



# The preparation of plans and diagrams at South African mines. Where is the boundary between the roles of mine and land surveyors?

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## Synopsis

The newly implemented mineral law framework exacerbated the need to clarify the roles and responsibilities of mine and land surveyors in the preparation and registration of plans and diagrams. The main concern is that survey tasks may be performed by persons who are not considered competent under the different laws. The methodology used was to analyse historic and present legislation on the issue in order to formulate a narrow interpretation of the current requirements. The major findings are tabulated to present a summary of who is responsible for which areas of survey.

surveys to companies preparing documentation in support of applications and registration of rights justify the concern that survey tasks be performed correctly the first time by surveyors who are considered competent under the different laws.

## Registration of real rights to property

This section deals with the legal requirements for the surveying and registration of property in SA. Such registration is regulated by the Land Survey<sup>4</sup> (LSA) and the Deeds Registries<sup>5</sup> Acts (DRA), as amended, along with their regulations. The qualifications of surveyors who may perform the land surveying and compile survey records for registration purposes are governed by the Professional and Technical Surveyors' (PLATO) Act<sup>6</sup>.

The meaning of 'Surveyor' in the context of real property surveys is limited to only registered land surveyors, which requirement excludes all other types of surveyors. The LSA and DRA make provision only for land surveyors in their definition sections, which definition for surveyor reads:

'land surveyor means a person registered

## Introduction

The implementation of the new South African (SA) mineral law framework has brought about some uncertainty with respect to the roles and responsibilities of mine and land surveyors. Whereas under the previous legal system the distinction between roles was relatively simple, some questions were recently asked on where exactly the boundary in responsibility is for the two groups of surveyors. The December 2008 newsletter of PLATO<sup>1</sup> included the following note by Marshall<sup>2</sup> on the preparation of plans for registration at the Mineral and Petroleum Titles Registration Office (MTO) in the Department of Minerals and Energy (DME):

'It is a requirement of the Act that plans prepared for the registration of Mining Titles and Prospecting Permits be signed by a Professional Land Surveyor.'

This statement is explored in this article as part of the discussion of the key issues involved. This matter is relevant because first, it is important to follow the correct process in law in order to ensure that mining and prospecting companies have security of tenure over a defined area; second, the quality of the survey records and qualifications of the surveyor have a significant impact on the integrity of the boundary beacons of mineral and prospecting areas<sup>3</sup>; and third, the cost of

<sup>1</sup>The South African Council for Professional and Technical Surveyors.

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<sup>3</sup>The problem of integrity is aggravated by the lack of skills and capacity in government departments, causing gross mistakes in boundary accuracy and overlaps to potentially go undetected. This important issue was raised as a concern by Strydom (2009) when he discussed the surveyor's role in the registration of mineral development rights.

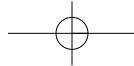
<sup>4</sup>Act No. 9 of 1927.

<sup>5</sup>Act No. 47 of 1937.

<sup>6</sup>Act No. 40 of 1984.

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as a Professional Land Surveyor in terms of the Professional and Technical Surveyors' Act, 1984 (Act No. 40 of 1984), and whose name is entered in the register referred to in section 7(4)(a) of that Act'.

A diagram is the final output of the land surveyor and marks the beginning of the registration process at the Deeds Offices. The LSA defines a diagram<sup>7</sup> as:

'diagram means a document containing geometrical, numerical and verbal representations of a piece of land, line, feature or area forming the basis for registration of a real right and which has been signed by a person recognised under any law then in force as a land surveyor, or which has been approved or certified by a Surveyor-General and includes a diagram or copy thereof prepared in a Surveyor-General's office and approved or certified as such, or a document which has at any time, prior to the commencement of this Act, been accepted as a diagram in a deeds registry or Surveyor-General's office in the Republic or in any such office situated in any area which became part of the Republic at the commencement of the Constitution, 1993.'

It is important to understand the differences between diagrams and plans. The main difference between a diagram and a general plan is that a diagram contains descriptive information about the extent of a piece of land for registration as a real right whereas a plan gives a visual picture of a number of diagrams relative to each other. A plan can also be registered at the SG's office (e.g. a new township development layout) but it does not form the basis of defining the real property right. The definition for a general plan according to the LSA, which definition is similar to the DRA, is:

'general plan means a plan which, representing the relative positions and dimensions of two or more pieces of land, has been signed by a person recognised under any law then in force as a land surveyor, or which has been approved

or certified as a general plan by a Surveyor-General and includes a general plan or a copy thereof prepared in a Surveyor-General's office and approved or certified as such or a general plan which has, prior to the commencement of this Act, been lodged for registration in a deeds registry or Surveyor-General's office in the Republic at the commencement of the Constitution, 1993.'

The definition of diagram raises questions on what exactly a real right is and, more importantly, what powers real rights give to their owner. The DRA clarifies the meaning as follows:

'real right includes any right which becomes a real right upon registration ... [and] ... registered means registered in a deeds registry'

About the question on ownership rights, Hartwick and Olewiler (1998) described a property right as a bundle of characteristics that convey certain powers to the owner of the right. The characteristics of the right make it exclusive, enforceable, divisible and transferable. The exclusivity of a right gives the owner the power to its exclusive use. Real rights may also be constrained by restrictions in that the right may have degrees of exclusivity, e.g. the impact of servitudes on land ownership rights.

Once the diagram defining the real right has been prepared by the land surveyor, the land is registered as a form of property with its associated bundle of characteristics in the name of its owner. The forms of real rights in terms of the said Acts include erf and immovable property. The LSA has a similar definition for erf to the DRA, which is:

'erf means any piece of land registered as an erf, lot, plot or stand in a deeds registry...'

As can be observed from Figure 1, immovable property as defined in the DRA, no longer makes provision for mineral rights and associated leases. The Mining Titles Registration (MTR) Amendment Act 24 of 2003, as amended by Minerals and Energy Laws Amendment Act 11 of 2005, amended the definition of immovable property in the DRA by removing any reference to a registered lease of rights to minerals. It further extinguished the notions of 'prospecting contracts' and 'rights to minerals' under the DRA. In doing this, a clear distinction was made between the real rights of the DRA and

<sup>7</sup>Although there are subtle differences in the definition of 'diagram' in the LSA and the DRA, the general meaning is the same.

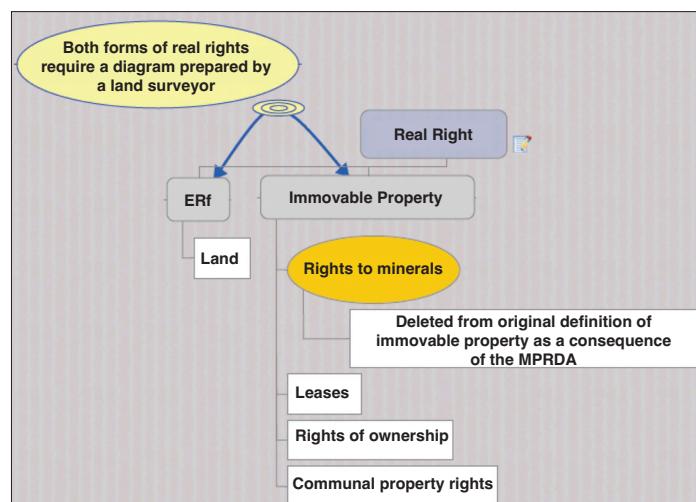


Figure 1—Real rights under the DRA

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the limited real rights of the MTRA. An owner under the DRA is someone owning real rights to property. This is another subtle difference between the old and the new systems of rights to property. While before the promulgation of the Mineral and Petroleum Resources Development Act (MPRDA) on 1 May 2004 it was possible to own mineral rights and mineral leases in the same way as the real rights discussed above, it is now only possible to hold development rights issued in terms of the MPRDA. This matter will be explained in the next section.

### Registration of limited real rights to minerals

Under the past system of real rights, mineral rights ownership was, first, linked to the land (i.e. farm or portion of it) in which it occurred; second, capable of separate ownership from the land; third, capable of being subdivided in terms of both minerals and the seams in which the minerals occurred; and, finally, capable of being owned in undivided shares (percentage ownership)<sup>8</sup>. Considering that all these types of ownership required some form of recording and/or registration, the administration and regulation of mineral rights in relation to land was extremely complex.

In order to understand the survey requirements of the old system, it is important to consider the requirements of the repealed Mining Rights Act 20 of 1967 at this stage. To this effect, holder was defined as '...the owner of the land or, if the right to such mineral ... in respect of the land is severed from the ownership of the land, the person in whose name the right to such [mineral] ... is registered in the deeds registry concerned'. The Act made provision for diagrams and sketch plans as part of the system of registration. Some forms of title (e.g. a mining lease) required a diagram whereas others (e.g. a claim on proclaimed land) required a sketch plan. The Mining Commissioner had the power to waive these requirements depending on the circumstances (Section 25(6)(b)) and/or impose additional diagram or sketch plan requirements if deemed necessary (Section 51). The main distinctions between sketch plans and diagrams were first, that sketch plans showed diagram (cadastral) information in addition to the surface features of the area and, second, sketch plans were required for registration in the Mining Titles Office whereas diagrams had to be approved by the Surveyor-General and were used for registration in the Deeds Office.

Historically, mineral rights ownership, leases, licences and other authorizations for prospecting and mining purposes issued in terms of the Mining Rights Act 20 of 1967 and later the Minerals Act 50 of 1990, had real right status. They therefore fell into the 'immovable property' definition and had to be registered at the various SA Deeds Offices. As part of the property registration process, a (land) survey diagram, which had to be prepared and certified by a professional land surveyor, was required. After registration of the coordinates of the mine boundary beacons, as surveyed by the land surveyor, the mine surveyor took control of the surveying over the mining lease or licence area in order to establish the mine survey for the preparation of mine plans and records required for the efficient and safe operation of a mining venture. This clear split in the roles of land and mine surveyors worked well for many years and the system of

initial land surveying checked by mine control surveys, which included a resurvey of the land surveyor's boundary beacons, efficiently avoided mine boundary disputes.

Cawood (2002) observed that the introduction of the MPRDA marked a paradigm shift from the old regime. This new direction in law is already evident from the preamble to the MPRDA. The second preamble of the MPRDA affected the definition, nature and the registration of mineral property rights by stating:

'Acknowledging that South Africa's mineral and petroleum resources belong to the nation and the State is the custodian thereof.'

This fundamental and new principle of law implies that the ownership powers of historical owners of mineral properties are limited by the custodianship powers that the MPRDA affords to the Minister of the DME as agent of the state—hence the new status of mining and prospecting rights is called 'limited real'. Examples of the custodianship powers of the state are the ability to:

- Grant rights to third parties
- Apply conditions and restrictions to mineral development rights
- Enforce state compensation through the introduction of a new state royalty replacing the system where royalties were for the benefit of mineral owners
- Provide for lapsing of old-order mining and related rights and
- Enforce alignment of old-order rights with the new provisions of the MPRDA.

From a property definition perspective the change was significant, in that the status of prospecting and mining rights changed from real under the old system to limited real<sup>9</sup> in the new system. The introduction of the custodian caused privately owned mineral rights to, first, lose their status as immovable property; second, to lapse under the use-it-or-lose-it provisions of Schedule II of the MPRDA; and third, significant destruction in the value of these ownership rights leading to the implementation of the new system on 1 May 2004. The loss of value is illustrated in Figure 2, which shows that the values of registered mineral rights in the coal-rich Bethal district of Mpumalanga, as recorded in the SA Deeds Office, reduced in value from about R4 000/ha in 1990 to less than R1 000/ha by 2000. With the introduction of the MPRDA in 2004, it was no longer possible to register mineral

<sup>8</sup>The past system of mineral rights ownership was described by several authors. For a discussion from a legal perspective, see: Dale, M.O. *South African Mineral and Petroleum Law*, August 2006, as revised. LexisNexis Butterworths.

Badenhorst, P.J., et al. *Mineral and Petroleum Law of South Africa: Commentary and Statutes*, Juta Law, Lansdowne, 2004, as revised.

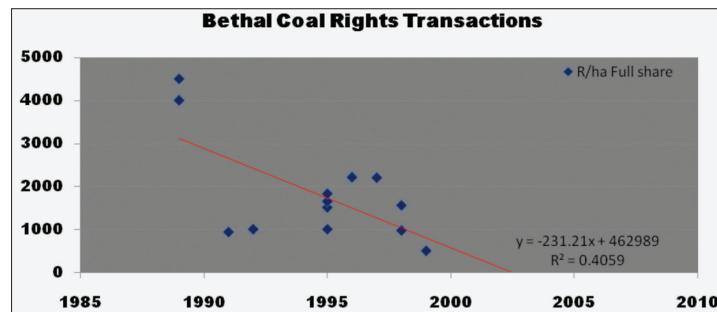
For a discussion from an economic perspective, see:

Cawood, F.T. and Minnitt, R.C.A. A historical perspective on the economics of the ownership of mineral rights. *Journal of the South African Institute of Mining and Metallurgy*, Johannesburg: South Africa, vol. 98, no. 7 November/December 1998. pp. 369–376.

Minnitt, R.C.A. and Cawood, F.T. Information as an alternative to mineral rights taxation. *Journal of the South African Institute of Mining and Metallurgy*, Johannesburg: South Africa, vol. 99, no. 6, November/December 1999. pp. 341–350.

<sup>9</sup>MPRDA Section 5(1)

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Source: Unpublished Research Files based on Deeds Office information

Figure 2—Value of coal right transactions as measured in ZAR per hectare

rights as real rights and to 'own' these. Under the new system one can 'hold' mineral development rights issued under the MPRDA and register these in the MTO.

Dale (2007) observed that the 'classification of prospecting rights and mining rights as rights in land ... provides for their compulsory registration at the Mining Titles Office, and ... any transfer, cession, letting, subletting, alienation, encumbrance by mortgage or variation thereof must also be registered' (MPRDA-11).

It follows that in order to constitute a real right, there must be registration with a national cadastre or registry. This system for registration of real rights in property relies on land survey legislation requiring coordinated points indicated on survey diagrams and sometimes plans that provide proof of ownership over a defined area. This is probably the most secure form of tenure because the owner's rights are clearly defined over an area, protected by the Constitution from expropriation, and exercisable in perpetuity. These qualities are not characteristic of limited real rights. A prerequisite for mineral investment is to give security of tenure to holders of mining rights. However, having a status of 'limited real' is problematic in the sense that such rights cannot be registered at the Deeds Offices. The solution to the problem was first to, allow registration at the MTO and incorporating security of tenure as a fundamental principle of the MPRDA.

Security and continuity of tenure assure the holders of MPRDA rights that through registration, their rights are exercisable in law for the duration of the right. Not all classes of mineral development rights created by the MPRDA have limited real status. Some permits and permissions are merely recorded and filed at the MTO, but not registered. The rights, permits and permissions for mineral development purposes under the MPRDA, along with their registration requirements, can be summarized as follows:

- The reconnaissance permission<sup>10</sup>, which has a duration of two years, cannot be renewed, is not classified as a limited real right, and does not require registration
- The prospecting right<sup>11</sup>, which has a duration of five years initially, can be renewed once for three years and upon registration becomes a limited real right binding on third parties
- The retention permit<sup>12</sup>, which has a duration of three years initially, can be renewed once for two years, is not classified as a limited real right, and does not require registration

- The mining permit<sup>13</sup>, which has a duration of two years initially, can be renewed for three further periods of one year at a time, is not classified as a limited real right, and does not require full registration
- The mining right<sup>14</sup>, which has a duration of thirty years initially, can be renewed for further periods of thirty years for the life of the mine and upon registration becomes a limited real right binding on third parties.

To conclude, an easy way to establish the property status of the MPRDA rights, permits and permissions, is to consider the wording. For example, where the word 'right' appears in the law (e.g. a prospecting right and a mining right) the status is 'limited real', i.e. although the holder of it can register the right as a form of property, the rights of that holder is limited by the powers of the Minister of the DME, who is the custodian of all mineral resources in the Republic. Others (e.g. mining permits, retention permits, and reconnaissance permissions) are just types of DME permission. This difference is illustrated in Figure 3.

### The survey roles as determined in the current mineral law framework

The function of the surveyor and his or her legal responsibilities in terms of the new mineral law framework were discussed in several recent articles<sup>15</sup>. These papers highlighted the rules and principles governing the surveying profession today. The roles and responsibilities of land and mine surveyors in mineral properties are now discussed in the context of the applicable laws regulating survey matters.

### The Mine Health and Safety Act (MHSA)

In terms of the MHSA and its Regulations, the employer must ensure that the mine is surveyed and that accurate mine plans are produced. Chapter 17 of the Regulations stipulates

<sup>10</sup>MPRDA Sections 14 and 15.

<sup>11</sup>MPRDA Sections 16–19.

<sup>12</sup>MPRDA Section 33.

<sup>13</sup>MPRDA Section 27.

<sup>14</sup>MPRDA Sections 22 and 23.

<sup>15</sup>See Cawood and Richards (2007), Cawood (2008) and Strydom (2009).

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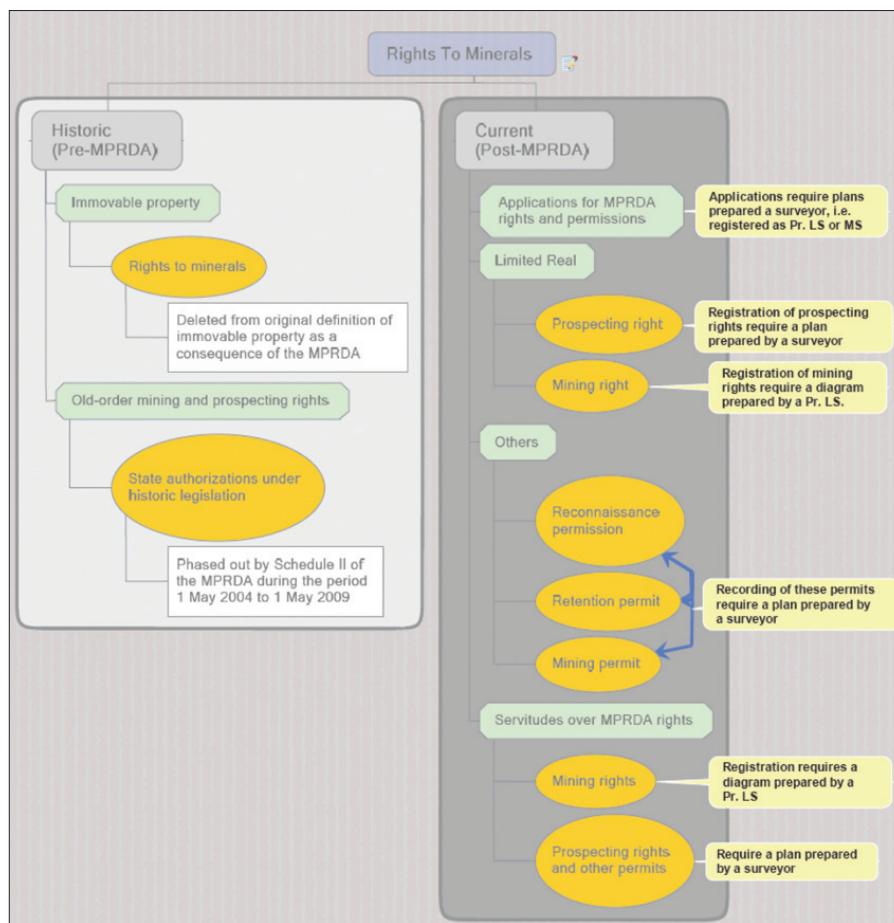


Figure 3—Mineral rights under the MPRDA

that such employer must appoint a competent person, either part time or full time, to take 'charge of surveying, mapping and mine plans at the mine'. If the services of more than one competent person are engaged, the employer must ensure that their functions do not overlap<sup>16</sup>. The interpretation is fairly easy, because a competent person is defined as a mine surveyor holding a Government Mine Survey Certificate of Competency. However, there is a provision to relax the requirements of the Act for the appointment of a competent person at surface mines and small quarries where no blasting takes place, provided such surveyors have appropriate experience in mine surveying and have passed relevant mine survey subjects. In order to ensure compliance with the provisions on the appointment of competent persons, the DME must be notified, and in some cases approve, such appointments.

The mine plans prepared in terms of the MHS<sup>17</sup> must cover all workings, infrastructure and restricted areas and include the following types of plans:

- Index key plan
- Surface plan
- Surface contour plan
- Mine ventilation and rescue plan
- Rehabilitation plan
- Mine residue deposit plans
- Geological plan

- Plans of workings
- General plan and
- Departmental copies of all plans.

### ***The Mineral and Petroleum Resources Development Act<sup>18</sup> (MPRDA) and Regulations***

It is a general requirement of the MPRDA that rights be registered and permits, permissions and encumbrances recorded at the MTO. The requirements<sup>19</sup> for the preparation of plans to accompany applications for rights, permits and permissions are as follows:

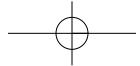
- A description of the coordinate system, which could be either Clarke 1880 (Cape Datum) or WGS1984/1994 (Hartebeesthoek Datum)
- A north point
- A scale
- Location and description of the land, including farm details

<sup>16</sup>MHSA Regulations Chapter 17 Items 2–4.

<sup>17</sup>MHSA Regulations Chapter 17, Items 15–30.

<sup>18</sup>Act 28 of 2002.

<sup>19</sup>MPRDA Regulation 2(2).



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- The extent of the land to which the application relates
- The boundaries of the land to which the application relates
- Surface structures and registered servitudes
- The topography of the land.

### ***The Mining Titles Registration Act<sup>20</sup>***

The MTRA had to be amended significantly in 2003<sup>21</sup> as a result of the new MPRDA. The amended MTRA provides for registration of new-order rights and any transfer, cession, letting, subletting, alienation and encumbrance by mortgage over mineral and petroleum properties. The purpose of the Act is to provide for security of tenure for holders of MPRDA rights, permits and permissions so that there is exclusivity and clarity on what holders are allowed to do within their registered and/or recorded areas.

For the purposes of lodgement for registration at the MTO, Section 12A(2) requires either a plan or a diagram to depict the areas covered by the rights or permissions. When a diagram is required, it must be 'approved, confirmed or certified by the office of the Surveyor-General'<sup>22</sup>. A plan is defined in the Act as a prescribed sketch plan or locality plan, which indicates the area of the right and is prepared for the purpose of lodgement with the MTO. Unlike diagrams, there is no requirement for plans to be approved by the Surveyor-General. This ambiguity created some uncertainty in the interpretation of the Act about who may prepare and submit plans in terms of the MTRA. The answer to this probably lies in the definition of surveyor. Regulation 3<sup>23</sup> of the MTRA defines Surveyor as:

'Surveyor shall mean a person registered as a professional land surveyor or mine surveyor in terms of the Professional and Technical Surveyors Act, 1994 (Act No. 40 of 1984 or a person so recognized as a surveyor'<sup>24</sup>.

Sections 41 to 45 deal with the creation and registration of servitudes and associated contracts within the boundaries of mineral development rights. These must be created by Notarial deed and must contain a description of any encumbrance and importantly, either a diagram or plan of the area. The interpretation of this provision is not very clear. The wording of the Act implies that in all other cases a plan would be sufficient—even for servitudes within mining right areas. The regulations to the MTRA require only servitudes over mining rights, and not prospecting rights, to have a diagram for registration purposes.

Chapter IV of the Regulations deals with the requirements for diagrams and plans, which must accompany applications for rights, permissions, permits and reservations. All plans required in terms of the MTRA must be prepared and certified by a surveyor, i.e. either land or mine surveyor with the required level of registration at PLATO. Sections 40 and 41 of the Regulations finally clarify the matter on when a plan or diagram is required with:

'40. The Director-General shall not record or register—  
(a) Any prospecting right, exploration right (for petroleum development), retention permit, mining permit, reconnaissance permission, reconnaissance permit or technical cooperation permit (also for petroleum development)...

Unless it is accompanied by a plan approved and certified by a surveyor, depicting the area which is the subject of such permission, permit, reservation or right.'

'The Director-General shall not register any mining right or production right (for petroleum development) unless it is accompanied by a diagram depicting the area which is the subject of such right.'

The implication is that mining right applications must, in addition to the plan requirement that may be prepared by either land or mine surveyor, be accompanied by a diagram, which can be prepared only by a registered professional land surveyor. Apart from the diagram required for the registration of mining rights, all other plans required for MPRDA applications and registering or recording them in terms of the MTRA, can be prepared by a registered Surveyor. However, this interpretation is subject to additional requirements of the Director-General of the DME. Regulation 42 states to this effect that:

'All plans shall  
(b) be certified, approved, signed and dated by the surveyor unless the Director-General otherwise indicate; and  
(c) be drawn up in such a form and to such scale as may be required by the Director-General.'

It is not very clear what powers are given to the Director-General by the phrase 'unless the Director-General otherwise indicate', but such powers are probably limited to:

- Additional entries he or she requires to appear on a plan
- Standardization of the format.

It is questionable that such powers could be interpreted as a demand for other or additional qualifications of the surveyor. This means that no preference should be given to either registered mine or professional land surveyors when preparing, certifying and signing plans under the MPRDA and MTRA. However, there is perhaps a case for the Director-General insisting on an additional diagram for MPRDA prospecting rights when its boundaries do not follow the relevant farm boundaries as registered in the Deeds Offices. However, although this requirement of having both plan and diagram is already applicable for mining and production rights, it would raise the costs for prospecting rights. This observation is supported by Regulation 43, which reads:

'In every other instance not referred to in these Regulations, the holder of any other permit, permission or right referred to in clause 9 of Schedule 2 of the MPRDA who seeks to register such right shall submit a plan.'

<sup>20</sup>Act 16 of 1967.

<sup>21</sup>Act 24 of 2003, assented to 26/11/2003 and effective from 14 May 2004 (RG No. 7965 Vol. 467 GG No 26352).

<sup>22</sup>MTRA Section 12A(4).

<sup>23</sup>Regulation Gazette No. 7965 Vol 467, 14/05/2004 No 26352.

<sup>24</sup>See requirements of (PLATO) Act 40 of 1984, as amended.

<sup>25</sup>Regulation 42 of the MTRA and Regulation 2 of the MPRDA

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Table I

### Summary of plans and diagrams with areas of survey responsibility

Plan/diagram	Surveyor	Remark
LSA and DRA: Diagrams Plans	Pr. LS (PLATO) Pr. LS (PLATO)	Registration of real rights
MHSA: Statutory mine plans Other plans	Competent Person (MHSA) Mine/Land Surveyor	Qualifications of Competent Person (Mine Surveyor) appear in Chapter 17 of the Regulations
MPRDA: Plans for mining rights Plans for mining rights where diagrams already exist Plans for all other applications	Pr. LS (PLATO) Pr. LS or MS (PLATO) Pr. LS or MS (PLATO)	Both land and mine surveyors are defined as 'surveyor'
MTRA: Diagrams Plans Servitudes requiring a diagram Servitudes requiring a plan	Pr. LS (PLATO) MS or Pr. LS (PLATO) Pr. LS (PLATO) MS or Pr. LS (PLATO)	Director-General has the power to 'otherwise indicate'

It follows that when the boundary of a mining right coincides with already registered diagrams of farms or portions of farms, the diagrams already exist and only the plan has to be prepared.

As well as the additional requirements of the Director-General that were discussed earlier in this section, there are specific requirements<sup>25</sup> for the information and details that must appear on plans for the purpose of registration, and these plans must indicate:

- The north direction
- The scale to which the plan has been drawn
- The name, number, registration division and portion of the farm or farms covered by the area
- The region in which the area is situated
- The shape of the area in relation to the farm boundaries and coordinated points.

The findings on the exercise of narrowly interpreting the provisions of the various Acts regulating the role of Mine and Land Surveyors appear in Table I.

### Conclusion

After considering the requirements of the various Acts that are applicable, it is concluded that:

- Only the competent (mine) surveyor may prepare and certify mine plans in terms of the MHSA
- Mine or land surveyors may prepare the plans required by the MPRDA
- Both mine and (professional) land surveyors may certify plans prepared in terms of the MTRA. There is an additional requirement that such surveyors be registered at PLATO

<sup>25</sup>Regulation 42 of the MTRA and Regulation 2 of the MPRDA

- Survey diagrams prepared in terms of the MTRA can be submitted only by a registered professional land surveyor.

The initial point of contention raised in the introduction of this paper about the boundary between land and mine surveyors when it comes to the compilation of plans and diagrams in terms of the mining laws, highlighted the need for clarity in this respect. After considering the legal requirements, one can conclude that Marshall's statement is not entirely true. Whenever diagrams must be prepared in terms of the MTRA, it is the function of a registered professional land surveyor. Plans must be prepared by either a registered professional land surveyor or a registered mine surveyor.

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