HERITAGE SCOPING SURVEY

FOR THE

AMENDMENT OF THE EXISTING CITY DEEP EMP

FOR THE RECLAMATION OF SLIMES DAM 3/L/42 AND 3 /L/40

CROWN GOLD RECOVERIES (PTY) LTD

A wholly owned subsidiary of DRD Gold South Africa

01 DECEMBER 2010

Prepared by

Johan Nel and Marike Fourie

Table of Contents

SUMMARY

This report constitutes an Archaeological Scoping Survey of two slimes dams in Johannesburg South. These slimes dams are owned by DRDGold South African Operations and proposed reclamation will be undertaken by Crown Gold Recoveries (Pty) Ltd. The slimes dams were created from 1934 onwards as tailings were deposited by gold mining operations on the Witwatersrand area. The slimes dams were in operation until 1968.

The slimes dams are situated within existing and established industrial zones. A railway line and the Wemmer Pan Road borders the sites the south-east, south and west. Factories and industrial buildings are located to the north, east and west. The slimes dams are currently used for illegal dumping of scrap metal, building rubble and other trash. Evidence of informal, illegal occupation was also noted where vagrants have constructed shelters in amongst trees.

A Scoping Survey was conducted on 23 November 2010 to determine the potential of any archaeological and other heritage resources occurring on or near the slimes dams. No evidence of archaeological resources was identified. Although the slimes dams were created more than 70 years ago – in effect constituting heritage resources – no significant structures, objects or features were noted. As far as the integrity of the slimes dams as heritage resources is concerned, it is argued that they represent negligible examples of early mining operations in the Witwatersrand. They have been altered, damaged, and destroyed in parts, thereby changing their historical significance as 'preserved' examples. Furthermore, these slimes dams have been in continuous use for more than thirty years, during which their character and significance were also altered.

It is recommended that no mitigation is necessary prior to the slimes dams being reclaimed. However, there is a possibility that informal, illegal burials may be found during the reclamation process. In such an event, due process must be followed. As the slimes dams do represent an aspect of the early industrial history of Johannesburg and surrounds, a brief heritage impact assessment could be recommended. This should entail an historical review of each sand dump or slimes dam, mapping the present footprint, and sourcing historical aerial imagery where the slimes dams are visible to preserve the slimes dams in an archival manner.

1 COMPANY INFORMATION

Crown is a wholly owned subsidiary of DRDGold South African Operations (DRDSA). The company reclaims sand dumps and slime dams that were deposited as tailings by mines that once operated in the greater Witwatersrand area. Crown has been responsible for the successful reclamation of 23 sand dumps and slimes dams, most of which have been situated around the City of Johannesburg and Ekurhuleni Metropolitan area. The effective removal of slimes dams and sand dumps has allowed for the removal of a source of environmental pollution, the rehabilitation of disturbed areas, and the unlocking of key urban land for development. The City Deep plant treats material from a number of slimes dams and sand dumps in the surrounding area in order to extract gold. Through the treatment of slimes dams in these areas, Crown has unlocked over 205ha of land for economic development. The urban location of these slimes dams sites makes the redevelopment of these properties highly valuable. For the purpose of this project, an amendment of the existing City Deep EMP will be undertaken for the reclamation of Slimes Dam 3/L/42 and 3/L/40.

2 PROJECT BACKGROUND

Crown Gold Recoveries (Pty) Ltd (Crown) is currently reclaiming a number of sand dumps and slimes dams in Johannesburg. These sand dumps and slimes dams, also known as tailings dams, were deposited as tailings during past gold mining operations in the Witwatersrand area. This project focuses on the amendment of the existing City Deep Environmental Management Plan (EMP) for the inclusion of Slimes Dam 3/L/42 and 3/L/40.

As part of this project, Digby Wells Environmental (Digby Wells) Digby Wells and Associates (Pty) Ltd (DWA) was appointed as independent environmental consultants by Crown to assess the physical, biological and socio-economic environment associated with the proposed project. In compliance with the relevant legislative requirements, archaeological and cultural heritage investigations formed part of the environmental assessments for this project. Archaeological and cultural heritage refer to the resources in South Africa having prehistoric, palaeontological, historical, cultural, artistic, and religious values, as well as unique natural environmental features that embody cultural values, such as sacred groves and forests, amongst others (IFC, 2006). Increased development and urbanisation in the southern African region have resulted in more archaeological sites being placed at risk during development projects and consequently, more focused archaeological impact assessments are needed to ensure the protection and conservation of these resources. In order to ensure archaeological and heritage aspects are considered in the amendment of the existing City Deep EMP for the reclamation of Slimes Dam 3/L/42 and 3 /L/40 , this heritage scoping survey was compiled. For the purpose of this study, the guidelines used to compile this report were provided by the Provincial Heritage Resources Agency Gauteng (PHRAG).

3 LOCATION AND DESCRIPTION OF STUDY AREA

Slimes Dam 3/L40 is located at 28° 3' 36.958" E, 26° 13' 9.513" S, and Slimes Dam 3/L/42 at 28° 3' 38.150" E, 26° 13' 23.570" S. Both slimes dams' co-ordinates have been calculated at the approximate centre of each slimes dams, using GIS software. Figures 1 to 5 represented examples of the general environment at the sites. The location of the study area is indicated on the following map.

Figure 1: South-eastern view of Slimes Dam 3/L/42

Figure 2: Detail of illegal dumping at Slimes Dam 3/L/42

Figure 3: General view on top of slimes dam

Figure 4: View of Slimes Dam 3/L/40 from northern edge of Slimes Dam 3/L/42

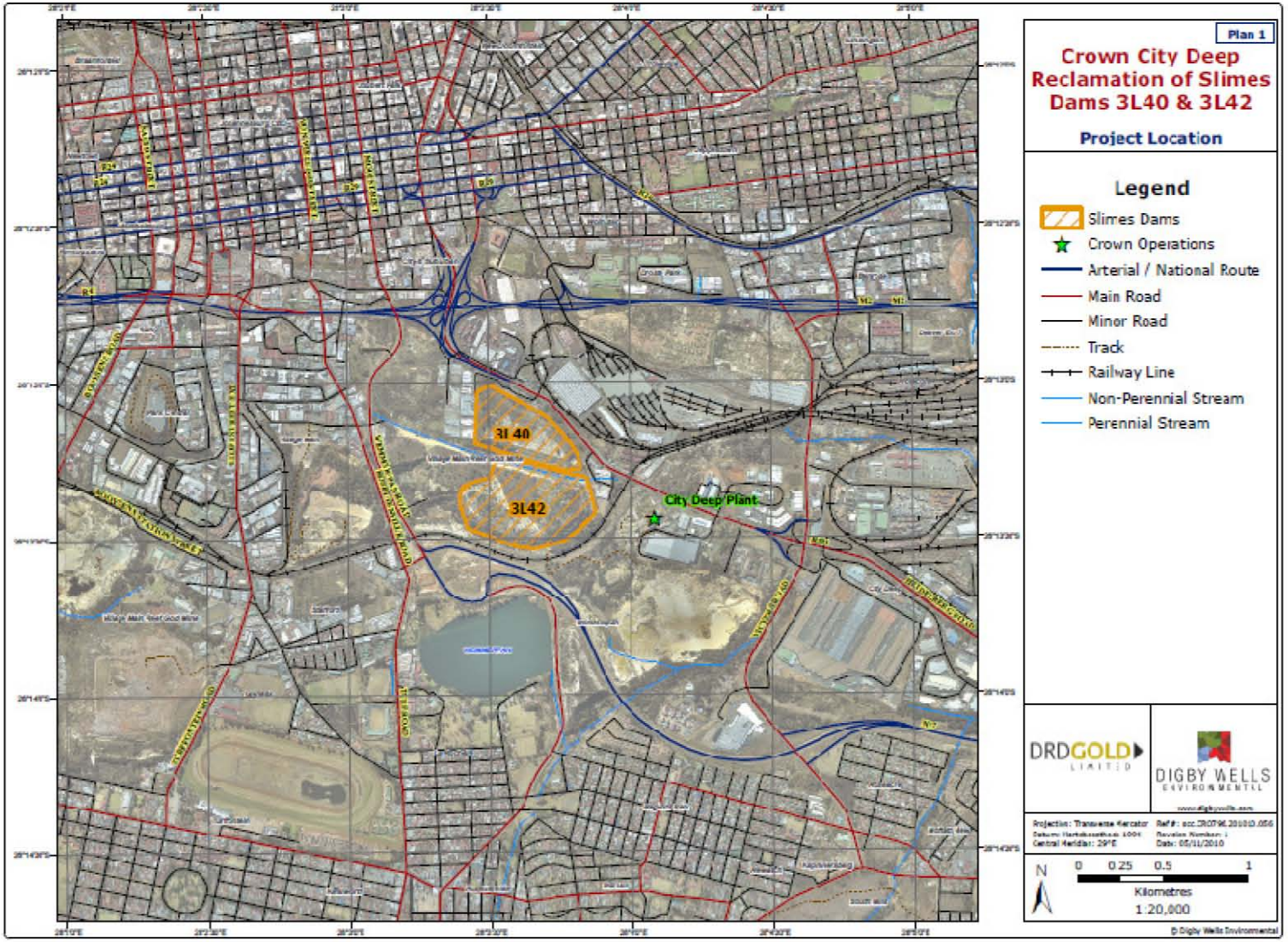

Figure 5: Location of survey area

4 AIMS OF STUDY

This archaeological scoping survey forms part of the amendment of the existing City Deep EMP for the reclamation of Slimes Dam 3/L/42 and 3/L/40. The objectives of the scoping survey were to notify the South African Heritage Resource Agency (SAHRA) and Provincial Heritage Resource Agency (PHRA) of the proposed reclamation. The scoping survey was conducted in accordance with the legislative requirements of the NHRA (no 25 of 1999), National Environmental Management Act (NEMA) (107 of 1998) and the MPRDA (28 of 2002). In essence, this scoping survey study aims to:

- Determine whether any potential exists at the sites for heritage resources to occur;
- Evaluate whether the proposed mining activities will have any negative impacts on archaeological, cultural, historical and natural heritage resources during construction, operation and decommissioning phases;
- Notify SAHRA of the proposed Crown project and furnish it with details regarding the location, nature and extent of the proposed development; and
- Recommend further management measures, if applicable

5 IDENTIFIED CULTURAL RESOURCES

Excluding the actual slimes dam, no cultural or archaeological resources were identified in the project area. Arguably, the slimes dams could be considered to constitute heritage resources as they were created in 1934 as tailings facilities for gold operations in the Witwatersrand region.

6 EVALUATION OF IMPACT

Reclamation of the slimes dams will not impact on any known heritage resources in the area. The ultimate destruction of the slimes dam should be considered as a positive environmental impact, as this will minimise and prevent various forms of pollution detrimental to human and environmental health. However, during the reclamation process, there is likelihood that heritage resources and human remains will be accidently or inadvertently found. Examples of this could include historical structures and burials covered by the existing slimes dams, or illegal burials in or on the sand dumps or slimes dams. A case study of unknown burials and historical slimes dams being found after reclamation is known at another of Crown Gold's slimes dams in Johannesburg.

7 CONCLUSION

The following recommendations are made based on recent correspondence received from the South African Heritage Resources Agency (SAHRA). In this SAHRA stated that a Heritage Impact Assessment (HIA) may be necessary for slimes dams or sand dumps reclamations, even if archaeological features are not present. This is due to the potential issues of cultural landscape, built environment and living heritage that need to be considered and documented.

- Such an HIA should be conducted by a suitably qualified team of specialists that could include industrial archaeologists, historians, and heritage architects amongst others. The HIA may consist of aspects such as:
    - an historical review of the landscape in which the sites are located;
    - original land use;
    - construction or creation of the slimes dams;
    - which mines they serviced;
    - a public participation process to determine whether the slimes dams have any significance to living heritage; and

    - detailed plans and maps of the slimes dams.
- An HIA may attempt to 'preserve' the slimes dam by creating an archive where as much relevant information as possible is collected concerning the history and significance of the slimes dams.
- Notwithstanding the above, it is not recommended that the slimes dams be preserved.

An effective management and monitoring process would also be required for this project. The purpose of an effective monitoring and management process is to provide advice to the developer in the management of significant resources. From a heritage perspective, this implies that sites must be monitored for potential archaeological and heritage findings (i.e. change find procedures must be implemented). General mitigation and monitoring guidelines include:

- If any possible archaeological or heritage finds are made during the construction phase for the proposed reclamation of Slimes Dam 3/L/42 and 3/L/40, the operations must be paused and a qualified archaeologist be contacted for an assessment of the significance and nature of the find.
- If any potential graves or burial sites are identified, operations must be stopped until the site is assessed by a qualified archaeologist. Graves and Cemeteries should be protected in situ, however, if these sites will be directly affected, a grave relocation will be recommended. A grave relocation process must be implemented by a team of qualified specialists in accordance with the NHRA, the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended), and according to the relevant permit conditions of ASAPA Minimum Standards and Act 65 of 1983 (as amended).

APPENDIX 1

JOHAN NEL

Archaeologist at Digby Wells Environmental

PERSONAL INFORMATION

Date of Birth: 07/01/1980

Languages: English, Afrikaans

Motor Vehicle License: code 08

Tel: (011) 504 1404 / 072 288 5496

Email: johan.nel@digbywells.co.za

EDUCATION

Potchefstroom Gimnasium (1993 – 1995)

Hoërskool Brandwag (1996-1997)

Matric Exemption (Standard 10 / Grade 12) English, Afrikaans, History, Art, Biology, Geography

University of Pretoria (UP) (1998-2001)

BA Degree (Bachelor of Arts) with Majors in Anthropology & Archaeology Subjects included: Anthropology, Archaeology, IsiZulu, History of Ancient Cultures, Geography, Philosophy.

University of Pretoria (UP) (2002)

BA (Honours) Degree specialising in Archaeology, focussed on Isotopic Analysis of Human Remains from the Ben Alberts Nature Reserve, Thabazimbi, and documentation of ritual initiation structures (phiri) from Maleoskop, Groblersdal.

University of Pretoria (UP) (2002)

Attended a course on physical anatomy and dissection for non-degree purposes.

University of Pretoria (UP) (2007 – present)

M.A (Magister Artium) Degree, specialising in Archaeology. Dissertation title: Finding Frontiers: An Archaeology of Landscape in South Africa's northern frontier during the last 500 years. The study uses a landscape approach to determine whether pottery analysis and settlement layout are adequate heuristics to interpret notions of 'frontiers' and identity. Received an National Research Foundation / Five Hundred Year Initiative research bursary over the years 2008 to 2009.

EMPLOYMENT

- 2010 – present: Archaeologist and CRM specialist, Digby Wells Environmentals
- 2005 – 2010: Co-owner and manager of Archaic Heritage Project Management, Cultural Heritage Resources Management consultancy company;
- 2004 – 2005: Resident, professional archaeologist, Rock Art Mapping Project based at Didima / Cathedral Peak, Ukhahlamba-Drakensberg World Heritage Site, Department of Geomatics, University of KwaZulu-Natal;
- 2003 – 2004: Freelance, professional archaeologist;

• 2002 – 2003: Special Assistant, Physical Anthropology Unit, Department of Anatomy, UP;

• 2000 – 2002: Technical Assistant, Physical Anthropology Unit, Department of Anatomy, UP;

• 1999 – 2000: Assistant in Mapungubwe Project, Department of Anthropology and Archaeology, UP;

• 1998 - 1999: Volunteer at National Cultural History Museum, Pretoria, Writer for BAT ('By About Town) arts section in Perdeby, official University of Pretoria student newspaper.

EXPERIENCE

Johan has volunteered at museums since childhood. His first formal experience in the archaeological and heritage environment during his tertiary studies, where he assisted professional archaeologists in cataloguing excavated material from a historical site in Pretoria. He was employed by the Department of Anthropology and Archaeology in his second year of study to assist in the Mapungubwe Project. This entailed collections management of certain artefacts from the Mapungubwe archaeological site to be included in the Mapungubwe Museum at UP. By his third year of study he was permanently employed by the Department of Anatomy, UP, where his training and experience included grave relocation, forensic archaeology, collections management, fossil preparation, as well as intensive archaeological fieldwork. He left this department soon after qualifying as a professional archaeologist to pursue a freelance career. He gained valuable experience in Cultural Resources Management, being contracted by established companies in addition to undertaking his own projects. In 2004 an opportunity arose for him to be the resident, professional archaeologist for the Rock Art Mapping Project. This entailed survey and documentation of known rock art sites, as well as the identification of new sites. Johan established Archaic Heritage Project Management with a partner towards the end of 2005. He managed this company until his appointment at Digby Wells in 2010. During the five years managing Archaic, Johan has undertaken numerous projects that included archaeological impact assessments and Phase 2 projects, grave relocation, social consultation, and general heritage research projects such as land claims. Current areas of expertise at Digby Wells include archaeological field work, historical research, managing Archaeological and Heritage Impact Assessments, and drafting and reviewing reports.

PROFESSIONAL MEMBERSHIPS

- Association of Southern African Professional Archaeologists (ASAPA): Professional Member
- ASAPA Cultural Resources Management (CRM) section: Accreditation in:
- Grave Relocation – Field Director
- Iron Age – Field Supervisor
- Rock Art – Field Supervisor
- International Association of Impact Assessors (South Africa)
- Society for Africanist Archaeologisists (SAfA)

MARIKE FOURIE

Environmental Consultant at Digby Wells and Associates (DWA)

PERSONAL INFORMATION

Date of Birth: 08/09/1981

Postal Address: 19 Beverley Drive North, Languages: English, Afrikaans

Constantia Kloof, 1709 Motor Vehicle License: code 08

Tel: (011) 475 4242/073 542 8530 Email: Marike@digbywells.co.za

EDUCATION

Florida High school (1994 – 1999)

Matric Exception (Grade 12) Distinctions in Biology, Mathematics, Tourism Management and History of Art, Scottish Exams (supplementary) 1999 Distinctions in Biology and Afrikaans

University of Pretoria (UP) (2000 – 2002)

BhcS. Degree (Baccalaureas Hereditans Culturaeque Scientea) Specializing in Heritage Tourism Management. Prestige bursary holder for 3 consecutive years; this degree is based on intensive research on heritage resource management and emphasizes sustainable development. It focuses on the practical application of interdisciplinary academic theories. Subjects include: Tourism management, Geography, Computer Information Literacy (CIL), Archaeology, Anthropology, History and Heritage management.

University of Pretoria (UP) (2003 – 2004)

Bhcs. (Honours) Degree Cum Laude, focussed on Environmental Impact Assessment (EIA), sustainable development, African archaeology, Geography and Community development. Research report/Mini-thesis entitled: “Ethno-botanical assessment of the Blouberg region: Its significance for tourism”, conducted under leadership of Prof. C.C. Boonzaaier. The report focused on the potential of ethno-botanical tourism development at Blouberg, which is part of the ‘African Ivory Route’ Tourism Project in the Limpopo Province. (South Africa). Marike conceded her Bhcs (Hon.) degree with distinction.

University of Johannesburg (UJ) (2005 – 2006)

M.A (Magister Artium) Degree, specializing in Sustainable Development and tourism management, focusing primarily on development in the northern regions of the Limpopo Province; Activities include intensive research, implementation of sustainable principles, problem-solving, management evaluation, mission & goal definition, impact assessment, monitoring, strategic management and continuous feedback. Case study: Hananwa region (Blouberg) in the Limpopo Province.

Wildlife Campus (Ecolife) (2007 – 2008)

Wildlife Management, Certificate course focusing on the science of wildlife management, habitat management, game management, nutritional physiology of herbivores, nutritional chemistry for herbivores, wildlife nutrition, wildlife diseases, wildlife parasites, toxic plants, soil assessment, carrying capacity, assessing vegetation and integrated game reserve management. The wildlife management course is presented by Ecolife, owned and operated by Professor Wouter Von Hoven at the University of Pretoria’s Centre for Wildlife Management (Wildlife campus)

University of Johannesburg (UJ) (2008 – current)

Doctoral Degree in Environmental Management in the Science Faculty, Department Geography, Environmental Management and Energy studies, focussing on the systematic analysis of impacts on archaeological and palaeontological resources in the Sterkfontein Caves of the Cradle of Humankind World Heritage Site, as result of groundwater pollution from mining on the West Rand

Lifetime Membership: Goldenkey International Honorary Society: Membership attained through academic achievement (Honorary Colours) in the BhcS. Degree at University of Pretoria (UP).

EMPLOYMENT

- 2006 – 2010 Environmental Consultant at Digby Wells and Associates (DWA), Randburg;
- 2005 – Lecturer in Sustainable Tourism Development at the University of Johannesburg (previously known as R.A.U);
- 2005 – Lecturer in Geography at Abbott's College, Northcliff;
- 2004 – Researcher for South African Veterinary Association (SAVA): Development of Veterinary Museum at Onderstepoort, Pretoria;
- 2004 – Administrative Assistant at Financial Services Compensation Scheme (FHCS), London, U.K;
- 2002 – 2003 : Research Assistant at University of Pretoria (UP), Archive Assistant & Part-time Travel Writer for Campus Newspaper, Perdeby

EXPERIENCE

Whilst completing a BhcS. (Hon) and Masters Degree, Marike has done intensive research, fieldwork and impact assessments in the Blouberg area, Limpopo Province. The Hananwa community formed an integral part of the Masters Degree in Sustainable Development as well as an Ethno-botanical assessment of the region. As lecturer in Sustainable Development, Tourism development and Geography at University of Johannesburg (UJ) and Abbott's College, she was responsible for the preparation of formal lectures, presentations, practical guidance (excursions) and student evaluation. Other work experiences such as Research assistant for South African Veterinary Association (SAVA) and University of Pretoria (UP) were primarily focussed on resource analysis, literature reviews, compilation of development proposals, data input and constructive recommendations. Current area of expertise at DWA lies in the formulation and implementation of sustainable development initiatives, archaeological impacts assessments and assisting with Environmental Impact Assessments (EIA), Environmental Management Plans (EMP), Scoping Reports and Closure Reports.