angles forming the landward boundary must be marked in accordance with the Surveying Regulation. If the natural feature is a **non-tidal stream**, then the boundary must be described by right lines and reference marks placed at intervals of not more than 1000m. Boundary marks are not required for the landward boundary of reserves fronting non-tidal streams. See Clause 57(2)

The landward boundary of a crown road or reservation delineates the margin of land held by different interests and must be defined accordingly to show the limit of the affected titles.

Clause 57(3) requires the approval of the Minister administering the Crown Lands Act 1989 where a Crown Road or reservation has not been previously determined and approved in accordance with the provisions of previous Surveying Regulations. When making a submission for approval, a surveyor must supply the information as described in Section 5 of Surveyor General's Direction No. 6 "Water as a Boundary - Procedures".

Clause 60 Deferment of survey marks

The provision to defer the placement of reference marks for roads was introduced in Clause 37 of the amended Survey Practice Regulation on 1 October 1994. This was done to prevent survey marks being disturbed or destroyed by construction works. The remake of the Regulation in 1996 expanded those provisions to defer all types of survey marks.

Generally, only Reference and Permanent Marks will be deferred. It is an assumption that surveys are carried out for the purpose of identifying land prior to subdivision or sale. As a survey service to clients, it is expected that all land is clearly identified in the field. This will require the placement of boundary marking as a minimum. Generally there will be no deferral of boundary marks.

The process for obtaining approval to defer the placement of survey marks is divided into the following three stages:

1. Prior to Construction
2. After approval by the Surveyor General
3. After Construction.

In order to gain the approval to defer the placement of survey marks, the following pre-requisites



must be satisfied for each stage.

1. Prior to Construction

- A comprehensive network of survey marks must be in safe and protected locations throughout the development.
- Survey marks suitable to create the network are as follows:
 - 1) a permanent mark as defined in the Surveying Regulation, or
 - 2) a reinforced concrete block in the form of a truncated pyramid 400mm long, 150mm square at the lower and 100mm square at the upper end with a non corrosive metal plug not less than 80mm long inserted into the block, or
 - 3) a galvanised iron pipe not less than 600mm long and 20mm internal diameter of a rim not less than 3mm, or
 - 4) a galvanised iron pipe not less than 300mm long and 20mm internal diameter with a rim of not less than 3mm inserted vertically into concrete cast in situ with dimensions at least 400mm deep x 200mm wide, or
 - 5) a non corrosive spike or nail inserted vertically in concrete cast in situ with dimensions at least 400mm deep x 200mm wide, or
 - 6) an existing reference mark that has proven to be reliable and stable.
- The network must be sufficient so that survey marks are within 100m of all points of the development suitable for defining the new lots.
- The existing State Control Survey must be used where available.
- 2 copies of the plan are required, showing:
 1. all existing survey marks
 2. all survey marks creating the network. These marks should be identified on the plan by double circles. When PM's are used the 'PM' symbol should be used. Direct connections between these marks should be shown on the plan or in a schedule. The network must consist of closed connections to provide greater integrity.
 3. connections from the network of survey marks to the cadastre.
 4. corners to be related to the deferred survey marks. The corners should be identified by double circles and a unique letter or number.
 5. all proposed cadastral information and road details.
- The plan should be suitably prepared for lodgement at Land and Property Information NSW.



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The following statement must be included in either the "Statements" or "Signature and Seals" panels:

PLACEMENT OF REFERENCE/PERMANENT MARKS IN ... [name of road(s) and/or lots].... HAS BEEN DEFERRED IN ACCORDANCE WITH CLAUSE (60) OF THE SURVEYING REGULATION 2001. WHEN PLACED, THE NATURE AND POSITION OF THE REFERENCE/PERMANENT MARKS WILL BE SHOWN IN A SCHEDULE ON A SEPARATE SHEET ANNEXED TO THIS PLAN.

- Send 2 copies of the plan to the Surveyor General at the following address:

Cadastral Management Unit
Land, Property and Information NSW
PO Box 143
BATHURST NSW 2795

Phone: (02) 6332 8224
Fax No: (02) 6332 8230

- Payment of \$250 per survey mark as a security to ensure that **all** marks are placed within the stipulated time. When the survey marks are placed 85% of the security is refunded (cheques should be payable to the Land and Property Information NSW).
- The Surveyor General will approve, conditionally approve or reject the application. Any conditions are to be satisfied prior to final approval.
- When the plan is approved by the Surveyor General, it will be endorsed with a deferred mark number, and a copy of the plan returned.

2. After Approval by the Surveyor General

- Lodge the plan of survey at Land and Property Information NSW, quoting the deferred mark number with the Surveyor's Reference.
- An additional fee of \$200 is charged at lodgement by the Land and Property Information NSW.

3. After Construction

- The deferred reference marks **must** be placed within:
 - 1) 28 days of the completion of the construction (as specified in SPR Clause 60(5)(b)), or
 - 2) 6 months from the time the original survey was completed (as specified in SPR Clause 60(5)(a)).

The survey completion date is the date noted on the registered Deposited Plan by the



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surveyor.

- Permanent marks, particularly SSM's, can be used as reference marks to supplement the network.
- The total number of permanent marks placed and/or connected must satisfy Clause 33 of the Surveying Regulation.
- All the deferred reference/permanent marks placed are to be shown in a schedule on Plan Form No. 3. This plan will be annexed to the original Deposited Plan at Land and Property Information NSW
- The surveyor must forward a copy of the final registered plan to the Surveyor General together with a "Placement of Deferred Reference Marks" statement certifying that all deferred marks have been placed.
- Upon completion of all requirements to place the deferred survey marks, the Surveyor General will return 85% of the original security deposited. **No payment will be released for partial completion of the survey.**
- If advice of the completion of the survey is not received within 7 months of the date of completion of the survey, the Surveyor General may arrange placement of the deferred reference marks and the security will be retained.

If you have any questions regarding these guidelines, please contact the Cadastral Management Unit.



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DEFERMENT OF SURVEY MARKS - APPLICATION

I wish to apply for the deferment of _____ survey (including reference/permanent) marks under Clause 60 of the Surveying Regulation.

Attached is the security deposit of \$ _____ (\$250/survey mark) (minimum \$750).

I understand the Surveyor General will hold the security for a period until the deferred marks have been placed and when the marks are satisfactorily placed, 85% of the original security will be returned. No payment will be released for partial completion of the survey.

Final approval will not be given until the security has been received by the Surveyor General. Details of my application are as follows:

Surveyor's Name / Organisation:.....

Address:.....

Phone/Fax No:

Surveyor's Reference:.....

Lot:.....

DP:.....

LGA:.....

Locality:.....

Development Name/Stage:.....

Name of Road/Roads:.....

Signature _____ Date ____ / ____ / ____

Office Use Only: Deferred Mark Number: DM ____ / ____

Received From: _____

Receipt Number: _____ Amount: _____

Date Received: _____

DM Approval: _____ Date: ____ / ____ / ____



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PLACEMENT OF DEFERRED SURVEY MARKS

I, (Surveyor Registered under
(insert name) the Surveying Act 2002)

of
.....
(organisation/address)

hereby certify that the deferred survey marks under Clause 60 have been placed in accordance with the Surveying Regulation, and the conditions of Approval Number DM_____/_____.

Details as follows:

- 1. DP Number
- 2. Name of Road/Roads
.....
.....
- 3. Locality
- 4. LGA
- 5. Surveyor's Reference
- 6. LPI reference: T
- 7. No. of Deferred Marks placed

I request the 85% refund of the \$_____ security deposit lodged with your office.

Signature _____ / ____ / ____



Appendix A

SURVEYING REGULATION EXEMPTION REQUEST FORM

Exemption No. /

Form with fields: Surveyor's Name, My reference, Organisation, Address, Phone, Fax, E-Mail, Lot No, DP No, LGA, Locality, Purpose of Survey, Please Attach (Diagram, SCIMS Request, SCIMS Results), Reasons for Request, Exemption Requested, Common Surveying Regulation Clause exempted.

OFFICE USE ONLY

Reasons why exemption given / rejected:

Applicant notified by telephone Date Time
Applicant notified by letter/fax Date Time
Print Name Signed:

Send all requests to: Cadastral Management Unit Ph: (02) 6332 8225
Land and Property Information NSW Fax (02) 6332 8230
E-mail: cmu@lands.nsw.gov.au
PO Box 143
BATHURST NSW 2795



Use of Survey Control Marks in the Rail Corridor

There have been many structural changes within the rail industry in New South Wales. RailCorp is responsible authority for all rail infrastructure in the Sydney – Newcastle – Wollongong – Lithgow areas, while the Australian Rail Track Corporation (ARTC) is the responsible authority for all other areas.

As a general rule **no survey work** is to be carried out within the rail corridor without the written approval of the Owner/Operator.

RailCorp

In the RailCorp Area, initial contact must be made to the Rail Corridor Management Group. The RCM Group will coordinate the logistical support to ensure access to the rail corridor is safe at all times. Contact details;

Executive Manager,
Rail Corridor Management Group,
RailCorp
Ph 02 9224 2347
Fax: 02 9224 4805

ARTC

In the ARTC Area, initial contact must be made to Regional Property Managers for either the Northern or Southern Regions. The division between the two areas is basically along the Sydney to Broken Hill rail line. The Property Managers will coordinate the logistical support to ensure access to the rail corridor is safe at all times. A processing or administration fee may be charged.

Contact details;

Regional Property Manager,
Northern Region,
Broadmeadow
Mr Paul Purcell
Ph: 02 4941 9610
E-mail: ppurcell@artc.com.au
Or
Ms Janette Paterson
Ph: 02 4941 9631
Mob: 0428 469 981
E-mail: jpaterson@artc.com.au

Regional Property Manager,
Southern Region,
Wagga Wagga
Mr Greg Verdon
Ph: 02 6939 5470
E-mail: gverdon@artc.com.au
Or
Ms Judy Mattingly
Ph: 02 6939 5432
Mob: 0428 277 747
E-mail: jmattingly@artc.com.au



Department of Lands - Office Locations

Cadastral Management Unit:

Land and Property Information NSW
Panorama Avenue
(PO Box 143)
Bathurst NSW 2795

Phone: (02) 6332 8224
Fax: (02) 6332 8230
E-mail: cmu@lands.nsw.gov.au

Survey Services - Sydney:

2nd Floor,
Queens Square Building
Land and Property Information NSW
(GPO Box 15, Sydney, 2001)
Sydney NSW 2000

Phone: (02) 8258 7500
Fax: (02) 8258 7555
E-mail: scims@lands.nsw.gov.au



Surveys Not Requiring Strict Accuracy Clause 29(5)(a) Directions

Forestry Right Surveys

Where a plan of survey of a Forestry Right, which is not for lease or subdivision, is required to be lodged on public record because the Right is being created by a transfer under section 46 of the Real Property Act or by registration of an instrument under section 88B of the Conveyancing Act and the survey is carried out under Clause 29 of the Surveying Regulation, the following standards are to be applied to the survey.

Orientation

The orientation of the survey is to be determined from the coordinates of two established permanent marks if both marks are suitably located with respect to the area to be surveyed for the Forestry Right.

If established permanent marks are not available, the orientation can be obtained from a previous survey on public record, or from astronomical or satellite observations. The method used must be shown on the plan.

Marking

Two permanent marks must be connected to each Forestry Right. The Surveyor is to use his/her discretion in deciding whether to connect existing permanent marks or to place and connect two new permanent marks.

If two permanent marks are placed, or one mark is placed and an existing permanent mark used as the second mark, the marks should be positioned as far as part as possible, but remain intervisible.

No further marking is required, however, fencing forming part of the boundary of the Forestry Right is to be shown on the plan.

Connection

The affected land (Forestry Right) must be connected by bearing and distance to two or more title corners of the land in which the Forestry Right is being created.



Photogrammetry

Use of photogrammetry is permitted where this is the more cost-effective method, or where it is expressly required by State Forests for a nominated site. A camera calibrated for mapping purposes to produce colour stereo pairs is required.

Where photogrammetry is used, there shall be **5 ground control points** recorded on the survey. Two (2) of these will preferably be the permanent marks referred to above, otherwise use is to be made of existing cultural (man-made) features wherever possible. The relative location of these ground control points will be determined by survey so as to enable location of the Forestry Right boundary by photogrammetry.

Each control point will consist of a galvanised iron pipe of a minimum 300mm length driven into the ground, with a star picket labelled with the tag provided by State Forests located nearby (within 0.5 metres). This labelled star picket will be a minimum of 1.35m length, driven a minimum of 400mm into the ground, to ensure it remains visible should later recovery of the control point be required.

Plan of Survey

The heading of the plan should refer to plan of Forestry Right or Profit a Prendre within lot or portion in DP

The plan is not for lease or subdivision and as such is not suitable for title issue.

At least two connections to the title or current parcel boundary must be shown on the plan.

The plan must disclose reference to all adjoining plans, including reference to other plans which may have been lodged to define Forestry Rights.

The residue of the current parcel identity remaining after the Forestry Right need not be shown.

The plan must be signed by all parties pursuant to Section 195D of the Conveyancing Act, 1919.



Surveys Not Requiring Strict Accuracy
Clause 29(5)(a) Directions

Aquaculture Lease Surveys

***NSW FISHERIES
and
DEPARTMENT of LANDS***

AQUACULTURE LEASE SURVEYS

**Specifications for
Surveyors**

(Approved by Surveyor General of NSW 30/7/1999)

Purpose of this Document

This document has been prepared to enable a surveyor who is providing a service to lease holders to undertake lease surveys that will comply with the NSW Fisheries' and the Surveyor General's requirements. The document outlines the measurement specifications necessary for Aquaculture Lease surveys.



GOALS

To ensure that all surveys of Aquaculture Leases in NSW are made to a known and consistent standard. To provide a system for the reliable and accurate re-establishment of limits of aquaculture leases. To ensure that aquaculture lease surveys are cost effective and efficient.

OBJECTIVES

1. To have all aquaculture leases surveyed under standards that will provide a degree of accuracy, reliability and coordination acceptable to:
 - I. The Minister for Fisheries - under Fisheries Management Act 1994;
 - II. The Surveyor General - under the Surveyors Act 1929 & Surveying Act 2002;
 - III. The Registrar General - under the Conveyancing Act 1919 to enable registration of aquaculture lease title under Real Property Act 1900, and,
 - IV. Oyster farmers and other interests.
2. To have the positioning data (including quality assurance and control details) stored and available in a form which NSW Fisheries and other interests will be able to access efficiently and reliably.

Introduction

The administration of oyster farming in New South Wales is subject to the *Fisheries Management Act 1994*. Lessees are granted a lease of a specified area of Crown land in an estuary for growing oysters. Leases are issued for various terms (now a maximum of fifteen years renewable) and conditions include a requirement for the area to be marked and maintained in a tidy condition.

Until 1994, the oyster lease boundaries were normally measured by prismatic compass and tape by Fisheries Officers. The method was not cost efficient and did not relate to a reference system or established coordinates.

These Specifications are for use in making aquaculture surveys. These are aimed at setting the standard for suitably accurate and reliable surveys and preparation of aquaculture lease plans or maps.

NSW Fisheries identified the need for a more accurate and reliable method of recording the position of leases. NSW Fisheries, in consultation with the Surveyor-General, then undertook an initial survey of all aquaculture leases in the State. This task was undertaken as the "Aquaculture Lease Survey Project" (the *Project*). The *Project* commenced in May 1996. This involved about 3,500 leases occupying about 4,500 hectares throughout the State. *Project* surveys were completed



in accordance with the provisions of the *Fisheries Management Act 1994*, and the *Surveyors Act 1929*.

The **Project** produced results that were used to improve the quality of aquaculture lease spatial information held by NSW Fisheries and the Department of Lands. The information has improved the management and administration of the oyster industry. This information is available to other agencies to contribute to the efficient management of estuaries.

When are Aquaculture Lease Surveys Required?

Lease surveys are required when new lease applications are being considered or when there is an adjustment to an existing lease boundary (eg. part surrender, addition or subdivision). Surveys may be required for lease renewals, relocation of lost corner marks or to determine the area cultivated outside a prescribed lease boundary. Details regarding this policy are contained in the NSW Fisheries "Oyster Policy and Procedures Manual".

Survey Methods

These specifications relate to conduct of aquaculture lease surveys and lodging survey plans with NSW Fisheries suitable for registration with Land and Property Information NSW of the Department of Lands.

An aquaculture lease survey will meet the standards if the MGA horizontal coordinates of fixed points are determined within +/- 1 metre. In addition, the survey results lodged with the Aquaculture Section, NSW Fisheries, must meet all the requirements and conventions of the Specifications set out in APPENDIX 1 (attached).

Plans to be registered with Land and Property Information NSW of the Department of Lands must meet the requirements of the Registrar-General under the *Conveyancing Act, 1919*.

Field techniques used in determining position of any lease corner must include adequate checks to ensure that all measurements are verifiable.



APPENDIX 1

Specifications for the Survey of Aquaculture Leases

SURVEY PROCEDURE AND RECORDS

Part 1: GENERAL

Each survey of an aquaculture lease shall be conducted under conditions of a relevant approval by the Surveyor General under Clause 29 of the *Surveying Regulation 2001*.

Notwithstanding, the provisions of any such approval, field notes and an electronic record of the survey must be completed according to these specifications. Where any conflict arises between the statutory requirements, including the terms of any approval under Clause 29 and these *Specifications*, the statutory requirements shall prevail. The surveyor shall duly note the matter in the Field Notes and report the matter to the Surveyor-General and to the Director of Fisheries.

The electronic record of each survey is considered the primary source of positioning each point. Changes to the electronic record can only be made by the surveyor and then only when there is reasonable evidence that the electronic record misrepresents the true position of the relevant point.

Where the field notes or electronic record of the survey do not meet these requirements, the surveyor may be requested to provide further information. Surveys not meeting these specifications may not be approved and the aquaculture lease plans may not be approved or issued by the Minister for Fisheries.

Definitions

Unless otherwise indicated, terms shall have the same meaning as they have in relevant statutes. The following meanings apply:

- Boundary** A boundary of an aquaculture lease is a straight line joining successive lease corners. All boundaries must be within Crown Land or land vested in a public authority.
- GDA 94** Is explained fully in the GDA Technical Manual available at <http://www.icsm.gov.au/icsm/gda/gdatm/gdav2.2.pdf>
- MGA** Is the Map Grid of Australia and is a transverse Mercator projection of GDA 94 coordinates, which is a Universal Transverse Mercator Projection (UTM).



Point Number Is the number assigned to each lease corner or survey mark relevant to the survey and must be numbered in the electronic record of survey and in the Field Notes with the same identifying number, unique for that estuary.

Survey Mark Is a permanent mark, reference mark, or survey mark as defined in the *Surveying Regulation, 2001*, and marks placed by NSW Fisheries being a rock mark or peg.

Lease Boundaries and Encroachments

Lease boundaries should be defined as straight lines and it is important to consider the impact of any encroachment beyond the area being surveyed.

Boundary Definition:

If cultivations encroach less than 2 metres over a lease boundary, then the encroachments may be ignored.

Encroachments of greater than 2 metres should be surveyed by recording additional lease corners sufficient to contain the area occupied.

Where two lease corners occur less than 2 metres apart, the point that maximises the lease area must be occupied. This includes points on two or more adjacent leases.

Where a lease corner is found within 2 metres of a NSW Fisheries survey mark, in the absence of evidence to the contrary, the position of the survey mark should be adopted as the lease corner.

Rafts

If a lease corner with raft cultivation is not indicated with a fixed marker (that is, rafts are the only indication of the lease boundary) then the boundary defined by rafts movement may be surveyed.

The lease corner should be located to include those extremities of the raft's movement that maximises the lease area. Preferably, the survey should be conducted within one hour of low tide. Otherwise, suitable allowance must be made for the extremity of the raft swing area in selecting the lease corners.

Lease corners that include rafts must be noted as such in the field notes and the electronic record.



Survey Marks

Each survey mark found relevant to the lease or leases being surveyed shall be occupied where practicable.

If the MGA coordinate values of the Survey Mark are known, they are to be shown on the lease plan. The source of the survey mark information must be recorded in the field notes and on the survey plan.

Each survey must connect to two or more permanent marks, one of which must be an established mark. To confirm agreement within these specifications, at least one established permanent mark must be occupied and shown in the field note.

Corner Marks

Where practicable, all corners should be marked with a durable material in accordance with the *Fisheries Management Act 1994* and *Fisheries Management (Aquaculture) Regulation 2002*.

Part 2- ELECTRONIC RECORDS AND DATA MANAGEMENT

Submission of Survey Results and Plans

Where it is intended that a new aquaculture lease plan should be adopted, survey results and plans may be submitted to Aquaculture Administration Branch, either in hardcopy, or in a combination of Field Notes and Electronic Record.

Plans Submitted in Hardcopy

Where plans are submitted in hardcopy they must comply with the *Real Property Act 1900* and the *Conveyancing Act 1919*.

A table showing the MGA co-ordinates for each point must be included on the plan.

The bearings and distances of each boundary must be clearly shown. In addition, coordinates of two or more survey marks, of which at least one must be a co-ordinated survey mark,^a must be shown the plan.

All bearings on such a plan should be shown as grid bearings.

^a a survey mark for which the MGA co-ordinates are recorded under the State Control Survey system.



Electronic Data

An electronic record of a survey, if available shall be submitted to prove that the following specifications and quality assurance measures have been complied with.

An electronic record may contain data relevant to the survey of one or more leases but must not contain data related to points in more than one estuary in any one file. If the record contains data for only part of one lease, the Field Sketch should show where the record for the remaining part of that lease is held.

A copy of the raw data recorded during the survey must be retained by the surveyor at least until any aquaculture lease plan resulting from data is approved. No observations or other electronic data logged should be deleted from the raw data file including any considered “bad” or irrelevant. The raw data file need not be submitted to NSW Fisheries unless specifically requested.

File Names

Where an electronic record is to be submitted to NSW Fisheries for preparation of an aquaculture lease plan the consent of the officer administering the NSW Fisheries Aquaculture GIS must be obtained with regard to file naming protocols.

Record Storage and Copies

The original Field Notes and copies of raw electronic data and the submitted electronic record must be held by the surveyor or by a person acting on behalf of the surveyor. The surveyor may be required by the Director of Fisheries to provide the original Field Notes or copies of the Field Notes or electronic records and a officer appointed by the Director of Fisheries may take such copies of those records as the Director approves.

End of Specification.