REASON FOR SURVEYS
One of the first recorded surveyors that arrived with Mr Van Riebeeck in the Cape was Peter Potter. I was told how the local land surveyor used to send Ou Klaas on a horse and told him to turn right whenever he heard a rifle shot. The landowner's assistant would then build a beacon at the bend while Klaas rode along the next boundary. The trouble was that the land surveyor was often fond of a touch of brandy and in the afternoon, he would forget to fire the gun. The resultant diagram would be framed in his office and he spent more time drawing the true north pointer than checking the accuracy of the diagram. The results of such surveys, especially in the Cape, are very serious overlaps. For years there were debates in Court about the importance of mathematical data in relation to the physical position of the beacon. The present Case Law ruling favours the position of the beacon in the ground over its mathematical position.

THE LAND SURVEY ACT
Prior to the union of the four provinces in 1910, it was left to each province to deal with its own survey related matters. Around the end of the First World War, there came the benefits of war, namely the improvement of technology and in the case of land surveyors, the advent of improved optics in their theodolites and the sudden ability to perform more accurate surveys. I hasten to add that the quality of many of those practitioners who surveyed before 1918 is equal to many of the later surveys using satellite technology. Names like Elton Galliers and August Hammar spring to mind.

Anyway, the Union Government combined the various survey legislation into the Land Survey Act No 9 of 1927. This Act sets up the control for the accuracy of surveys and the functions of the Surveyor-General's Office. It is important to note that it does not say how a survey has to be done, that is left to the practitioner to decide.
WHO DOES WHAT?
Surveys relating to boundaries may only be done by a Professional Land Surveyor who is registered with a statutory body called PLATO. If you see a person behind an instrument on the side of the road, it does not mean that he or she is surveying a property boundary: they could be a survey technician setting out a road for construction.

The Professional has a four-year degree and the Technician has a diploma. Basically the difference is the Professional has been given a deeper exposure to the laws relating to property boundaries.

SURVEY RECORDS
The Land Survey Act requires the records of all surveys relating to property boundaries to be filed in the Surveyor-General's Office. These show how a survey was done and comprise the field book in which all the observations were made, a plan showing the relative positions of beacons and survey stations and a list of co-ordinates. If there is doubt about a survey, it is usually resolved by checking the survey records.

The survey records have been used to establish why certain surveys overlap or just plain unprofessional misconduct. There was a case in Ladysmith about ten years ago when it was necessary to establish why a whole line of properties overlapped. The field book showed that the land surveyor had set up at one end of the line and observed the other end and placed the intermediate beacons. There was nothing wrong with that except a site visit revealed a thick line of very old gum trees along the entire length. That particular land surveyor turned his hand to selling fish and chips in the Cape.

Copies of survey records are only available to Professional Land Surveyors because the Survey Profession takes sole responsibility for the accuracy of the survey system and we don't want any one interfering with it.

CONSENTS TO SUBDIVIDE
Unless the land is being subdivided for the State or a land reform project, the Surveyor-General may not approve a diagram or general plan without a valid consent.

TOWN PLANNING ORDINANCE
For many years, well especially in Natal, it was not necessary to get planning consent to subdivide land. Then came the Town Planning Ordinance in 1949 which controlled subdivisions and leases. It was often left to the Surveyor-General to decide if the Ordinance was applicable and the guideline was that subdivisions under 50 acres needed consent.

It is important to note that consent is needed for all subdivisions and leases of non-agricultural land. The Surveyor-General may not approve a diagram if in his or her opinion, such diagram is evading the Town Planning Ordinance. The 20 hectare/50 acres is still a rule of thumb when deciding if Town Planning Ordinance consent is necessary for subdivisions of agricultural land.

ACT 21/1940
This act controls access to a public road. The Surveyor-General exercises his or her discretion about this piece of legislation. At present if the subdivision is larger than 20 hectares, I don't usually call for consent in terms of Act 21/1940 unless I know from local knowledge experience or from looking at the plan that a new access has to be created. An application that is processed through the Town Planning Ordinance will get comments from the Department of Transport regarding access.

Act 21/1940 has been "repealed" by Provincial Act 4/2001.

Act 2/2001 insists that the Surveyor-General shall not approve a general plan adjacent to a public road unless consent in terms of Act 4/2001 has been obtained. Most land adjacent to
A public road is depicted on a diagram and I know that one day I will ask for consent and be told that Act 4/2001 does not apply because the survey is for a diagram.

Act 4/2001 is a Provincial Act that apparently repeals a National Act.

ACT 70/1970
Please don't produce the proposed repeal of Act 70/1970, signed by Mr Mandela and tell the Surveyor-General's Office that Act 70/1970 is not applicable. This Act used to obstruct land reform and hence there was an intention to repeal it but the land reform legislation was amended and now bypasses Act 70/1970.

Note that while local authorities might cover the country, Act 70/1970 is still effective in all the areas that were not covered by local authorities in about 1994. Even land that might be called erven of Richards Bay or Empangeni that was farm land in 1994 is subject to Act 70/1970.

NATIONAL ROADS ACT
Any subdivision next to a National Road needs consent from the SA National Roads Agency.

SECTIONAL TITLE SCHEMES
Sectional title schemes also need consent. There has to be approved building plans, even if the building is an ancient farmhouse. There must be some form of planning consent in terms of the Town Planning Ordinance for development without subdivision if the scheme is on agricultural land as defined in Act 70/1970. While such consents are not lodged in the Surveyor-General's Office, the Land Surveyor signs a certificate that they exist.

DEVELOPMENT FACILITATION ACT
The DFA has been seen by many as a loophole or the need for consents. If applied properly, it is indeed a useful piece of planning legislation but too many people are applying for consents in terms of the DFA without knowing the effects of the Tribunal ruling.

DIAGRAMS
A diagram is framed in terms of Regulation 19 of the Land Survey Act and comprises the following:
1. A list of sides in a clockwise direction. The sides on a diagram framed after 1970 will be in meters
2. The direction of the sides in degrees minutes and seconds. The directions are in the order quoted by the sides. The direction of side CD is from C to D. Due south is zero degree, north is 180 degrees and the numeric value increases in a clockwise direction.
3. The co-ordinates. Co-ordinates are very useful in determining where a property is situated. They are a grid with a direct link to latitude and longitude. Later diagrams are based on a shape of the earth based on a system known as WGS 84 which is compatible with the system used in a GPS. Co-ordinates are measured south from the equator and east of the nearest odd degree of longitude.
4. A north pointer
5. The figure which is lettered to correspond to the sides tabulated on the top.
6. Adjacent property descriptions
7. The scale which is independent of the fact that the diagram is in feet or metres. If the scale says 1: 500, it means that one inch on the diagram represents 500 inches on the ground OR one centimetre on the diagram is 500 centimetres (5 meters) on the ground.
8. The property description, which is one of the most important parts of any diagram. In an urban area, the basic unit of land is an erf. Subdivisions of erven are known as portions. There are no longer references to an extension. Rural land is defined as portions of the farm.
The registration division has taken over the old reference to Administrative Divisions and even counties. It is possible to move a property between registration divisions to facilitate consolidating properties. Registration divisions are based on squares of latitude and longitude and are adjusted so that a larger portion of a farm falls on only one registration division.

9. The extent of the land is given in square metres or in hectares if the extent is over ten thousand square metres.

10. Office references: The SG No or in the case the SG D No. is on the top right hand corner of a diagram or sectional plan. The file number and survey record number are in the bottom right hand block. The middle block notes the reference to the original and the bottom left hand block records the registration details of the diagram.

11. The date of the survey and how it was done. It might have been surveyed. It might have been compiled or even framed from the records in the Surveyor-General’s Office in terms of Section 16.

12. The practitioner has to sign and for the diagram to be registerable and the Surveyor-General who delegates this to a Professional Land Surveyor in the Surveyor-General’s Office must have approved it.

TYPES OF DIAGRAMS
At the start of the whole concept of private ownership of land, the farms were surveyed and granted from the State or Crown to the individual farmers or even urban land owners.

I don’t think it is all that important to go into the types of registration like Deeds of Grant, Certificates of Registered State Title. The basic shape of a diagram will suffice for various forms of registration.

1. **Subdivision diagrams** that contain a subdivision and perhaps a servitude that will be registered at the same time as the diagram.

2. **Consolidation diagrams** which may be split into two:
   i. Those framed by compiling from the component diagrams in which case the extent is an exact sum of the extents of the components
   ii. Diagrams framed by survey. These will reflect all the sides and directions and the extents could differ considerably from the sum of the components, especially if there is an irregular boundary like a river.

   It is cheaper and easier to compile a diagram because this is done in an office but the Surveyor-General can force a consolidated diagram to be framed by survey if he or she is of the opinion that the extent from compiling would be wrong and prejudice a person.

   The components of a consolidation diagram are depicted by dot dash lines and usually lower case lettering.

   Note that consent to consolidate land is required from Durban to protect the town planning zonings and from the Province when dealing with towns governed by the KwaZulu Land Affairs Act No 11/1992.

3. **Servitude diagrams.** These only need consent in certain cases on agricultural in terms of Act 70/1970. A servitude may be registered without a diagram in terms of the Deeds Registry Act if it is of uniform width along the entire length of a surveyed line.

4. **Lease diagrams** which require consent and which in other respects are similar to subdivision diagrams.

5. **Small scale diagrams** are subdivisions upon which a general plan has been laid out. A general plan has to cover the entire property and if it does not then a small scale diagram, which is simply a subdivision diagram, is framed by survey.

6. **General plan diagram.** This is framed from the records of the general plan simply to lay off a subdivision. When a subdivision is registered, it is laid off the parent diagram and the parent diagram becomes the diagram of the remainder. The Surveyor-General may only amend a general plan with the consent of the Premier and if a subdivision is noted on a general plan it will be considered to be and amendment and needs consent.
A general plan diagram is framed only to allow deductions to be noted and is not for registration.

7. **Remainder diagram.** When a subdivision is registered, the Registrar notifies the Surveyor-General and the subdivision is noted on the parent diagram. The area of the parent is endorsed with the deduction of the subdivision and this is noted on the back of the diagram. There is thus no need to reframe a separate diagram for the Remainder.

8. **Diagram for substitution** occurs when the Surveyor-General suspects that the figure and or extent of the diagram are incorrect and a person could be prejudiced. A caveat is usually sent to the Deeds Office asking that no registration take place until a diagram for substitution has been framed.

**GENERAL PLANS**

A general plan is the depiction of two or more subdivisions. A general plan is also the complete subdivision of the underlying property into erven and roads. The roads are often left as the remainder and they must vest in the local authority with the open spaces.

It must be seen as a diagram of many properties but it has its own peculiarities. Prior to 1965, general plans were really deduction plans where subdivisions were noted. Pre 1965 general plans relied on diagrams for registration.

The Deeds Registry’s Act was amended and after 1965, to allow registration using general plans.

An **amending general plan** is only possible if the underlying property is not registered. The advantage of an amending general plan is the speed with which the consent is given and the cost saving in that the underlying property does not need to be registered.

**GENERAL PLANS vs DIAGRAMS**

- A general plan is of erven, a diagram is a portion.
- A general plan is registered as a “township” in the Deeds Office and in the case of Durban. Hence the trend now is to frame diagrams for townships that should really be depicted on general plans.
- The cost of examination fees at the Surveyor-General’s Office makes it more economic to frame a general plan for 5 or more subdivisions.
- A general plan can only be amended with the Premier’s consent, hence any subdivision of a property on a general plan has to be shown on a general plan diagram so that the general plan does not have to be amended to effects.

**ROAD CLOSURES**

The Local Authorities and Town Planning Ordinance are very clear on the benefits that roads and public places have for the public and the Surveyor-General is tasked with making sure that any dealings with such areas is dealt with only after such places have been officially closed. Anything called a road or public place on a diagram or plan in the Surveyor-General's Office has to be closed before it may be subdivided, leased or have a servitude registered over it. It is for this reason that I go to great lengths to have conditions of establishment for new towns clarified so that it is not necessary to note the zoning of roads or public places on general plans.

It makes no difference that a road is unmade, as soon as an erf in a town is registered, the roads and public places will vest in the local authority and become public property.

**ENCROACHMENTS**

Many questions arise about encroachments of buildings in a sectional title scheme. An encroachment onto adjacent privately owned property can be regularised with a servitude of encroachment but one over a road affects the rights of the public.
If the encroachment is above ground and is something simple like a canopy then an agreement to encroachment will suffice as it probably benefits the public on a wet day.

An encroachment on the ground requires a road closure, a subdivision and consolidation with the adjacent property. There is a regulation in the Land Survey Act that says that a beacon is off line if it is more than 6 centimetres off the line between two points.

There is also the fact that if you cannot see the beacon because of an encroachment than there is an encroachment, be it one or any number of centimetres.

NUMBERING
New portion, erf and lease numbers are allocated by the Surveyor-General's Office to Professional Land Surveyors and the Province, upon written request.

It is at the stage of requesting designations that the land surveyor has to decide if he or she is framing a general plan or diagram because the consent is framed according to the answer for designations. A general plan is of erven and diagrams are framed as portions of the parent.

Properties are often renumbered. Farm portions are numbered into town erven so that they can be consolidated into town erven. There has been a big renumbering exercise to change portions of farm which lie within Durban and Pietermaritzburg into erven of the same “farms”. For example, Portion 345 of the farm Mobeni No … was renumbered to Erf 345.

The registration divisions of components in a consolidation are also renumbered so that all the components fall in the same registration division.

SECTIONAL TITLE SCHEMES
A sectional title plan is the depiction of the floor areas of a series of sections within a scheme. The Act defines the qualitative factor as the floor area.

Sectional plans may be prepared by a practitioner who has passed the examination to qualify for registration as a sectional title practitioner.

An architect can prepare all the sheets except the one that shows the relation of the building to the boundary and which shows rights on the ground. A land surveyor can prepare all sheets of sectional plan.

CERTIFIED COPIES
The Land Survey Act allows the Surveyor-General to make certified copies of approved diagrams. In order to protect the private practitioner’s lien on a diagram, the Surveyor-General will ask for consent from the practitioner to make such certified copies unless a certified copy can be produced which implies that the practitioner has released it and his or her consent to further is implied.

There are set numbers of certified copies that must be made such as two for subdivisions, and four for servitudes and leases. If you do not have the right number, you may order certified copies of diagrams, general plans and sectional plans if you can show that you have a certified copy.

Please do not queue up outside the office of the person who approved the diagram to get another certified copy or even queue outside the Technician in charge of the plan safe’s office. Please apply directly to HelpDesk for additional copies.

Registration copies of general plans are reduced to an A3 size. The theory is that the Surveyor-General's Office reference number, the S G No is visible even on an A3 copy and if you should need additional information, you can access to Surveyor-
General's Office database using the SG number. It is possible to order full size copies of general plans.

COMPILATIONS
It is a requirement of the Land Survey Act that the Surveyor-General frame and update plans showing the relationship of properties to one another. The plans that do this are called compilations.

ORDERING INFORMATION
The data comprising diagrams, general plans, sectional title plans and compilation plans are available to the public. Survey records are kept back to maintain a secure cadastral system.

The fee structure has been set up so that data sent electronically is free. Please place your orders with:

helpdesk@0331.kzntl.gov.za

CORRESPONDENCE FILES
If it is necessary to find what consent was used for the approval of a diagram, it is possible to view the correspondence files in the presence of either the Surveyor-General or the Deputy Surveyor-General.

MAPS AND AERIAL PHOTOGRAPHS
The Surveyor-General acts as an agent for the Chief Directorate Surveys and Mapping in Mowbray. This involves selling maps in the 1:50 000, 1:250 000 and 1:500 000 series as well as the popular 1:10 000 orthophotos and aerial photographs.

The Surveyor-General's Office keeps a stock of maps but unfortunately not all the orthophotos as some are still kept by successors to the former KwaZulu Government in Ulundi.

Prints of photographs are made in Mowbray.

USING DIAGRAMS
Now that you know what is a diagram, it stands to reason that you must be able to use a diagram.

One of the major problems is to be able to carry forward the conditions of tenure and servitudes from a parent diagram onto the subdivisions.

Firstly the components of a consolidation diagram are shown in a dot-dash line and these components must be carried forward onto the subdivisions.

To work out what falls where;

Start with orienting the parent and the subdivision, using the north pointer.

Check the scale of the two diagrams.

Check the relative shape of the component lines.

Check the units of measure. It is impossible to compare the data of two diagrams if one is in Cape Feet and the other is in metres.

Use the data of the sides of the diagrams. Try and find sides that have the same length or directions. Don’t get too concerned if the sides are not exactly the same length or exactly the same direction, it boils down to the difference in survey methods and the fact that the beacon in the ground is more important than the mathematical data. Use the metres rather than metres and decimals. Use degrees rather than being concerned with decimals of a meter.

If nothing seems to “fit” then check the reference to the original diagram, it might have been incorrectly recorded in the deed.

Check the adjacent property descriptions but be aware that these change with renumbering and subdivisions.
ERRORS ON DIAGRAMS
We are all human and we all make mistakes. The Surveyor-General's Office is under constant pressure to examine diagrams and approve them as quickly as possible. The Land Survey Profession takes responsibility for the cadastral system which includes diagrams and sectional plans. The Architectural Profession take responsibility for sectional plans they prepare. Please do not pace the corridors of the Surveyor-General's Office looking for the Professional Assistant who approved a diagram to effect an amendment. He could have resigned and lately the lady Professional Assistants who might have approved the diagram or plans have emigrated.

All queries must be taken to HelpDesk and the person there will attend to them.

USEFUL ADDRESSES
Chief Surveyor-General
http://csg.dla.gov.za/

Surveyor-General : Pietermaritzburg
http://www.lawsoc.co.za/webs/surveyorgeneral/index.htm/

Chief Directorate : Surveys and Mapping
http://w3sli.wcape.gov.za/

KwaZulu-Natal Law Society
http://www.lawsoc.co.za/

KZNLS Library
http://www.lawlibrary.co.za/

KZNLS Information Services
e-mail : help@lawlibrary.co.za