ITHEMBA ENVIRONMENTAL

Environmental Review of the Five Priority Tourism Development Projects

Buffalo City Tourism Master Plan

Report Number 2004-R001

January 2004

Prepared on behalf of

Buffalo City

by

Ithemba Environmental

PO Box 8241, Nahoon, 5210
East London, South Africa

Tel & Fax 043 735 4644
Mobile: 083 655 6123
Email: ithemba@iafrica.com

CONTENTS

1 REPORT RELEASE NOTICE 5
2 LIMITATIONS 6
3 LIMITING CONDITIONS 6
4 TERMS OF REFERENCE 7
5 LEGISLATIVE SPECIFICATIONS 8
6 INTRODUCTION 9
7 SPORT CENTRE OF EXCELLENCE 10
7.1 BACKGROUND 10
7.2 PHYSICAL AND BIOLOGICAL ENVIRONMENTAL FEATURES 10
7.2.1 Mdantasane (Boxing): 10
7.2.2 Buffalo Park (Cricket): 10
7.2.3 Jan Smuts Stadium (Athletics): 11
7.3 POSSIBLE ENVIRONMENTAL IMPACTS 11
7.4 POSSIBLE ENVIRONMENTAL MITIGATORY MEASURES & MANAGEMENT RECOMMENDATIONS . 11
7.5 CONSERVATION OBJECTIVES 11
8 MARINA GLEN MULTI-PURPOSE VENUE 12
8.1 BACKGROUND 12
8.2 PHYSICAL AND BIOLOGICAL ENVIRONMENTAL FEATURES 12
8.2.1 Flora 13
8.2.2 Fauna 14
8.2.2.1 Amphibians 14
8.2.2.2 Reptiles 14
8.2.2.3 Mammals 15
8.2.2.4 Birds 15
8.2.3 General ecology 16
8.3 POSSIBLE ENVIRONMENTAL IMPACTS 16
8.4 POSSIBLE ENVIRONMENTAL MITIGATORY MEASURES & MANAGEMENT RECOMMENDATIONS . 16
8.5 CONSERVATION OBJECTIVES 18
9 STRUGGLE ROUTE 19
9.1 BACKGROUND 19
9.2 PHYSICAL AND BIOLOGICAL ENVIRONMENTAL FEATURES 19
9.3 POSSIBLE ENVIRONMENTAL IMPACTS 19
9.4 POSSIBLE ENVIRONMENTAL MITIGATORY MEASURES & MANAGEMENT RECOMMENDATIONS . 20
9.5 CONSERVATION OBJECTIVES 20
10 STEVE BIKO INTERPRETATION CENTRE 21
10.1 BACKGROUND 21
10.2 PHYSICAL AND BIOLOGICAL ENVIRONMENTAL FEATURES 21
10.3 POSSIBLE ENVIRONMENTAL IMPACTS 21

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

10.4 POSSIBLE ENVIRONMENTAL MITIGATORY MEASURES & MANAGEMENT RECOMMENDATIONS . 21
10.5 CONSERVATION OBJECTIVES 21
11 NAHOON SEASIDE RESORT 22
11.1 BACKGROUND 22
11.2 PHYSICAL AND BIOLOGICAL ENVIRONMENTAL FEATURES 23
11.2.1 Climate: 23
11.2.2 Geology 24
11.2.3 Dune Landscape 24
11.2.4 Flora 24
11.2.5 Fauna 25
11.2.5.1 Amphibians 26
11.2.5.2 Reptiles 26
11.2.5.3 Mammals 26
11.2.5.4 Birds 27
11.3 POSSIBLE ENVIRONMENTAL IMPACTS 27
11.4 POSSIBLE ENVIRONMENTAL MITIGATORY MEASURES & MANAGEMENT RECOMMENDATIONS . 29
11.5 CONSERVATION OBJECTIVES 30
11.5.1 Spatial Development Framework Environmental Constraints 30
11.5.2 Subtropical Thicket Ecosystem Plan (STEP) 31
11.5.3 Conclusion 31
12 OVERALL CONCLUSION & RECOMMENDATIONS 33
13 APPENDIX A: PHOTOGRAPHS – BUFFALO PARK 35
14 APPENDIX B: PHOTOGRAPHS - MARINA GLEN 36
15 APPENDIX C: PHOTOGRAPHS – NAHOON SEASIDE RESORT 41
16 APPENDIX D: MAPS OF EAST LONDON & NAHOON RIVER 48
17 APPENDIX E: STEP MAP OF EAST LONDON & NAHOON RIVER 50
18 APPENDIX F: COMPETENCY OF ENVIRONMENTAL PROFESSIONALS 51

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

1 Report Release Notice

Report Status	*Date*	*Authorised*	*Copy Number*
1. Internal Draft	Nil		
2. Client Draft	Nil		
3. Final Report	January 22, 2004	Dr Malcolme Logie	Various
4.			
5.			

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

2 Limitations

Ithemba Environmental has prepared this report for the sole use of Buffalo City and the Grant Thornton Buffalo City Tourism Consortium in accordance with generally accepted consulting practises and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon by any other party without the explicit written agreement of Ithemba Environmental, Buffalo City and the Grant Thornton BC Tourism Consortium. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The conclusions and recommendations contained in this report are based upon information provided by others and the assumption that all relevant information has been provided by those bodies from whom it has been requested. Where field investigations have been carried out, they have been restricted to a level of detail required to achieve the stated objectives of the work.

This report shall not be read, or interpreted as an Environmental Impact Assessment Scoping Report or Environmental Impact Assessment Report as defied under Section 22 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) in respect of activities identified in terms of Section 21 of the Act.

3 Limiting Conditions

This report was compiled from information obtained from the following sources:

1. Information obtained from the Tourism Master Plan Consortium Reports
2. Site assessments
3. Literature reviews
4. Review of key Environmental Legislative requirements

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

4 Terms of Reference

Ithemba Environmental form part of the Grant Thornton Consortium responsible for the development of a Tourism Master Plan for Buffalo City. In terms of the appointment by Buffalo City, this report forms part of Phase 8: Environmental Management Proposals under the following specified terms of reference:

From the environmental data gathered and other information relating to tourism areas as identified in the proposed tourism development plan for both existing and proposed future developments:

- Describe both physical and biological environmental features
- Visit identified tourist areas as deemed necessary
- Identify possible impacts (positive and negative) of the planned tourism development and tourist activities on the environment
- Identify possible mitigatory measures concerning impacts of development and activities
- Develop recommendations concerning the proper environmental management of tourist areas
- Review conservation objectives in terms of the tourism activities

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

5 Legislative Specifications

- Natural Science Professions Bill (2003):
  The Safety, Health & Environmental Director of Ithemba Environmental, Dr Malcolme Logie, is registered with the South African Council for Natural Scientific Professions (SACNASP) as an Environmental Scientist. As such work undertaken by Ithemba Environmental in Environmental Management complies with the requirement of the Bill, which states, "*only individuals registered may practice in a consulting capacity*."

Primary Environmental Legislation governing the Scope of Work undertaken for the preparation of this Report are:

- Constitution of the Republic of South Africa, No 108 of 1996
- Environmental Conservation Act, No 73 of 1989
- National Environmental Management Act, No 107 of 1998
- National Water Act, No 108 of 1998
- National Forest Act, 84 of 1998
- National Heritage Resources Act, No 25 of 1999
- Sea Shore Act, No 21 of 1935
- World Heritage Convention Act, No 49 of 1999
- National environmental Management: Coastal Zone Bill
- National environmental Management: Biodiversity Bill
- Eastern Cape Government: Biodiversity Bill
- Eastern Cape Government: Conservation Bill

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

6 Introduction

Phase 7 of the Buffalo City Tourism Master plan describes the proposed tourism development projects that have been identified and prioritised with input from stakeholders and the steering committee. Resultant from this phase was the identification of five high priority nodes:

- King Williams Town/Bisho
- N6 to Mcleantown
- Mdantsane
- Nahoon Beach/Bonza Bay
- Main beachfront

With five lesser nodes being:

- Gonubie/Sunrise-on-Sea
- Kidds beach/Kaysers Beach
- Central Business District/Quigney
- Bridle Drift Dam
- Laing Dam

Following on from this, various tourism development project were identified and prioritised, with the five development projects listed as priority being:

- Sport centre of excellence
- Marina Glen multi-purpose venue
- Struggle route
- Steve Biko interpretation centre
- Nahoon seaside resort

This report provides a review of the environmental advantages and constraints of each of the above mentioned priority development projects.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

7 Sport Centre of Excellence

7.1 Background

A task team appointed by the National Minister of Sport identified the need to establish a Sport Centre of Excellence. It was proposed that such a Centre should concentrate on one or two sports to provide development and training of elite sportspersons.

The Tourism Master Plan for Buffalo City proposes the establishment of such a centre that would concentrate on athletic, boxing and cricket. The proposed centre would partner tertiary institutions such as Fort Hare and Rhodes Universities, and sporting institutions such as Border Cricket. It is further proposed that the centre would have a head office at the Bisho Stadium, with boxing located at the Mdantsane Indoor Sport Centre, and cricket at Buffalo Park.

Athletics, boxing and cricket were identified as the focus sports since the greater Buffalo City area has a history of producing national and international sportspersons in these disciplines.

7.2 Physical and biological environmental features

7.2.1 Mdantasane (Boxing):

The environment as described as built and urban. A mixture of land uses ranging from transportation networks, taxi ranks, shopping centres, small businesses and a residential component surrounds the indoor stadium complex. There are no striking or significant environmental features in the area. However, general litter and lack of cleanliness detracted from the area.

7.2.2 Buffalo Park (Cricket):

See Appendix A

The area surrounding Buffalo Park may be described as urban green area, with a small component of light industry to the west. The cricket park is bordered on the east by a steep ravine and on the south by Marina Glen. Recently Buffalo Park acquired land from the Buffalo City Municipality to accommodate cars during the world cup cricket. This necessitated the rerouting of Buffalo Park Road, which now insects with John Bailie Road at a traffic calming

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

circle. Adjacent to the newly acquired parking area, is a disused caravan/calming area, which is also used for parking during cricket events. The practice of disposal of grass and vegetation cuttings and other occasional used equipment into the ravine behind the cricket park detract from the area.

7.2.3 Jan Smuts Stadium (Athletics):

The stadium is located in the light industrial area of North End, and is adjacent to the Border rugby grounds. Parking for vehicles is either on the property or in the Recreation Road. There are no striking or significant environmental features in the area.

7.3 Possible environmental impacts

It is important to recognise that the bulk of infrastructure already exists at these three sports centres. As such, any environmental impacts have already been instituted or are negligible. The primary environmental issue of concern is the lack of waste management, litter and poor level of cleanliness.

7.4 Possible environmental mitigatory measures & management recommendations

In the event that the various sport centres are included as defined priority development project the following are recommended:

- Implementation of a low-level environmental management plan
- Implementation of an appropriate waste management strategy
- Appropriate signage
- Removal of alien an exotic plant species
- Planting of natural (endemic to Eastern Cape) plant species when appropriate
- Where any new infrastructure developments (such as buildings) are to be erected strategies should be included in the design to account for energy conservation and climate change

7.5 Conservation objectives

None of the three sports centres conflict directly with any conservation objectives, however the requirements of the Buffalo City Environmental Policy and the Buffalo City Spatial Development Framework must be considered.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

8 Marina Glen Multi-purpose Venue

See Appendix B, D and E

8.1 Background

The concept for tourism development at Marina Glen entails the development of a multi-purpose venue. The venue should cater for up to 2500 people for:

- Indoor sports events (connection to sports development)
- Conferences
- Exhibitions
- Launch events
- Concerts
- Live entertainment for holidaymakers

The tourism development proposal recommends that the transportation network and other public amenities around Marina Glen would have to be improved.

8.2 Physical and biological environmental features

The Eastern Beach lies on either side of the Blind River, with a rocky coastline further north-west, and a road and rocky shore to the south-west. The road is sited within the sensitive dynamic zone, and is therefore often subject to storm wave attack. However, the beach environment seems to be in equilibrium, with no long-term loss of sand occurring (Revel Fox & Partners, 1986). There is 800m of water frontage, with only 50m safe for swimming. Eastern Beach, along with the Orient Beach, is the most accessible of the East London beaches, due to its location close to the city centre. It is mainly used for picnicking and swimming, as opposed to the Nahoon Beach, where activities such as surfing are more common.

It is traditional amongst the Xhosa people to visit the beach on New Year's Day, and the Eastern Beach specifically is popular. There is therefore a huge influx of people during this period. A recent study by Avis (1995) revealed the following trends at Eastern Beach: few (only 6.2%) of people felt that the beach was overcrowded, and 27.7% felt that it was fully used.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Perceptual carrying capacity had therefore not been reached yet. However, these surveys were not undertaken over the peak usage periods (Christmas and New Year), when over 20 000 people flock to the Eastern Beach. In terms of facilities, people felt that more beach cafes should be provided, but not restaurants. The provision of picnic spots was considered important. The current parking area is well-utilised and there are currently 477 parking bays.

Marina Glen is situated inland of the Eastern Beach. Approximately seven years ago, the Marina Glen, situated behind the road and esplanade, still had a tea garden, children's train and other recreational facilities. These recreational amenities have fallen into disrepair, and vagrants are living in the vegetation, making the area unsafe for public use. Damage to the vegetation is taking place, due to trampling, muti harvesting and use of wood for firewood. The caravan park, which was situated towards the back of Marina Glen, is also not in use any more, but is often used as ancillary parking for large cricket events at Buffalo Park.

The area adjacent to the restaurant and tearooms are significantly degraded, as is the area around the Sugar Shack Backpackers. The land within the backpackers enclosure has been cleared of ground cover and is used for camping tents to raise the occupancy capacity. This is resulting in an increase potential for erosion of the sensitive fore dune area.

8.2.1 Flora

Two main plant communities were found: a mosaic of coastal forest and thicket and a small area of dune scrub vegetation. Coastal thicket covers the frontal dune, and has the same floristic composition as the dune forest on the second ridge, and the high, central dune westwards of the Marina Glen, although these areas differ in size of trees, abundance of dominant species and ground cover. A small area of dune fynbos is present (top of the dune ridge at the Trig Beacon).

Paths bisect the whole forested area, and in some places have caused erosion and dune subsidence. There appears to be an increase in collection of wood and chopping of trees (including *Mimusops caffra*, *Sideroxylon inerme* and other protected indigenous species) for braai wood.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Litter, glass, condoms, hypodermic syringes and human excrement are found in many areas, especially along these pathways. Patches of disturbed vegetation were found, especially along the margins and along pathways, with associated invasion by alien vegetation (mainly *Lantana camara* and *Cestrum laevigatum*) in some places. The seaward margin of the central dune is being heavily impacted by wood harvesting and trampling.

The vegetation of the old caravan park consists of disturbed communities, for the most part consisting of kikuyu grass with trees that have been planted in rows. Most of these trees are *Erythrina caffra* species, with a few *Casuarina equisetifolia, Sideroxylon inerme*, *Ficus* sp. and Norfolk Island pines.

A survey by Coastal and Environmental Services in August 1999, registered a total of 210 large indigenous trees, mainly *Mimusops caffra*, *Sideroxylon inerme*, *Ficus* spp. and *Erythrina caffra*.

8.2.2 Fauna

Mr. Carl Vernon of the East London Museum provided a specialist report on the fauna of Marina Glen, which was included in an August 1999 report by Coastal & Environmental Services. The specialist report, which was primarily a desktop study with limited fieldwork. Available literature, and a review of the specimens in the East London Museum form the basis of the checklists provided for an amphibians, reptiles, mammals and birds.

8.2.2.1 Amphibians

Twenty species of amphibians may occur in East London district. The most frequent amphibians seen along the coast include *Bufo*, *Rangeri*, a *Rana* and a *Breviceps* species. There are no rare or endangered species of amphibians at Marina Glen.

8.2.2.2 Reptiles

Of the forty-one species that might occur in the East London district, the most likely species of reptile to found in the Marina Glen area are generalist species, which are likely to be found in adjacent areas. Examples will include the puff adder and house gecko. At present, it is likely that there are very few reptiles at Marina Glen, and there are no rare or endangered species.

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Reptiles in the Marina Glen area are generally under threat due to the large number of bush dwellers who would kill any reptiles on sight. The lack of reptiles in the area was evident during field surveys.

8.2.2.3 Mammals

Sixty seven mammals species may occur in East London district, but those that might be found at Marina Glen will be restricted to small mammals such as shrews and other rodents, moles and mammals that are still common in the adjacent areas. In these adjacent coastal forests species of buck still occur despite their being hunted and snared. The blue duiker is still relatively common, while the bushbuck, the grey duiker and the greys buck have been significantly reduced in numbers. There are no rare or endangered species of mammals at Marina Glen.

Domestic rats and cats are also present at Marina Glen. The rat population is kept in check, particularly by domestic cats. These cats are also known to prey on indigenous fauna, especially birds.

8.2.2.4 Birds

A total of eighty-nine species of birds have been recorded at Marina Glen, based on records housed at the East London Museum. In the past Marina Glen was a popular site for bird watchers, but due to a lack of security it is now avoided by bird watchers.

The birds most likely to be resident at the Marina Glen will be those which live in coastal forests, or have adapted to parks and gardens, or which can live commensally with man. The remainder will only occur at Marina Glen as visitors. Many of the residents only hold territories during the breeding season, and for the rest of the year make random local movements in search of food. In general, bird species in East London occur at low densities, and a feature of the coastal forest is that a large number of birds that move between this habitat and the adjacent inland or coastal habitats.

Within the coastal forest the brown robin, a specialist forest species, was noted. As this species does not readily enter habitats modified by humans, its presence indicates that the forest ecosystem has not been too severally degraded yet.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

8.2.3 General ecology

New transformation of habitats, by man, causes both a gross reduction in the total population of the various animal species, as well as the disruption of the functional process of the ecosystems. These activities therefore impact negatively on the fauna. This is the situation at Marina Glen, which has been significantly altered and is surrounded by an urban environment. There are no rare or endangered faunal species at Marina Glen.

8.3 Possible environmental impacts

Development of a multi-purpose arena at Marina Glen is likely to have the following impacts:

- Negative environmental impacts
  - Loss of protected trees species
  - Loss of natural vegetation
  - General loss of biodiversity
  - Reduction in urban green space and increase in visual impact
  - Increase in light pollution (at night)
  - Increase in noise pollution (during events)
  - Removal of frontal dune will increase salt spray inland, negatively affecting the natural environment
  - Increased runoff of storm water will modify the stream flow over the beach
  - Relocation of vagrants into the Nahoon Point/River areas, with resultant destruction of the natural environment in these areas.
- Positive environmental impacts
  - Removal of alien and exotic vegetation
  - Possible decrease in the pollution and litter in the thicket and dune areas of Marina Glen
  - Protection of indigenous and endemic trees (see 8.4 re: recommendation for Botanical Garden)

8.4 Possible environmental mitigatory measures & management recommendations

Development of the multi-purpose venue is likely to enhance the Marina Glen area, however, the venue itself is unlikely to occupy the entire site. It is recommended that the venue be limited to the portion of land just behind the tearoom, and behind the seaward fore dune and limited

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

inland by including but extending no further than the raised sand dump on Marina Glen. The remainder of the property should be upgrade and converted into a Botanical Garden that highlights the Albany Hot Spot vegetation. Already the site has a number of very large and established endemic tree species (*Mimusops caffra*, *Sideroxylon inerme*, *Ficus* spp. and *Erythrina caffra*.) and an element of fynbos (at the Trig beacon), which would be enhanced and protected by such a managed Botanical Garden. Furthermore, a Botanical Garden that focuses on Eastern Cape vegetation would itself be a significant tourist attraction and shall also provide a link to the proposed Nahoon Point Nature Reserve.

Other amenities around the proposed multi-purpose venue should also be upgraded and maintained. The steps leading up to the tea-room are visually attractive, however presently the tea-room and its outdoor tables are in an extremely poor state of disrepair. In addition the sewer in the tearoom garden was blocked and overflowing. It is therefore important that the engineering infrastructure support (i.e. light, water, power, sewers, etc) is also adequately upgraded to support the multi-purpose venue.

Picnicking areas with the Marina Glen/Botanical Garden Complex should be upgraded. An opportunity exists to create employment for a limited number of people, who could cut wood (the *Eucalyptus* sp and other alien vegetation such as *Acacia meansii* (Black Wattle) in the Buffalo City area), which could then be sold as braai wood to people picnicking at the venue. Pathways and benches could be included to make the area surrounding the multi-purpose venue more secure and user friendly.

In terms of the EIA regulation published under the Environment Conservation Act, an Environmental Impact Assessment shall have to be conducted for any final proposal for rezoning of the land, and for the construction or upgrading of public resorts and associated infrastructure and for any road (including those within town planning areas). Furthermore, cognisance needs to taken of other environmental legislative requirements in the placement of any development into the Marina Glen, in particular the requirements of the Coastal Zone Bill, which demarcates the extent of development towards the sea.

In the event that the multi-purpose venue and ancillary infrastructure are developed the following are recommended:

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

- Implementation of a low-level environmental management plan
- Implementation of an appropriate waste management strategy
- Appropriate signage
- Removal of alien an exotic plant species
- Planting of natural (endemic to Eastern Cape) plant species
- Where any new infrastructure developments (such as buildings) are to be erected strategies should be included in the design to account for energy conservation and climate change

8.5 Conservation objectives

The higher dune system of Marina Glen contains vegetation, which may be regarded as a high conservation status. Vegetation on these dunes should not be disturbed or modified.

As many trees as possible should be relocated from the areas to be developed, in particular *Mimusops caffra* should be transplanted, since these trees should transplant relatively easily, given that branches often root themselves. Trees like *Aloe barberiae* and *Strelitzia nicolai* are also easy to transplant, as they are relatively small. Trees should be made available to the proposed Botanical Garden for relocation with the Marina Glen complex.

Eradicate alien vegetation, i.e. *Cestrum leavigata*, *Lantana camara, Solanum mauritanium*, etc.

The skyline of the dunes should not be impacted by placement of any infrastructure that breaks the skyline silhouette when viewed from the coast.

A permit will need to be obtained from the Department of Water Affairs and Forestry for the removal of any protected and indigenous trees in terms of the National Forest Act, 84 of 1998, and Cycads, as these are considered endangered flora in terms of the Cape Nature and Environmental Conservation Ordinance No. 19 of 1974.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

9 Struggle Route

9.1 Background

This development proposal recommends showcasing the recent political history of the Buffalo City area – i.e. struggle history. It is suggested that a tourist route be established that includes the following venues:

- Lock Street goal
- Fort Glamorgan
- Duncan Village Memorial
- Steve Biko Statue in East London
- "Tour of the Dove"
- Bisho Massacre Memorial
- Griffiths and Victoria Mxange's graves
- Steve Tshwete grave
- Steve Biko's house and grave
- Garden of Remembrance
- Amathole Museum

It is proposed that the route shall serve to educate foreign and domestic tourists on the recent political history of South Africa and Buffalo City and shall showcase the heritage of the area. The Master Plan recommends that the route be developed using local tour guides and placement of signboards at sites.

9.2 Physical and biological environmental features

The environmental characteristics for the proposed items are located in environments, which range from urban, residential, peri-urban, to rural. None of the above proposed items for the Struggle Route are located or interact with any significant or sensitive environmental features.

9.3 Possible environmental impacts

No significant environmental impacts are identified with these projects.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

9.4 Possible environmental mitigatory measures & management recommendations

In terms of this priority development project the following are recommended:

- Implementation of a low-level environmental management plan
- Implementation of an appropriate waste management strategy
- Appropriate signage
- Removal of alien an exotic plant species
- Planting of natural (endemic to Eastern Cape) plant species
- Where any new infrastructure developments (such as buildings) are to be erected strategies should be included in the design to account for energy conservation and climate change

9.5 Conservation objectives

The proposed Struggle Route does not conflict with any conservation objectives, however the requirements of the Buffalo City Environmental Policy and the Buffalo City Spatial Development Framework must be considered.

Depending on the final specifications for this proposed project consideration must be given the requirements contained in the EIA regulations of the Environment Conservation Act as well as those in the National Heritage Resources Act.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

10 Steve Biko Interpretation Centre

10.1 Background

The development concept is the establishment of an interpretation centre that provides the history of Steve Biko's life. This centre shall be closely linked with the previously proposed Struggle route, but is seen as a separate tourism project.

It is proposed that the centre is located at Amathole Museum in King Williams Town.

10.2 Physical and biological environmental features

It is proposed that the centre be placed at the Amathole Museum as and such the biophysical environment is described as urban built environment.

10.3 Possible environmental impacts

No significant impacts are associated with this proposal.

10.4 Possible environmental mitigatory measures & management recommendations

In terms of this priority development project the following are recommended:

- Implementation of a low-level environmental management plan
- Implementation of an appropriate waste management strategy

Where any new infrastructure developments (such as buildings) are to be erected strategies should be included in the design to account for energy conservation and climate change

10.5 Conservation objectives

The proposed Steve Biko Interpretation Centre does not conflict with any conservation objectives, however the requirements of the Buffalo City Environmental Policy and the Buffalo City Spatial Development Framework must be considered.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

11 Nahoon Seaside Resort

See Appendix C, D and E

11.1 Background

Nahoon Beach is recognized as perhaps one of the better beaches in the East London area due to its natural beauty, safe bathing conditions, accessibility, etc. Nahoon Beach and Point are also recognized as world-class surfing venues. A study conducted by Avis (1995) determined that Nahoon beach users prefer Nahoon Beach to the other beaches in the East London area due to the unspoiled and natural setting of the beach, and would prefer that this area was not developed. However, Nahoon Beach could contribute significantly to promoting tourism in Buffalo City.

The Nahoon Seaside Resort tourism development project proposes the development of the Nahoon Caravan Park into a seaside resort. The tourism plan recommends the inclusion of a residential component to this project to offset the capital cost of the development. The resort component comprises self-catering accommodation, camping and caravan sites, including a swimming pool and restaurant. The transportation network would have to be upgraded to accommodate the proposed development.

The Nahoon Caravan Park is located at Nahoon Mouth alongside the Nahoon Beach, river mouth and estuary. The proposed tourism development site comprises both an active and an abandoned camping area.

During our site visit to the Nahoon Beach and caravan park area, the following additional observations were made:

- Waste dumping and litter: The illegal dumping of garden and domestic waste and building rubble is a serious problem in the abandoned portion of the caravan park. Litter is also a general problem in the Nahoon Beach area. The access path from the Dolphin Hotel has accumulated litter at a number of points along the path. The Nahoon Beach itself, especially around the parking area, frequently has broken glass and other litter on

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

the pavements in on the sand. The beach sand on Nahoon Beach has accumulated flood and tidal debris and litter.

- Vegetation cutting: Indigenous trees have been cut in coastal forest areas to make way for paddle-ski and canoe storage facilities and as part of renovations to the tea room. It should be noted that it is illegal in terms of the National Forests Act and the National Environmental Management: Biodiversity Bill to remove or damage any indigenous plant species without the proper permit or authorization.
- Run down facilities: Facilities in the vicinity of Nahoon Beach and the caravan park are generally of a poor standard. They include:
  - Poor information signage
  - Caravan park ablutions are old and of a low standard (although well maintained).
  - Lighting along access paths to the beaches is broken, non-operational or non-existent.
  - Beach ablution facilities are of a very poor standard.
  - The life saving facility is run down.
  - Picnic and braai facilities are inferior and in a poor state.
- Proximity to other conservation worthy areas: Nahoon Mouth is in close proximity to other potential and imminent conservation areas such as the dune and coastal forest system toward Nahoon Point and the proposed nature reserve and mangrove stands on the opposite side of the Nahoon River.
- Water Pollution: According to data provided by the Buffalo City Scientific Services Department, the Ihlanza River (which discharges to the sea on Nahoon Beach) and Nahoon Beach seawater is often polluted and frequently non-compliant with South African Water Quality Standards.

11.2 Physical and biological environmental features

11.2.1 Climate:

The climate of East London may be regarded as sub-tropical with moderate temperatures, with mean annual temperatures ranging between 15 and 250C. Rainfall occurs mainly during the summer months, but the region does show bi-modal peaks with the highest rainfall in the spring (September/ October) and autumn (March). The humidity and temperature is moderated by the strong winds, which occur throughout the year, with only about 11 calm days annually. Winds

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

are principally from the west or southwest in the winter months and from the east or southeast in the summer months. In the winter months occasional berg winds occur, which have a drying effect on the vegetation.

11.2.2 Geology

The geology of the Nahoon Mouth area may be described as unconsolidated dune sands originating from a dune system where a primary frontal dune ridge separates the caravan park areas from the beach.

11.2.3 Dune Landscape

The Nahoon Caravan Park is located in an area that historically (prior to disturbance by humans) would have been a typical Eastern Cape estuary mouth with coastal and dune forest ecosystems. The frontal dune separating the Caravan Park area from the beach has developed over many years to the current climax dune forest ecosystem comprising many mature tree specimens.

Dune systems area inherently sensitive environments that provide a protective buffer against sand intrusion, stormy seas, high spring tides, etc. They also provide protection for developments such as houses and roads against corrosive sea-spray, sandblasting and from being covered in sand blown in from the beach.

Vegetated dune systems take many years to develop and stabilize, and play an important role reducing sand mobility and retarding beach and coastal erosion. Damaged dune vegetation can lead to dune destabilization causing dune blowouts and erosion.

11.2.4 Flora

The only relatively undisturbed area at Nahoon Mouth is the frontal dune between the beach and the Caravan Park. The area of coastal forest between the Nahoon Tea Room and the Play Waters slipway, although modified due to the clearing of vegetation for picnic and braai areas, comprises elements of relatively undisturbed coastal forest. These coastal forest areas exhibit a large complex of dominant trees such as *Mimusops caffra*, *Sideroxylon inerme* and *Brachylaena discolor* have been maintained. Shrub and thicket species include *Carissa bispinosa, Scutia murtina, Maytenus heterophylla*, etc.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

The coastal forest vegetation is typical of many Eastern Cape coastal forests. The coastal flora of the Eastern Cape is transitional in nature, and the forest communities of the Eastern Cape Dune Forests are comprised of a conglomerate of elements derived from several floristic units including Afromontane, Karoo-Namib, Cape and Tongoland-Pondoland. Species diversity decreases from the tropics southwards. The East London dune forests are located at the southern extreme of the true dune forests of South Africa, and little is known about them. The majority of these dune plant communities are included in the East London State Forest Reserves, which were demarcated in 1904, and have therefore been retained in a relatively well-preserved state.

The Caravan Park areas have been cleared of vegetation over the years, particularly shrub and herbaceous cover. This is particularly true of the currently active portion of the Park, where very little undergrowth is seen. In contrast, the abandoned camping area (which has not been in operation for about 15-20 years, has been re-colonized by many shrub and herbaceous species and *Brachylaena discolour*.

Both the active and abandoned caravan areas are well represented with mature trees, particularly large *Ficus* and *Erythrina caffra* trees, which were probably planted to provide shade for campers. *Mimusops caffra*, *Sideroxylon inerme* and *Brachylaena discolor* were also noted in the caravan areas and provide wide canopy coverage.

The infestation of the abandoned caravan area by alien species such as *Lantana camara* and *Cestrum laevigatum* was noted.

Other common species include: *Allophyllus natalenis* and *Tarchonanthus camphorates*; Fynbos species, *Olea exasperata Tarchonanthus camphoratus*, and *Metalasia muricata* and groundcover species; *Stipagrostis zeyheri* and *Imperata cylindrica*.

11.2.5 Fauna

A detailed survey of the fauna located at the two caravan park locations was not conducted. However, a synopsis of the fauna generally found in the East London coastal areas is provided by a recent report developed by Mr. Carl Vernon of the East London Museum as part of an

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

environmental assessment of the Marina Glen area (Coastal and Environmental Services, August 1999).

The terrestrial vertebrate fauna of the Nahoon Mouth area would be typical of coastal thicket and forests of the East London area. However, the fauna specific to the coastal thicket and forest ecosystems is not isolated from adjacent inland habitats. Many of these species move freely between habitats. In addition, human disturbance and the presence transformed habitats in the Nahoon Mouth area results in both a reduction in animal numbers and species composition and where ecosystem processes cannot be said to be functional.

11.2.5.1 Amphibians

Twenty species of amphibians may occur in East London area. The most frequent amphibians seen along the coast include *Bufo, Rangeri*, a *Rana* and a *Breviceps* species. There are no known rare or endangered species of amphibians at Nahoon Mouth.

11.2.5.2 Reptiles

Of the forty-one species that might occur in the East London area, the most likely species of reptile to found in the Nahoon Mouth area are generalist species, which are likely to be found in adjacent areas. Examples will include the puff adder and house gecko. At present, it is likely that there are limited reptile populations at Nahoon Mouth, and there are no rare or endangered species in the area. Reptiles in at Nahoon Mouth could be threatened due to the high level of human activity and disturbance.

11.2.5.3 Mammals

Sixty-seven mammals may occur in East London area. No larger mammals were noted during our field survey of the Nahoon Mouth area, although smaller mammals such as shrews and other rodents, moles and mammals that are still common in the adjacent areas are likely to be present. Large numbers of Vervet monkeys are known to inhabit the Nahoon Mouth area.

In the adjacent coastal forests species of buck still occur despite their being hunted and snared. The blue duiker is still relatively common, while the bushbuck, the grey duiker and the greys buck have been significantly reduced in numbers. There are no rare or endangered species of mammals at Nahoon Mouth.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

11.2.5.4 Birds

A total of about eighty species of bird have been recorded at Nahoon Mouth, based on records housed at the East London Museum. The Nahoon Mouth area is a popular area for some bird watchers.

The birds most likely to be seen at Nahoon Mouth are those which typically occur in coastal forests, or have adapted to parks and gardens, or which can live commensally with man.

Many of the resident bird species only hold territories during the breeding season, and for the remainder of the year make random local movements in search of food. In general, bird species in East London occur at low densities, and a feature of the coastal forest is that a large number of birds that move between this habitat and the adjacent inland or coastal habitats.

There are no known rare or endangered species at Nahoon Mouth.

11.3 Possible environmental impacts

The following are possible negative environmental impacts that may be associated with development of the proposed Nahoon Seaside Resort:

- The proposed development could conflict with recent environmental legislation, policy documents and other initiatives that generally or specifically promote proper coastal zone management.
- The proposed development will likely require an Environmental Impact Assessment (EIA).
- The design of proposed structures may not be in keeping with the visually un-obtrusive and low impact and eco-friendly vision for the development.
- Structures could be inappropriately positioned and could result in unnecessary damage to vegetation or dunes resulting in wind (blowouts) and water erosion and dune destabilization (particularly the abandoned camping area adjacent to the frontal dune).
- Inappropriately designed walks-ways could lead to erosion.
- The creation of too many guest units could result in a greater pressure on the beach and other resources.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

- Inadequate control of site preparation and construction activities could result in the damage to and illegal removal of indigenous plant species, and inadvertent damage of coastal dunes.
- Inaccurate marking out of the positioning of structures could result in unnecessary damage to vegetation or dunes resulting in wind (blowouts) and water erosion and dune destabilization (particularly the abandoned camping area adjacent to the frontal dune).
- Improper disposal of toxic substances used during construction (e.g. machine oils, diesel fuel, paint and paint thinners, etc.) could result in ground contamination.
- Excessive noise during construction could disrupt bird and other local animal wildlife, although this will be temporary.
- Lack of proper signage and controlled access by guests to environmentally sensitive areas, such as the primary dune, could lead to damage to vegetation and cause dune erosion and destabilization.
- Sewage overflows due to flooding in the area of the currently active camping area could result in ground contamination.
- Increased storm water runoff with possible erosion.
- Reduction in urban green space
- Inappropriate waste disposal could result in ground contamination dune.
- Excessive noise from guests could disrupt bird and other local animal wildlife.
- A high level of guests at the development could exceed the carrying capacity of the beach and estuary.

The following are possible positive environmental impacts that may be associated with development of the proposed Nahoon Seaside Resort:

- Removal of invasive alien plant species such as *Lantana*.
- Illegal dumping of waste will be largely eliminated.
- An eco-friendly development could enhance the environmental integrity and promote conservation in the Nahoon Mouth area.
- A responsible development could reduce damage to protected tree species such as the Milkwoods.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

11.4 Possible environmental mitigatory measures & management recommendations

The following discussion describes the environmental features of the Nahoon Caravan Park and environmental issues that need to be taken into consideration should the development proposal be implemented.

- Any proposal to develop the Nahoon Caravan Park must be aligned with relevant legal, policy and other requirements. These include:
  - National Environmental Management Act.
  - National Environmental Management: Coastal Zone Bill
  - National Environmental Management: Biodiversity Bill
  - White Paper for Sustainable Coastal Development in South Africa.
  - Eastern Cape Coastal Zone Management Plan
  - Buffalo City Environmental Policy and Coastal Zone Management Plan
- It is important that the planning of the development at an early stage considers the Integrated Environmental Management and the EIA requirements.
- The design of the development needs to be in keeping with an eco-tourism concept/theme.
  - Accommodation and other structures should be single storied.
  - Natural materials such as thatch and wood should be used where feasible.
  - Non-natural materials should be greens, browns or other natural colours.
  - The design theme should be applied consistently throughout the development.
- Structures should be positioned at least 50m from the base of the frontal dune (for the abandoned area).
- No development zones must be adhered to.
- Trees should be removed only where absolutely necessary.
- Environmental consultants should advise on the positioning of permanent structures.
- Nahoon Beach is relatively un-crowded. A tourist development comprising 40-50 family units should not have a significant bearing on the carrying capacity of the Nahoon Mouth and beach area, provided access to environmentally sensitive areas is properly controlled.
- Site preparation and construction activities must be properly supervised and construction workers must be properly trained regarding environmental protection requirements.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

- Cuts into the steep dune areas could cause slumping, and suitable stabilization methods will need to be used, e.g. Terraforce.
- Trees should be removed only where absolutely necessary. This will require careful planning and proper supervision of the contractor.
- Indiscriminate levelling and bulldozing should not be allowed.
- The appropriate authorization must be obtained before removing any indigenous plant species.
- Environmental consultants should advise on the marking out of permanent structures.
- Where the removal of protected trees species (such as the Milkwoods) is unavoidable, every effort should be made to transplant these species.
- An environmental management plan should be a prerequisite for the construction contractor, including a general and toxic waste disposal plan.
- The impact of noise will be temporary, but should be mitigated if it becomes excessive or any complaints are received.
- Signage should warn of environmentally sensitive areas.
- All coastal forest areas should be designated as no-development areas and should be fenced.
- An emergency plan could be developed in the event that flooding occurs.
- Waste disposal should be included in an environmental management plan for the development.
- Noise control should be included in an environmental management plan for the development.

11.5 Conservation objectives

11.5.1 Spatial Development Framework Environmental Constraints

Recently, Buffalo City developed an Environmental Constraints map as part of the Spatial Development Framework plan for the City. The map identifies the coastal forest along the dunes located at Nahoon as a “no-go” area for development purposes.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

11.5.2 Subtropical Thicket Ecosystem Plan (STEP)

STEP is a programme was initiated as a result of unsustainable land use practices in the Eastern Cape and portions of the Western Cape. The aim was to develop a conservation planning tool for promoting the preservation of threatened plant and animal communities.

In terms of STEP, the entire coastal forest from Eastern Beach to Nahoon Mouth is included in the Conservancy Network for Buffalo City. The STEP Conservancy Network areas are regarded as areas of high conservation priority. The Networks comprise a system of natural pathways to ensure the current and future preservation of plant and animal species.

In terms of land use management, minimal loss of natural area and minimal impacts should be allowed through disturbance and development. In addition, it is recommended that if the area has severe and extensive impacts, the Municipality should promote restoration.

11.5.3 Conclusion

Due to the proximity of the Nahoon Caravan Park to conservation-worthy and sensitive coastal environments, it is suggested that the Nahoon Seaside Resort development is modelled around an eco-friendly, low-impact, visually un-obtrusive, self-catering and bed & breakfast concept.

The proposed Nahoon Seaside Resort should be linked to other potential projects in the area. These include:

- Developing a hiking trail along the Ihlanza River.
- Promote conservation of the coastal dunes and forests and possible declaration of certain areas as nature reserves. Of particular relevance is the proposed Nahoon Estuary Nature Reserve, and the Nahoon Point to Eastern Beach Nature Reserve.
- Upgrading of facilities and beach access points, including information signage, lighting, etc., picnic and braai areas, etc.

We do not support the idea of including a residential component in the Nahoon Seaside Resort proposal to offset the capital cost of the development, for the following reasons:

- A residential component is in conflict with one of the primary objectives of the Buffalo City Tourism Master Plan, namely to provide much needed jobs for the many

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

unemployed Buffalo City residents. The residential development will not permit sustainable tourism related job creation.

- A residential development could impose greater impacts on the coastal dune system than a low-impact eco-tourism resort-type development.
- Land identified for residential development will need to be rezoned for residential and must be subjected to an Environmental Impact Assessment with full stakeholder participation.
- We are of the opinion that the Nahoon Caravan Park area is most suited to a tourism related development which could be linked to upgrading of other related infrastructure and other proposed conservation initiatives in the area.

Buffalo City should also explore possible public/private sector partnerships for the Nahoon Beach area. These could include:

- Upgrading the exiting tea room.
- Permit the development of a restaurant at the life savers pavilion linked to the developers having to upgrade the life saver facilities and ablutions in the beach area.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

12 Overall Conclusion & Recommendations

Two of the proposed priority tourism development projects have the potential to significantly impact with the environment, namely the multi-purpose venue proposed for Marina Glen and the Seaside Resort proposed for Nahoon. These projects shall require an EIA to be conducted in terms of the regulations published under the Environment Conservation Act. This EIA process shall also require a comprehensive public participation process involving key parties and any other interested and affected parties. Very careful consideration must be given to any secondary impact resultant from the redevelopment and upgrading of Marina Glen; in that the vagrant community living in the bush at Marina Glen are likely to relocate to elsewhere along the East London beach – most likely to the Nahoon Point-River area. This shall then result in destruction and loss of the natural environment in this Nahoon coastal area and severely negatively impact on the proposed Nahoon Point Nature Reserve.

Development proposals along the Buffalo City coastline will in future be regulated by the National Environmental Management: Coastal Zone Bill when promulgated (it is currently in its seventh draft and is expected to be promulgated in 2004). In terms of section 10 of the Bill, the coastal zone consists of:

- Coastal public property;
- The coastal buffer zone;
- Coastal access land;
- Coastal protected areas; and
- Any aspect of the environment on, in and above coastal public property, the coastal buffer zone, coastal access land or coastal protected areas.

Also in terms of the Coastal Zone Bill, the Nahoon Beach Caravan Park and Marina Glen fall within the definition of a Coastal Buffer Zone by virtue of the following criteria:

- It includes land adjacent to the seashore, whether or not covered with vegetation, on which dune systems occur; and
- It is land which when this Act took effect, was not zoned under a land development plan for residential, commercial, industrial or multiple-use purposes; and falls wholly or partially within one kilometre inland from the inland boundary of coastal public property;

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Coastal buffer zones have been established for the purpose of enabling the use of land adjacent to coastal public property to be managed, regulated or restricted in order to:

- Protect the ecological integrity and natural features, and the economic, social and aesthetic value, of coastal public property;
- Protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise;
- Maintain the natural functioning of the littoral active zone;
- Maintain the productive capacity of the coastal zone by protecting the ecological integrity of the coastal environment; and
- Make land near the seashore available to organs of state and other authorised persons for performing rescue operations.

The other three priority project have a much lesser interaction with the environment in that they do not require extensive development and placement of civil structures and services. It is however important to ensure that even these lesser impact projects do consider their interaction with the environment. Thus can be achieved by the establishment and implementation of simple low-level environmental management plans that address issues such as waste management, energy and water conservation, climate change, environmental education and the requirements of the Buffalo City Environmental Policy.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

13 Appendix A: Photographs – Buffalo Park

Figure 1: Buffalo Park Cricket ground.

Figure 2: Buffalo Park Cricket ground.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

14 Appendix B: Photographs - Marina Glen

Figure 3: Marina Glen – area suitable for the development of a Botanical Garden

Figure 4: Marina Glen – area behind the tea-room suitable for the development of a multi-purpose venue.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 5: Damage to indigenous trees; wood presumably use for fires.

Figure 6: Sewer overflowing in tea-room yard.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 7: Area adjacent to Buccaneers denuded of vegetation and dilapidated braai areas.

Figure 8: Wood from indigenous trees burnt in braai areas

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 9: Glass, general litter and human excrement at braai areas.

Figure 10: Random pathways creating erosion crisscross the dunes at Marina Glen.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 11: General rubbish from local restaurants and from picnickers dumped in dunes overlooking the sea.

Figure 12: Bush clearing around and within the Sugar Shack.
Note high potential for soil erosion within the property.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

15 Appendix C: Photographs – Nahoon seaside resort

Figure 13: Picnic area in coastal forest between tearoom and Play water slipway.

Figure 14: Clearing of bush for expansion of surf-ski club buildings

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 15: Pathway pasted Nahoon Bowling Club to Nahoon Beach

Figure 16: Pathway pasted Nahoon Bowling Club to Nahoon Beach through the coastal forest

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 17: Rubbish dumped in bushes

Figure 18: Lifesavers clubhouse at Nahoon Beach

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 19: Entrance to the Nahoon Caravan Park

Figure 20: Nahoon tearoom

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 21: Rubble dumped behind the Nahoon tearoom after renovations.
The Milkwood in the background was also cut (pruned)

Figure 22: Rubbish dumped into bushes at Nahoon.
Some of the thatching dumped here was set alight causing a bush fire.

Figure 23: Thatching dumped and burnt in the bushes at Nahoon

Figure 24: Rubbish dumped in bushes adjacent to the Dolphin Hotel and Nahoon Bowling Club.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 25: *Lantana camara* infestation

Figure 26: Nahoon dunes

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 27: Recreation on the Nahoon River. The mangrove swamps are in the background.

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

16 Appendix D: Maps of East London & Nahoon River

Figure 28: East London – Marina Glen

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Figure 29: Nahoon River

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

17 Appendix E: STEP Map of East London & Nahoon River

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

18 Appendix F: Competency of Environmental Professionals

Dr. Malcolme Logie
Principal and Managing Director

Work: Safety, Health & Environment Director
Ithemba Environmental
PO Box 8241, Nahoon, 5210, East London, South Africa
Tel & Fax: 043 735 4644
Mobile: 083 655 6123

Education:

Rhodes University

- B.Sc. (Biochemistry & Plant Science) 1988.
- B.Sc. (Honours) (Botany) 1989 (Recipient of the Schönland Botanical Prize)
- M.Sc. (Botany) 1991.
- Ph.D. (Biotechnology) 1995.

Professional Societies:

- South African Institute of Ecologists & Environmental Scientists (Professional Environmental Scientist.)
- South African Council for Professional Natural Scientists (Professional Environmental Scientist [No. 400102/95])
- International Association of Impact Assessments (Member)
- South African Auditor & Training Certification Association (SAATCA) – Environmental Management Systems Verification Auditor
- Royal Society of South Africa (Member)
- South African Association of Botanists (Member)
- Phycology Society of South Africa (Member)

ISO 14001 EMS

- SAATCA EMS Verification Auditor & Evaluation Panel
- British Standards Institute (BSI) – ISO 14001 EMS Lead Auditor
- Bureau Veritas Quality International (BVQi) – ISO 14001 EMS Lead Auditor
- TUV Management Services AG – ISO 14001 EMS Lead Auditor

Public Participation:

- Port Elizabeth Metropolitan Environment Forum Committee on Waste Disposal (1995).
- SABS Working Group on “Standards for Installation of Above and Below Ground Petroleum Storage Facilities” (1996).
- SABS representative to “The Selection, Design, Control and Management of Mine Residue Deposits” work group for new legislative guidelines, (1996).
- Convenor of South African SC6 - Terms & Definitions (1996).
- Environmental Auditor Registration sub-committee for the Determination of Registration Criteria for Environmental Auditors under the new SANAS structure.

- South African Working Group for Sustainable Forestry Management: Bridging Document to ISO 14001.
- Environmental Management Systems Auditor Registration (1997- 1998) Committee - Environmental Auditor Training and Training Programmes
- SAATCA Special Committee: EMS Auditor Registration Committee - Development of Registration Procedures and Criteria.
- National Technical Committee for the development of an Integrated Business Management System (NT 176/IBS)
- SAATCA Evaluation Personnel - Evaluation of South African ISO 14001 EMS Certification Auditors (1999-Present)
- SAATCA Verification Auditor - Verification of practical auditing techniques and performance of South African ISO 14001 EMS Certification Auditors (1999-Present).
- Professional Sector Trustee – Buffalo City Environmental Trust

Publications:

In excess of 325 publications/consultancy reports.

European Accreditation of Certification

EAC Code Specification	
1	Agriculture, forestry, fisheries
2	Mining & quarrying
3	Beverages & foodstuff industries
4	Textile industries
5	Leather & leather products
6	Wood industries
7	Pulp, paper & paper products
10	Mineral-oil processing
12	Chemicals & chemical products
13	Pharmaceuticals
14	Rubber & plastic goods
15	Glass, ceramics, processing of minerals & ores
16	Production of cement, lime, gypsum & concrete, lime and gypsum products
17	Metals refining & processing, & production of metals
18	Mechanical engineering
20	Ship building
21	Aerospace
22	Other transport equipment (automotive, rail)
23	Manufacturing (not classified elsewhere)
24	Recycling
25	Electricity supply
26	Gas supply
27	Water supply
28	Construction
30	Hotels & restaurants
31	Transport & communication
34	Research & development
35	Business services
37	Education
39	Other social services

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

Dr. Alan Robert Carter
Environmental Consultant

Work: Environmental Consultant
Ithemba Environmental
PO Box 8241, Nahoon, 5210, East London, South Africa
Tel & Fax: 043 735 4644

Academic

- B. Compt. Hons. Accounting Science, University of South Africa. 1997.
- B. Com. Financial Accounting, Rhodes University. 1995.
- Ph.D. Plant Science, Rhodes University. 1987.
- B.Sc. Hons. Plant Science, Rhodes University. 1983.
- B.Sc. Plant Science & Zoology, Rhodes University. 1982

Other

- Completed British Standards Institute "Environmental Management Systems Lead Auditor Course".

- Certifications
  Certified ISO14001 Environmental Auditor with American National Standards Institute (USA) and the British Standards Institute (UK).
- Professional Member of the South African Institute of Ecologists and Environmental Scientists, South Africa.
- Certified Public Accountant – Texas State Board of Public Accountancy, USA.
- Professional Member of the American Institute of Certified Public Accountants, USA.
- Completed three years of articles (training contract) in fulfilment of the certification requirements of the South African Institute of Chartered Accountants.

Relevant Experience

- 1/2002 – present Avis, Carter & Logie cc. – Integrated Environmental & Financial Solutions, East London, RSA - Managing Member
  - Managed project to develop a State of the Environment Report and Environmental Implementation Plan for the Amatole District Municipality, Eastern Cape Province.
  - Managed waste management status quo analysis for a District Municipality in the Eastern Cape Province.
  - Evaluation of Waste Water Treatment Options for the West Bank Area of Buffalo City Municipality, including Cost/Benefit Analysis of Treatment Options, Alignment with International Best Practice and Sustainability Criteria, and Compliance with Relevant Environmental Legislation and Regulations.
  - Participated in a number of ISO14001 Environmental Management System (EMS) audits for large South African corporations including SAPPI, BHP Billiton, SAB Miller, Western Platinum Refinery, Dorbyl Group and others.
  - Conducted analysis of permit fees and application processing costs for off-road vehicle use on the South African coastline for the Department of Environmental Affairs and Tourism, Marine & Coastal Management.

- Prepared environmental impact assessment (EIA) reports for a number of development proposals.
- Advising Buffalo City Municipality, East Cape Development Corporation and local timber company on climate change and emissions trading opportunities.
- Lecturing Biotechnology M.Sc. students at Rhodes University on environmental accounting and reporting.

- 1/1999 – 12/2001 Arthur Andersen LLP, Public Accounting Firm; (Chicago, Illinois, USA). Experienced Manager

- 12/1996 – 12/1998 Ernst & Young LLP, Financial Audit (Austin, Texas). Senior Accountant/Auditor

- 1/1994 –12/1996 Ernst & Young, Charteris & Barnes, Chartered Accountants (East London and Bisho, South Africa) Senior Accountant/Auditor

- 7/1991 – 12/1994 Coastal & Environmental Services (East London, South Africa) Associate Consultant:

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

This Page Intentionally Left Blank

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm

END

Environmental Management & Community Facilitation

Ithemba Environmental
Tel & Fax: 043 735 4644 Email: ithemba@iafrica.com
Web site: http://www.besc.co.za/ithemba_environmental.htm