

LPI News

Pre-allocated Plan Numbers (PPNs)

What are PPNs?

PPNs are unique plan numbers issued on request to surveyors for proposed land developments before plans are ready for lodgement at LPI.

PPNs are distinguished from other plan numbers by the prefix 'PP' e.g. PPSP76543. When a PPN is issued it is automatically noted on affected folios of the register in the Integrated Titling System (ITS) and on the relevant parcels in the Cadastral Records Enquiry (CRE) database. They should not be confused with unregistered plans noted on title.

They do not have an automatic or early right to registration and are subject to the usual Land and Property Information (LPI) plan registration processes when lodged. Upon lodgement of a pre-examination or the final plan the prefix is deleted e.g. PPSP76543 becomes PESP76543 or SP76543.

Sydney Water requires surveyors to obtain PPNs for developers and this information is then included in the lodgement of the section 73 application by Water Service Coordinators.

LPI issues approximately 300 PPNs each month, 80% of which are in areas covered by Sydney Water.

Settlement of current transactions should not be delayed simply because a PPN is noted on title.

HOW CAN A SURVEYOR OBTAIN A PPN?

PPNs can only be obtained online by surveyors via the ePlan Application using their Spatial Information eXchange (SIX) access.

Once a PPN has been assigned to a surveyor it will appear in their myPlan section of the ePlan Application and they may reprint the PPN detail sheet from here following any alterations to the PPN.

HOW CAN A SURVEYOR ALTER THE DETAILS OF A PPN?

LPI may allow alterations to PPN details such as additional title references, surveyor's reference, lot numbers or DA number by the assigned surveyor. LPI requires a written request by way of email to the ePlan Administrator eplan@lpi.nsw.gov.au

WHAT DOES THE SURVEYOR DO IF THE PPN IS NO LONGER REQUIRED?

A PPN may be withdrawn by the surveyor to whom it is assigned. The surveyor is required to provide a written request by way of email to the ePlan Administrator eplan@lpi.nsw.gov.au

HOW CAN A SURVEYOR TRANSFER A PPN TO ANOTHER SURVEYOR?

Where a surveyor has requested and been assigned a PPN and another surveyor has been engaged by the developer to prepare

the final plan for registration. The surveyor to whom the PPN is currently assigned must request LPI in writing, by way of email to the ePlan Administrator eplan@lpi.nsw.gov.au to reassign the PPN to the surveyor who is preparing the plan.

HOW CAN A SURVEYOR ESTABLISH WHO HAS BEEN ASSIGNED A PPN?

If a PPN is noted on a CRE or title search, surveyors can check online via their SIX access the details of the PPN and to whom it is assigned. Once you log into SIX, under the Services tab then ITS – Integrated Titling System there are 2 options, Document and Plan Inquiry which will provide various information. Enter the plan number without the PP and the document inquiry will reveal the surveyors name, reference and titles affected and the plan inquiry will reveal the plan purpose, lot numbers and DA details (if required for the plan purpose).

WHY DO SURVEYORS NEED TO BE AWARE OF THE EXISTENCE OF PPNS?

PPNs are requested for a number of reasons:

- Documentation such as contracts for sale and transfers can be prepared much earlier in the development process.
- Proposed development activity can be placed on public record.
- Sydney Water requires PPN details to be lodged with Section 73 applications.

Surveyors should request a CRE search whenever preparing a plan and again before the plan is lodged (particularly if it has been some time since the plan was prepared) to ensure not only if a PPN already exists on the affected land but also to check if there has been any recent plan registrations on adjoining parcels which may affect your definition.

If a PPN is noted on the CRE and it relates to the plan you have prepared but is assigned to another surveyor, you should request that surveyor to have it reassigned to you as outlined above.

FURTHER INFORMATION

The terms and conditions of use for PPNs must be accepted when requesting a PPN from the ePlan Application in SIX. They set out the terms under which LPI issues PPNs and the obligations on the registered surveyor in respect of using a PPN.

If you have any inquiries about PPNs please contact the ePlan Administrator on (02) 92286907 or eplan@lpi.nsw.gov.au ■

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Updating Information on Unregistered Plans

Following any requisitions raised on an unregistered plan the surveyor will either:

- if the plan was lodged through eplan – electronically lodge a new version, or
- if the plan was lodged manually and the Lodging Party has not provided their consent for amendments to be supplied electronically– uplift the plan and manually amend it.

In some circumstances the surveyor may take this opportunity to make additional alterations which had not been specified by the requisition(s). These additions must be brought to the attention of the LPI plan examiner by either:

- where the plan is updated electronically the new version must be accompanied by a "L" file letter stipulating all changes and additions
- where the plan is updated manually the surveyor must supply a copy of the plan showing (in red ink) all alterations made to the plan.

Surveyor's Reference on New Plans

The surveyor must include his reference (job number) on both the plan and administration sheet. This reference will be quoted by LPI in all correspondence sent to the surveyor throughout the registration process. The reference must be identical wherever endorsed and is limited to a maximum number of 25 characters.

If a reference on a plan drawing sheet and the attached administration sheet do not match, the surveyor will be requisitioned to confirm that the plan and administration sheet correctly relate to each other and, if so, to appropriately amend the reference.

Notations in the Margin of New Plans

Schedules 4 and 5 Conveyancing (General) Regulation 2013 state that no printing, writing or other notation (other than those authorised by the Registrar General) must appear in the margin of the plan. In this regard, LPI has agreed that notations relating to the version of the sheet of the plan or the file path of the surveyor's computer system will be accepted if shown in the margin of the plan or administration sheet. However, any such notation will not be examined, or included in any LPI system or database. ■

Surveyor General's Direction Number 9 "GNSS for Cadastral Surveying" 2013 version now available

On 13 August 2013 the latest updated version of Surveyor General's Direction Number 9 (SGD 09) "GNSS for Cadastral Surveyors" was approved. The SGD 09 outlines the recommended procedures for the use of GNSS specifically for cadastral purposes. It is the recommended procedure approved by the Surveyor General and not an instruction manual. Note that SGD 12 (2013) covers the use of GNSS for control surveys.

The document can be found at the LPI website under the quick link to Surveyor General's Directions (http://www.lpi.nsw.gov.au/surveying/publications/surveyor_generals_directions).

BRIEF HISTORY

The first version of this Direction was released in December 2004. It was due to be rewritten and updated to reflect the major changes in the Surveying and Spatial Information Regulation 2006 (SSIR 2006). However extensive research into newer GNSS hardware and software, emerging new satellite constellations and the continued expansion of CORSNet NSW and the evolution of network CORS solutions meant the goal posts were continually moving.

A final Draft version of SGD 09 was available to the survey community on 20 March 2012 seeking further comment. GNSS cadastral directions from ACT, Victoria and Queensland were analysed and it was decided to completely redraft the Direction taking on board many of the comments from ISNSW and other interested surveyors' comments.

In February 2013 a workshop was organised at Queens

Square in Sydney with representatives from ISNSW, ACS, LPI and quite a number of interested local and State government organisations. All were selected as being regular users of GNSS and their time and valuable input was greatly appreciated. The consensus of the workshop was that the direction should be more practically focused on techniques and provide tips, checklists and sample final plans.

SGD 09 was then completely redrafted and then ratified by all workshop attendees. SGD 09 was approved by the Surveyor General, Des Mooney on the 13 August 2013 and posted on the LPI website immediately.

MAIN POINTS

The following is a summary of the new Direction.

SGD 09 emphasises that it is the **responsibility of the surveyor** to ensure the methods and equipment used will achieve the accuracy required.

SGD 09 emphasises that all final plans are to show ground distances, explains the differences between **derived** and **direct** measurements and that all final dimensions must satisfy Surveying & Spatial Information Regulation 2012 (SSIR 2012) specifications, regardless of techniques used.

Current research also confirms no distances should be determined under 100m with GNSS methods.

ACCEPTED GNSS METHODS

The six accepted methods for cadastral surveys using GNSS are:

STATIC - post processed direct measurements using a multiple GNSS receivers.

CORS STATIC - post processed direct measurements using CORS data as the base station data.

AUSPOS - post processed multi base direct measurements solution processed through the Geoscience Australia On-line GNSS processing service

RTK - RTK single base solutions using a local independent base station

CORS RTK - RTK or NRTK solution using CORSNet NSW or other accepted CORS networks

PPP- Precise Point Positioning (emerging method with increasing accuracy)

Above are the **only acceptable acronyms** when describing GNSS methods as the source of GNSS dimensions or coordinates on a deposited plan.

VERIFICATION AND VALIDATION

Verification and validation are not calibration.

Verification is the annual testing of GNSS equipment and software processing over an accurate test network. This can be over an LPI GNSS test network or a best quality established permanent mark network (order 2 or better). Verification must also occur after equipment repair and/or software updates as well.

Validation is a relative check against an external source of known accuracy (i.e. EDM or other GNSS technique) on a daily or job basis. The direction outlines acceptable methods.

BEST PRACTICE GUIDELINES

This section emphasises that a surveyor must still support good cadastral practice such as working from the whole to the part, establishing a control framework, running a boundary and avoiding unchecked radiations. The spatial difference between

the State Control Network and the CORS Net NSW networks is also discussed.

ORIENTATION OR DATUM LINE.

When using GNSS to define MGA orientation only **two** established marks are required and the determining method clearly stated (SSIR 2012 Clause 12(7)(b & c)). The datum line must be local (within a few kilometres).

Rural surveys can use AUSPOS, CORS Static or CORS RTK as acceptable methods as long as existing established marks are over 1000m away. In these cases the datum line must be comprised of permanent survey marks or stable reference marks only (no temporary marks or pegs) and be at least 500m apart..

OBSERVATIONAL GUIDELINES

This section contains some valuable operational information and guidelines for all GNSS techniques.

Research now indicates that when using CORS RTK you must be mindful of electrical storms both at the survey site and the CORS sites. Storm activity can effect correction transmissions as well as satellite observations at both locations.

RTK SPECIFIC GUIDELINES

In summary, the main guidelines to follow are:

1. Each point should be observed at a 1 second collection rate and averaged for 2 minutes;
2. tripods or bipods are essential (range pole for natural features only);
3. minimum double occupation at least 30 mins later using a second base station location and
4. continually monitor quality indicators (PDOP/GDOP)

AUSPOS SPECIFIC GUIDELINES

This section contains a simple explanation of AUSPOS and the requirements. AUSPOS positions are now processed using the CORSnet NSW stations data so precision of this solution is much better across the state than previously. If using AUSPOS solutions for cadastral MGA orientation the following are minimums:

1. minimum 2 hours continuous data (4 hours will allow SCIMS Class D or better)
2. rapid orbit processing or better.
3. permanent or reference marks at least 500m apart must be used
4. AUSPOS report to be emailed to SCIMS and a copy of the report accompanying the deposited plan at lodgement
5. Validation of the datum line with either Static or RTK GNSS or an EDM measurement

CONTINUOUSLY OPERATING REFERENCE STATION (CORS)

This section provides a simple explanation of the CORSNet NSW system and the CORS STATIC and CORS RTK (single base and network) methods.

WHAT TO SHOW ON PLANS

SSIR 2012 Clause 67 stipulates that all GNSS derived lines must be indicated on a deposited plan. It is acceptable to be specific such as "A-B derived using AUSPOS methods" or use a blanket statement such as "all distances greater than 100m derived using RTK GNSS methods".

SSIR 2012 Clause 61(3) requires a table showing GNSS observation results if GNSS observations are used to provide

MGA orientation. An acceptable sample table is included in this section.

SSIR 2012 Clause 35 and 61 require the provision of a coordinates table showing details of all permanent marks surveyed. An acceptable sample table is included. The coordinate box provides an important statement on what coordinates were adopted or derived at the time of the survey. This historical information will become important in the future as newer MGA datums are adopted or the possibility of a "dynamic datum" of continually changing coordinates. If height must be specified in a survey then AHD71 must be adopted and AHD information must also be added to this table.

AUSGEIOD09 provides N values to better than 50mm across the State so GNSS could be used if accurately heighted marks are required some distance from existing survey control. SSIR Clause 13(3) states limitations in height must "attain an accuracy equal to or better than Class B."

CORRECTIONS – GRID TO GROUND DISTANCE

As previously stated all GNSS observations must be reduced to ground distances for a deposited plan. A combined scale factor (CSF) is a combination of the sea level correction (relative to the ellipsoid not AHD) and the point or line scale factor. A CSF must be shown for every survey that requires a coordinate box. Problems arise with GNSS as long lines (>5km) can be easily and accurately measured and a single local CSF value may be misleading. The same problem arises with long easement surveys, particularly in an east-west direction. In light of this when GNSS is used to connect permanent marks a point CSF should be provided for each permanent mark (provided in SCIMS or by a downloadable spreadsheet on the LPI website).

PRACTICAL CONSIDERATIONS

Consideration should be given to inter-visible marking between reference and boundary marks.

FIELD NOTES

Practical suggestions on field data storage

TIPS FOR GNSS USERS

A summary of important practical considerations that arose from the workshop:

1. No GNSS derived distance under 100m
2. Know your Kit
3. Traceability
4. Averaging (windowing)
5. Double occupation
6. Site Transformation
7. Antenna Models & Heights
8. Network RTK
9. Cadastral Surveys
10. AUSGEIOD09
11. Nearest Base
12. Poor mobile coverage

EDUCATION

It was felt by all ISNSW representatives, LPI staff and workshop attendees that surveyors intending to use GNSS methods for cadastral surveying should attend a recognised GNSS course or similar.

CONCLUSION

It is ultimately the surveyor's responsibility to choose whether

a GNSS method is suitable for a specific situation. If doubt exists a more precise method should be adopted.

CHECKLISTS

Checklists are attached as Appendix B for the four main GNSS techniques; Static, RTK, CORS RTK and AUSPOS. The checklists provide a list of important checkpoints specific to each method as they relate to cadastral surveying.

SAMPLE PLANS

Sample plans are also attached as Appendix C. These simple plans show the accepted method of showing GNSS observations on a deposited plan for the following methods; Static, CORS Static, AUSPOS, RTK and CORS RTK. The main purpose is to have a clear unambiguous plan showing what GNSS methods were used and for what sections of the survey it was used.

Copies of these plans will be referred to by LPI examiners as the standard format from September onwards and will eventually be included in EPlan and LandXML requirements.

MORE INFORMATION

If clarification is required with the Direction please contact the Cadastral Management Unit at (02) 6332 8224 or email to CMU@lpi.nsw.gov.au. ■



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