



HERITAGE STATEMENT FOR THE CENTRAL BASIN, WITWATERSRAND AMD PROJECT

TRANS CALEDON TUNNEL AUTHORITY

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	PROJECT DESCRIPTION	1
1.2	STUDY AREA	2
1.3	TERMS OF REFERENCE AND LEGAL REQUIREMENTS	2
2	SUMMARY OF THE SCOPING REPORT.....	1
2.1	LITERATURE REVIEW	1
2.1.1	<i>Palaeontology</i>	1
2.1.2	<i>Stone Age and Iron Age</i>	1
2.1.3	<i>Historic Period</i>	1
2.2	RELEVANT DATABASES AND COLLECTIONS.....	2
2.3	DESKTOP CARTOGRAPHIC SURVEY.....	2
2.4	RELEVANT PREVIOUS IMPACT ASSESSMENT REPORTS.....	3
2.5	SITE VISIT RESULTS.....	3
3	MOTIVATION FOR LETTER OF EXEMPTION FROM A HIA.....	6
4	REFERENCES	6
4.1	LITERATURE	6
4.2	REPORTS	6
4.3	WEBSITES.....	6

LIST OF FIGURES

Figure 1: At the proposed abstraction point all infrastructure has been demolished and removed. This was the location of the old head gear	4
Figure 2: Only building still existing on the proposed abstraction property	5
Figure 3: Part of the existing treatment plant that dates to the mid-1970s	5

LIST OF TABLES

No table of figures entries found.

LIST OF APPENDICES

Appendix A: CVs of Specialists

LIST OF PLANS

Plan 1: Central Basin Site layout

Plan 2: Local setting of the Central Basin area

1 INTRODUCTION

1.1 Project Description

The history of deep level gold mining in the Witwatersrand extends back about 120 years. During the last decade of the 20th century, the intrinsic finite nature of gold resources resulted in the cessation of mining and subsequent dewatering. Since 1997, discontinued dewatering caused an increased flooding of the voids by acidic water containing heavy metals. The flooding escalated and decant took place at an old shaft in the Western Basin in September 2002.

In 2010, Cabinet appointed an Inter - Ministerial Committee (IMC) to address the serious challenges posed by acid mine drainage (AMD) in the Witwatersrand Gold Fields area. The IMC tasked a Technical Committee to investigate the AMD issues. The Technical Committee subsequently appointed a team of experts, who developed and presented a draft report on AMD to Cabinet on 9 February 2011.

The IMC experts report indicated that interventions are urgently required as prevention of AMD decant from the mining basins is considered of national importance. As part of a national mitigation strategy, the Department of Water Affairs (DWA) subsequently issued Trans-Caledon Tunnel Authority (TCTA) with a directive to act as the agent to plan, design and implement immediate and short term measures to manage and control AMD in the Western, Central and Eastern Basins of the Witwatersrand Gold Fields.

Subsequently, TCTA has contracted Digby Wells Environmental (Digby Wells) to conduct an Environmental Impact Assessment (EIA) of the Short Term Intervention of the Western, Central and Eastern Basins which is holistically referred to as the "Witwatersrand Gold Fields AMD Project" (herewith referred to as the Witwatersrand AMD Project).

For the Central Basin, a new water treatment plant will be constructed at the East Rand Proprietary Mines (ERPM) South West Vertical (SWV) Shaft area (Plan 1). The High Density Sludge (HDS) treatment process has been selected to treat AMD. Water will be abstracted from the existing shaft before being treated in the HDS plant. The following construction activities will be conducted:

- Abstraction of AMD via installed pumps in the SWV Shaft to pump to the Environmental Critical Level (ECL);
- Construction of a new HDS plant at SWV Shaft;
- Construction of a waste sludge pipeline to the Crown Knights Gold processing plant;
- Construction of a treated water pipeline to a suitable discharge point on the Elsburgspruit; and
- Investigation and planning for a possible future waste sludge pipeline to an existing tailings disposal facility.

Notwithstanding current and potential impacts on the natural and social environment, the proposed upgrades and construction of water treatment facilities in the three basins will also impact on heritage resources. Heritage constitutes in many ways entirely non-renewable

resources. Heritage resources management, therefore, aims to conserve, protect, and preserve heritage resources that are of significant value. In terms of the project, those heritage resources that maybe affected are expected to include archaeological and palaeontological material and historical structures and buildings associated with the history of mining. There may be some grave sites affected by the construction activities or the increased flow of water from the discharge.

A Draft Scoping Report was compiled and aimed at characterising the heritage landscape of the Central Basin. Following the results of the Draft Scoping Report, A Letter of Exemption based on a Heritage Impact Assessment (HIA) was recommended. This Letter of Exemption, therefore, aims to summarise the findings of the Draft Scoping Report and present a motivation for exemption of the Central Basin from an HIA.

1.2 Study Area

The proposed Witwatersrand AMD Project is located in the Gauteng Province of South Africa (Plan 2). The Central Basin extends from Durban Roodepoort Deep (DRD) in the west to ERPM in the east (BKS, August 2011). The proposed Central Basin AMD treatment plant is to be situated about 1.8 km east of the Germiston CBD on the western portion of the ERPM SWV Shaft area. The site is bound on the north by the Lower Boksburg Road, on the west and south by Brammer Street and Power Street respectively and on the east by a Transnet railway line.

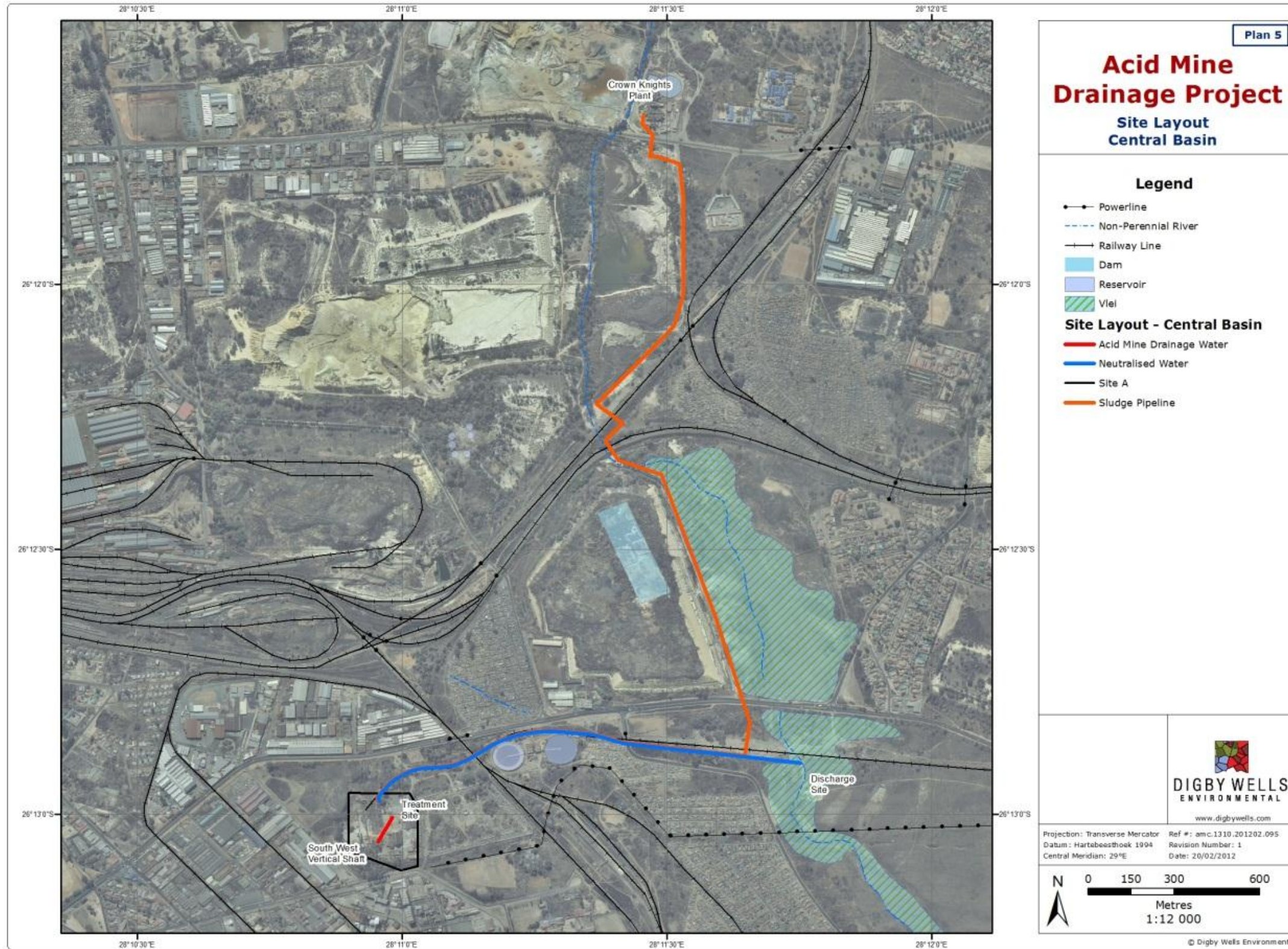
1.3 Terms of Reference and Legal Requirements

TCTA requested Digby Wells to undertake an EIA for the Witwatersrand AMD Project. As a result of the Draft Scoping Report, a Letter of Exception of a full Heritage Impact Assessment for the Central Basin was recommended.

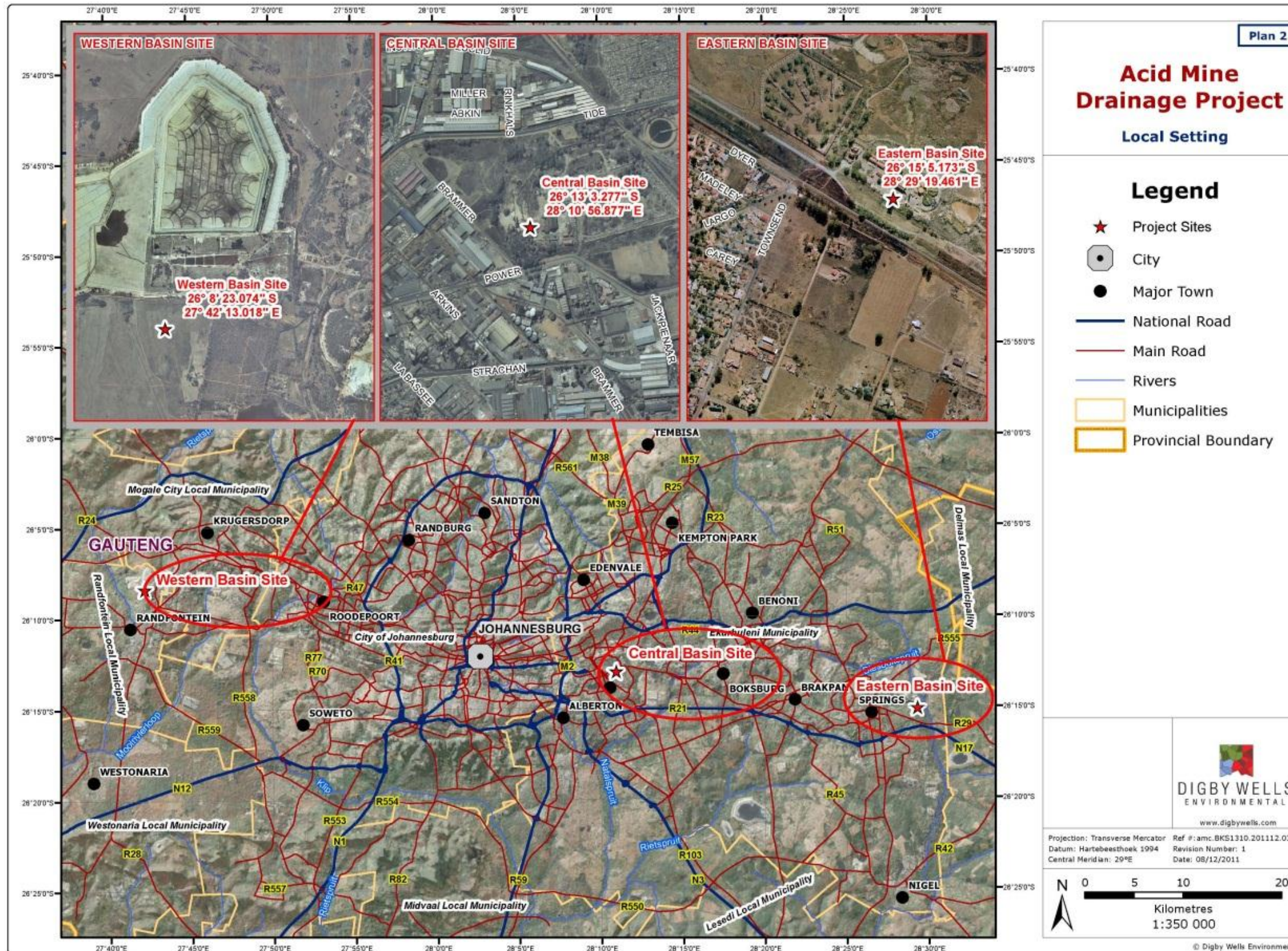
The following legislation and national guidelines inform the Letter of Exemption:

- National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) with specific reference to Section 8;
- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- National Water Act, 1998 (Act No. 36 of 1998) (NWA); and
- South African Heritage Resource Agency (SAHRA) Minimum Standards.

Plan 1: Central Basin Site layout



Plan 2: Local setting of the Central Basin area



2 SUMMARY OF THE SCOPING REPORT

2.1 Literature Review

2.1.1 Palaeontology

The Cradle of Humankind in Western Gauteng is a famous palaeontological site that was declared a World Heritage Site in 1999 (Hilton-Barber & Berger, 2002). The palaeontological discoveries at Sterkfontein caves in the Cradle have put South African research at the forefront of palaeontology worldwide. The palaeontology of Eastern Gauteng, however, is less well researched than that of the Western Areas. Regardless of this fact, the rule of “absence of evidence is not evidence of absence” should be applied to this area. Considering the rich palaeontological finds of Western Gauteng, it is conceivable that similar finds could be made in the east of Gauteng.

2.1.2 Stone Age and Iron Age

The Stone Age is fairly well researched and understood in southern Africa. However, no substantial number of Stone Age sites from any period of the Stone Age is known to exist in this area – primarily as a lack of academic research. Stone Age sites may occur all over the area where an unknown number may have been obliterated by mining activities, urbanization, industrialization, agriculture and other development activities during the past decade.

A considerable number of Late Iron Age stone walled sites dating from the 18th and 19th centuries occur along and on top of the rocky ridges of the eastern part of the Klipriviersberg towards Alberton. A Late Iron Age stone walled settlement is also located at Meyersdal Koppies, in the Meyersdal Nature Reserve approximately 13 km from the ERPM SWV shaft area. No additional Iron Age sites are known to exist in the immediate vicinity of the project area.

2.1.3 Historic Period

The current general landscape has been shaped by mining to such a degree that the history of mining on the Witwatersrand must first be examined.

Prior to the 1880s, the area was open farm land. The discovery of gold on the farm Langlaagte in 1886 created in a short span of time, a massive influx of diverse people and communities. Mining in the Witwatersrand soon turned from small scale prospecting and digging of claims into industrial operations. This ‘transition’ was formalised by the establishment of the Chamber of Mines (CoM) on 7 December 1887. The CoM included representatives from mines such as Aurora, Balmoral, City and Suburban, Crown Reef, Driefontein, Eclipse, Geldenhuis Estate, George Goch, Langlaagte Block B, Langlaagte Estate, Langlaagte Western, Luipaard's Vlei, Nigel, Odessa, Randfontein, Riet Vlei, Robinson, Stanhope Geldenhuis, Transvaal Montana, White Reef and Witwatersrand (Chamber of Mines 2008).

The Central Basin includes some of the earliest mines and subsequent towns in the Witwatersrand region. The farm Driefontein was declared public diggings on 20 September 1886, along with the farm Elandsfontein (Lang, 1986) on which Germiston was established in 1905. The town was developed around a railway yard that served as a convergence centre for railway lines from Cape Town to Pretoria via Kimberley and another to Lourenço Marques (Maputo). Germiston was thus primarily an industrial centre catering to much of the Central and Eastern Basin mines due its accessibility to mineral resources and as a transport hub.

With the development of mining, prosperity (and poverty) increased. Affluence was probably most prominently expressed in terms of architecture in the early towns and on mine properties. Many mine buildings were designed by Sir Herbert Baker for the working class and emerging middle class. The buildings are ‘examples of the “industrial” or “commercial” such as those designed for ERPM like the ERPM clubhouse (Anon, Brief History of ERPM Golf Club, 2008).

Other heritage resources that add to the heritage landscape may include historical burial grounds. Other than being protected under section 36 of the NHRA, such cemeteries may be perceived as intangible memorials of the workers who lived, worked, and died on the mines. Also noteworthy are the residential compounds which are significant in terms of the socio-political history of individual mines and the regional history. Preservation of such structures as the physical remains of very abstract concepts, ideologies and political will should be taken into account.

2.2 Relevant Databases and Collections

The following archives and databases were consulted:

- WITS Archaeological Site Database;
- South African Genealogical Database; and
- Chief Surveyor General.

The South African Archives website was surveyed and no information was gathered.

The South African Genealogical Database was surveyed. All known cemeteries recorded on the South African Genealogical Database occurred outside of the proposed footprint of the project and will not be impacted upon. A First World War Memorial is situated approximately 2 km west of the ERPM SWV Shaft project area. This memorial is located outside the boundaries of the project area and will not be impacted.

The Wits Archaeological Site Database was consulted and no sites were identified within the project area, or in the immediate surrounds.

2.3 Desktop Cartographic Survey

The 1:50 000 topographical map of 2628AA Johannesburg was surveyed for any heritage structures and graves. The map indicated several buildings on the property.

Historical aerial photographs from 1938 were surveyed for potential heritage resources in the Central Basin. The photographs surveyed for the potential modern sites in the Central Basin development in the form of:

- Homesteads;
- Residential Settlements;
- Fields;
- Roads and railways;
- Mines/Industrial areas; and
- Dams, pans and rivers.

Heritage resources such as graves and historical built heritage may be present around features such as homesteads and residential settlements. Features such as roads, railways, fields, mines, mine dumps and industrial areas will have disturbed the areas and any heritage resources that may be present. However some railways, mines, mine dumps and industrial areas may be heritage resources themselves as they are over 60 years old and may be of heritage significance. A golf course and recreational lake is present in the Central Basin area (133_014_06190). Overall, the Central Basin area showed high levels of development as a result of industrial and mining activities.

In comparison with up-to-date satellite imagery, the Central Basin area has become progressively more industrial and today it is completely industrialised with expanding informal settlements. It is noted that the HDS plant will be constructed on the established ERPM site. The waste sludge pipeline will follow existing roads and servitude lines. The water treatment pipeline will, for the most part, cross a ploughed field and disturbed areas where it will reach a suitable discharge point on the Elsburgspruit.

2.4 Relevant Previous Impact Assessment Reports

The following relevant local impact assessment was reviewed:

- Gaigher, S. 2011. Basic Heritage Impact Assessment for the Proposed Wadeville Extension 44 Commercial Development. Report prepared for Galago Environmental, CC.

The report consists of a previous impact assessment conducted on the affected property of Klippoortjie 110IR approximately 3 km from the project area. Two modern structures were identified and no recommendations were made for these structures as they were not to be impacted upon (Gaigher, 2011).

2.5 Site Visit Results

A scoping site visit was conducted to confirm the integrity of the proposed project area. No heritage resources were identified during the site visit. All existing infrastructure such as the old head gear has been completely dismantled and removed (Figure 1). Only one building remained on the proposed abstraction property (Figure 2). At the proposed treatment plant

area, existing infrastructure dates to the mid-1970s (Figure 3). In general the immediate receiving environment was observed to be completely industrial.



Figure 1: At the proposed abstraction point all infrastructure has been demolished and removed. This was the location of the old head gear



Figure 2: Only building still existing on the proposed abstraction property

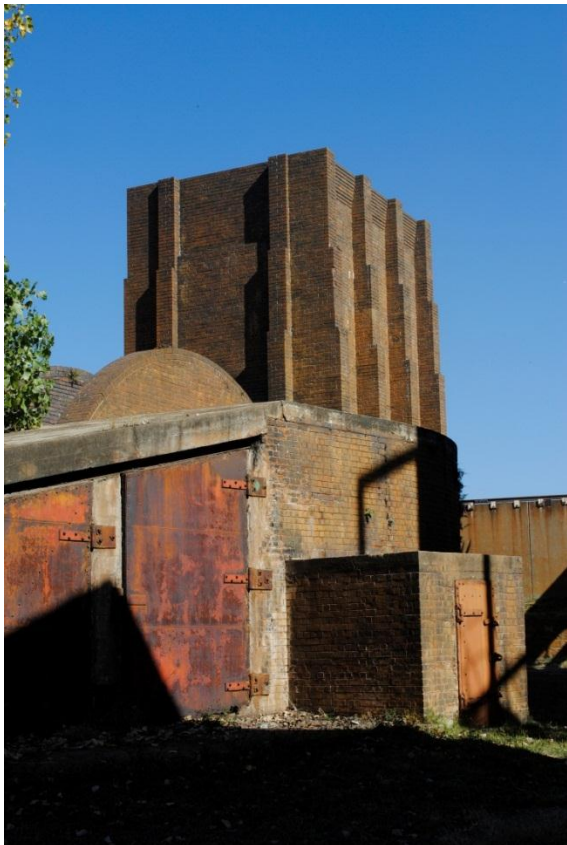


Figure 3: Part of the existing treatment plant that dates to the mid-1970s

3 MOTIVATION FOR LETTER OF EXEMPTION FROM A HIA

The immediate receiving environment consists of proposed sites where water abstraction, water treatment plants and pipelines start and is characterised as completely industrial. Very little, if any, pre-colonial history is expected to occur in the immediate vicinity. In general, the project will not impact on heritage resources in the Central Basin. Due to the completely modern and industrialised character of the Central Basin area, a Letter of Exemption from a HIA is recommended.

4 REFERENCES

4.1 Literature

Lang, J. (1986). *Bullion Johannesburg: Men, Mines and the Challenge of Conflict*. Johannesburg: Johanthan Ball Publishing.

4.2 Reports

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Gaigher, S. (2011). *Basic Heritage Impact Assessment for the Proposed Wadeville Extension 44 Commercial Development*. Report prepared for Galago Environmental, CC.

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Appendix A: CVs of Specialists