ISCOR VANDERBIJLPARK STEEL

ENVIRONMENTAL MASTER PLAN

SPECIALIST REPORT

CULTURAL HERITAGE IMPACT ASSESSMENT STUDY

BY

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TO:

FRANCOIS MARAIS AND ASSOCIATES
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A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT STUDY FOR THE ISCOR FLAT STEEL PRODUCTS PLANT IN VANDERBIJLPARK

DR JULIUS CC PISTORIUS
Archaeologist and Cultural Heritage Management Consultant
352 Rosemary Street
Lynnwood 0081
Pretoria
Tel and fax no 012 3485668

Senior Lecturer
Department of Anthropology and Archaeology
UNIVERSITY OF PRETORIA
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EXECUTIVE SUMMARY

According to the contextual evidence and the evidence gathered during a survey on foot, no heritage resources of outstanding significance occur in either of the two critical areas (neither in the Iscor Flat Steel Product [IFSP] plant and the Bought Out Area [BOA]). The IFSP plant and the BOA have been severely damaged by industrial and agricultural activities, so that few heritage resources, even if they did once occur in these areas, could still be unaffected in the critical areas. Remains of some significance which did, however, occur in both critical areas were graves and cemeteries. Remains that may have been missed during the survey on foot include Stone Age sites or stone tools. Single, isolated graves not necessarily covered by stones or marked by tombstones may occur on the surface areas of the two critical areas. All infrastructure in the BOA were destroyed after an inspection by SAHRA.

Infrastructure (and associated industrial processes) of historical (industrial) significance may exist in the South Works. Some of the infrastructure in this plant is almost 60 years old. Other criteria may elevate the status of some of these remains to the level of outstanding industrial or historical significance. It is recommended that specialists should investigate this matter further.

Paper collections of historical significance must be collected and preserved in an archive or library.

Mitigation measures and legislation relevant to heritage resources have been outlined. Mitigation measures require specialists such as historical architects (for historical infrastructure), forensic archaeologists (for human remains) or archaeologists (archaeological remains) to conduct further studies. These specialists are acquainted with legislation pertaining to such remains as well as with the administrative procedures needed to obtain permits to conduct such studies.

The National Heritage Resources Act (Act No 25 of 1999) outlines various categories of significant objects and places that qualify as national heritage sites. At least four of these criteria are relevant to the IFSP plant and/or Vanderbijlpark. This indicates that the IFSP plant can possibly be classified as a national heritage site, or as a symbol of a unique part of South Africa's industrial heritage. This assertion, however, will have to be researched more thoroughly in order to motivate and to uphold such an argument. No industry that dates from the recent past in South Africa has to the knowledge of this author been declared a national heritage site.

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1 INTRODUCTION

This report contains the results of a heritage resources impact assessment study done for the Iscor Flat Steel Product (IFSP) plant situated in Vanderbijlpark in the Gauteng Province of South Africa. The IFSP plant, together with the Iscor Pretoria Works and the Newcastle Works, not only supply South Africa with iron and steel but also export these products, saving South Africa billions of rands in foreign exchange. The IFSP plant makes a significant contribution to the economic activities in the Vaal Triangle. The triad of towns consists of Vereeniging (Vanderbijlpark's sister town, fifteen kilometres to the east of Vanderbijlpark in Gauteng) and Sasolburg (nine kilometres to the south of Vanderbijlpark and the Vaal River in the Orange Free State). Here South Africa's largest steel, engineering, chemical and petroleum industries are concentrated, making the Witwatersrand-Vaal Triangle one of the four major industrial metropoles in South Africa to shape the demographic patterns of South Africa after the First World War.

Whilst towns on the Witwatersrand owed their development to the discovery of gold in the late 19th century, Vanderbilpark came into existence as a result of the expansion of the iron and steel industry in South Africa during the first half of the 20th century. During the early stages of the Second World War, the South African Iron and Steel Corporation Limited (Iscor) found that the Pretoria Works were approaching the limits of the site's capacity. In order to meet South Africa's demand for steel plate, the board of Iscor investigated other areas suitable for expansion. On the recommendation of Dr Hendrik van der Bijl, then chairman of Iscor, the corporation purchased nearly 10 000 hectares of barren land with an eight kilometre frontage along the Vaal River.

The history of the IFSP plant is tied up with the development of Vanderbijlpark and with black townships such as Boipatong and Bophelong, located on the southern perimeters of the IFSP plant. These towns and townships, including Sharpeville, between Vanderbijlpark and Vereeniging, were developed during the early years of apartheid to accommodate Iscor's new work force. The town of Vanderbijlpark is unique in the history of urban development in South Africa due to the remarkable speed with which the town developed and because most of the town was planned before the first sod of earth was turned. Vanderbijlpark (or the steel town) was the dream of an idealist, Dr Hendrik van der Bijl, after whom the town was named. Vanderbijlpark celebrated its twenty-first birthday in 1964, recognising that the town had been founded in 1943, the year in which Iscor's plate mill was completed and went into production.

The development of the IFSP plant since 1943 led to the rise of an industry of considerable proportions. The IFSP plant employed 19 780 employees in 1985 and produced 4 537 000 million tons of cast iron in 1992, five times the amount manufactured by the Pretoria Iscor Works and twice the amount produced by the Newcastle Works. From 1953 to 1993 Iscor spent R 5 112 million on the upgrading and development of its three steel works. A large part of this development capital was spent on the IFSP plant that became one of the leading iron and steel manufacturing plants in the world.

This study consisted of a heritage resources impact assessment study done for the IFSP plant. The study consisted of a desktop study supplemented by a Phase I survey. The aim of the study was to determine whether any significant heritage resources exist on the surface areas of two critical areas, namely the IFSP plant (IFSP) and in the Bought Out Area (BOA). The study also refers to a peripheral or a non-critical area. This area is an arbitrary strip of land that surrounds the critical area.

The Phase I survey consisted of a survey done on foot and with a vehicle in order to cover parts of the two main study areas which, together, cover a considerable surface area. The presence of heritage resources in these areas implies that these resources must be managed in order to ensure their preservation. These resources may also be affected by development activities in the near or distant future. Consequently, legislation relevant to heritage resources as well as appropriate mitigation measures have been outlined. The mitigation measures have to be complied with whenever any heritage resources present in the critical areas may be affected by any development activities or whenever new heritage resources are (accidentally) discovered in the critical areas.

The IFSP plant and the town of Vanderbijlpark were broadly contextualised in terms of the pre-historical, historical, cultural and industrial context of the region, particularly by referring to the origins and development of the IFSP plant and the towns of Vanderbijlpark and Vereeninging. Vereeniging, whose origin and emergence is embedded in the discovery of coal, has a better known pre-history than Vanderbijlpark. This town was also established prior to Vanderbijlpark, giving it a longer historical record.

Utilizing the contextual evidence, this study also points out four criteria, as outlined by the National Heritage Resources Act (Act No 25 of 1999), that can be used to evaluate different objects and places in South Africa to determine whether these sites and/or objects qualify as part of the national estate. The

IFSP plant, whose fate is linked closely with that of the town of Vanderbijlpark, may perhaps qualify as part of the national estate.

2 AIM OF THIS REPORT

In this report three study areas are distinguished, namely the Iscor Flat Steel Product (IFSP) plant, the Bought Out Area (BOA) and the Peripheral Area (PA).

The IFSP plant refers to the premises that contain the infrastructure associated with the IFSP plant situated on the farms Rietkuil and Cyferpan, to the north of the town of Vanderbijlpark. The BOA incorporates parts of the farms Rietkuil, Louisrus and Steelvalley, agricultural holdings Iscor bought from local residents and located to the west of the IFSP premises. The PA is an arbitrary strip of land that surrounds the IFSP plant and partially incorporates the BOA. The main focus of this study, however, is the surface areas of the IFSP plant and the BOA (Figure 1).

The National Heritage Resources Act (Act No 25 of 1999) lists a wide range of resources that qualify as 'heritage resources' of South Africa. It is not known whether any of these types of resources occur on the surface areas of the two critical areas outlined above. Heritage resources (including graves) may not be affected, damaged or destroyed by any development project before the necessary permission and permits have been obtained from the National Heritage Resources Agency (SAHRA) and other government departments (see Part 6, Possible impact on heritage resources in critical areas). Consequently, this study was undertaken to determine whether if any heritage resources (including graves) do exist in the two critical areas. The presence/absence of heritage resources in the critical areas determine whether these resources may be endangered by any future development activities that the IFSP plant intends to undertake in the short, medium or long term. Heritage resources in mining or industrial areas must also be documented in Environmental Management Programme (EMP) reports.

Heritage resources that may be affected by development activities must be subjected to mitigation measures (generally referred to as Phase II studies by archaeologists). Phase II studies can be equated with mitigation measures as these studies may consist of archaeological salvage excavations, the exhumation and reburial of human remains, the documentation of historical structures or rock art sites, the restoration of historical structures, etc. Mitigation measures must be conducted by specialists, must comply with certain criteria and are evaluated by SAHRA. Heritage resources must also be managed to ensure their preservation and continued existence. Heritage resources can be managed in collaboration with SAHRA, which encourages the 'use' of heritage

resources for 'enjoyment, education, and tourism' so that these remains can 'contribute to social and economic development'. The study therefore proposes mitigation measures with regard to the heritage resources identified in the critical areas as well as heritage resources that may have been missed during the Phase I survey.

The National Heritage Resources Act (Act No 25 of 1999), however, also lists places and objects that may qualify as part of the national estate if these phenomena have some outstanding contribution to make to the present or future South African population. This report indicates that the IFSP plant complies with four of these criteria.

3 METHODOLOGY

The approach to this study consisted of a scoping study, supplemented by a Phase I survey of selected parts of the critical areas. The IFSP plant also conducted its own survey on the possible presence of heritage resources in the critical areas.

3.1 The scoping study

The scoping (or desktop) study included a survey of literature on the broad prehistory and history of Vanderbijlpark and Vereeniging. Enquiries at libraries, museums and public information centres in Vanderbijlpark, Vereeniging and Pretoria provided information on the histories of the IFSP plant, Vanderbijlpark and Vereeniging. Databases kept at institutions such as the National Cultural History Museum in Pretoria and the Gauteng headquarters of SAHRA were also consulted. The latter institution has an excellent database on historical graves and cemeteries. Both databases also provided information on the presence of heritage resources in Vanderbijlpark and Vereenignig.

The information gained from the desktop study consisted of a mix (the synthesis) of pre-historical (archaeological), historical, cultural and industrial evidence that helped to contextualise the IFSP plant and the town of Vanderbijlpark against a regional, cultural, historical and industrial background. This provided, albeit only in a broad framework, a sense of human interaction with the study area from the earliest times. The contextual evidence provided propositions as to the ranges of heritage resources that one would expect to find in the critical areas.

3.2 The Phase I survey

The Phase I survey consisted of a reconnaissance (on foot and with a vehicle) of the surface areas of the critical areas and the peripheral area. The survey on foot consisted of surveys of smaller 'sensitive' spots (or niches) in the two critical areas. Spot checks were also done in the peripheral area. (The sensitive 'spots' consist of niches that the archaeologist deemed necessary to visit). Surveillance aids such as maps and aerial photographs were also used to supplement the Phase I survey.

The Phase I survey supported the contextual evidence (emanating from various sources and data bases) by providing physical (or material) evidence

that some of the heritage resources expected to exist in the critical areas do in fact exist there.

The co-ordinates of cemeteries and graves were established using a Global Position System (GPS).

The two critical areas together cover a considerable surface area, which implies that some heritage resources may have been missed during the Phase I survey. It is also possible that heritage resources may occur beneath the surface of the soil and that such remains may only be exposed when new developments are undertaken. The mitigation measures proposed therefore also include mitigation measures for heritage resources likely to exist in the critical areas but not found during the Phase I survey.

3.3 Internal questionnaire

The IFSP plant also investigated the possible presence of heritage resources within the plant by sending out zonal questionnaires. The survey identified a piece of industrial machinery on display in the South Works, and one stone tool was reported to have been found in the quarry site ('Kiewiet site') in the North Works. No buildings or objects older than sixty years are to be found on the IFSP premises, as Iscor in Vanderbijlpark was only established in 1943. Other historical structures may, however, exist in the South Works as this is the oldest part of the IFSP infrastructure. The questionnaire also pointed out graves and cemeteries in the BOA. Infrastructure in the BOA was destroyed after this area had been bought out by Iscor, but only after these infrastructure had been investigated by an official from SAHRA.

3.3 Some remarks on terminology

The archaeological impact assessment study referred to in this report includes a survey of heritage resources as outlined in the National Heritage Resources Act (Act No 25 of 1999).

Cultural heritage (or cultural resources) include all man-made phenomena as well as intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources as well as places that made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term pre-historical generally refers to the time before any historical documents or any written language developed in a particular area or region of the world.

The terms 'historical period' and 'historical remains' refer, for the Vanderbijlpark/Vereeniging area, to the first appearance or use of 'modern' Western writing brought by the first Colonists to the Vereeniging area during the second half of the 19th century. The historical period for Vereeniging therefore dates from the 19th century, but probably started somewhat later for the Vanderbijlpark area.

The term 'relatively recent past' refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore do not to qualify, in terms of age, as archaeological or historical remains. Such remains, however, may still qualify as heritage resources considering other criteria of significance relevant to the specific category (or range) of resources under discussion.

It is not always possible, based on Phase I observations alone, to distinguish clearly between archaeological remains and historical remains, or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or when they are present they are not clear enough to interpret with great accuracy.

'Sensitive remains' refer to formal and non-formal graves and cemeteries. Formal graves and graveyards have Western characteristics such as tombstones with inscriptions. These graves are usually laid out according to a grid system. Informal graves and cemeteries are not necessarily organised according to a grid system. These graves seldom have tombstones or other modern features.

The term 'critical area' refers to the area where the Phase I survey was done, namely the IFSP plant and the BOA.

The 'non-critical (or peripheral) area' refers to an arbitrary strip of land that surrounds the IFSP plant and that partly incorporates the BOA.

Synchronic evidence refers to historical events over a relatively short period.

Diachronic evidence refers to chronological events that occurred over long periods and that usually imply a change in the culture (and/or climate and environment) and in human ways of life.

Heuristic evidence consists of information that serves to illuminate or illustrate a more abstract or complex phenomenon. Heuristic evidence can, in some instances, be equated with proposals, assumptions or hypotheses.

4 CONTEXTUALISING THE IFSP PLANT

4.1 Prehistory and early history

The IFSP plant is situated close to the Vaal River valley which is also the provincial border between Gauteng and the Orange Free State. The Vanderbijlpark-Vereeniging area is characterised by undulating, highveld grassland that is drained by the Riet River west of Vanderbijlpark and the Klip River and Suikerbosrand River further towards Vereeniging in the east. The southern border is the Vaal River. The Vereeniging-Vanderbijlpark area is situated approximately 1 500 m above sea level. It has an annual summer rainfall of 650 mm per annum. Summer temperatures vary between 15° to 27° C and winter temperatures between 3° and 17° C.

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and Homo habilis have been found in dolomite caves and underground dwellings in the Bankeveld at places such as Sterkfontein and Swartkrans near Krugersdorp. Homo habilis, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles.

The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with Homo Erectus, who manufactured hand axes and cleavers from as early as one and a half million years ago. Oldowan and Acheulian artefacts were also found four to five decades ago in some of the older gravels (ancient river beds and terraces) of the Vaal River and the Klip River in Vereeniging. The earliest ancestors of modern man may therefore have roamed the Vaal valley at the same time that their contemporaries occupied some of the dolomite caves near Krugersdorp.

Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears.

The Late Stone Age commenced twenty thousand years ago or somewhat earlier. The various types of stone age industries scattered across the country are associated with the historical San and Khoi-Khoi people. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi herded cattle and small stock during the last two thousand years. Late Stone Age people manufactured tools that were small but highly effective, such as arrow heads and knives.

The Late Iron Age people were also known for their rock art skills. At least one rock engraving site exists near Vereeniging, at Redan. This site has been declared a national monument. It is highly likely that more rock engraving sites may exist in this part of the country.

Early Iron Age farming communities practised a mixed economy, consisting of plant cultivation and stock herding, in the interior of South Africa during the first half of the first millennium A.D. These Bantu-Negroid people, who interbred with the local San and Khoi-Khoi, were ironworkers of some repute and they established the first permanent villages south of the Limpopo River. These communities occupied the savanna of the Northern Province as well as the eastern lowveld and coastal regions of South Africa. No traces of their existence have as yet been found on the Highveld.

During the Late Iron Age, farming was practised in the northern, central and eastern parts of the country. These farming communities built numerous stone walled settlements throughout the southern Highveld of the Orange Free State, on the Witwatersrand, in the Bankeveld and numerous other places in South Africa from the 17th century onwards. These sites are associated with the predecessors of the black ethnic groups living in South Africa. Some of these sites are also situated near the Vaal valley, but eastwards of Vereeniging and outside the Vaal Triangle. Stone walled sites are also spread out along the range of hills running from Randfontein in the west through Johannesburg to Heidelberg in the east. These sites are associated with the ancestors of the Sotho-Tswana peoples.

Numerous pre-*difaqane* and *difaqane* wars were fought on the Highveld during the last quarter of the 18th century and during the first three decades of the 19th century. These wars led to the displacement of large numbers of Late Iron Age communities. During this time the Matabele of Mzilikazi caused chaos and havoc in the Orange Free State and in the Bankeveld, further to the north. The Matabele established several village complexes along the Vaal River before they entered the Bankeveld in 1827.

During the first half of the 19th century, traders, adventurers and explorers visited the Bankeveld and the northern part of the country. Several of these traders visited Mzilikazi north of the Magaliesberg asking for permission to enter the territory to hunt and to barter with the indigenous population which had been subjugated by Mzilikazi. From the 1840's these early travelers and adventurers were followed by the first colonists who settled in various places in the Magaliesberg and further to the north and east of the country.

George Stow discovered coal on the banks of the Vaal River in 1879. The town of Vereeniging, named after the company that retrieved the coal reserves, came into existence in 1882. Today Vereeniging is a flourishing industrial centre. Giant thermal power stations in the Vaal Triangle convert water and coal into electricity distributed through the national grid. It was in Vereeniging that the Boer and British generals met in May 1902 to end the Anglo-Boer War (1899-1902). The terms of the peace were negotiated at Vereeniging. At Witkop, near Redan, a solitary blockhouse attests to this period in South Africa's history.

The town of Vanderbijlpark was planned in 1941 when the South African Iron and Steel Industrial Corporation (Iscor) began building steel works close to the Vaal River, downstream from the Vaal Dam. Iscor's work force was housed in Vanderbijlpark, envisaged as a garden industrial town with river frontage that would eventually house 200 000 people. The town was named after Dr H.J. van der Bijl (1887 to 1948), chairman of Iscor, one of South Africa's leading industrialists during the first half of the 20th century. The town became a municipality in 1952. Today Vanderbijlpark is part of the Vaal Triangle, one of the economic hubs of South Africa.

The first black township near Vanderbijlpark was proclaimed in 1949 and was named Bophelong. The second black township was named Boipatong. Sebokeng, to the north of Vanderbijlpark, and other black townships gradually developed around the Iscor Vanderbijlpark Works to supply the labour demands that grew from the expanding industrial nucleus that emerged around Iscor in Vanderbijlpark. Many of these labourers also worked in the neighbouring town, Vereeniging.

The South African Coal, Oil and Gas Corporation (Sasol) established its complex and unique chemical plant on a vast coal field south of the Vaal River. Sasol's workers live in the town of Sasolburg. Sasol produces a great variety of chemicals as well as petrol from coal and water. It is the only oil from coal plant in the world producing commercial quantities of oil. Several other manufacturers supplied with raw materials by Sasol, have their plants in

the vicinity. Fertilizers, plastics, synthetic fibres, detergents and other materials are produced.

4.2 Historical and cultural background to Vanderbijlpark and the IFSP plant

Vanderbilpark came into existence as a result of the expansion of the iron and steel industries in South Africa during the first half of the 20th century. During the early stages of the Second World War, the South African Iron and Steel Corporation Limited (Iscor) found that Pretoria Works were approaching the limit of their capacity. In order to meet South Africa's demand for steel plate the board of Iscor investigated other areas suitable for expansion. On the recommendation of Dr Hendrik van der Bijl, then chairman of Iscor, the corporation bought a 60 kilometre stretch of land 15 kilometres to the west of Vereeniging, with a 8 kilometre frontage on the Vaal River.

Iscor selected 6 000 acres for its purpose and erected a plant mill which was completed and went into production in 1943. The remainder of the land purchased was used to lay out and develop Vanderbijlpark. As a result of the vision and foresight of Hendrik van der Bijl, Vanderbijpark was planned as an industrial garden city to accommodate 200 000 people. Van der Bijl said the following about his dream:

> 'I visualised a town with people living in surroundings and under conditions which would be conducive to a healthy, happy and productive life. For this reason I was determined to make provision for parks, playing grounds, health clinics, hospitals and schools. A town, like a flower or a tree, should at each stage of its growth posses symmetry and completeness and the effect of growth should never be to destroy that unity ... ' (Anonymous 1962:26)

Iscor established a Town Planning Department that produced the initial master plan for Vanderbijlpark. This department designed the first suburb, known as Central West No 5 (CW5), and in 1942 the building of the first 92 houses in Vanderbijlpark started. (The description used for suburbs in Vanderbijlpark was derived from the geographical orientation of suburbs with regard to the Central Business District and was derived/borrowed from the British postal system). The last of the earliests house were completed in 1944. The detailed planning, development and administration of Vanderbijlpark was taken over on 8 December 1944 by the Vanderbijlpark Estate Company (Vesco), a subsidiary and non-profit company established by Iscor to handle the growing demand for housing.

Vesco's initial offices were in Escom House in Johannesburg, where the detailed planning of Vanderbijlpark was done. In 1945 technical staff moved to one of the earliest houses built in Linde Street in Vanderbijlpark, which was subsequently used as an office. By 1946 Vesco had constructed a one million gallon water reservoir from which the town obtained its water. Sewerage disposal works were created on the western borders of the town. With all essential services including electricity available or planned on 14 August 1946, Vesco could concentrate on developing the residential areas of the town and providing community facilities.

The first contracts for the construction of roads and stormwater drainage in CW5 were signed in 1945. Marconi Street was the first road to be tarred in 1945. In 1946 contracts were drawn up for roads, water reticulation, sewerage, storm water drainage and electrical reticulation in suburbs CW6, CW2 and CW5.

Provision was made for each residential area to have at least one large park area and numerous small parks and open spaces within reach of every house where children could play safely in the open air. In addition to these open spaces a green belt reserved for sport grounds, cemeteries and nurseries was laid out along the perimeter of the town. As Vanderbijlpark was to become a garden city, Iscor established a small plant nursery on the premises of an old farm to the north-west of the plant mill in August 1942. The first trees in Vanderbijlpark were planted in CW5 in 1945. Tree planting subsequently proceeded until the end of 1947 when about 400 000 trees had been planted in the town and park areas. It is said that more than 1 000 000 trees were eventually planted in Vanderbijlpark. Emfuleni Park, a tract of riverside land measuring 1 400 acres, was made available to the public in 1943. The park consisted of 18 miles of winding roads that stretch along the banks of the Vaal River. The park was planted with about 100 different deciduous and evergreen trees set in natural informal groups.

The first commercial undertakings established in 1947, included a post office, a large departmental store, a milk depot, a butcher's shop and a hair salon. The presence of these amenities meant that Vanderbijlpark's residents did not have to travel to Vereeninging by bus to obtain these goods and services.

By the middle of 1947 five residential suburbs had been developed and two industrial townships had been planned. At a public auction in Johannesburg on 25 July 1947, Vesco sold premises for four general businesses and a site for a bottle store, a hotel, a block of flats and a garage. In 1949 Westcliff House became the first business enterprise run by a private enterprise.

Bophelong (or the NW2 suburb) was declared a black township on 21 May 1948. The name Bophelong meant, in Afrikaans, 'by die gesondheidsoord'. This can be translated into English as 'at the health resort'. The numbers of houses built in this township during the subsequent years were: 1948 (1950), 1949 (528), 1950 (596), 1951 (804) and 1952 (926).

The second black township was named Boipatong, a name derived from the area where the township is now situated. Boipatong means 'a place to shelter'. Black people who lived there in the past gave this name to the place. Boipatong was so named due to the kindness of the previous white owner, Mr van Wyk, who provided employment to unemployed black people whenever he was approached for work.

Iscor's plans for the building of new steelworks were set in motion in 1947. Vesco launched a full-scale housing and development programme to coincide with the expected influx of people working on the project. Engineers, contractors, artisans, accountants and clerks settled in Vanderbijlpark. Many of these craftspeople were immigrants.

The Vanderbijlpark Engineering Corporation (Vecor) works were completed and went into production in 1947. The company was the first industry established by private enterprise in the town. Vecor's own public utility company immediately started its own vast housing programme. By the end of 1948 a total of 1520 houses had been built in Vanderbijlpark, the bulk of which had been erected by Vesco, the Iscor Housing Utility Company and the Vecor Properties Company. The tempo of building in Vanderbilpark can be seen from the following numbers of houses built: 1947 (400), 1948 (1520), 1950 (2061), 1951 (2500) and 1952 (3842).

On 3 December 1948 Hendrik van der Bijl died.

Heavy industries were developed in NE3 and light industries in CE5, while NW7 was also earmarked for industrial development. Numerous industries had already been established in Vanderbijlpark by 31 March 1951.

The first railway link with Vanderbijlpark was a temporary private line laid in 1941 by Iscor between the Houtkop station and the plate mill. In 1946 the line was extended through Vecor's site to a number of temporary sidings used to offload building and other material for the development of the town. In 1950 Vesco laid permanent tracks to the NE3 industrial township and the permanent marshalling yards at Iscor were completed.

In 1950 the first two hotels were built in Vanderbijlpark. The Vanderbijlpark Apprentices Hostel was completed in 1952. The 'Wording' (Genesis) statue was unveiled on 21 August 1951. This statue symbolises growth and striving for perfection and is an important symbol of the town. From the 1950's onwards, businesses and new banking services were established in Vanderbijlpark. (In 1947 Barclays' Bank was already established).

From the 1950's onwards buying power in Vanderbijlpark became a strong economic force, although businesses could not yet provide special products or services. A Chamber of Business came into being and a publicity association started to promote the economic opportunities that the town offered to business enterprise.

The economy in Vanderbijlpark stabilised from the late 1970's onwards. The positive economic development of the 1960's gradually made way for a decline in business confidence. Buying power was flowing out of the Central Business district of Vanderbijlpark for various reasons. The weakening of the South African economy in the 1980's exacerbated the situation. Production at Iscor declined and unemployment increased. Trade organisations attempted to promote the economic potential of Vanderbijlpark and free trading zones were introduced which, amongst other things, led to an influx of Indian businessmen to the town.

From 1960 to 1978, Vanderbijlpark was one of the most rapidly developing towns in South Africa, being the sixth largest town in the Transvaal Province in 1952. This created high expectations for this industrial town and large concentrations of industries were predicted for the Vaal Triangle. It was believed that the town would develop to the level of the Ruhr Valley in West Germany, the Pittsburg area in the United States or Birmingham in the United Kingdom. The growth in the number of residents, blacks [**b**] and whites [**w**], were as follows: 1946 (604[w], 1516[**b**]), 1948 (7000[**w**], 7500[**b**]), 1950 (9000[**w**], 8500[**b**]), 1951 (11851[**w**], 11213[**b**]) and 1952 (15000[**w**], 13000[**b**]).

Vanderbijpark's years of prosperity stretched from 1958 to the late 1970's. It is estimated that in 1967 as many as 60% to 70% of Vanderbijlpark's residents depended on Iscor. The years of progress was followed by a period of stabilising from the late 1970's to the first half of the 1990's. From 1986 Iscor followed a process of rationalisation with traumatic consequences for workers and their families. Economic cenditions in general, as well as a changed political dispensation from the early 1990's, affected the residents of the town negatively. In 1986, as many as 20 000 white people were without jobs in Vanderbijlpark.

The residents of Vanderbijlpark experienced adaptation problems from the outset. The Afrikaners, mostly arriving from rural areas, experienced the new, modern town as unwelcoming, while, simultaneously, they had to adapt to an influx of immigrants from all over Europe, imported by Iscor to do specialised jobs. Black workers and their families were relegated to separate suburbs with amenities which were not of the same standard as those which white residents received. Notwithstanding Iscor's efforts to establish a wide range of sports and other recreational facilities, cultural clashes occurred as a result of the mix of different levels of education and culture in Vanderbijlpark. This led to nearly everybody experiencing some kind of adaptation problem.

4.3 Heritage resources in Vereeniging

In 1879 the pioneer geologist George W. Stow, who undertook geological explorations for the Orange Free State, discovered coal fields north of the Vaal River on the farm Leeukuil. This led to the establishment of the Zuid-Afrikaansche en Oranje Vrystaatsche Steenkool en Mineralen Mijn Vereeniging. The owners of this company were Samuel Marks and Isaac Lewis. The company commissioned Stow to purchase and to develop all the coal-bearing farms in the area. Mining began in 1879 and in 1882 the company applied to establish a township on Leeukuil. The town was named Vereeniging. The name was derived from the last word in the company's name. A bust of Stow can be seen in the Vereeniging library and a memorial in the Civic Center.

Since the late 19th century, quarrying operations in Vereeniging have revealed some fossiliferous sandstone outcrops in the area. Dr T. N. Leslie was one of the first to discover these plant fossils. The discoveries were made at places such as Leeukuil and the Central Colliery Mine as well as at other localities close to the Vaal River. Specimens are displayed at the Bernard Price Institute for Palaeontological Research (Leslie Collection), the Geological Museum in Johannesburg and in the Vereeniging Museum. The most common genera present are *Noeggarathiopsis*, *Gangamopteris* and *Glassopteris*.

The quarrying operations originally undertaken to mine for coal not only revealed the presence of plant fossils in these deposits but also the presence of numerous Stone Age sites along earlier or ancient banks of the Vaal River and the Klip River. Early and Middle Stone Age sites were discovered at several localities, such as Klipplaatdrift, the Klip River Quarry site, the

Duncanville Archaeological Reserve (also known as the Van Riet Louw Archaeological Reserve). These sites contain thousands of stone tools.

A rock engraving site that was declared a national monument was also discovered at Redan. The Redan rock engraving site contains as many as 244 rock engravings done on an outcrop of rocks. Some of the engravings depicts animals, while others illustrate San (Bushmen) weapons. A large number of the engravings are geometric designs, such as circles and other symbolic figures.

The first railway line over the Vaal River linking the Orange Free State Republic and the Zuid-Afrikaanse or Transvaal Republic was officially opened on 21 May 1892 by President Reitz of the OFS and President Kruger of the ZAR. Pillars of the bridge carrying the old railway line can still be seen in the Vaal River.

Vereeniging achieved world prominence at the end of the Anglo-Boer war when the peace negotiations were held in Vereeniging from 15 to 31 May 1902. The site is indicated today by a sawn-off tree trunk near the Vereeniging Refractories' Recreation Hall.

The Peace of Vereeniging Monument was erected to commemorate the Peace of Vereeniging that ended the Anglo-Boer War in 1902. (The peace accord was signed in Pretoria). The following inscription is engraved on the monument: 'Gewond maar onoorwonne' ('Wounded but not vanquished').

A well-preserved British blockhouse still testifies to the Anglo-Boer War (1899-1902). It is located at Witkop, ten kilometres to the north of Meyerton on the main road to Johannesburg.

The Vereeniging concentration camp cemetery is located in the old municipal cemetery, off Beaconsfield Avenue near the abbatoir. A garden of remembrance also exists on the Makauvlei golf course, near the clubhouse. This feature was built to commemorate British soldiers who died during the Anglo-Boer War near the railway line that crosses the Vaal River.

The small Voortrekker Monument celebrating the 100 year anniversary of the Ossewatrek was erected in 1938 in the middle of Voortrekker road in Vereeniging, between Marklaan and Merrimanlaan.

Several coal mines were established on both sides of the Vaal River, such as the Cornelia and Springfield coal mines. A memorial for five miners who died

in South Africa's first mining disaster in 1905 was erected at the Vereeniging cemetery. The National Monuments Council has unveiled a bronze plaque to commemorate the 100 year anniversary of the discovery of coal at Dickinson Park.

The extensive Makauvlei plantations near the town of Vereeniging consist of pines, oaks and apple trees and were initially established by August Pistorius. One of the first apple processing factories in South Africa was established at Makauvlei. Since 1912 a number of important industries have been established in the municipal industrial township known as Duncanville. These industries are involved in the manufacture of a wide range of iron and steel products, steel tubes, steel wire, bolts and nuts, electric cables, glass, bricks and tiles, etc.

The townships in Vereeniging include Sharpeville. There are at least two cemeteries, namely the Vuka cemetery in Dabula Street and the Pelindaba cemetery on the corner of Rafuba and Tessum Mareka Streets, in Sharpeville in Vereeniging. These graves are classified as 'struggle graves'. These cemeteries are associated with the Sharpeville massacre.

Power stations, operated by Eskom were established in Vereeniging to supply electricity to the goldfields from Klerksdorp to Springs. The power stations are operated with coal and water.

Vereeniging, like Vanderbijlpark, provides excellent opportunities for fishing, rowing and aquatic sports (on the Vaal River).

4.4 Heritage resources in the study areas as illuminated by contextual evidence

The contextual evidence illuminated the 'pre-historical (archaeological), historical, cultural and industrial context' of the IFSP plant and the town of Vanderbijlpark, whose origins and histories are interwoven. Heritage resources of some significance in Vereeniging (Vanderbijlpark's sister's town) were also highlighted in order to obtain a better understanding of the broader regional context of the study area. This contextual evidence (a mix of synchronic and diachronic information) can be considered as an heuristic device that may predict the types of heritage resources to be expected in the study areas.

According to the contextualised evidence, it is possible that the following types of heritage resources may exist in the IFSP plant area and in the BOA, namely:

- Archaeological sites and features, particularly Stone Age sites and tools have been found in large quantities in the older river beds and terraces of the Vaal River and the Klip River near Vereeniging.

- Historical, industrial or technical structures and infrastructure may exist in the IFSP premises or in the BOA. Such infrastructure may include residential houses or outbuildings or parts of the IFSP plant, particularly in the South Works, that may be older than or almost 60 years in age. Infrastructure that is not 60 years old may still qualify as significant resources due to other criteria.

- Collections of some sort, e. g. paper collections consisting of documents, photographs, magazines and books may contain historical information on the origins and development of the IFSP plant and Vanderbijlpark.

- Sensitive remains include graves and cemeteries as people were buried close to where they lived.

The contextual evidence also makes it possible to predict, with confidence, that the following types of heritage resources do not exist in the IFSP plant area or in the BOA:

- palaeontological remains of plants associated with coal deposits;

- rock engraving sites;

- Early and Late Iron Age sites;

- historical remains relating to the Anglo-Boer war (e.g. British blockhouses or war graves); or

- graves from the pre-apartheid struggle era associated with the liberation of South Africa such as those that exist in Sharpeville.

The results of the Phase I survey conducted on the surface areas of the IFSP plant and in the BOA further confirmed the presence and/or absence of the majority of the heritage resources outlined above.

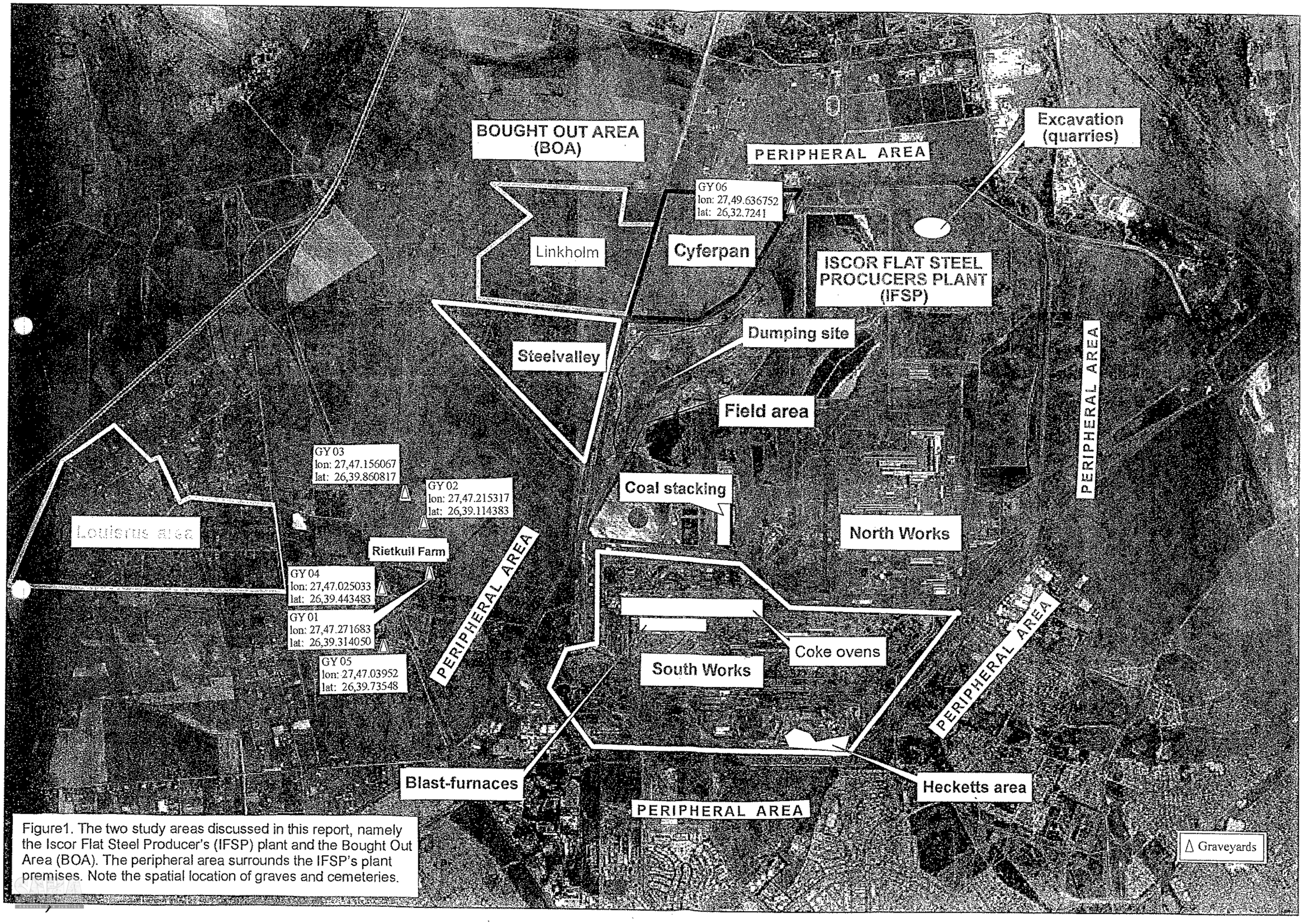

Figure1. The two study areas discussed in this report, namely the Iscor Flat Steel Producer's (IFSP) plant and the Bought Out Area (BOA). The peripheral area surrounds the IFSP's plant premises. Note the spatial location of graves and cemeteries.

5 ARCHAEOLOGICAL IMPACT ASSESSMENT OF THE CRITICAL AND PERIPHERAL AREAS

5.1 The study areas

The IFSP plant is located on the farms Rietkuil and Cyferpan. The plant is situated on a level stretch of land and few natural landmarks exist close to it. The most outstanding features include the Vaal River to the south, the Klip River to the west and a series of kopjes and randjes further to the north-east of the IFSP plant.

Two study areas have been highlighted in this report, while a third has also been referred to. These study areas consist of the two critical areas and a non-critical area. The critical areas are the two areas most impacted upon in the past and the two areas most likely to be impacted upon in the future. These two areas are the IFSP plant and the BOA. The non-critical area, which is also known as the peripheral area, is an arbitrary strip of land that surrounds the IFSP plant and actually includes the BOA after its incorporation as part of the Iscor premises.

5.2 The developed and disturbed nature of the critical and non-critical areas

The critical areas incorporate the farms Rietkuil and Cyferpan on which the IFSP plant and the BOA are located. Various development activities have scarred large surfaces of both these farms. Both the IFSP plant and the BOA are depleted of any natural bush. Blue Gum trees have been planted on Rietkuil.

The bulk of the IFSP infrastructure was established during the last five to six decades on the farm Cyferpan. Infrastructure associated with the IFSP plant includes the older Southern Works (established between the 1940's and the 1970's) and the modern Northern Works (established during and after the 1970's), dumping and stacking sites, quarries, 'slimes dams' and other large infrastructure. These man-made features have significantly altered the natural appearance of the landscape and also have contributed to a conspicuous new skyline in this part of the Highveld visible from the national roads that pass the IFSP plant.

The activities that have taken place on the IFSP premises during the last sixty years have had a severe impact and are of such a magnitude that heritage

resources may have been destroyed or disturbed, including the archaeological context of such features or sites. It is therefore unlikely that any pristine features or sites still exist on the IFSP premises. It is not impossible, however, that single stone tools or isolated graves may still exist on the IFSP premises and that these features and tools may be discovered by coincidence rather than due to a purposeful search. (Pro-active measures to be taken in such instances have been outlined in the mitigation measures, see Table 1).

Human activity has also had a negative impact on the BOA, which includes various portions of the farm Rietkuil. This area was cut up into agricultural smallholdings of various sizes and has been subjected to intense agricultural activities for decades. These plots contain infrastructure such as residential houses, outbuildings, pump stations, reservoirs for fresh water, orchards, vegetable gardens and, in some instances, stables and enclosures for small stock. Very few pieces of undisturbed land still exist in this area, which is also criss-crossed by telephone lines, power lines and dirt roads.

The peripheral area or non-critical area is a strip of land that incorporates agricultural smallholdings, black townships, suburbs of Vanderbijlpark, industrial areas and unaffected pieces of land that surround the IFSP plant (as the nucleus). Although this piece of land was traveled with a vehicle, no focused survey for any heritage resources was undertaken, because this area is not the primary study area.

Figure 2. The IFSP plant area has been intensely disturbed by the building of infrastructure during the last fifty years.

Figure 3. Disturbances of the surface area of the IFSP plant include the presence of a large number of excavations and quarries in the north-eastern corner of the plant.

Figure 4. 'Slimes dams' with rich bird life cover a large part of the surface area of the IFSP plant.

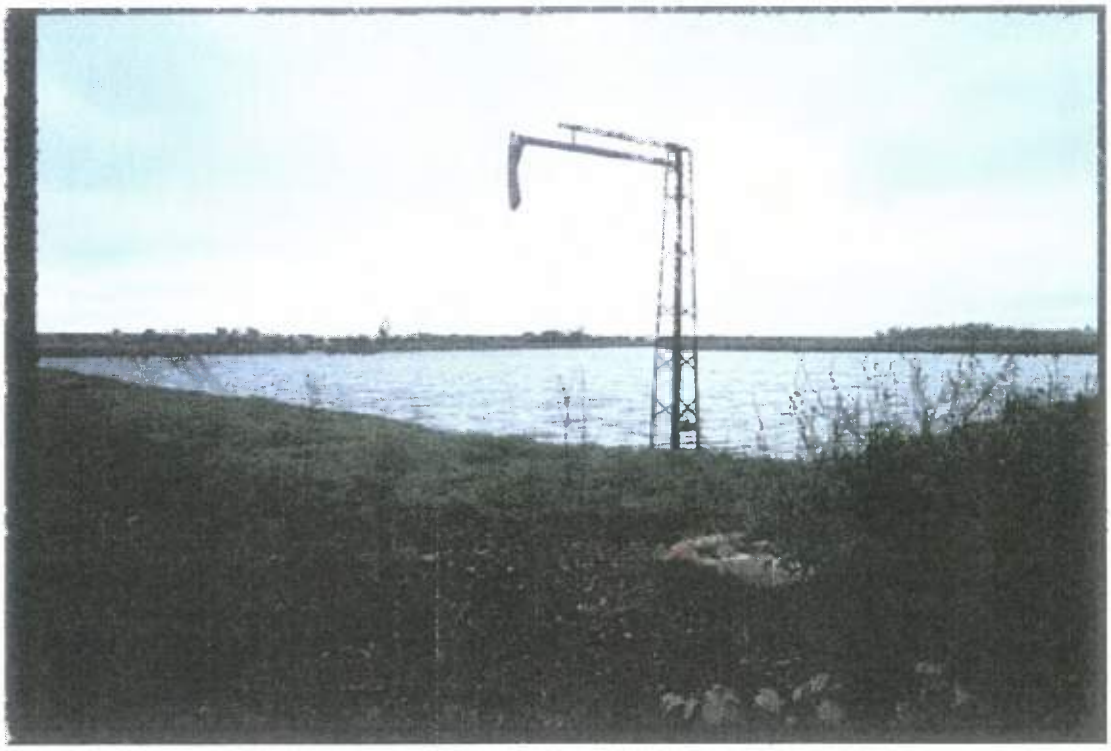

Figure 5. The BOA, east (below) and west (far below) of the Johannesburg road, is largely covered with old agricultural fields that have destroyed the larger part of the surface area of this piece of land.

5.3 The critical areas

The surface areas of the two critical areas were surveyed by vehicle and were spot checked on foot in order to establish whether any of the heritage resources (including graves) as outlined in the National Heritage Resources Act (Act No 25 of 1999) were present in these areas. This survey was undertaken keeping in mind the possible presence of heritage resources as predicted by the contextual evidence.

The survey revealed the presence of cemeteries and graves in the critical areas. No Stone Age sites or tools were found in the critical areas. Only one house with its outbuildings still exists in the BOA. Iscor destroyed all remaining infrastructures in the BOA after an official of SAHRA had inspected these remains.

A distinction has been made between significant remains in the critical areas and significant remains that are expected to exist in the critical areas but which were not found.

5.3.1 Heritage resources present in the critical areas

Only cemeteries and graves (sensitive remains) were discovered in the critical areas. The discovery of these resources was made possible by interviews with employees of Iscor, spokespersons living in or near the study area and the Phase I survey in the critical areas. The sensitive remains consisted of formal and informal graveyards as well as single graves.

These features are now discussed in more detail and are illustrated with photographs. The geographical locations of the graves and cemeteries are indicated in Figure 1. The co-ordinates of these features are displayed on Figure 1 and are not repeated here.

5.3.1.1 Cemeteries and graveyards

Six graveyards were found in the critical areas. Only one of these graveyards can be described as a formal graveyard. Five of the graveyards were located in the BOA and one on the farm Cyferpan. Formal graveyards were laid out in a grid pattern and usually feature modern granite headstones. These graveyards can be described as 'modern', compared with graves that are covered by stones

and have no headstones and which are haphazardly grouped together in a limited area.

Different cultural groups upheld different values with regard to the exhumation and reburial of the dead. Consequently, the terms 'white' and 'black' graves or 'white' or 'black' people were used in this report in order to ensure greater sensitivity to this matter.

Graveyard 01 (GY01)

This graveyard is located on the farm Rietkuil in the BOA and consists of a small graveyard containing six graves and two individual graves. The individual graves are those of black people located approximately twenty metres to the south-east of the small graveyard which contains the remains of white people.

The six graves in the graveyard are fenced in with a wire fence.

Some of the individuals buried in the six graves in the graveyard were born in the 19th century and died during the early decades of the 20th century. All these graves contain headstones with inscriptions. The two oldest graves' descriptions read as follows:

Grave 1: Hier rust Willem Jacobus Strydom
Geb. 5 Jul 1862. Ovl. 31 Aug 1927
GEZ 33 VRS 8
[Here rests Willem Jacobus Strydom
Born 5 Jul 1862. Died 31 Aug 1927
HYMN 33 VRS 8]

Grave 2: Hier rus David Stephanus van der Westhuizen
Geb. 2? Okt 1908 Oorl 24 Mei 1931
'Verblydt U in de Hoop
Zyt geduldig in de Verdrukking
Volhardt in het gebed

[Here rest Willem Stephanus van der Westhuizen
Born 2? Oct 1908 Died 24 May 1931
'Rejoice in hope
Be patient in oppression
Persevere in prayer'

The two single graves are those of two black people. One of the graves has a cement perimeter (edging) and a cement headstone. The headstone bears the following (vague) inscription:

Johanna Makoe
Born ?-10-1878

The second grave is marked only by a heap of soil.

The two graves are not fenced in.

It seems that family members or other relatives of the deceased no longer visit the graveyard or single graves.

Figure 6. The graveyard containing six graves of white people is located next to a lane of Bluegum trees on the farm Rietkuil.

Figure 7. Two of the older graves in GY01. The headstones of these graves are older than sixty years which means that these graves are protected by the National Heritage Resources Act (Act No 25 of 1999).

Figure 8. The two graves east of GY01 are those of black people. The first grave (to the right) has a cement perimeter while the second (to the left of the former, but not visible in the photograph) only comprises of a heap of soil.

Graveyard 02

This is a large graveyard on Rietkuil that may contain as many as 60 to 70 graves of black people. Although the majority of the graves are arranged in rows, they are currently covered with a tall, thick mat of grass. The majority of these graves also do not have headstones. The graves are largely invisible due to the thick grass cover.

Most of the graves are covered with stones collected from the veld. Only a few have headstones manufactured from cement. The headstones either do not have inscriptions or the inscriptions are too vague to be read. Headstones with inscriptions are those of Sahara Zoane (1934), Pauline Zoane (1921) and Joele Mosala (1914-1952).

It seems that if this graveyard may date from the first half of the 20th century.

This graveyard is not fenced in.

It would appear as if this graveyard is not visited regularly by any family members or other relatives of the deceased any more.

Figure 9. A view from the north over GY02. This graveyard is barely visible as it is covered by thick grass. This graveyard may contain as many as seventy graves of black people and may date from the first half of the 20th century.

Figure 10. The majority of graves in GY02 are covered with loose stones gathered in the area. Only a few have headstones manufactured with cement.

Graveyard 03

This graveyard on Rietkuil contains as many as 17 graves of which at least three were fenced in by relatives. The majority of these graves are covered with heaps of stones. The graves are those of black people. The inscriptions on the headstones of two of the graves that are fenced in read as follows:

Grave 1	Elias Motaung B 28 10 1929 D 10 4 1987
Grave 2	Elizabeth Motaung B 19 8 1934 D 24 4 1993

It would appear that this graveyard is more recent than GY02 and that the graves date from the second half of the 20th century.

The majority of graves are not fenced in.

Family members and friends still regularly visit this graveyard.

Figure 11. GY03 on Rietkuil contains as many as 17 graves of which only three are fenced in.

Figure 12. One of the fenced in graves in GY03.

Graveyard 04

This graveyard is located on Rietkuil on the western side of the national road (N1) leading to Johannesburg. The graveyard may contain as many as 33 graves arranged in three rows. Black people were buried in this graveyard. Only a few of the graves have headstones. Three of the headstones contain the following inscriptions:

Grave 1	Piet Pitso Moeketsi * 16 11 1972 † 8 2 1974
Grave 2	Ba Pule Mathunye Born 1927 Died 1974
Grave 3	Paul More 1 4 42 4 4 42

It would appear, judging from the dates on the headstones, that this graveyard dates from the second half of the 20th century.

A limited number of graves in this graveyard are fenced in. Family members or relatives of the deceased no longer visit this graveyard regularly.

Figure 13. A limited number of graves in GY04 are fenced in.

Figure 14. GY05 contains four graves of black people located below Eskom's power lines. These graves are dilapidated and are not fenced in. One of the graves has been damaged.

Graveyard 05

This graveyard contains four single graves and is located on the farm Rietkuil, to the west of the national road (N1) leading to Johannesburg. The graves are located directly below the Eskom power lines that run across this farm.

Two of the graves are covered with stones and also have headstones with illegible inscriptions.

These graves are not fenced in and are dilapidated. The top of one of the graves was damaged when a dirt road was built next to the graveyard.

The graveyard has not been visited recently.

Graveyard 06

This graveyard is situated on the farm Cyferpan, directly to the east of the Golden Highway that leads to Johannesburg. GY06 contains 20 to 25 graves of black people in two long rows. Only a few of the graves have headstones. Some of the inscriptions read as follows:

Grave 1	Osie Lemakau 15 1 32 25 12 34
Grave 2	Daniel Tshilis 30 10 73
Grave 3	John Gxubane Born 1869 Died 20 8 54
Grave 4	Shadrack Skhosana 1917 1958

This graveyard probably dates from the first and the second half of the 20th century. Some of the graves were damaged when a dirt road was built between the graveyard and a fence.

It seems as if family members or friends of the deceased no longer visit this graveyard.

Figure 15. GY06 contains as many as 20 to 25 graves of black people.

Figure 16. Some of the graves in GY06 were damaged when a road was built alongside the cemetery.

5.3.1.2 Residential houses and outbuildings

A number of residential houses, outbuildings and other infrastructure used to exist on parts of Louisrus, Rietkuil and Steelvalley before Iscor bought these areas from the local residents. A count of structures and features on a 1:20 000 scale map puts the number of structures that may have existed on the various agricultural smallholdings as Louisrus (72), Rietkuil (30) and Steelvalley (55).

After Iscor bought the agricultural smallholdings, the majority of these structures were destroyed. Before the destruction occurred, an official from the South African Heritage Agency (SAHRA) visited the BOA. His assessment was that no historical significant structures existed in this area.

One of the original residential houses with outbuildings still exists on Ruitkuil (see Figures 17 & 18). Although these structures may be almost sixty years old (in order to qualify as historical structures), neither their architectural style nor other criteria (aesthetic appearance, historical and cultural value, uniqueness, research value) warrant the conservation of these structures. Considering their relatively good state of condition, however, Iscor should consider using these structures, as utilisation would actually ensure that the structures are maintained.

Figure 17. One of the remaining residential houses on Rietkuil. This house does not have any outstanding historical significance.

Figure 18. The outbuildings associated with the residential house on Rietkuil.

5.3.1.3 Infrastructure in the South Works

The South Works contain the oldest infrastructure on the IFSP premises and were built before 1970. Some of the infrastructure of this plant, such as the Coke Plant and towers associated with this plant, may be almost sixty years old and on this basis may qualify as historical structures. Other components or infrastructure in the South Works may also be about sixty years old and may therefore soon qualify as historical structures.

The historical or industrial significance of some of the infrastructure of the South Works, however, may be enhanced by criteria other than the age of these features. In this regard one thinks of criteria such as industrial processes still applied that are competitive in the global steel industry but may in fact be part of a bygone era. Another criterion may be innovative industrial processes and infrastructure developed at the IFSP plant that are unique in the global iron and steel industry.

The evaluation of the South Works' infrastructure (and industrial processes?) should perhaps be conducted by specialists such as an historical architect and an industrial engineer who would be qualified to evaluate the significance of this infrastructure and these industrial processes.

Figure 19. Infrastructure in the South Works (illustrated with photographs on the next three pages) may be almost sixty years old and on this basis (as well as other criteria) may qualify as historical or industrial significant structures. The Coke Plant with its characteristic ovens in which charcoal is burnt in preparation to be used in blast furnaces.

Figure 20. Infrastructure in the South Works that may qualifies as historical and/or industrial significant features.

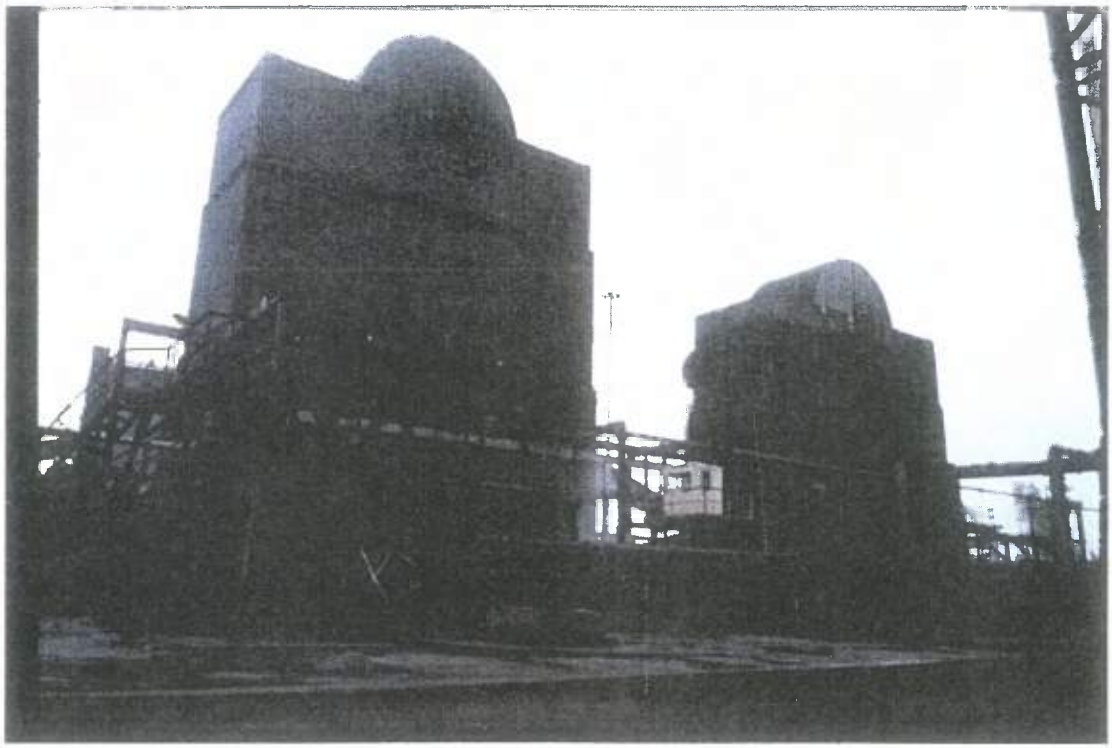

Figure 21. Chimneys in the South Works that may qualify as historical and/or industrial significant features.

5.3.1.4 Paper collections

Various departments of the IFSP plant may posses paper collections such as 'old' documents, photographs, magazines, books, films, etc. Such material must be collected as it may contain important information that should be preserved in an archive or the library.

5.3.1.5 Symbols

The IFSP plant and the town of Vanderbijlpark are closely linked in terms of origins and a development history that now stretches over six decades. Various symbols related to events in the past still exist today and reflect this symbiotic relationship. These symbols include the following:

- The name of the town of Vanderbijlpark is derived from that of Dr Hendrik van der Bijl (1884-1948) who served as chairman of the South African Iron and Steel Corporation. Dr Hendrik van der Bijl's role in the development of Vanderbijlpark is outlined in Part 4.2 above.

- The coat of arms of Vanderbijlpark is based on that of the Van der Bijl family. The design consists of a shield bearing a winged bull's head as a main motif on a green field, three bees on a red field and a rose and a protea opposite each other on a green background.

- The Iscor Council donated the Mayoral Chains of Office to the Health Committee of Vanderbijlpark (which became the Town Council) on 6 November 1954. The chains, manufactured from Thabazimbi iron ore cast in the IFSP plant, reflect the town's most important function, namely the manufacture of iron and steel. The motto 'Nostri Cura Futuri' means 'We give thought to the future'.

- The 'Wording' (Genesis) statue in the town of Vanderbijlpark symbolizes Dr. Van der Bijl's ideals for the town of Vanderbijlpark.

  Advocate E.H. Louw, then Minister of Economic Affairs, inaugurated the statue on 21 August 1951 with the following words:

  > 'Die standbeeld wat ek so pas onthul het, simboliseer die ontstaan en groei van hierdie nuwe, goedbeplande en aantreklike stad, wat op die kaal vlaktes van Suidwes-Transvaal verrys het... hierdie treffende monument... simboliseer nie alleen die wording of genesis van 'n stad

nie - dit simboliseer ook die strewe na beter dinge, na verbeterde toestande, na hoër waardes. Ek wil die hoop uitspreek dat diegene wat toesig hou oor die sake van die stad inspirasie uit hierdie monument sal put.'

['The statue that I have just unveiled symbolises the origins and growth of this new, well-planned and attractive city that has arisen on the bare plains of the south-western Transvaal ... this striking monument not only symbolises the genesis of a city – it also symbolises an aspiration towards better things, towards improved conditions, towards higher values. I would like to express the hope that those who are the custodians of the interests of the city will be inspired by this monument'.]

- The Iscor Council officially adopted the Iscor Coat of Arms in 1953. It is composed of the symbols 'I/Y' in an inverted triangle.

5.4 The IFSP plant as part of the national estate

The National Heritage Resources Act (Act No 25 of 1999) also distinguishes different places and objects that could qualify as 'part of the national estate if it has cultural significance or other special value ....' The law stipulates nine criteria for places and objects to qualify as part of the national estate. Four of these criteria are to a greater or lesser extent, relevant to the IFSP plant and the town of Vanderbijlpark. These criteria are the following (the object or place, referred to as 'it' in the law has been replaced by 'Iscor' and/or 'Vanderbijlpark' in the quotations below):

(a) [Iscor and Vanderbijlpark's] importance in the community, or pattern of South Africa's history,

(c) [Iscor's] potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage,

(f) [Iscor's] importance in demonstrating a high degree of creative or technical achievement at a particular period, and

(h) [Iscor and Vanderbijlpark's] strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.

Each of these criteria can be used to demonstrate or explain the uniqueness, worthiness or significance of Iscor and/or Vanderbijlpark in the 20th century industrial history of South Africa. The histories of Iscor and Vanderbijlpark have been intimately interwoven from the 1940's to the 1970's and neither could have survived without the other. This interdependence has, however, begun to fade, since the 1980's.

The modern iron and steel manufacturing industry of South Africa, from the mining of raw materials (at Thabazimbi, Sishen, Tshikondeni, Groot Geluk) and the manufacturing processes of iron and steel (at Vanderbijlpark, Pretoria, Saldanha, New Castle) to the marketing of the finished products (nationally and internationally), is more than fifteen centuries old. Iron and steel manufacturing is a true South African tradition (industry) and has its roots in the African Iron Age which dates back to 500 BC. The Iscor Pretoria Works used to promote the iron and steel manufacturing industry (and therefore also Iscor) by maintaining a museum that was open to the public. It seems as if Iscor, however, no longer supports this worthy cause.

5.3.2 **Significant heritage resources not found in the critical areas**

At least one set of cultural resources is expected to exist in the study areas, but was not discovered during the Phase I survey. This assumption is based on the compiler of this report's own experience, gained from fieldwork over various parts of South Africa and from archaeological surveys done by earlier archaeologists in the Vaal River valley. This set of heritage resources includes Stone Age sites and artefacts.

Stone Age sites

Stone Age sites are numerous all over South Africa and tend to crop up even where the presence of humans in the past was not remotely expected. Some of these sites date back millennia and existed when the climate and environment in the region differed from what is found there today. Stone Age communities well adapted to such climates and ecological niches proliferated into skilled hunter and gatherer bands and established themselves over large areas of South Africa.

During the first half of the 20th century, large numbers of stone tools dating from the Early Stone Age (500 000 years ago) to the Middle Stone Age (200 000 years ago) were discovered in the Vaal River valley. In 1975 the author of this report also observed large numbers of Stone Age tools in Sebokeng while

he was working for the Vaal Administration Council during one university recess.

It is therefore possible that Stone Age sites may exist on the surface areas of either the IFSP plant or the BOA. An employee of Iscor has picked up a single stone tool in the IFSP plant area and Mr Francois Marais handed this tool to the author. It is therefore possible that more stone tools may exist in the two study areas. Mitigation measures have been proposed if large numbers of these tools are (accidentally) discovered in the future.

5.4 The peripheral area

The peripheral area is an arbitrary strip of land that surrounds the IFSP premises. This area is characterised by a wide range of infrastructure, activities and phenomena such as the following:

- Smaller industries and some of the suburbs of Vanderbijlpark are situated on the southern border of the IFSP premises. The townships of Sharpeville, Boipatong and Tshepiso are located further to the south-east. The industrial area of Dicksonville and the Leeukuil Dam are also located in this direction. To the south-west of the IFSP premises there are townships such as Bophelong, Bonanne, a number of agricultural smallholdings with different names, the Vanderbijlpark airport and a sewage disposal plant.

- The BOA, consisting of abandoned agricultural smallholdings, lies on the western side of the IFSP premises. The infrastructure that used to exist in this area has been knocked down. Abandoned agricultural fields now covered with grass mark this part of the peripheral area. Barely any vegetation, other than a few avenues and clumps of Bluegum trees, is visible in this barren piece of land.

- The Johandeo agricultural smallholdings are situated directly to the north of the IFSP premises. Still further to the north is the town of Sebokeng. The only undulating part of the area is situated to the north-east of the IFSP premises. This land is covered with numerous kopjes such as Wolwekop, Houtheuwel, Mountridge, Langerand, Eestekop, etc.

- Pieces of undisturbed land, the Steelpark and Homer agricultural smallholdings, a piece of agricultural land, a cemetery and townships are located to the east of the IFSP premises.

The original planning of Vanderbijlpark provided for a 'green belt' to be laid out between the various suburbs and along the perimeter of the town. These belts were, at the time of their planning, reserved for sports grounds, cemeteries and nurseries.

It is doubtful whether these green belts were ever developed to their fullest potential although it has been claimed that one million trees have been planted since the founding of Vanderbijlpark. These green belts, consolidated with a green (or developed belt of some kind) that runs around the IFSP plant, may present great potential in enhancing Vanderbijlpark's character and appearance to fulfil Dr Hendrik van der Bijl's initial vision of establishing Vanderbijlpark as the foremost garden industrial town in South Africa.

6 POSSIBLE IMPACT ON HERITAGE RESOURCES IN CRITICAL AREAS

6.1 Legislation relevant to heritage resources

The *status quo* of the heritage resources that exist in the critical areas is determined by cultural heritage legislation. A synopsis of all legislation relevant to heritage resources management has therefore been provided below. It can be used as a guideline to manage the heritage resources and must also be considered before any development project is undertaken.

The heritage resources in the critical areas may also be affected by future development activities. Mitigation measures also have to be implemented whenever hitherto undiscovered heritage resources are (accidentally) discovered in the critical areas. Consequently, mitigation measures have been spelled out with regard to the heritage resources existing in the critical areas as well as those heritage resources most likely to be discovered in the critical areas.

It is not known whether heritage resources (including graves) that may occur in the peripheral area may be endangered by present or future industrial activities or by development activities that either the IFSP plant or the Emfuleni Local Municipality may undertake.

6.1.1 The Environment Conservation Act (Act No 73 of 1989)

The Environment Conservation Act (Act No 73 of 1989) makes provision for the drawing up of reports concerning the impact on the environment of activities identified and prohibited in terms of Sections 21 and 22 respectively. These reports must evaluate the impact that development may have on the natural and human-made environment, and this includes archaeological sites.

Local and regional authorities (Town Councils, Regional Governments and Regional Services Councils) also have regulations requiring evaluation of the possible effects that rezoning and development schemes may have on the environment, including the cultural environment. These regulations must be studied to ensure that they are implemented correctly.

6.1.2 The Minerals Act (Act No 50 of 1991)

The Minerals Act (Act No 50 of 1991) and the Minerals Amendment Act (Act No 103 of 1993) require plans for the conservation of the environment at or in the vicinity of any mine or works to be detailed in an environmental management programme (EMP). The EMP must indicate how the natural and the 'human-made' environment will be protected and rehabilitated during and after the mining.

6.1.3 The National Heritage Resources Act (Act No 25 of 1999)

The National Heritage Resources Act (Act No 25 of 1999) requires all developers (including engineers, farmers [agriculturists] and mines, previously excluded from the bill) to undertake impact assessment studies whenever any development activities are undertaken. The law also provides guidelines for impact assessment studies to be done whenever cultural resources may be destroyed by development activities. Permits must be acquired from the South African Heritage Resources Agency (SAHRA) before a heritage site can be affected or destroyed during the course of development activities.

Archaeological impact assessment studies have therefore become a common procedure for all development activities, even if such development may be exempted in terms of the Environment Conservation Act.

The new law stipulates the types of remains that qualify as heritage resources (heritage). These cultural resources are classified into national, provincial and other cultural heritage resources. The law stipulates general principles for heritage resources management and involves all three levels of government in the management of the country's cultural heritage. The law also requires community participation in the protection of living heritage resources.

SAHRA establishes and maintains a national policy, strategy plans and standards for heritage resources management and monitors the system as a whole. Heritage authorities assist and co-operate with individuals and organisations concerned with the study, the conservation and the promotion and utilisation of national heritage resources. A newly established National Heritage Resources Fund provides financial assistance for heritage projects.

6.1.4 Graves, the exhumation and relocation of human remains

Different legislation applies to different categories of graves, namely:

6.1.4.1 Graves younger than 60 years

Graves younger than 60 years are protected by Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983). These graves fall under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health. Approval for the removal of graves and bodies must be directed to the Office of the relevant Provincial Minister. (This function is usually delegated to the Provincial MEC for Local Government and Planning, or, in some cases, the MEC for Housing and Welfare). Authorisation for exhumation and re-interment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must be adhered to. In order to handle and transport human remains, the institution conducting the relocation must have authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act).

6.1.4.2 Graves older than 60 years

Graves older than 60 years but younger than 100 years fall under Section 36 of Act 25 of 1999 (the National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and under the jurisdiction of the South African Heritage Resources Agency (SAHRA). The Procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5] of Act 25 of 1999, National Heritage Resources Act) is applicable to graves older than 60 years which are situated outside a formal cemetery administered by a local authority. Graves in this category located inside a formal cemetery administered by a local authority also require the same authorisation as set out for graves younger than 60 years, over and above SAHRA authorisation. If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authorities must be adhered to. In order to handle and to transport human remains, the institution conducting the relocation needs authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act). Any alteration to a grave in this category or the relocation thereof must be supervised by an archaeologist accredited by SAHRA and the Cultural Resource Management Section of the South African Association for Archaeologists.

6.1.4.3 Graves older than 100 years

All graves older than 100 years are legislated as being archaeological and therefore protected under Act 25 of 1999 (the National Heritage Resources Act). SAHRA authorisation is required for all graves in this category, regardless of where they are located. Any alteration to a grave in this category or the relocation thereof must be supervised by an archaeologist accredited by SAHRA and the Cultural Resources Management Section of the South African Association of Archaeologists. If the grave is situated in a cemetery administered by a local authority, the authorisation as set out for graves younger than 60 years are also applicable, over and above SAHRA authorisation. At the discretion of SAHRA, the Procedure for Consulting Regarding Burial Grounds and Graves (Section 36[5] of the National Heritage Resources Act) might also be required. In order to handle and transport human remains, the institution conducting the relocation must have authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act).

6.1.4.4 Graves of victims of conflict

All graves of victims of conflict, regardless of how old they are or where they are situated, are protected by Act 25 of 1999 (the National Heritage Resources Act). SAHRA authorisation is required for all graves in this category. Any alteration to a grave in this category or the relocation thereof must be supervised by an archaeologist accredited by SAHRA and the Cultural Resources Management Section of the South African Association for Archaeologists. If the grave is situated in a cemetery administered by a local authority, the authorisation as set out for graves younger than 60 years is also applicable, over and above SAHRA regulations. On the discretion of SAHRA, the Procedure for Consulting Regarding Burial Grounds and Graves (Section 36[5] of the Act 25 of 1999, National Heritage Resources Act) might also be required. In order to handle and transport human remains, the institution conducting the relocation must have authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act).

6.2 Mitigation and heritage resources management

A narrow range of heritage resources consisting of cemeteries and graves has been recorded for the IFSP plant and for the BOA. It appears that these resources are not endangered, at present or in the future, by any development activities. Notwithstanding this assumption, guidelines are provided in Table 1 which Iscor's environmentalists can follow when these resources may be endangered in the future or whenever new resources are

accidentally discovered during the course of Iscor's daily activities (see Table 1).

7 CONCLUSION

The scoping study provided appropriate contextual evidence regarding the origins and development of the IFSP plant and the town of Vanderbijlpark, where the plant is situated. The history and development of the industry and the town and environs of Vanderbijlpark are intimately interwoven. The symbols that reflect this common heritage have been described. The phases that characterize the IFSP history, namely growth (ca. 1940 to 1976), stabilization (1976 to 1980's) and rationalization (1980's to the present), have had an effect on the number of workers employed by Iscor and consequently on the well-being of the residents of Vanderbijlpark, Sebokeng and Boipatong.

The contextual evidence proposed that three categories of heritage resources must exist in the critical areas, namely Stone Age sites (or artefacts), sensitive remains such as graves and cemeteries and structures that may qualify as historical because they are approaching sixty years. The Phase I survey only revealed the presence of cemeteries and graves in the critical areas. Stone Age tools most probably still exist in disturbed and undisturbed parts of the critical areas. However, none were found during the Phase I survey. Infrastructure in the BOA was destroyed after these structures were evaluated by SAHRA.

The peripheral area has proven to be of little cultural significance, except for cemeteries in this area. Green belts established during the inception of Vanderbijlpark and the peripheral area may be combined in an endeavour to reach the full potential of an industrial garden town never yet realized in Vanderbijlpark, but as envisaged by Dr Hendrik van der Bijl.

Infrastructure (and associated industrial processes) in the South Works are approaching 60 years of age but have not been evaluated. Some of these infrastructures may be of historical significance due to criteria such as their historical architecture or the unique industrial processes they accommodate. A historical architect and an industrial engineer should perhaps investigate this aspect further.

Paper collections that may have historical value may exist in different departments of the IFSP premises. Their existence can be established by means of questionnaires. These paper collections must be collected and be conserved in an archive or the library.

Legislation that deals with heritage resources has been summarised. The legislation that refers to various categories of graves, in particular, is extensive. The exhumation and reburial of human remains is a laborious process and involves exhaustive administrative procedures including public consultation. An appropriate institution that has vast experience in dealing with this matter is the Department of Anatomy of the University of Pretoria.

The Environmental Department of the IFSP plant must document the heritage resources identified on the surface areas of the IFSP plant and the BOA in Iscor's Environmental Management Programmes.

The study outlines mitigation measures with regard to the heritage resources (graves and cemeteries) that have been identified in the critical areas. The proposed mitigation measures also include other categories of heritage resources not found in the critical area but which may (accidentally) be exposed during future development activities.

The graves and cemeteries in the critical areas must be fenced in to ensure that these features are not accidentally damaged. Family members must have access to the graves and cemeteries. At least one grave in Graveyard 05 has already been damaged, and several have been damaged in Graveyard 06. The damaged graves have to be restored. Iscor may consider using the abandoned residential house and outbuildings on Rietkuil in order to conserve these structures that may soon be sixty years old.

The National Heritage Resources Act (Act No 25 of 1999) outlines various categories of significant objects and places that qualify as national heritage sites. At least four of these criteria are relevant to the IFSP plant and/or Vanderbijlpark. This indicates that the IFSP plant can possibly be classified as a national heritage site, or as a symbol representing a unique part of South Africa's industrial heritage. This assertion, however, will have to be researched more thoroughly in order to provide a rationale for such an argument. No 'modern' industry in South Africa has, to the knowledge of this author, been declared a national heritage site in the recent past.

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Table 1: Mitigation measures for heritage resources that currently exist in the critical areas or that are most likely to be discovered (accidentally) in the critical areas

CULTURAL RESOURCES	MITIGATION MEASURES	PROCEDURES	GENERAL REMARKS
Stone Age sites and scatterings of stone tools	• Collection from surface and donations to Vaal Teknorama Museum • Test excavations if unique • Extended excavations if exceptionally unique	• Permit from SAHRA and collaboration with archaeologist	Stone Age tools may exist in the critical areas and may be (accidentally) discovered.
Early Iron Age sites	• Surveys and test excavations • Extended excavations if unique	• Permit from SAHRA and collaboration with archaeologist	It is highly unlikely that Early Iron Age sites exist on the Highveld.
Late Iron Age sites	• Survey and test excavations • Extended excavations if unique	• Permit from SAHRA and collaboration with archaeologist	Late Iron Age sites do not exist in the critical areas.
Historical sites and structures (houses, farmhomesteads, etc)	• Documentation before destruction • Restoration and utilization • Incorporation into new development schemes	• Permit from SAHRA and collaboration with historical architect	Infrastructure destroyed in BOA.
Historical (industrial) infrastructure of some significance	• Conservation *in situ*	• Permit from SAHRA and collaboration with historical architect and/or industrial engineer	Infrastructure may exist in the South Works.
Graves and graveyards	• Incorporation of graveyards in development schemes • Relocation of graves and graveyards	• Permits from SAHRA, national and provincial health departments. Community consultation and collaboration with forensic archaeologist.	Graveyards exist in the critical areas.

352 Rosemary Street
LYNNWOOD
0081
Pretoria
2002-03-25

CONFIDENTIAL

MEMORANDUM

RESPONSES TO MOOLMANS ATTORNEYS' COMMENTS ON MY REPORT: 'A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT STUDY FOR THE ISCOR FLAT STEEL PRODUCERS (SIC) PLANT IN VANDERBIJLPARK'

The following responses refer to 'specific comments regarding the report' (from p.4 onwards). The specific comments are addressed by using alphabetic designations for the comments that are not numbered in the Moolmans Attorneys' document.

(a) References to the farms 'Rietkuil' and 'Cyferpan' were indeed obtained from the boundaries given by the 1: 50 000 topographical maps. The report therefore does not claim that these names accurately define the properties of the Bought Out Area or the Iscor Flat Steel Products (IFSP) plant.

(b) (Including Comment [e]). There is indeed no reference to 'national assets' in the National Heritage Resources Act. I created the term (or concept) and used it to refer *inter alia* to the 'national estate' in the sense the term (concept) is used in the National Heritage Resources Act. The term 'national asset' is, however, an inaccurate way to refer to the 'national estate'. I have consequently changed the term 'national asset' to the 'national estate' throughout the report in order not to create confusion. The term 'national asset', as originally used in the report, therefore does not represent any additional category of heritage resources other than the 'national estate' to which the National Heritage Resources Act refers. I trust that this change resolves the ambiguity noted by Moolmans Attorneys.

(c) The terms 'Cooks Plant' has been replaced by the correct version, namely 'Coke Plant', throughout the report, as suggested.

(d) There is no such precedent, to my knowledge. I believe that SAHRA will only consider heritage status (national, provincial, protected area) for any part of the IFSP plant (or the plant as a whole) if the IFSP plant itself requests such status (for whatever reason). It is unlikely that the IFSP plant would ask for such protection if it means that its workings (infrastructure, production, etc.) are curtailed for the sake of heritage status.

(e) (See Comment b, above)

(f) The last part of the following statement (underlined) has been deleted: 'This interdependence has, however, begun to fade, since the 1980's, which is perhaps one [unfounded?] reason for public anger against Iscor for not fulfilling its 'historical obligations'.

(g) The outline was merely intended to alert the reader (layman) to legal aspects that should be taken into account. I agree this does not provide comprehensive coverage of the law.

I would like to thank Francois Marais and Iscor for inviting me to participate in this project. Moolmans Attorneys comments on the report, which I interpret to be generally positive, is greatly appreciated for its constructive suggestions.

Dr Julius CC Pistorius
Tel and fax 012 348 5668