4. CONTEXT ANALYSIS

The context within which this proposal is set is analysed within the project, legislative, physical

As documented in Appendix 2, a choice of two possible sites was identified for the location of a railway museum in Tshwane, within close proximity of the Central Business District ('CBD'). Both were assessed for suitability as a preliminary. The preferred choice is the site located in the Salvokop suburb of Pretoria, on the CBD's south-western periphery. Not wishing to bore the reader with an onerous duplication of details, only the context of the Salvokop site has been included in the context analysis.

4.1 Project context

4.1.1 Clients and client requirements

The following entities have been identified as clients of the proposed project:

<u>Vintage Steam Train Clubs</u>

Friends of the Rail
As mentioned before, and based on an interview with Mr Nathan Berelowitz (2007) of this association of steam locomotive fans, new premises are required to house its collection of steam locomotives and vintage rolling stock, which comprises of the following:

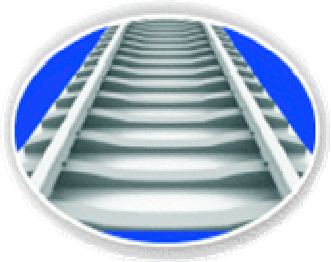

Fig. 4.1 Friends of the Rail logo

Locomotives (operating)	4
Locomotives (stationary exhibits)	3
Passenger carriages	10
Goods wagons	8
Water tank wagons	3
Cabooses	2

Fig. 4.2 Present Friends of the Rail site, Capital Park, Pretoria

Fig. 4.3 Present Friends of the Rail passenger embarkation facilities

Secure sheds, workshops and sidings for locomotive and rolling stock storage, maintenance and service are required, with staff facilities. Basic office accommodation is also needed. – Excursion trains consist of maximum 1 locomotive, 10 carriages and 1 caboose, with a total length of approximately 250 m, determining the platform length required. A full 'Christmas-special' train accommodates about 500 passengers, for whom toilet facilities have to be provided at the departure point. A restaurant and picnic area are of less importance for train passengers, as these are required only at the point of destination.

However, with government's large social commitments, funding provided to museums is becoming more and more limited. Future building operating and maintenance costs should thus be kept as low as possible. Alternate means of generating funds towards the upkeep of the museum and the acquisition of further exhibits will have to be considered, and thus ways of attracting more visitors and association members are desirable. The suitability of using the museum for other events, such as weddings and product launches, for purposes of generating additional funds, will be investigated and, if possible, be incorporated in the design.

Hartebeespoort Dam Railway
This club is based at the Hartebeespoort Dam and is attempting to revitalize the Pretoria-Magaliesburg line. Pretoria would be a possible point of departure for them; alternatively, the museum may serve as a destination for them. Their rolling stock collection is currently housed at Hartebeespoort Dam, and only station facilities are required in Pretoria. Running shorter trains than Friends of the Rail, such visitors are estimated at a maximum of 150 per train.

Reefsteamers
Based in Germiston, their facility required would be similar to those of the Hartebeespoort Dam Railway.

South African National Rail and Steam Museum ('SANRASM')
Based in Randfontein and moving to Chamdor, Krugersdorp, this is also a private association operating steam trains, generally to Magaliesburg. If they should add the proposed railway museum to their destinations, their needs would be similar to those for Hartebeespoort Dam Railway. Generally, they provide mobile barbeque facilities at their destination; few of their clients frequent proximate restaurants. Accordingly, an outside terrace or picnic area needs to be available to their passengers.

<u>Foundations:</u>

Transnet Heritage Foundation
This is the heritage preservation department of Transnet. Their focus of operation is centred on George. A Transnet transport museum was planned for both Newtown, Johannesburg, and for Salvokop, Pretoria, but

these plans have been shelved. A prerequisite for obtaining exhibits from The Foundation's collection is that the items so provided are to be stored securely and in terms of good museum practice.

Should the Foundation agree to the display of the Pierneef paintings to be exhibited as a further draw card to the museum, their display location would have to meet any requirements imposed.

Luxury and other train travel companies

Rovos Rail

Fig. 4.4 Rovos Rail logo

This company previously operated from Pretoria Central station, and owned the historic Victoria Hotel opposite it, but with the inner city becoming run down, decrepit and unsafe, it relocated. Its luxury trains now depart from their head office site, Transnet's old and now unused Capital Park workshops, which are being rented by Rovos Rail. A tour of the Capital Park site revealed that the company has constructed its own facilities, in a pseudo-Victorian-style double-storey building. This contains, on the lower floor, a luxurious departure lounge, furnished in Victorian style, and baggage handling facility. On the upper level are offices. The structure is flanked by a platform of about 100 m length, of which about 30 m is covered. Although Rovos Rail runs consists of up to 20 carriages, with a total length of approximately 450 m, their platform length is sufficient as their number of passengers is far less. Passengers board at a central point and move within the train to their compartments. The train maintenance and victualling areas are in a separate building. – It is not impossible that the company would relocate its departure facilities to a suitable, secure, attractive and less remote venue; the attraction of the railway museum may be another incentive. However, passenger comfort and safety with regard to theft and mugging is of utmost importance to Rovos Rail. So as to be able to cater for this potential, an exclusive, upmarket departure lounge and secure baggage handling facility will be incorporated in the design. With the embarkation of passengers being as described before, the platform may be shorter than the full train consist. – Due to the required size of their locomotive and rolling stock storage and maintenance facilities, as available at Capital Park, these will not be accommodated at the proposed museum, but continue to be undertaken at the Capital Park site.

Blue Train

With recent press announcements that Spoornet wishes to privatise the operations of the Blue train, the new owner may want to use facilities other than the luxury lounge currently being used at Pretoria Central station. They would thus require an upmarket waiting lounge and facilities similar to those of Rovos Rail. Though being a potential client, no additional passenger facilities above those being provided for Rovos Rail need to be incorporated in the design. However, the method of passenger embarkation on the Blue train is different, in that passengers board their appointed coach directly from the platform, and do not move down the train to the compartment. The platform as required by Friends of the Rail is of sufficient length to

Fig. 4.5 Blue Train logo

accommodate this requirement. – Once again, rolling stock maintenance will continue at their current location, in close proximity to south-east of the museum and to the south of Pretoria Central station.

Shongololo Express, Africa Train Safaris, JB Tours
These companies provide superior or standard accommodation train trips to various destinations in Southern Africa. If agreeing to use the museum as a point of departure, they would require a baggage handling area, but a less luxurious check-in area than that of Rovos Rail. However, it would be inefficient to duplicate facilities, even if they should be of different standards, and these companies will be accommodated in the facilities made available to Rovos Rail and the Blue Train. Were the companies to treat the museum only as a port of call, the station facilities required by Friends of the Rail would suffice. The length of platform as required by Blue train operations will suffice for the trains of these companies.

Model Clubs

Pretoria Model Railway Club
The model club requires secure indoor premises. Individual members model their landscapes on wooden bases of standard dimensions, with connecting tracks set at particular points enabling linkage to other modules. The area available has to be of sufficient dimensions to accommodate a full club get-together, allowing for all modellers' track modules to be linked together for a full model train run. Limited space for social activities is required, these usually occurring next to the assembled modules.

Government and institutional bodies

Department of Arts and Culture
As a possible provider of funding, the museum would have to comply with professional standards and good practice as set out in professional standards for museums. Railway related topics covered in exhibits should include the contribution made by all races and genders to the development of railway operations in South Africa to reflect the full picture, in compliance with the Department's desire of reflecting the transformation in this country. However, the exact contents of the exhibits would be the responsibility of the curator.

Department of Environmental Affairs and Tourism
As a potential draw card for tourists, this Department would be possible provider of funding. The proposed museum should thus preferably include activities which are known to draw tourists, such as live steam train rides and shunting operations.

Department of Education

As the museum is envisaged as a venue where scholars of different ages are not only exposed to exhibits appropriate to topics covered in their curriculum (such as principles of physics and economics), but also to viewing the performance of certain trades necessary for the restoration and maintenance of exhibits (boiler making, fitting and turning, welding), facilities are to be provided for the accommodation of scholars. This may enable the obtaining funds from the Department, or to alternatively generate additional funding from school classes' entrance fees. – Furthermore, individuals can be trained as artisans in these trades in the workshop, or as tourist guides in the museum. The museum would thus possibly comply with requirements for training grants provided by the Department.

City of Tshwane
As the museum would contribute to making Tshwane a city of culture and museums, thereby enhancing its status as the capital of South Africa, it could be eligible for funding assistance towards its construction and operation.

Tshwane Tourism Association
This is the metropolitan council's agency concerned with the promotion of Tshwane as a tourist destination of note, and as such would be interested in the aims of the museum. Creating a tourism attraction of sufficient potential may qualify for financial assistance.

Freedom Park National Legacy Project (including Salvokop)
Being concerned with the development of the south-western periphery of the Pretoria CBD, any development within this area would be of concern to it. The project must contribute to the prestige of the area and add to it as a draw card for both local and international tourists.

Spoornet
Being the operator of the railways in the Tshwane area, Spoornet would have to permit the necessary rail links from the museum's tracks to their network, to enable running of the steam and other trains. Such resulting crossings and switches would have to be kept to an absolute minimum so as not to interfere with existing train operations and movements. This permission is assumed in the development of this project.

Propnet
Propnet, as the landowner, through its managing agent Intersite, is concerned to the extent that the land required for the museum would have to be made available, either by letting it, preferably at a low or minimal rental, or by selling it cheaply to the project legal entity, as its contribution to the upliftment of the area and the Freedom Park precinct. It is assumed for this project that the required land will be made available by the owner as a contribution to achieving the ideal of upgrading the Salvokop precinct.

Developers or tenants
As will be discussed under 'Funding sources', if an office park or conference centre were to be incorporated in the area's development as an additional source of funding for the museum, the specific design requirements of developers and/or tenants would have to be taken into consideration. For purposes of this dissertation, it is assumed that such a development will occur in later phases, after the completion of the museum, and will then be designed to suit the particular requirements.

Other interested and affected parties

Although not *per* se clients, the following have been identified as parties influenced by developments in the suburb of Salvokop:

Museum users: train enthusiasts, scholars, researchers (being individuals, families or groups)
The museum should provide exhibits of interest in a safe and secure environment to these individuals.

Salvokop residents and pedestrians and Pretoria/Tshwane citizens
By acting as a catalyst for the development and upliftment of the area, their concerns about the current deterioration of the area may be addressed

Salvokop informal fruit traders and cell phone operators
Increasing use of the area following from the development of the site will boost their income.The museum itself does not compete with their line of business.

4.1.2 Project aims and purpose

The aim of any project is the accommodation of the various clients' desires and requirements (as set out above), enabling them to achieve their purposes and aims. Regarding the erection of the railway museum, these could be summarized as: 'Through preservation, education', with the ancillary purpose being the creation of an experience for the visitor on the one hand, and the enhancement of Tshwane on the other.

The individual client's desires, wishes and requirements can be consolidated and categorized into the following primary aim and supporting secondary and tertiary aims:

Primary aim

To foster, in a well-visited, multi-focused and sustainable railway museum, an understanding of railways and related topics, past, present and future, through the display or use of static, interactive or live exhibits.

This understanding will be achieved by providing:

- an insight into railways and related subjects in the South African context, their history and future, both to the train enthusiast and non-enthusiast
- an educational destination for scholars and other interested parties
- a venue where exhibits are enriched by becoming experiences.

Topics would be multi-focussed, covering the following:

- the development of railways in South Africa (routes, rolling stock, signalling, station architecture, etc.)
- the contribution railways made to the development of South Africa (economics, mobility, labour supply, demographics, tourism)
- the principles of physics underlying the different methods of propelling locomotives
- the operation of railways
- related signalling and telecommunication operations and its history
- safety procedures regarding contact with trains
- the related engineering (civil, mechanical, electrical), and achievements therein
- the contribution, past and present, by the various people, sexes and races of South Africa to the railways' construction and operation, and information on the jobs they perform
- the effect of social issues, apartheid and job reservation on passenger transport, station architecture, job and skills development
- other auxiliary services provided by the railways, e.g. motor transport
- the handling of mail by the railways
- the ambience and feel of rail travel in the past
- luxury and special trains in South Africa and the world

The above will be augmented by including the following

- live historic locomotive/train experiences, by providing a departure and arrival point for live steam train runs to Cullinan, Bela Bela (Warmbaths) and other destinations (provided by Friends of the Rail, Hartebeespoort Dam Railway, Reefsteamers, SANRASM and possibly by Rovos Rail)

- facilities for recording and archiving visual and audio information regarding the above, and making it available for research
- a safe and enjoyable environment, by *inter alia* including catering and picnic facilities on or close to the premises
- a base from which steam locomotive preservation associations can operate vintage steam trains
- a venue for the Pretoria Model Railway Club
- facilities for restoration, and locomotive and rolling stock service, maintenance and storage.

Secondary aims

In addition to the above, the museum would:

- contribute towards the integration of the long neglected south-western corner of Pretoria's CBD into the city's urban fabric, and become a catalyst for its further upliftment
- provide a point of attraction for tourists, contributing to making Pretoria a preferred tourist destination and strengthening the envisaged 'Tshwane Museum Park' precinct
- contribute to the upliftment of the surrounding area
- contribute in linking the Freedom Park precinct to the CBD though the creation of a strong tourism axis and contributing to development of Pretoria's Potgieter Street gateway to the CBD
- make the Salvokop area more attractive to current and future residents of the development proposed in the Tshwane urban development framework

Tertiary aims

To facilitate the above over the long term, due to limited funding being made available by government and its agencies, the museum would have to generate as much as possible of its own income to ensure its continued viability and existence, e.g. by providing a venue for banqueting, diners, business meetings, teambuilding and training sessions, workshops. Furthermore, the possibility of developing further sources of funding by incorporating conference facilities available to third parties and commercial office space lettable to third parties is a possibility, as will be discussed under 'Funding sources'.

A contribution to financial sustainability can be made by reducing operating costs by incorporating design features contributing to the reduction of energy consumption, and utilizing low maintenance finishes.

4.1.3 Funding sources and proposal

The following have been identified as possible sources of funding for the project, and means by which such funding could be achieved:

Friends of the Rail	Surpluses generated by operations
	Sub-contracting for repairs
Department of Environmental Affairs and Tourism	Museum grants
Department of Arts and Culture	Museum grants
Department of Education	Grants towards educational exhibits
	Training grants
South African Revenue Service	Section 21 Company status
Transnet	Providing surplus historical structures
Transnet Heritage Foundation	Financial and land grants
Tshwane City Council	Financial and land grants
Tshwane Tourism	Financial grants
Corporate bodies	Financial and material sponsorships
Foreign NGOs and donor agencies	Educational grants
Other funding sources	Conference facilities
	Banqueting facilities
	Event management
	Commercially let office space
	Entrance fees
	Individual donations

As a further means of providing financial support to the museum, it is suggested that the full, previously workshop-occupied area owned by Transnet, on part of which the museum is proposed, be developed as a single entity comprising of the museum, office buildings and a conference centre: part of the profits generated by the latter two may then be applied to the operation and maintenance of the prior. This would lessen the dependence of the museum on government subsidies and donations by other parties. However, the design of such further facilities is seen as being later and additional phases of the museum precinct development, and will be designed at the appropriate time and to the requirements of yet to be identified developers and tenants.

The formation of a Section 21 (non-profit) company, in which the various funding agencies and other stakeholders would be potential 'shareholders', is considered to be the best form of legal entity for the creation of this museum and its related activities.

4.2 Legislative context

The project will have to comply to the following national and other laws, regulations, standards and guidelines:

National Building Regulations and Building Standards Act No. 103 of 1977

This act determines *i.a.* that, in brief, all buildings must be safe and fit for occupation. Adherence to the National Building Regulations (refer below), as a minimum, for those buildings covered by it, will satisfy conditions for the safe and acceptable construction of buildings.

South African National Standard: The application of the National Building Regulations (SANS 10400A:2003)

The general requirements for satisfying the National Building Regulations (as required in terms of the National Building Regulations and Building Standards Act No. 103 of 1977 mentioned above) are set out in this standard.

The museum project, being multifunctional, will have to comply with regulations governing its various functions. These fall under the following usage classes:

For catering facilities	A1 – Entertainment and public assembly
For auditorium facilities:	A3 – Places of instruction
For museum	C2 – Museum
For workshop (paints & varnishes)	D1 – High-risk industrial
For gift shop (< 250 m²)	F2 – Small shop
For offices	G1 – Offices
For storage of paints/varnishes	J1 – High-risk storage
For storage of exhibition material	J3 – Low-risk storage

As the pre-dominant function is that of serving as a museum, this will be the principle category applied in determining applicable standards to be adhered to. Standards applicable to other functions, such as catering facilities, will be taken into account, as applicable.

National Heritage Council Act, Act No. 11 of 1999

This act establishes the National Heritage Council, and sets out its objects and functions, as well as method of work. The act is relevant to the extent that it establishes the body from which permission for alterations to protected structures must be obtained.

National Heritage Resources Act, Act No. 25 of 1999

This act requires per section 38(3) that a historical impact assessment be executed prior to the commencement of a development larger than 5000 m². This will have to be executed for the proposed development. Furthermore, the act determines that all manmade structures older than 60 years are protected. Demolishing or alterations may only be undertaken after approval of the South African Heritage Resources Agency has been obtained. Since two of the existing structures on the site are older than 60 years, the necessary permission for any changes to them will have to be obtained from the National Heritage Council agency (the South African Heritage Resources Agency).

The South African World Heritage Convention Act, Act No. 49 of 1999

This act provides for the incorporation of the World Heritage Convention into South African law, the recognition and establishment of World heritage sites and land matters related thereto, as well as for the administrative measures concerned therewith. This law is less related to the actual project, but contains input on preservation which merits taking note off.

Occupational Health and Safety Act, Act No. 85 of 1993

This act prescribes principles and procedures to be followed to ensure the safety of both construction workers and users of the building during construction and thereafter.

City of Tshwane Land-Usage Zoning Bylaws and Regulations

The land is classified as Transnet-owned land, and no specific regulations have been established for it by the city council. However, in completing the design, cognisance will be taken of the size and characteristics of historical precedents as they were on the site before demolition, *i.e.* big workshops and other railway related support structures.

Pretoria Inner City Spatial Development Framework

Compiled in 1999, it pre-dates the development of the Freedom Park Precinct, but as such suggests the integration of the Salvokop area with the CBD with regards to cultural and tourism aspects. It also proposes that the area preserves the current residential environment and develops it further.

Salvokop Development Framework

This proposes that the suburb be developed for urban mixed use, with due recognition of its function as a railway related industrial area and its associated residential and administrative component. The whole suburb should be a tourist destination, and the framework suggests that the railway reserve could be used by specialist trains and for the viewing of train operations. The area should invest in and capitalize from heritage conservation and allied tourism. Heritage information transfer should be encouraged. Introduction of a 'working rail yard' theme is considered suitable for this area.

With regard to the existing structures, it states that 'due to the public nature and quality of the eastern façade of the Chief Engineer's Office [(CEO)] … it is proposed that a public square be developed east of the CEO. Such a space should incorporate the valuable historical buildings to its east (steam hammer shed and adjacent double-storey building), but may require the removal of the adjacent workshop building to [the immediate east of the CEO] to expose the CEO façade.' (Cultmatrix CC, 2003:56)

Freedom Park Urban Design Framework

This suggests the physical integration of the precinct with the CBD by means of a mixed use sustainable development as well as an activity connection. The (visual) link between Freedom Park and Church Square should be respected. It proposes commercial development of the area, but it should be borne in mind that such an area will benefit from a catalyst being introduced to ensure multi-functionality.

Tshwane Inner City Project- Spatial Design Framework ('SDF'): Phase 3: Development manual and design code

This document, prepared by a group of professional firms in 2005 as a proposal for the future development of Tshwane as 'the leading international African capital city of excellence that empowers the community to prosper in a safe and healthy environment' (TICP-ISF Phase 3,2005:2), includes *i.a.* the following points of vision:

1. improving urban management so as to make the Inner City (including the Freedom Park precinct and Salvokop suburb) safe and clean, the informal economy vibrant and a contributor to the area, and enhancing the tourism potential of the city;
2. creating a network of public squares and gardens, improving the legibility and user friendliness of the city and contributing to pedestrian movement in the area;
3. linking the three symbolic points of Freedom Park, Church Square and the Union Buildings;
4. consolidating an infrastructure, pedestrian and public transport spine along Paul Kruger and Church Streets, with developments centred around these and the core of the city to be multi-functional and utilized 24 hours a day, and these streets becoming symbolic avenues or a government walk; and
5. including environmental sustainability in developments, including water and energy efficiency, as well as social equity to the extent possible.

To facilitate achieving the desired goal, the inner city has been divided into seven precincts, of which Salvokop is one. The museum is proposed for location in this latter area, and only those SDF proposals pertinent to it will be detailed below. The SDF's input is limited (the area not falling into the 'normal' ambit of a developed, built-up but run-down city environment requiring upgrading and rejuvenation). It proposes the following for this suburb:

1. the creation of new, or enhancement of existing public squares as entrance to Freedom Park (as being separate to any created by any other developments) (TICP-ISF Phase 3,2005:14) ;
2. the creation of improved pedestrian and vehicular connection between the Museum Park and Salvokop precincts, over the railway lines;
3. the continuation of the 'government walk' idea on a local scale, connecting to Freedom Park to the south and the Defence Headquarters to the west;
4. the preservation of such axial relationships, vistas and views as there are; and
5. building heights should remain low to medium, with a 5 storey maximum;
6. no need is currently seen for the creation of underground parking as no 'space problems' exist in this area.

The above document's draft predecessor, TICP-SDF Phase 2, indicates that the suburb's water supply, sewer and storm water services are currently adequate. However, they are not in a good state, possibly having to be replaced. Furthermore, major developments in the area may require completely new infrastructure to be installed. For purposes of this dissertation, it is assumed that the existing connections are adequate, or that any expansion required will be undertaken by the local authorities.

The document wishes to prescribe what new 'Tshwane architecture' should look like, and what materials should be used in which way, drawing on the document's preparers' individual perceptions and opinions of the architecture that should be used to symbolize their understanding of the current political environment in South Africa.

However, in my opinion, the prescriptive application to all designs of components based on elements of the traditional philosophy of a specific culture, in order to superimpose onto a building an identity as conceived by only those individuals, with these components furthermore executed in the mediums of a modern, different and non-traditional technology too easily leads to superficiality: such elements easily become merely decorative of nature, a pandering to what is currently seen as *en vogue* and politically correct or opportune. It is equivalent to executing a functional water storage tower in an ornate baroque style, or a car assembly plant in English Tudor. It is as incongruous as a quartz clock, with a digital Roman numeral face, clad with a plastic housing and fitted with a re-styled cuckoo chiming the hours, being marketed as a Black Forest souvenir. – The search for identity is a natural and evolutionary process, occurring through centuries, and cannot be forced: The result is otherwise as artificial as any other quick-fix process.

I thus consider that specific guidelines may be applicable to those buildings accommodating individual government ministries and departments, enhancing a 'corporate image' for these institutions. Other structures should be subjected only to more general regulations, such as building volumes, height and boundary lines. This is to prevent the stifling, on the one hand, of creativity and individuality, and, on the other, of investment and development (due to the potentially excessive costs incurred in complying with the too specific guidelines). Buildings' designs should be allowed to respond to their existing surrounding framework, as each site has a very specific context, whilst also taking cognisance of the general vision of the future city. To make applicable to non-government structures a restrictive net of specific guidelines, in my opinion, harms the richness of architectural diversity created by the individual designer's independence: too much prescriptive and centrally controlled building plan approval leads to artificial and superficial environments, such as the Melrose Arch development, office parks, security villages, RDP townships and the eye-sores of post-war East European residential developments, such as are to be found in Prague, Bratislava and Moscow. Individuality is the generator of the depth of the architectural texture found in a town. Guidelines should only ensure that the result does not look 'cheap', but responds to the envisaged general appearance of the city and fits the desired sophistication of the city. They should not be more prescriptive.

The above opinion is supported in Carmona, Heath and Tiesdell's *Public Places – Urban Spaces* (2003:11): 'Urban designers should be wary of being too prescriptive about urban form…. While these frameworks are

sound in themselves, there is a danger of their treatment as inflexible dogma or their reduction to mechanical formulae…. Urban design should not be reduced to a formula. Application of a formula negates the active process of design that relates general principles to specific situations.'

I shall thus abide to these proposed regulations only to the extent that I consider it necessary to achieve the wider goals set by the SDF.

South African Museums Association: Professional Standards and Transformation Indicators

This draft publication of 2006 covers four spheres of museum operation:

1. governance and museum management;
2. collections management;
3. public programmes and visitor services; and
4. facilities.

It defines the goal of a museum to be the acquisition, conservation, research, communication and exhibition of the material evidence of people and their environment, for purposes of study, education and entertainment.

Governance and museum ethics require that experiences should be created, and services be provided that meet expectations and give value for money. The museum should pursue sustainability by forming partnerships with other institutions and stakeholders.

Collection management demands accountability, diversity and inclusiveness, and also promote a sense of identity and ownership of heritage. Collections should be safely and systematically stored. The environment should be secure and stable. Resources must be allocated to ensure the long-term physical safety of objects. A register of objects should be kept in a fireproof safe. Museum workers should be trained in the fundamentals of preventative conservation. A routine cleaning and maintenance programme should be in place. Collections should be protected from all heat sources, direct sunlight and excessive ultra-violet radiation.

Public programmes and visitor services should recognize that a museum's services are of twofold nature, with an internal focus on collection acquisition and preservation, and a customer-orientated focus on disseminating information about the collection. Such services include making available *i.a.* permanent and temporary exhibitions, education, publications, library and research services. The provided services may

even include training and skills development in the heritage sector of staff and volunteers, thereby contributing to life-long learning and the development of a physical infrastructure around which community life can be formed. Attention should be given to reach and develop new audiences. Talks, demonstrations, special events, guided tours and exhibition information in written, audio or video format form part of such services. In consultation with local schools the museum should provide both formal and informal education services to learners.

Facilities in which a museum is housed must provide, above all, a secure environment for the displayed and stored objects, suitable space for collection care, and inviting spaces for the public programmes, including education. They should be safe for visitors, exhibitions and collections. Functions should not be held in exhibition areas unless the safety and security of all objects is assured. Public seating, public toilets and special needs such as access for the disabled must be provided. Trade and other commercial activity should further the aims of the museum.

4.3 Physical context

Location — Tshwane/Pretoria is located 25° 36' S and 28° 12' E (Fullard: *Philip's College Atlas*, 1984: Index 24). Salvokop is a suburb on the south-western periphery of the CBD, separated from it by the main Johannesburg/Maputo – Pretoria – Rustenburg/Polokwane (Pietersburg) railway line. It lies on the northern foot slope of Salvokop Hill, which is crowned with the structures of the Freedom Park precinct.

(The following information on climate has been extracted from Holm and Viljoen: *Manual for energy conscious design* (1996:69-73).)

Climate — Tshwane is situated in a zone with distinct rainy and dry seasons, with a large daily temperature variation and strong solar radiation.

Humidity — Humidity levels are moderate, average monthly levels being below 59%.

Temperatures — Maximum average annual temperature: 24.8°C
Minimum average annual temperature: 12.1°C

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
Max ave monthly temp °C	28.6	28.0	27.0	24.1	21.9	19.1	19.6	22.2	25.5	26.6	27.1	28.0	24.8
Min ave monthly temp °C	17.4	17.2	16.0	12.2	7.8	4.5	4.5	7.6	11.7	14.2	15.7	16.7	12.1

Table 4.1 : Temperature statistics for Pretoria

Rainfall — Average monthly rainfall: 56.17mm

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
Ave monthly rainfall mm	136	75	82	51	13	7	3	6	22	71	98	110	56

Table 4.2 Rainfall statistics for Pretoria

Wind	East-north-easterly to east-south-easterly winds predominate in summer, whereas in winter they originate mainly from the south-west, with a fair amount from the north-east.	
Sun angles	At 12:00 noon on solstice (21 March/23 September)	64.23°
	At 12:00 noon mid-winter (22 June)	40.73°

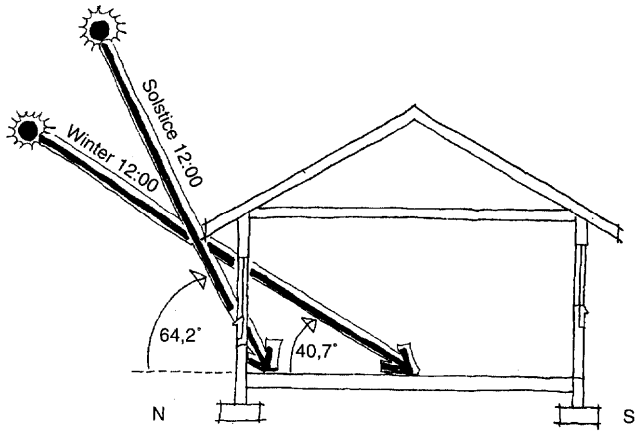

Fig. 4.6 Sun angles for Pretoria

Geology — The underlying soil consists in the main of Timeball Hill shale, which could contain subordinate quartzite layers. Excavatability may be impeded thereby, which at worst would require blasting. (TICP SDF phase 3, 2005:32). A detailed survey of the site would need to be undertaken to discover the extent of such layers, but for purposes of this dissertation it is assumed that no such layers exist.

Suburban fabric — The suburb of Salvokop, lying to the south of the site, is residential. It is bordered by (refer to the photo below) to the north and east by the railway tracks, to the west by the facilities of the Departments of Defence and of Correctional Services on the western side of Potgieter Street, and to the south by the Freedom Park precinct. Its history, population and income grouping will be set out under ‘historical context’ and ‘social context’.

Fig. 4.7 Salvokop suburb and surrounding area

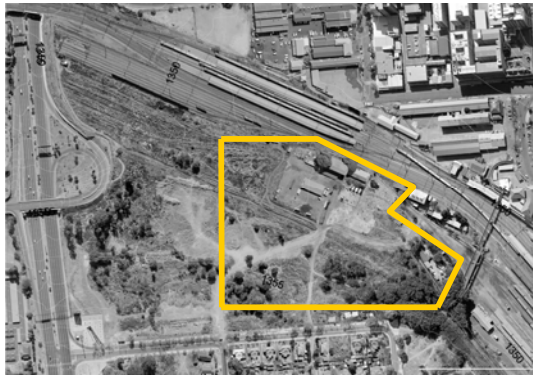

Fig. 4.8 Aerial photo of site, indicating site borders

A church, a school, a tuck shop, a filling station and its shop on Potgieter Street, and a scattering of informal traders are the only services available to residents. To the east of the foot-bridge is Spoornet's carriage washing facility, and to its west buildings house some of Pretoria's rail operations control. The close-by historic Chief Engineer's Office building (described subsequently under 'Existent buildings') is currently occupied by a community training facility. It is assumed that this facility will relocate to premises more accessible to its trainees, and that the building will become available for incorporation in the museum. The construction of the Freedom Park precinct to the suburb's south has resulted in the access roads being upgraded, but to date no further positive effects of this development are evident in this suburb. Parking for Freedom Park is behind the access control to it, so that there is no encouragement of tourism-orientated informal trade.

Access

Salvokop is hampered by currently having no direct vehicular link with the CBD. The only point of access for cars is from Potgieter Street. There is no vehicular access to Salvokop suburb from the north, east or south, this being impeded by the railway tracks and the hill itself. It may be improved in the foreseeable future, as draft TICP SDF Phase 2 (2005:39) shows a proposed road link paralleling an existing foot-bridge to connect the CBD's Bosman Street to Koch Street in Salvokop.

Pedestrian access to the suburb is from the north (the CBD) by means of said steel foot-bridge over the railway tracks (to the west of Pretoria Central station and east of the museum site) and from the west, from Potgieter Street along Skietpoort Street, connecting to the southern end of the foot-bridge. An informal pathway leads from the Decquar Road-over-Potgieter Street bridge ramp into the western half of the site.

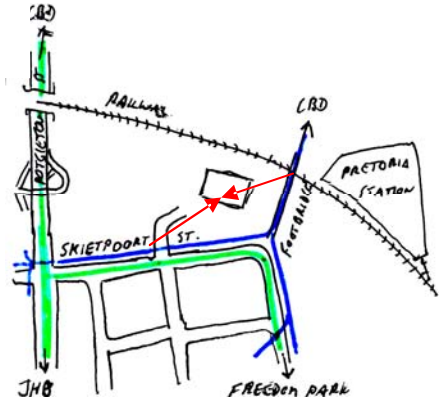

Fig. 4.9 Pedestrian (blue) and vehicular (green)

Vehicular traffic

The Salvokop suburb, and thus the site, is flanked to the west by the Potgieter Street, which is one of the major access points to Pretoria from the south. This street carries a large amount of local and through traffic. As mentioned, the only point of access to Salvokop from Potgieter Street is Skietpoort Street, which carries only intermittent car (resident and non-resident) and tourist bus traffic. The non-residents are in the main visitors to Freedom Park (this street being the only access road to the precinct), the remainder passing through to the Transnet passenger carriage washing and Pretoria operations facilities or the community training centre.

Pedestrian traffic

Main pedestrian movement is across the foot bridge from the CBD into Salvokop, along

traffic flow and access point to sites (red)

Koch Street and dissipating into the various streets serving the residences, and in the opposite direction. Regular movement is seen throughout the whole day. Also of importance is the movement along Skietpoort Street, this being the shortest pedestrian route linking the CBD to the premises of the Departments of Correctional Services and of Defence.

Fig. 4.10 Railway on main street, Fauresmith

Site borders

The site is bordered to the north by the rail tracks, to the north-east by the buildings of Pretoria rail operations, to the east by the foot-bridge connecting the suburb over the rail tracks with the CBD, to the south by the about 5 m high embankment bordering Skietpoort Street, to the west by Potgieter Street, and to the north-west by train storage sidings. However, only the eastern half of this site will be used for the museum premises, bordered to the west by a line extending approximately north from the junction of Skietpoort Street and Second Street. The western half of the site is used partially by train tracks, connection to which will enable the train operations of the museum and workshop. An office development could be interspersed here, as proposed for the raising of financial means for the museum. A placing of offices between tracks would give character to such a development, reminiscent of Fauresmith, where the train line runs down the main street of the town.

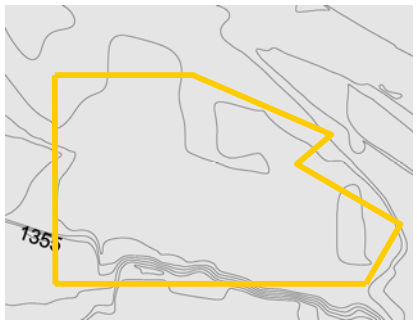

Fig. 4.11 Site contours

Site description

The site is a flat, largely empty brownfield site, where formerly the workshops of Pretoria railway station were located. On its northern periphery are some buildings, described subsequently under ‘Existent buildings’. A small portion of the site in the north-eastern corner is separated from the remainder by an infrequently used rail spur to the Blue train carriage washing facilities. Pedestrian access across this will be by a level crossing, controlled by automatically-closing gates, similar to that found to the south of Muizenberg station in the Cape Town area. A level crossing for vehicle will be controlled similarly by automatic booms.

Site slope

The site, having been the location of the NZASM’s and its successors’ workshops and shunting yards, has been levelled to on average 1351m above sea-level, with a drop of about 1 m over 150 m in a northerly direction. The upper edge of the embankment forming the southern border varies between 1354 m and 1357 m, rising towards the south-eastern corner.

Site drainage

Although the land is generally flat, the levelled area shows a gentle slope towards the northern, north-eastern and north-western edges of the site.

Fig. 4.12 Site vegetation (trees within red lines No longer existent)

Site vegetation

The area is covered by grass. In the south-eastern corner, bordered by the embankment and the foot bridge crossing the railway tracks, is a grove of trees. Along the western edge of the site are eucalypts, furthermore a few copses of various small trees are strewn over the site. The trees between the gravel road and foot path access from the south (visible on the air photo below) have been removed. Skietpoort Street to the south is bordered by jacaranda trees.

The Chief Engineer's office building (refer to 'Existent buildings') is shaded by a towering Eucalyptus tree, and five smaller trees are found to the buildings south-east.

Site access

The site itself is accessible from Skietpoort Street (to the south), currently by both a gravel road and a pedestrian track. From the west it is accessed by above-mentioned informal pedestrian access from the Decquar Road bridge ramp. The east access is possible from the foot bridge by a flight of steps. Formal access from the north is blocked by the railway tracks, though it can be assumed that unauthorized crossing does occur on a minor scale.

Vehicles accessing the site go to Transnet or the training centre located in the old Chief Engineers building, as vehicular access to these buildings is currently only possible from Skietpoort Street.

The site is not used as a route by pedestrians other than those working for Transnet or the community training centre, accessing their place of employment.

Views from site

To the west, in the distance behind the trees and transmission line support (refer to Fig.4.11 overleaf) the buildings of the Department of Defence can be seen, crowned by a small clock-tower. To its left, visible through a break in the trees, is Pretoria's C-max high-security level prison. This portion of the land falls largely outside of the museum site, only the immediate foreground forming part of it. In line with the proposal put forward under '4.1.3 Funding sources and proposal', the remiander would form the location for the proposed office buildings.

Fig. 4.13 View to the west

To the north is the low slung butterfly shed of Bosman Street station and, in the background, the CBD's skyline. The Chief Engineers building and the dilapidated steam hammer shed (seen slightly to the right behind the white vehicle), and adjacent structures are adjacent to Pretoria's main railway line, running behind them. The building's to the latter's east do not form part of the proposed museum development.

Fig. 4.14 View to the north

To the east is Pretoria Central station, hidden behind the steam hammer shed, and the grove of trees. The foot bridge linking the CBD to Salvokop is behind the grove. Should a

road link be built next to the foot-bridge, linking Bosman Street and Koch Street, it is assumed that this would not influence this view excessively.

Fig. 4.15 View to the east and south-east

To the south the land is bordered by an embankment levelling off towards the west. Historic railway employee houses line the far side of Skietpoort Street, located above the embankment. Beyond, on the crest of Salvokop Hill, is the Freedom Park development.

Fig. 4.16 View to the south and south-west

Fig. 4.17 180° view of site (east, south and west) from Chief Chief Engineer's Office, indicating site borders

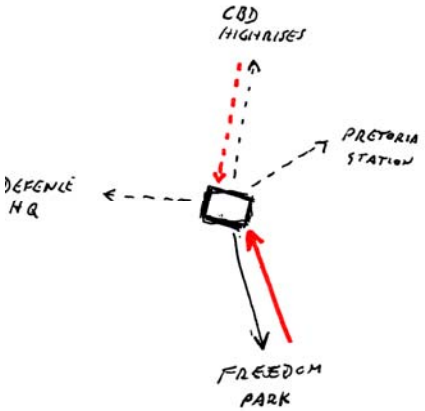

Fig. 4.18 Focal points and views inwards

Focal points

The focal feature determining the site, and the orientation of buildings on it, and of the museum design itself, is the Pretoria's main rail line, forming the Johannesburg/ Maputo - Pretoria - Rustenburg/Polokwane (Pietersburg) rail corridor.

No strong focal points exist in the immediate vicinity, except those provided by the existing historic building substance, detailed below.

In the further distance are the clock tower of Central station and the distant Telkom tower to the east, a large office block to the north, the clock tower of the Defence Force headquarters to the west (though very much in the distance and obscured by vegetation), and the flag masts of the Freedom Park development on the summit of Salvokop to the south.

Views into site

The site is overlooked from the Freedom Park precinct located on the summit of Salvokop. The façades and roofscape of the buildings below must take this into account. Views inward from other buildings (CBD high-rises) and other high vantage points are limited and from a distance, and of less significance.

Existent buildings

Very little remains of the old workshops and other railway support service structures on the site. These are, from west to east (left to right on the photos below), the CSAR's Chief Engineer (Resident Engineer)'s offices (to which another floor has been added), the smaller annex thereto, the run-down steam hammer shed (of which the lower

corrugated iron wall sheets have been gutted) and a historic double-storey hip-roofed building still used by Transnet's operational control.

The only other structures are recent single storey office building, an open-sided shed used for the storage of containers and other odds and ends, some pre-fabricated offices and shade netting for cars. An old water tank is situated to the west of the steam hammer shed. Close by the foot bridge to the east are temporary structures of Transnet.

Fig. 4.19 CSAR Resident engineer's office, 1908

Fig.4.20 Chief engineer's office, 2007

Fig.4.21 Steam hammer shed and Transnet building

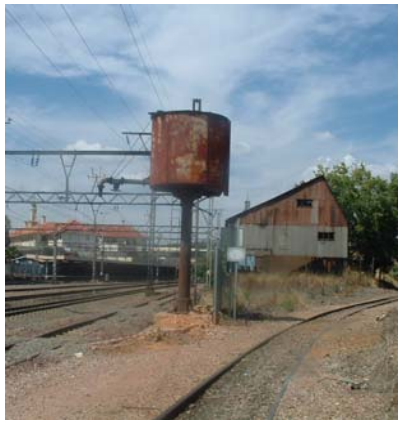

Fig. 4.22 Old water tank and steam hammer shed

Of these structures, the Chief Engineer's Office, the steam hammer shed and the Transnet building are to be retained. The annex building and recent office building and shed structure are to be demolished, the prior due to obstructing the handsome main façade of the Chief Engineer's Office, the latter due to their temporary and thus detracting nature.

The above decision to demolish the annex and other mentioned structures was anticipated in the *Salvokop Development Framework*, which proposes that development should retain and 'incorporate the valuable historical buildings to [the Chief Engineer's Office's] east (steam hammer shed and adjacent double storey [Transnet] building, but may require the removal (or partial removal) of [its] adjacent workshop building … to expose the CE Office façade and to provide a place of arrival – infill in this space has historical merit. The position of the container shed building south of the CE Office deters

the introduction of a movement system and square, which can utilize the full potential of the southern façade of the historical building.' (Cultmatrix CC, 2003:56) It further puts forward that 'it is of great importance that the Chief Engineer's office and the steam hammer mill building… be re-used as actors…Introduction of a 'working rail yard' theme is suitable for this public space – the Friends of the Railway and similar groups would possibly be able to show engines in this space … - the retention of the rail line for real railway activity in this zone should be actively pursued in the process ahead.' (*ibid*:60)

4.4 Social and economic context

Population

The population of Salvokop suburb, per the 2001 census statistics provided by the Statistics South Africa, is made up as follows:

Age group	0-4	5-14	15-34	35-64	65+	Total
Male	99	20	5,083	2,085	35	7,322
Female	102	232	936	460	5	1,735

Table 4.3: Population of Salvokop

The predominance of men is ascribed to the large amount of male Transnet workers being accommodated in the area. Many stay in outbuildings and backyard shacks.

Facilities

Community facilities in the site's proximity are few: A church and a school are in fair condition, but some public spaces are in attention-requiring condition. Elements of the local population do not appear to be litter-conscious.

Shops

A tuck shop is located at the top end of Koch Street, close to the entrance to the Freedom Park precinct. The filling station on Potgieter Street has a small 24-hour service shop attached.

Informal Trade

A fruit-and-sweets seller and a public phone operator are located at the southern end of the foot bridge, ideally situated to capture the passing trade being funnelled across this. Another fruit seller is located to the south, two blocks up Koch Street.

Income groups

Based on own observation, the population belongs to the low income to lower middle income group. Some houses are seen to be shared commune-type, with no cars in evidence, whereas other households do own cars, generally of older make. Some houses have corrugated iron shacks in their backyard, which are let out to tenants, which are of the very low income group.

Tourism

The tourism potential of the suburb has increased substantially by it being situated athwart the access route to the Freedom Park Precinct, although this is not being tapped into currently. Although not every visitor to Pretoria necessarily visits this destination, the projected increase in visitor numbers in the below table indicates the projected number of visitors that may visit the railway museum (statistics extracted from Tourism Master Plan of 16 May 2006):

	2004	2007 (projection)	2010 (projection)
Total overnight visitors	1 487 617	1 702 160	2 024 080
Total day visitors	3 537 045	4 096 463	4 855 942
Total visitors	5 024 662	5 798 723	6 880 022

Table 4.4: Visitors to Tshwane

Fig. 4.23 Coat of arms of SAR predecessor companies

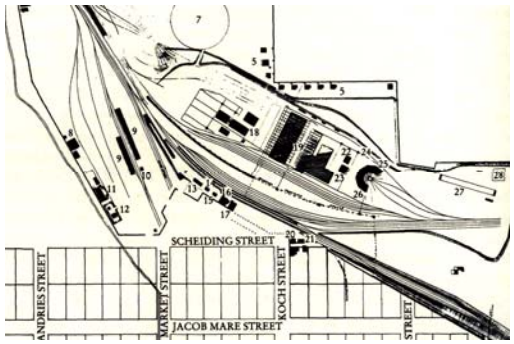

Fig. 4.24 Pretoria station yard, 1901 (north to bottom of sketch, and workshops indicated in black)

4.5 Historic context

The site is closely linked with the development of railways in South Africa. Located in the capital of the Zuid-Afrikaansche Republiek, the NZASM's main workshops were located on this site, being the terminus both its Southern line (by way of Johannesburg and the Orange Free State to the Cape ports) and Eastern line (the Pretoria - Delagoa Bay railway line, the construction of which was its original *raison d'être*). The two lines were completed in 1892 and 1896 respectively. The passenger station terminus was located to the sites north, between the current Central and Bosman Street stations, but no major structures signified the importance of it, and none remain. The passenger station was replaced by the Sir Herbert Baker-designed Central station in 1913, located at the top, southern end of Paul Kruger Street.

The Pretoria-Pietersburg Railway Company completed its line linking these two towns in 1898. Its terminus station was situated at the location of the present Bosman Street station. With the commencement of the Anglo-Boer War the government expropriated this company, it being British owned. As the British captured the railway network of the Zuid-Afrikaansche Republiek and the Orange Free State Republic, they were initially operated as the Imperial Military Railways and, upon cessation of hostilities, as the government owned Central South African Railways.

With the formation of the Union of South Africa, the Cape Government Railways, Natal Government Railways and Central South African Railways were merged into the South African Railways & Harbours. This has in turn been corporatized into Transnet, as such being a government department run as an independent commercial entity. Transnet's rail operations have been unbundled into Spoornet and the South African Commuter Corporation. Propnet is the property-owning division of Spoornet.

In addition to the mentioned rail links, Pretoria has been joined by rail both to Rustenburg and Magaliesburg; however, the latter line is no longer operated.

As stated before, being both end point and connecting junction of the Southern and Eastern lines, the largest NZASM workshops were constructed in Pretoria in close proximity to the station, at the foot of Timeball Hill (later renamed Salvokop).It was subsequently used by the NZASM's successor companies. A large yard for rolling stock storage and shunting formed part of the precinct. The workshops remained in use until the 1960s, when their functions were moved to Capital Park and Koedoespoort. The empty sheds were left to fall into disrepair, and were demolished in the 1980s.

Only a few structures of the once vast complex remain. These are the Chief Engineers office and its annex,

Fig. 4.26 Pretoria workshops, about 1960

both now used as a community training centre, the steam hammer shed, Spoornet operational control buildings, and an old water tank. These were illustrated under ‘Extant structures’. Certain of the shunting yard’s tracks are still in place and used for train storage.

Salvokop’s residential component developed from the days when the NZASM built housing for its employees to the south of the railway line and workshops. The CSAR and SAR&H added to these. The houses thus span a period of construction from the 1890s to the 1930s, and are preservation-worthy heritage material. Those forming the so-called NZASM court have been renovated, but the condition of the remainder varies, with one even fire-damaged. Occasional gaps show where some have been demolished.

Though not in the immediate vicinity, there are other railway heritage related structures in the area: Central station itself, and, to its east, the now unused CSAR’s carriage washing shed (the roof placed on columns made of disused and lifted rails), the auditor’s office of 1928, the former station master’s residence, and a few other railway employee houses.

Though not railway related, on the western side of Potgieter Street are heritage buildings belonging to the Department of Defence, including the imposing Defence headquarters. These are however distant from the core side and obscured by trees and a high wall, so that their significance as points of focus is diminished.

Of newer construction, but yet of heritage significance, is the Freedom Park precinct, located on Salvokop Hill. It is of national importance and will demand sensitivity in the design of any structure in Salvokop.

4.6 Delimitations and assumptions

The following assumptions are made for purposes of this dissertation:

The land required for the museum precinct will be made available by its owner Propnet, as a contribution to achieving the ideal of upgrading the Salvokop precinct.

Transnet will permit and install the necessary railway track and signalling equipment required to operate the museum as envisaged, serving all client train requirements, and will maintain and operate these.

Regarding the geology of the identified site, subordinate quartzite layers may occur, impeding excavatability and possibly requiring blasting. A detailed survey of the site would need to be undertaken to discover the extent of such layers, but for purposes of this dissertation it is assumed that no such layers exist.

The suburb's water supply, sewer and storm water services are currently considered as adequate, (TICP-SDF Phase 2, 2005:243). However, they are not in a good state of repair, possibly having to be replaced. Furthermore, major developments in the area may require completely new infrastructure to be installed. For purposes of this dissertation, it is assumed that the existing connections are adequate, or that any expansion required will be undertaken by the local authorities and will be connected to those incorporated in the design of the museum.

The old Chief Engineer's Office building, of 1906, on the site is currently occupied by a community training facility. It is assumed that this function will be relocated to premises more accessible to its trainees, and that the building will become available for incorporation in the museum. For this dissertation it is assumed that an interior architect will execute the design of the museum administration offices, library and small exhibit storage and quarantine areas. It is furthermore assumed that permission for the demolition of the later added annex this building will be obtained, as discussed under '4.3 Physical context: Existent buildings'.

The possible development of a conference centre and offices envisaged for the generation of additional funding for the museum will occur in subsequent phases and according to specific client requirements, and do not form part of the museum design itself.