THE RIDGE
ZIMBALI LAKES

GOVERNING RULES

OF THE

THE RIDGE ZIMBALI LAKES

OWNERS ASSOCIATION

This Association is constituted to undertake the conservancy and other functions and obligations assigned to the Association, and moreover to protect and advance the interests of owners of immovable property in the Resort, to protect, promote and maintain the essential services, amenities and activities in relation to the said property, to regulate the environment in the Resort and to control and co-ordinate development in the Resort with special regard to the upholding of aesthetic standards which will enhance the attractiveness of the Resort as a whole.

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Zimbali Lakes Resort Architectural Design Code

Kwa-Zulu Natal South Africa

APRIL 2019

Issue 01

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ARCHITECTURAL CODE

1. INTRODUCTION

1.1 The purpose for the architectural landscaping code is to create a harmonious built environment that will be sympathetic to, and build on the ethos of the successfully established Zimbali Coastal Resort.

1.2 The **Zimbali Lakes, Design Review Committee (DRC)** comprising of professional architects and Zimbali Lakes Resort Management Association (ZLRMA) have therefore drawn up the following code to assist all property owners and/or relevant professionals with the preparation of their plans. Each submission will be assessed on its merits in the overall context of the Zimbali Lakes Resort.

1.3 For this purpose, the Zimbali Lakes Resort Management Association's (ZLRMA) Constitution requires all property owners to submit building plans, including all alterations and/or deviations, for approval by the DRC, prior to them being submitted to the Municipality.

1.4 All suggested deviations from the approved plans to be submitted to DRC for approval **prior** to commencement of this work on site.

2. BACKGROUND TO CODE

2.1 The Zimbali Lakes Resort is designed to fit luxury living into the surrounding, pristine, natural environment. The Vision is that the buildings are nestled in the expanse of lush indigenous tropical coastal forest, offering its inhabitants a luxurious ecological haven enjoying the rich variety of local flora and fauna and embracing the balance with nature.

2.2 Analysis of the site, the coastal forest, proximity to the sea, prevailing winds and the objective to ensure a sense of harmony within the Estate has identified the following design criteria:

2.2.1 Dominance of Nature
2.2.2 Integrated internal and external living spaces
2.2.3 Verandahs, decks and terraces
2.2.4 Limited range of materials
2.2.5 Selected colour range
2.2.6 Dominant roof form with large overhangs
2.2.7 Large areas of glazed elements in compliance with SANS 10400

2.3 It is important that the street elevation avoids the suburban residential image, and greater emphasis should be given to retaining the natural character of the Estate.

2.4 Only persons registered in the category of Professional Architect with the South African Council for the Architectural Profession (SACAP) may submit drawings for development within the Zimbali Lakes Resort.

2.5 All Engineers undertaking projects within the Zimbali Lake Resort must be registered with the Engineering Council for South Africa (ECSA).

2.6 Architects and Landscape Architects may obtain documentation and plans relevant to the site from the ZLRMA offices.

2.7 The Code is to be read in conjunction with the National Building Regulations (N.B.R.) and the Municipalities Scheme (Scheme) requirements. Any variance to the N.B.R., Scheme or any other statutory requirements must be brought to the attention of ZLRMA.

2.8 The Zimbali Lakes Resort Management Association's DRC approval is a prerequisite for plan submission and approval to the Municipality. The Municipality shall not scrutinize any plans without the DRC "Approved and

Recommended" stamp.

2.9 The Consulting Architects on the DRC act in an advisory capacity only, and all comments are at the discretion of the ZLRMA.

3. DESIGN APPROVAL PROCESS

3.1 The design review process comprises of the following stages:

3.1.1 Orientation Meeting

3.1.2 Sketch plan presentation and site visit

3.1.3 Review of final submission drawings

3.1.4 Approval of final submission drawings

3.2 ORIENTATION MEETING

3.2.1 It is mandatory for the architects and owner to attend the Orientation Meeting.

3.2.2 It is imperative that the Architect familiarizes him/herself with the Architectural Code and KwaDukuza Local Municipality Scheme.

3.2.3 The purpose of the Orientation Meeting is to:

3.2.3.1 Meet new homeowners and outline the process going forward

3.2.3.2 Review the site analysis and current site survey

3.2.3.3 Understanding the Client's brief to the Architect

3.2.3.4 Discuss and review initial design concepts in light of DRC's Architectural Code.

3.2.4 **NB: This meeting is not the forum for reviewing finite working drawings.**

3.2.5 Build-by date to be confirmed. In the event of an expired build-by date, an application needs to be made to ZLRMA.

3.3 SKETCH PLAN PRESENTATION AND SITE VISIT

3.3.1 The purpose of the Sketch Plan Presentation is for the Architect to communicate his/her design intent with respect to the initial concept, architectural language, code, ethos and site parameters.

3.3.2 Sketch plans submitted in accordance with initial design concepts discussed at the Orientation Meeting, should incorporate:

3.3.2.1 2 Sets of sketch plans, 1 of which will be retained by the ZLRMA

3.3.2.2 Site plan to a minimum of 1:200 scale indicating current surveyed contours, corner beacon levels, site orientation, boundary lines, footprint lines, servitudes adjacent sites/buildings, levels, driveway access, parking, existing vegetation and street furniture.

3.3.2.3 Current survey drawing of the site prepared by a professional and registered land surveyor.

3.3.2.4 Area schedule indicating permissible and actual bulk, permissible and actual coverage.

3.3.2.5 Height restrictions in accordance with the KwaDukuza Local Municipality Scheme

3.3.2.6 Floor plan layout of all storey's at a minimum scale of 1:100

3.3.2.7 Roof plan at the same at the same scale as floor plans

3.3.2.8 The Eaves level for the Golf Course properties shall not exceed 1metre from the highest floor level.

3.3.2.9 Minimum of two sections through the building indicating natural and finished ground levels, as well as relevant height restrictions and existing adjacent building levels (additional sections may be required).

3.3.2.10 Adjacent building levels to be obtained from ZLRMA and indicated on sections and plans.

3.3.2.11 All elevations to be provided to a minimum scale of 1: 100 indicating all finishes, fenestration, screens and shutters where applicable.

3.3.2.12 All drawing to rendered in colour sufficient to indicate the design intent.

3.3.2.13 Simple 3D perspectives, although not mandatory, are encouraged to indicate formal composition.

3.3.2.14 Where PUD sites are concerned, a working block model showing topography, levels, massing and relationship of buildings, roof-scapes, retaining structures, driveways and roads.

3.3.3 A document, "Checklist – Plan Submission and Approval", has been compiled to assist the process. This checklist is readily available from the offices of ZLRMA offices and included in the Orientation Pack.

Also ensure that cognisance has been taken of the Municipality's checklist.

3.3.4 On approval of sketch plans, preparation of final submission drawings can commence.

3.4 REVIEW OF FINAL SUBMISSION DRAWINGS

3.4.1 As a prerequisite to review final municipal submission drawings, four coloured, sets shall be submitted for approval by DRC.

3.4.2 Plans and information thereon to comply with SANS 10400 Parts A and B as amended.

3.5 APPROVAL OF FINAL SUBMISSION DRAWINGS

3.5.1 Once the final submission drawings are required under 3.4 have been stamped, signed and approved by ZEMA, the remaining sets required by the KwaDukuza Municipality can be submitted to ZLRMA for final signature.

3.5.2 On compliance with 3.4.1 above, the architect/owner can formally proceed with submission of the drawings to the Municipality.

3.5.3 No building work may commence without the prior approval of the DRC and the local authority.

4. GENERAL CODE APPLICABLE TO ALL AREAS IN THE ZIMBALI LAKES RESORT (ZLR)

4.1 SITE CONTROLS

Each site must comply with the development parameters as set out the KwaDukuza Local Municipality Scheme document for height, FAR, coverage and setback lines.

4.2 BUILT FORM

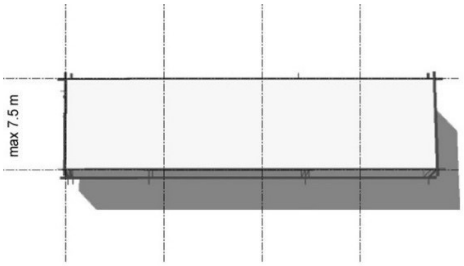
4.2.1 Plan Shape and Form

Major Plan Forms refer to the main enclosed habitable areas and minor plan forms refer to the linking elements between major plan forms.

It should be noted that the handling of proportions, scale and articulation will be scrutinised in detail by the review committee. Horizontal layering and composition of the building is encouraged. Articulation of facades through layering, using columns, patios, screens, and inner courtyards, is encouraged.

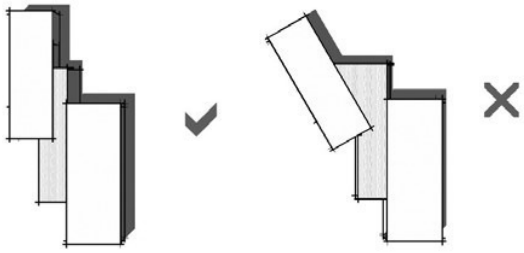
Major Plan Forms

These must be limited to a maximum width of 7.5m and 4.0m minimum width.



Encouraged major form

Plan forms are to be composed of rectangular major plan forms which are connected to one another and articulated with minor plan elements.

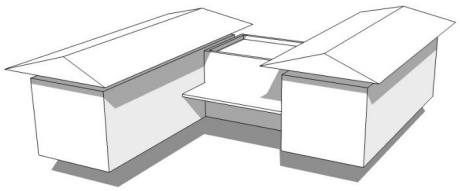


Perpendicular linear major forms

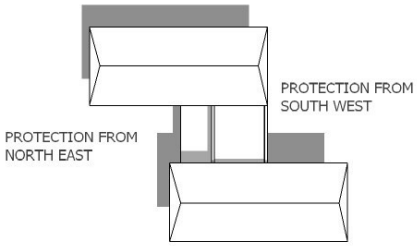
No angled major forms

Rectangular plan forms may not be offset at an angle relative to one another, unless the offset can be motivated as being sympathetic towards the natural topography. In such cases, sharp angles and irregular forms must be contained within the internal spaces of the home and cannot be visible from the street or public areas.

The built form is to comprise major plan form elements with the signature floating clay tiled roof structures connected by minor plan forms or simple linking elements.

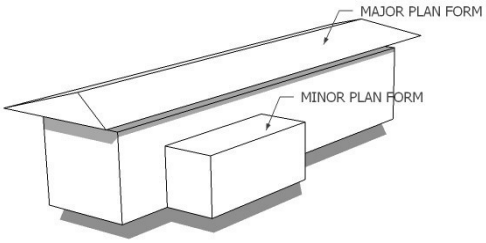


The arrangement of built forms should take into account the correct orientation with regard to the sun and prevailing winds.



Minor Plan Forms and Layering

It is essential that minor plan forms are used to "layer" the facade of the large major plan forms to prevent large over- bearing, dominant facades.

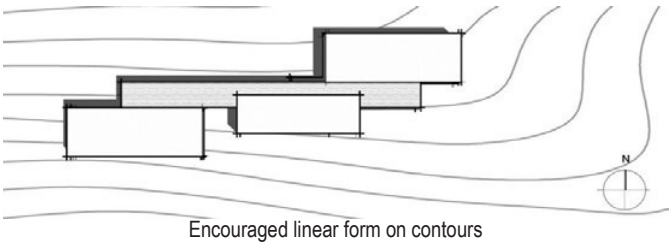


Minor Plan Forms and Elements comprise elements such as verandas, concrete roofs, pergolas etc. as well as acting as horizontal scaling elements

Orientation in relation to Contours and Natural Features

It is imperative that wherever possible that the linear form of the structure run in the direction of the contours on the site, provided this is not in conflict with the optimum orientation relative to the sun and prevailing weather.

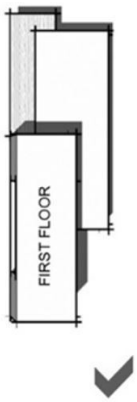
To retain natural features and to accommodate topography, plan forms must be separated where required and articulated through courtyards and connecting walkways and decks.



Encouraged linear form on contours

Double /Triple Storey

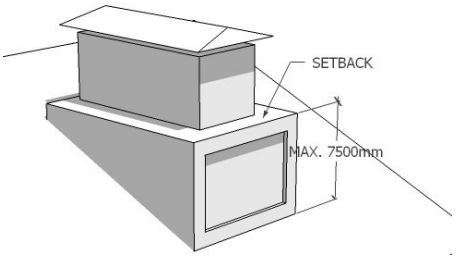
Double storey elements must be parallel to ground floor plan orientation (not angled). It is encouraged that the upper floor form overhangs the floor below to create layering and also shade any glazing effected by direct heat gains in summer.



Perpendicular double storey

No angled double storey

Three storey structures will only be permitted on sites where it is specifically stated to be permissible on the relevant “site and servitude plan”. On other sites, a 3 storey limit may be granted by the Review Committee on special application, which will be assessed on individual merit, as well as by application through town planning regulations. The handling of proportions, scale and articulation should be carefully considered particularly with buildings of more than one level. Wall planes over 7.5m are to be treated with setback or appropriate horizontal treatment.



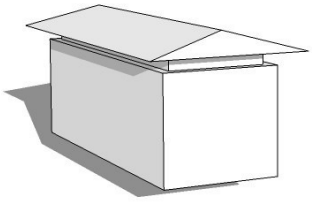
4.2.2 Roofs

The most visually dominating element of the estate is the overall roofscape. It is the intent to create a harmonious roofs- cape, ensuring a cohesive whole in the landscape. The expressive use of the roof element must compliment passive climate control and cooling. The roof elements are emphasised dramatically in terms of their shading qualities, while the mass of these roof “canopies” is to be understated in terms of their elevation height.

Pitched roofs

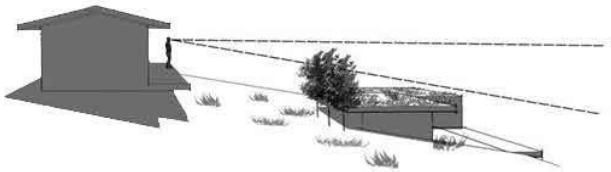
Symmetrically pitched hipped roofs, with a 150 pitch are compulsory for 40% of the roof covering. It is important that the roof is ‘read’ as a separate element of the building, to this end the junction between elevation and roof is to be clearly expressed. The use of glazing or deep recesses of a dark colour ensure the notion that the roofs sit lightly or float above the plan forms.

- No steep roof pitches, roof pitch to be 150.
- No domed, curved or semi-circular vaulted roofs.
- No mono-pitched roofs.
- No gabled roof designs.
- No double pitch roofs
- No unsymmetrical, dual pitched roofs
- Thatch 'Lapa' will not be permitted



Concrete roofs

Flat roofs must lie beneath the eaves line of a pitched roof. Flat roofs may not intersect the eaves line on a pitched roof. Flat roof elements are permitted as cover over verandas, terraces and internal minor form or "linking" elements. These elements will allow for larger outdoor covered spaces. Linking concrete flat roofs may be used as roof decks, provided they do not overlook neighbouring residential properties. If flat roofs are used as decks, railings must be set back from the edge to accentuate the slender form. The screening thereof may be needed to ensure privacy. Upper floors connected to internal spaces are encouraged.



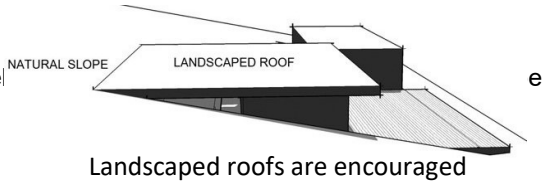
Flat concrete roofs improve view lines

Garage Roofs

Garage roofs need to match the architectural language of the main dwelling & are subject to the same architectural guide- lines. Flat concrete roofs with parapet construction are encouraged over garages.

Sloped Sites

Flat concrete roofs on all areas visible from the sites be landscaped or must be covered in a 50mm layer of gravel in accordance with type & size listed in material section of this document.



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Landscaped roofs are encouraged

On sloped sites it is also encouraged that portions of these "flat" roofs are cut into, and/ or "grow" from the landscape and that the earth/ natural landscape continues onto the roof.

In these areas it is essential that architects and contractor detail accordingly to prevent moisture penetration, and the appearance thereof on visible facades.

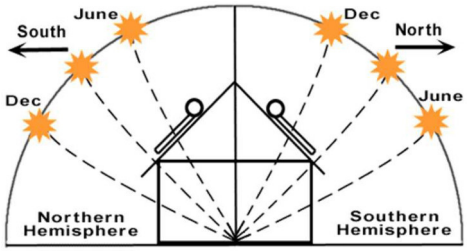
Standard gang nailed trusses must not be visible from the exterior

Rafters and Truss

It is the design intent that the construction of the roof achieves a clean lined aesthetic throughout the estate.
Exposed truss systems visible from the exterior need to be designed.
Standard “off the shelf” truss systems using gang nailed junctions must not be visible or externally exposed.

Overhangs and Eaves

It is critical that solar projection studies are implemented to calculate roof overhangs. Where sufficient overhangs cannot be achieved, alternative shading/ screening devices must be used. Architects will be required to submit this sun study with their application to the Design Review Committee.



Large overhangs are mandatory and may be no less than 1000mm on pitched roofs. No clipped eaves or small overhangs are permitted. Wide eaves that need structural support may have struts from the supporting walls, provided that the thick- ness thereof is kept to a minimum. Fascia’s need to be painted or stained to match the roof colour and water goods. Slender eaves are encouraged

Gutters

Gutters are optional, but where used, simple coated, rectangular, aluminum ’Watertight,’ or similar, must be used. Gutter finishes must be consistent throughout the exterior of each house and must adhere to the prescribed colour and finish range.

Wherever possible gutters are to form part of a rainwater harvesting system incorporated into the design. Gutters and downpipes must appear to be part of the structure and be placed on the structural grid lines to facilitate this aesthetic.

PVC and fiber cement gutters are not permitted.

Down pipes must be of the same material and make as the gutter and must be mounted flush or recessed into the wall. Uncaptured storm water run-off must be dealt with on each site and discharged under strict control onto an adjacent road or open space designed to receive this water.

Roof materials

Pitched roofs must be finished with either:

- Flat profile with specific hip and ridge detail tile in black or slate colour
- Pre-powder coated sheet roofing in black or charcoal colour
- Natural slate in natural dark grey colours

Flat roofs may only be constructed of concrete slabs. The top surface can be finished with natural material such as terracot- ta or slate, a specified stone pebble finish, or planting.

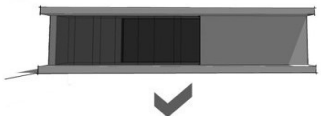
Roof lights

Roof lights are to be designed as an integral part of the roof. No triangular, domed or irregular shaped skylights are allowed.

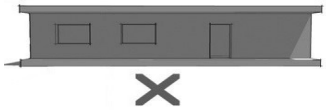
4.2.3 OPENINGS, WINDOWS AND DOORS

Windows

Windows and other glazed external surfaces have a major impact on the efficiency of the building envelope. It is encouraged that the glazing is integrated into the facade rather than a facade where the openings are created through punctured voids.



Encouraged



Discouraged

The composition and design of window and door openings should promote the light and transparent character of subtropical architecture and should take into account proportions, scale and articulation.

The integration of the glazing with the facade enables large portions of “walls” to be flexible, to open and close to achieve achieving a seamless spatial flow between interior and exterior. The correct orientation with regards to the sun and prevailing winds must be taken into account in positioning openings and glazed elements. Openings must be protected from sun and rain by large overhangs, functional timber shutters and/or pergolas, or planting.

Irregular shaped windows are not permitted.

Window frames must either be in timber or anodized / powder-coated aluminum, must be in terms of the prescribed colour range and must be consistent throughout the house.

Where opaque glass is required, this should be plain frosted glass and not patterned.
No steel window frames or pre-cast concrete window systems may be used.
Reflective or colored glazing is not allowed.
No external burglar bars are permitted.
No “Winblocks” are allowed
Where internal burglar bars are used and visible to the estate, they need to be rectangular in form without ornate designs. Shutter bars (Fixed steel louvre system), transparent louvres, and intruderprufe glazing are all encouraged.
Windows are to be clearly defined square, vertical or horizontal proportions.
- No “Cottage Pane” style windows are permitted.
- No arched openings are permitted.
- No dormer windows allowed.
- No irregular shaped openings are allowed.
- No chamfered or curved bay windows in plan.

All glass sizes to conform to SABS 0400 –1990 Part N Glazing Regulations & SANS 10400.

Doors

External Doors and door-frames must be in natural timber finish or aluminum and must be finished in terms of the pre- scribed colour range.
Door and window frame colour must be consistent throughout the exterior of each house. Ornate carved doors are not allowed.
No external metal security gates/window gates are permitted. No irregular shaped, or round arched openings are permitted. Garage door colour to match windows and doors of house.
Ornate paneled garage doors are not allowed. Only vertical or horizontal slatted doors will be allowed.
Maximum width for single garage door is 2440mm and double door is 4480mm.

Shutters

'Kinetic' shading devices that allow maximum solar gain in winter and minimize this in summer are encouraged.

Shutters are to compliment the overall design and should form an integral part of the building's architecture.

Screens are encouraged to span full opening heights as per windows/ glazing, and all eastern and western openings should have shading devices if insufficient overhangs occur. It is suggested that these lockable screens/ shutters could serve as a form of security.

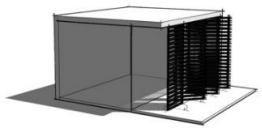
Canvas shading devices are allowed, provided they are finished in a single natural colour (to match exterior) and custom made to tie into the overall design.

No pre-manufactured awnings, fake or cottage type shutters may be used.

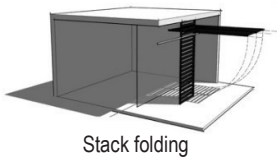
Timber shutters must be in rectilinear form.

False, curved or irregular shutters are not permitted

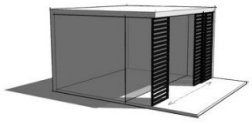
Kinetic shutters allow for shade in summer and solar gain in winter



Sliding shutters



Stack folding



Pivot type shutters

Gates and Screens

Gates and screens need to be finished in hardwood (natural finish) or aluminum to match the windows and doors. The design must have vertical or horizontal patterns only. Wash line areas to be screened from external view.

Screen wall elements may not exceed 1.8m in height. They may be used for screening of pools, patio's, etc. but must be designed as part of the garden or landscaping design and must be approved as part of the overall planning submission.

No decorative wrought iron/cast aluminum gates or screens are allowed. No external burglar bars or metal security gates are allowed.

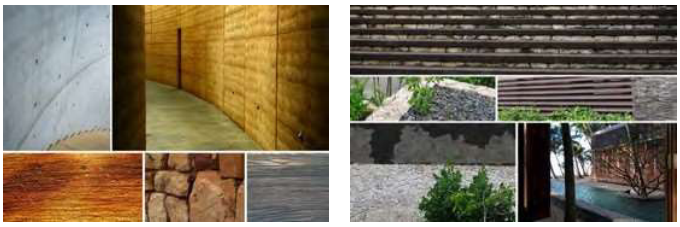
Brick and plaster and/or stone-clad wall elements not exceeding 1,8m in height may be used for screening but must be designed as part of the garden and landscaping design and must be approved as part of the overall planning submission.

Masonry screen walls should be the same finish and colour as the house.

4.2.4 EXTERNAL WALLS

Raw and natural materials need to be employed in a sophisticated manner and should echo the natural aesthetic of the estate and emphasize an honest natural feel. Facades are to be flexible and able to open and close to achieve a spatial flow between interior and exterior, enhancing the 'layering' effect.

Walls can also be constructed with "A-Grade" off-shutter concrete.
Materials and textures should be employed as a means of modulation.
Colour and textures of the materials should be expressed in a harmonious & uniformed appearance Rough plaster finishes should be used as part of a range of textures
The palette of colours should be subdued natural earth colours Cementitious paints may be used.
Paint Colours from: Plascon reference (or similar approved) and within the same tonal values as approved by ZLR. Black brick is permitted
Cement bricks are not permitted.
Face brick is allowed, but only the "Onyx Satin" imperial face brick from Corobrick's FBX range is permitted and subject to the DRC approval.
No pre-cast, ornate, decorative columns or surfaces. No manmade stone cladding products are allowed. No highly reflective surfaces.
No decorative and ornate paint techniques.
Techniques such as 'coining' are prohibited.



Suggested textures

Retaining walls

The architecture needs to embrace level changes through positive treatment of the retaining walls.

Retaining walls should be integrated into the design of the building. Retaining walls should be either local natural stone or gabion construction (filled with local stone). Gabion retaining walls must be less than 1.5 m in height. To achieve this on steeper sites, terracing will be required. For every 1.5m of height, retaining must step back by 1m horizontally.

Retaining walls with a vertical face higher than 1.5m in height need to be clad or constructed in natural stone. Constructed retaining walls visible from outside the erf that are higher than 3m need to be articulated to break down the scale.

Any wall higher than 1.5m high must have a 1.5m wide planted landscaping bed along its full length. If a retaining wall is located within a private courtyard of a home and not visible from the street or adjoining properties, the allowable finish and height of the wall will be considered on individual merit by the design review committee.

“Loffelstein” type retaining walls must be appropriately planted as per the landscape guidelines and must be stepped appropriately.

Retaining structure evaluation is up to the discretion of the DRC. It is often more appropriate to have a single retaining wall rather than the steps depending on the situation. Specific cases will be assessed on merit and considered if there is a compelling case.

Perimeter Walls and Screens

Boundary walls are discouraged, but only used where necessary for screening or security purposes (e.g. to contain pets)

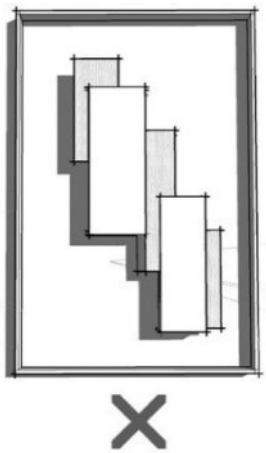
The visual impact of boundary walls should be kept to a minimum and the articulation thereof is recommended. It is encouraged to use landscaping and/ or the structure of the buildings to create privacy and enclosure.

No boundary walls on the street frontage is allowed.

Fencing on the street boundary is not allowed. If privacy is required, it is encouraged to use berm landscaping and/or the structure of the buildings to create privacy and enclosure.

Boundary walls to be max 1500mm high unless part of a screen wall element.

Site boundary walls, separating erven, may not run within servitudes.



4.2.5 OTHER ELEMENTS

Balconies

Balconies must be positioned to face the street or open space, and not address an adjacent residential site. Balcony roofs, if applicable, must be similar in character to the main house roof or follow the requirements for verandas and pergolas. Balconies may be treated as roof terraces or supported in a similar fashion specified for verandas and pergolas. Balconies must be rectilinear in plan form.

Pergolas and Verandas

Verandas and pergolas are to be treated as minor forms and used to soften and layer major forms. Pergolas may be constructed in natural hardwood or powder coated aluminum or galvanized and painted steel.

No pre-cast, cast iron or circular columns are permitted.
No ornate “broekie lace” detail is permitted.
No brightly coloured or striped canvas shading is permitted


Pergolas & Verandas preferred aesthetic

Balustrades

Balustrades need to appear lightweight and be visually permeable and comply with screen aesthetic.

Balcony and veranda balustrades must be in keeping with the architecture of the house, and must be in natural hardwood finish, galvanized steel painted or powder coated aluminum - all to comply with approved colours. Frameless glass balustrading is allowed. Stainless steel may be employed as part of the connection structure, but may not be the only material. Only pure geometries in plan and elevation, comprised of simple vertical or horizontal elements, are allowed. No ornate or over decorative railings styles will be permitted.

Awnings

Shade devices should form an integral part of the building’s architecture and should become an important architectural feature.
Sun control to openings shall be by means of pergolas, wide roof overhangs, shutters, planting or specified horizontal solar shading devices. No pre-manufactured clip-on aluminum or canvas awning systems may be used over windows or doors.
Specifically designed horizontal solar shading comprising of hardwood louvers or aluminum/steel construction is encouraged but will be subject to design review committee. Colours to be natural or stained timber or if in aluminum or steel need to match the window colours.

Garages

Prefabricated garage units or designs not matching the main building are not permitted. Garage doors may not be fully visible from the street.
No metal or fiberglass doors.
No ornate paneled garage doors
Provision should be made for off street parking for at least 3 cars per house including garaging.
Landscaping and driveway design should ensure that parked vehicles within a site are obscured from direct view from the street where practically possible.
Driveway entrances may not be more than 3.5m in width.

Design treatment of garages should match the main structure of the house in style, elevation and material use.
It is encouraged that garages be treated as a separate building mass on the erf linked to the main house by a wall, pergola or covered walkway.
Prefabricated garage units are not permitted.
Should the garage doors be orientated towards the street, a screening pergola needs to be added above the door elements.

Carports
Carports may not appear as an "add-on" but rather be designed as per the garage and must appear as an integral part of
the overall design.

Out buildings and Outdoor living

The design and treatment of outbuildings should match the main structure of the house in style, elevation and material use.

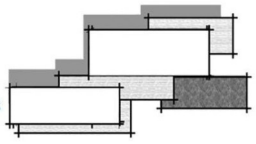
Courtyards
Staff accommodation should open into an enclosed/gated courtyard or screened area. Courtyards should become outdoor living rooms acknowledging the climatic nature of the area. They be oriented taking into account climatic factors such as the sun, prevailing wind, shelter and views. Landscaping should be designed in conjunction with the structure of the buildings to create privacy and enclosure

Decks, Walkways and Terraces
Decks, walkways and terraces must be shaped to retain natural vegetation.
It is encouraged that natural key vegetation is retained through "punctured" decks.
Decks must be rectilinear in plan form. Terraced timber decks extending past the building facade are encouraged. Composites or similar products with longer lifespans are an acceptable alternative provided a sample is provided to the DRC for approval, prior to installation.

Kitchen Yards
Kitchen yards must be screened from roads, open spaces and neighbours. Kitchen yards must have access to the street and accommodate garbage bins, wash lines and gas containers etc. Walls should be similar to the basic materials and colours of the building and be 1.8m in height.

Pools

Pools must be rectangular in form and set at the same angle as the rest of the building. Retaining walls for pools must be integrated with the aesthetic of the building and are subject to the same design code regarding material and form as main structure of the building. Safety fences to comply with the balustrade aesthetic in this design. Swimming pools to be of permanent construction only.


Rectangular pool forms

Chimneys / Braai's

"A-Grade" off-shutter concrete and natural stone cladding are encouraged.
Flues must be stainless steel for marine the
environment. Chimneys Height: may not rise
higher than the nearest ridge line.

Exterior Lighting

Only low level, non-intrusive lighting allowed.
The intention is that all exterior lighting on each erf will be subdued and indirect allowing only critical areas to be illuminated in a subtle fashion without the actual source being exposed.
The light source to all external lighting (excepting under covered patio or gazebo roofs), wall mounted or otherwise, may not be more than 1m above natural ground level.
Non-intrusive lighting on porches can be higher, providing that it faces inwards/ toward the dwelling and the source is not visible.
No external flood lighting is allowed.

Signage and House Names

Size and Text – Individual House numbers or letters to be no larger than 15cm high each and must use Calibri Font style. **Material** – House names and numbers to be constructed from Powder Coated Aluminium in graphite or charcoal colour. **Post Boxes** – no post boxes (freestanding or integrated) are allowed on individual homes. Communal post boxes are located at the gatehouse.

Landscaping

A separate document dealing with the landscaping code for Zimbali Lakes Resort form part of the overall code and will need to be consulted in order to ensure a landscaping solution which is appropriate to the Zimbali Lakes Resort. All landscaping designs will have to be submitted for approval at the same time as the building plans. The Landscaping guidelines also refers to a list of acceptable and recommended indigenous plants for the estate.

Pets

Home owners need special permission for any animal and each animal needs to be registered under the Zimbali Fauna Center as per their terms & conditions. Permission for cats will not be allowed due to the inability to contain them on the property. Should technology be developed in future that can contain cats within the property, special permission could be allowed by the Zimbali Fauna Center.

A maximum of 2 dogs per single residential site are permitted within Zimbali Lakes Resort. For the containment of dogs, please refer to Screen and Boundary walls regulations in this document. No dog should be able to move from the property or inhabit an area outside of the determined footprint / disturbance area for each site. Dogs will be permitted to be walked within the estate provided they are leashed at all times and under the control of the owner or responsible person. This person will be responsible for the immediate removal of any excrement from the common spaces. The ZLR reserves the right to amend the rules of the Resort regarding the policies towards pets.

Waste Management

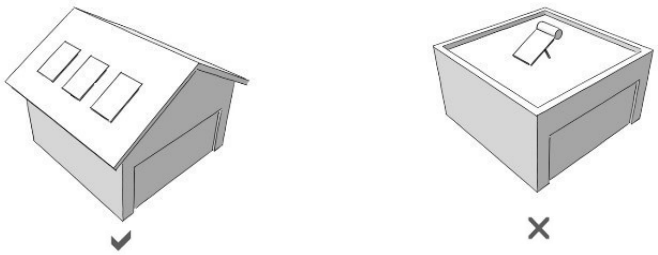
An effective waste management program and protocol is to be employed by ZLR to which all homeowners will be required to subscribe to.

Plant and Equipment

Pool pumps and filtration systems may not be visible from surrounding roads and neighbours. Pumps and motors must be in a professionally designed sound insulated enclosure approved by the DRC. The position must be indicated on drawing submission and approved by DRC and cannot be close to neighbours' bedrooms.

All plumbing and any other pipe work must be concealed from view.
Air Conditioning and Heat Pump condensers must be screened from public view.
Window mounted units are not permitted. Solar heating and PV panels should be incorporated into the building and appear to form part of the basic structure. Panels
will be allowed on concrete flat roofs, however geysers must be concealed and out of view.
No Solar Geyser combos are allowed.

TV aerials, satellite dishes and other such items must form part of the basic structure and are to be positioned below the eaves.

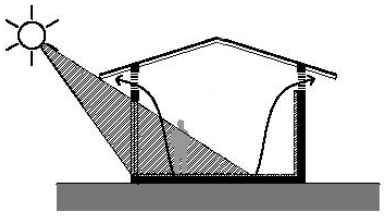


Positioning & angles of solar heating and PV panels permitted

4.3 PASSIVE DESIGN

Passive design is about ensuring that the fabric of the building and the spaces within it respond effectively to the local climate and site conditions in order to maximise comfort for the occupants. The Incorporation of passive design reduces green house gas emissions created from mechanical heating and cooling.

'Building envelope' is a term used to describe the roof, walls, windows, floors and internal walls of a home. Its performance in modifying or filtering climatic extremes is greatly improved by passive design. Well-designed envelopes maximise cooling air movement and exclude sun in summer. In winter, they trap and store heat from the sun and minimise heat loss to the external environment. The following Principles may be considered in achieving the comfortable living environment offered from passive design.



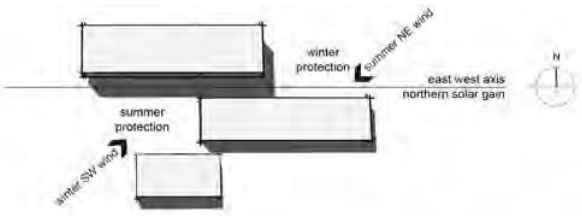
THERMAL MASS

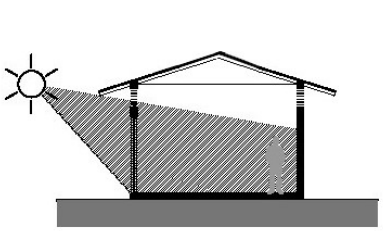
There are many varying methodologies with regards to passive design. The Design Review Committee will evaluate each home on its own merit rather than enforcing any one particular solution. To enable the committee to achieve this every design submitted by an architect will need to include a report explaining the passive design principles used in their building. This report will need to cover the following passive design principles in hot humid climates

4.3.1 Passive Solar Principles

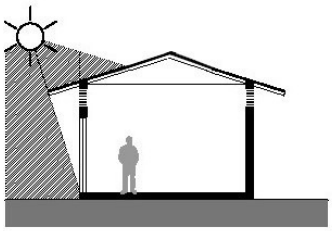
Passive design also means designing for climate. In tropical areas, lightweight materials, shade and ventilation mechanisms help keep buildings cool. Passive design features must be appropriate to the region, be able to cope with fluctuations in weather and other conditions, and be well integrated with conventional equipment such as heating and cooling appliances. For this reason, flexibility is a key factor when designing in hot, humid climatic conditions. Orientation should aim to exclude the sun year-round and maximise exposure to cooling breezes.

- North walls and the shading /screening thereof from the direct sun in summer and heat gain into the building during winter
- Handling of east & west facades from low sun angles and heat gain
- Orientation – preferably linearly on an east west axis if the contours allow, with north facing living areas.
- Orientate towards maximum exposure to cooling breezes
- Windows are also a key to passive design. Orientation, size, shape, glazing and shading of windows make a big impact on the heating and cooling.





EAVE DESIGN - WINTER SUN

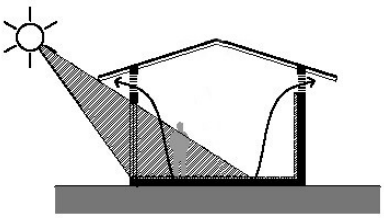


EAVE DESIGN - SUMMER SUN

4.3.2 Thermal Mass

Thermal Mass is the ability of a material to absorb heat energy in the day and then lowly release it as the external temperature drops hence thermal mass evens out variations in temperature

- Location of thermal mass relative to the insulation envelope and the ventilation thereof to draw out the energy.
- Choice of type of thermal mass and its properties (density, conductivity, reflectivity)The material has to be dense and heavy, so it can absorb and store significant amounts of heat and has to be a reasonably good heat conductor i.e. heat has to be able to flow in and out.
- The material should have a dark and/or textured surface. This helps it to absorb and re-radiate heat.
- Thermal mass acting as a ‘ thermal battery’, including summer absorption of heat and winter night time release



THERMAL MASS

Note: this principle will need to be considered in the KZN climate in terms of avoiding any unwanted excessive heat release during hot evenings in summer. Exposure to cool breezes ensures the thermal mass doesn't absorb and release too much heat

4.3.3 Insulation

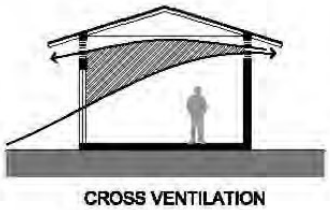
Insulation is a permanent way to make your home more energy efficient, by regulating the temperature within the house against the varying outside temperatures. It is measured on an R-rating scale: that is, how resistant to temperature change it is. Appropriate insulation of the building envelope can help reduce heating and cooling costs.

- Various forms of double glazing are effective insulators
- Location of both bulk and reflective insulation (floors, walls, roof, ceiling etc.
- The R-Value of insulation used. (House Insulation should be purchased based on its R value, not thickness or weight.)
- Absorbent/reflective quality of glass used
- Emissivity of glass used.
- Treatment of windows to prevent heat transfer.

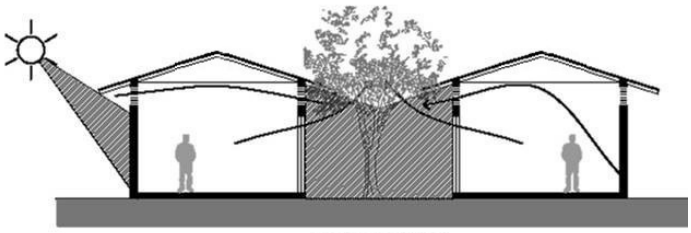
4.3.4 Cross Ventilation and Convection

Allow for cross ventilation of outside air to cross freely through the house. The following principles and mechanisms can assist in achieving good cross ventilation

- A shaded courtyard next to the main living area can act as a cool air well.
- Linear building forms promote effective cross-flow
- Ceiling fans can boost air flow using far less power than air-conditioners consider surrounding landforms, to enhance rather than obstruct cross flow.



CROSS VENTILATION



COOL AIR WELL
LANDSCAPED COURTYARD

4.3.5 Passive cooling mechanisms

Building form and shape
Compact building plans have less external wall area and therefore less potential heat loss while long, thin more linear buildings are better for day-lighting and cross-flow
Shading

Provision of external shading to north, east and west windows: Shading should be designed to take into account the sun's path in summer and winter on your site.

- Fixed External Shading Options
- Eaves
- Pergolas
- Fixed louvers
- Covered Balconies
- Flexible Shade Options
- Strategic Planting
- Blinds or Screens on Verandas to block sunlight and still allow ventilation.
- Heavy Curtains or blinds to reduce heat transfer.
- Deciduous vines and trees let winter sun through, and provide summer shade.
- Ground-cover plants keep surface and ground temperatures lower in summer, as well as the reduction of glare.

ZIMBALI LAKES RESORT

DEVELOPER/OWNER & BUILDER'S PROTOCOL

JANUARY 2023

Revision #9

OWNER/DEVELOPER: _____

CONTRACTOR: _____

ERF: _____

STREET ADDRESS: _____

Dear Contractor,

- Please ensure that all documentation is provided as per the checklist which follows.

- Please initial each page of the contractor's protocol and sign in full where required.

PLEASE TICK THE BOX IF DOCUMENT IS ATTACHED AND COMPLETE IN THE RELEVANT FIELDS

Director/s Identity Document: Yes ☐ No ☐

Proof of Address: Yes ☐ No ☐

Company Type: Sole Proprietor ☐ CC ☐ PTY (LTD) ☐

Company Registration / CK Yes ☐ No ☐

Company Registration Number / CK Number: _____

Company Letterhead: Yes ☐ No ☐

VAT Registration: Yes ☐ No ☐

VAT Registration Number: _____

Unemployment Fund Registration: Yes ☐ No ☐

Unemployment Fund Application Date: _____

Unemployment Fund Reference Number: _____

Workman's Compensation: Yes ☐ No ☐

Workman's Compensation Registration _____

Public Liability: Yes ☐ No ☐ **Amount:** _____

Contractor's All Risk Insurance: Yes ☐ No ☐

Safety Officer (OHS Act 85/1993) Appointment: Yes ☐ No ☐

Homeowners Letter of Appointment/Copy of contract attached: Yes ☐ No ☐

NHBRC Certificate Developer Yes ☐ No ☐ **NHBRC Certificate Builder** Yes ☐ No ☐

Developer NHBRC Registration Number: _____

Builder NHBRC Registration Number: _____

Physical Address:	
Postal Address:	
Office Telephone Number:	
Fax Number:	
E-mail Address:	
Director/Member Cell Nr.:	

SIGNED by the CONTRACTOR at ..... on ..... 20____

SIGNED by the OWNER/DEVELOPER at ..... on ..... 20____

_____ _____

Signed OWNER/DEVELOPER **Signed CONTRACTOR**

_____ _____

Owner/Developer's Full Name & Surname **Contractor's Full Name & Surname**

_____

Duly Authorized (Office Use)

FOR OFFICE USE ONLY - DOCUMENTS TO BE ATTACHED (SIGNED)

ZLRMA Contractual Agreement:	
Copy of Identity Book:	
Proof of Address:	
Proof of SARS/VAT Registration:	
Proof of UIF Registration:	
Proof of Labour Department Registration (Workman's Compensation):	
Registration:	
Copy of Letterhead.....	
Copy of NHBRC certificate.....	
Proof of Public Liability.....	
Company resolution for authorised signatory:	

FOR OFFICE USE ONLY

1. **Pending:** ☐

2. **Approved:** ☐

Comments: _____

_____

_____

_____ _____

Duly Authorised **Date:**

ZLDRA

DEFINITIONS

ZLR – being Zimbali Lakes Resort

ZLRMA - being Zimbali Lakes Resort Management Association

The Resort – being Zimbali Lakes

Developer - being the owner/developer of sites within Zimbali Lakes Resort who may award building contracts to a third party.

Contractor - being the building contractor appointed to undertake building works within Zimbali Lakes Resort and is deemed to include all agents, suppliers and subcontractors of the contractor.

Development - being the area to be developed under the control of the Zimbali Lakes Resort Management Association or any one of its sub-Associations / committees.

Site - being within and including the cadastral boundaries of the property

EMP - being the Environmental Management Plan for Zimbali Lakes Resort

EA – Environmental Assessment

SR – Single Residential

PUD – Planned Unit Development

KDM – being KwaDukuza Municipality

1. INTRODUCTION

1.1. The manner in which a site is prepared prior to the commencement of actual building work will have more impact on the state of the environment than that of any other stage of the development. For this reason, the Zimbali Lakes Resort Management Association (ZLRMA) requires the following procedures to be strictly adhered to.

1.2 All main Contractors working at Zimbali Lakes Resort must sign acceptance of this protocol prior to any work commencing on site. This covers all sub-contractors which they will be responsible for working under them on their sites.

1.3 Signature of this protocol also binds the main contractors (and all sub-contractors they are responsible for) to compliance with the relevant Environmental Authorisations; Environmental Management Plan and any Resort Policies; Protocols and Codes (as may be applicable and as may be updated/amended from time to time). This protocol is to be read in conjunction with the Penalty Schedule "Annexure A".

1.4 During development of Zimbali Lakes Resort, the contractor is required to take photographic evidence of the roads; fencing; gate house and any other existing infrastructure prior to commencement of construction and include this record in the Notice of Intention to start building.

1.5 The Contractor is required to take the same photographic evidence prior to the issuing of the Occupation Certificate to ensure that infrastructure is in the same condition as before commencement of construction.

2. PROCEDURE

2.1 Initial access to the site will be given by the ZLRMA for purposes of surveying the site only and minimum pruning and trimming of the indigenous vegetation will be allowed during this survey.

2.2 The Owner, or his principal agent, must give the ZLRMA at least **14** days' notice of his intention to start building.

2.3 All indigenous seedlings and plants found within the footprint area that need to be cleared must be harvested (if possible) to transplant to other areas of the Resort. This work, to be carried out during the clearing of the footprint area is to be undertaken by the appointed professional landscaper. All vegetation to be removed must be identified and recorded and must be mulched on site and used to rehabilitate the area, in accordance with the EMP and EA.

2.4 The location of the driveway, as indicated on the site plan, must be clearly marked and this must be the only access onto the site.

2.5 The location of the footprint and actual house/building position as well as the driveway and cadastral boundary shall be clearly marked out before the site handover. All services must be clearly identified.

2.6 Prior to site handover, a builder's levy must be payable as follows:

- Single Residential sites : R 8 500 (ex VAT)
- PUD 1-6 units : R 8 500 (ex VAT)
- PUD 7-10 units : R10 000 (ex VAT)
- PUD 11-15 units : R15 000 (ex VAT)
- PUD 16-20 units : R20 000 (ex VAT)
- PUD 21-30 units : R25 000 (ex VAT)

The levy must be paid yearly (or part thereof) until Occupation Certificate has been issued. The levy is

subject to review by the ZLRMA as and when deemed necessary.

2.7 During site hand over, a copy of the KDM approved plan together with the engineer's approved pre-construction stormwater plan is required. It is mandatory for the main contractor and the appointed Principal Agent to attend the site hand over meeting. This document must be duly completed and signed.

2.8 Before construction commences the site must be screened with 1,8m high bonnox fence with a green 80% shade cloth along the full length of the boundary. Provision must be made for an entrance at 1.8m high x 4m wide with an entrance gate in the position agreed to. The shade cloth is to be affixed to the outside of the supporting poles by means of green painted battens running the full height of the poles, which are to be spaced not more than 2,4 metres apart. The top is to be kept horizontal by means of battens, wire or mesh. The entrance is to be closed at the end of each working day by means of a gate with lock and chain.

Where perimeter security fencing exists, the rear of each site is to be screened off with shade cloth positioned at 1m behind the fence line so as to facilitate access to the fence line. The shade cloth must be maintained in an acceptable manner throughout the duration of the construction activities.

2.9 The Developer/Owner is obliged to erect a construction sign board on the verge directly outside the site boundary in a position as agreed to by the ZLRMA during site hand over. The sign must accommodate the street address; lot number; architect's name; engineer's name; contractor's name and, if approved by the owner, the owner's name. No other signs of contractors, sub-contractors, suppliers, financing companies or any other party may be erected on the site. The construction sign must be in accordance with the design and dimensions as shown below.

Dimensions:1350mm long x 1000mm wide

Board colour:
Pantone 002D48 (C85%, M50%, Y17%, K70%)

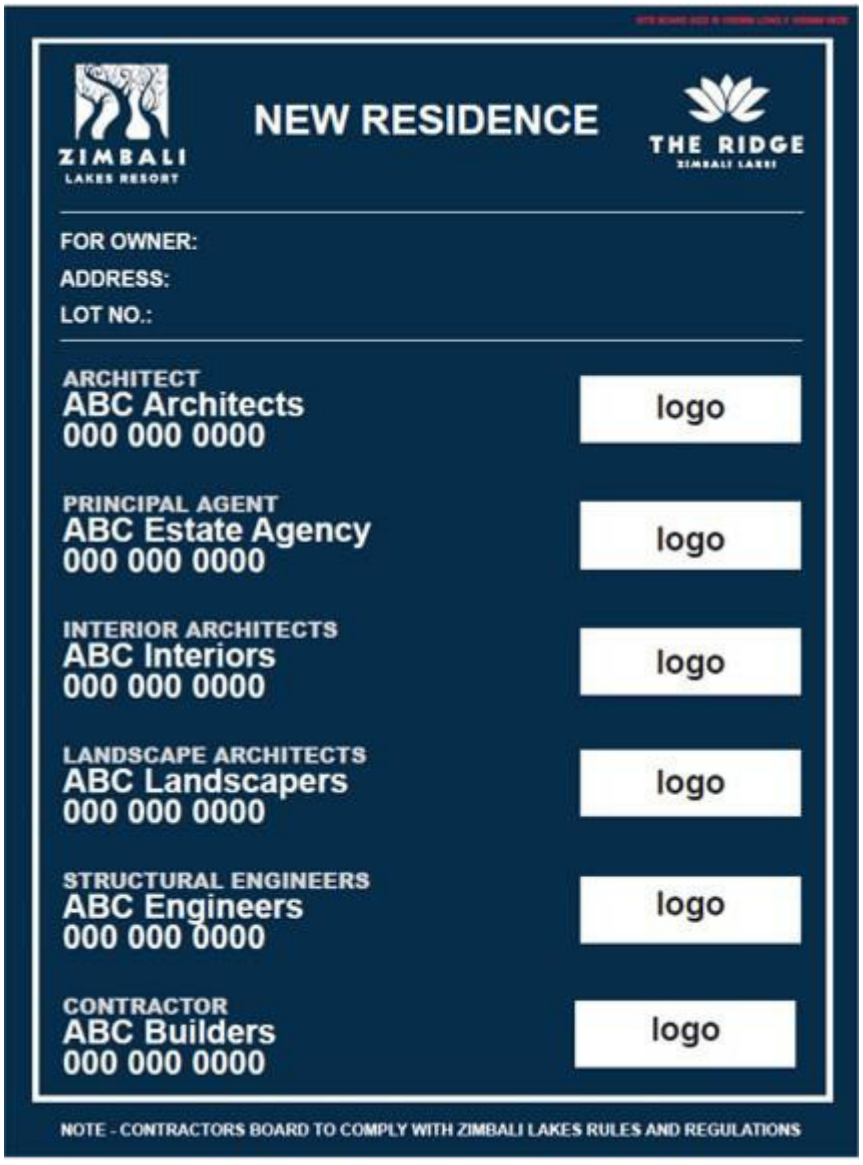
Header: (NEW RESIDENCE)
- Arial Bold
- White
- 135pts

Sub-header: (Owner details)
- Arial Bold
- White
- 70pts

Sub-header: (Contractor's headers)
- Arial Bold
- Pantone D1D3D4 (C=0, M=0, Y=0, K20%)
- 70pts

Contractors' details and numbers
- Arial
- White
- 110pts

Disclaimer:
- Arial Bold
- White
- 55pts



2.10 No Contractor shall be permitted to extend the surveyed area footprint indicated to him during the site-handover without ZLRMA approval. Regular inspections will be carried out during the building operations to ensure that there is no encroachment onto the surrounding areas. If any damage occurs to the natural vegetation, it is to be reported to the ZLRMA and repaired as soon as possible at the Contractor's expense and subject to penalties as set out in the ZLRMA Penalty Schedule "Annexure A".

3. PROTOCOL

The following items which pertain directly to building sites must be specifically noted:

3.1. Construction Deposit
A refundable construction deposit must be paid to the ZLRMA prior to commencement of construction. The deposit shall be refunded on completion of the project upon final inspection by the ZLRMA. Should there be any damaged to the ZLRMA property/infrastructure, ZLRMA shall utilise such deposit to rectify the same.
SR sites must pay a deposit of **R12 000**. PUD/MDR sites shall pay a deposit of **R18 000.**

3.2. Contractor Site Office
Should a site office be deemed necessary, then it must be located within the site boundary. The site office must be a prefabricated container and maintained throughout the duration of the build. Branding is not permitted.

3.3. Construction Period
All SR sites are expected to complete their developments within **18 months** from the date of site hand over unless otherwise agreed to by the ZLRMA. PUD/MDR site are expected to complete their developments within **24 months** from the date of site hand over unless otherwise agreed to by the ZLRMA. Refer to Penalty Schedule “Annexure A” for related build-by penalties.

3.4. Erosion Control
The contractor must install temporary erosion control methods considered necessary immediately upon the building site being cleared. All erosion control measures must be undertaken under the supervision of the ZLRMA. Sandbags and berms are to be placed where necessary to prevent erosion, particularly over weekends and holiday periods.

3.5. Litter Control
The contractor must control litter on the site. The Contractor is required to clear the site of litter and building scraps weekly. The ZLRMA may require the contractor to clear the site at any stage if, in their opinion, the site is untidy. Permanent/ad hoc rubbish pits shall not be permitted. All refuse must be removed from site to Ballito/Tongaat. No burning of litter or rubbish is permitted on site. Any litter spread outside the site must be removed immediately.

3.6. Construction Hours
Unless otherwise approved by the ZLRMA, construction work shall be limited to the time between **07h00 and 17h00**, Mondays to Fridays. Construction work shall not be allowed on Saturdays, Sundays, Public holidays and during builder’s year end break unless specifically agreed to by the ZLRMA. A person with a 24-hour contact number is to be nominated by the Contractor for any emergencies which may occur after hours.

3.7. Damage to Verges and Resort Infrastructure
The contractor must ensure that all vehicles use the roads with due care and consideration for passenger safety. Should any of the road edgings/verges; communications and electricity manholes; sewer connections; irrigation valves; water pipes; fire hydrants; any other services or trees on the property or verge be damaged by the said vehicles or persons under control of the Contractor, then the contractor shall be responsible for repairing such damage.

The maximum speed within the Resort is limited to 40km/h. Speed trapping shall be undertaken from time to time to calm traffic. Failure to take due care or to adhere to the speed restriction may result in a driver being penalised or banned from the development.

The Contractor indemnifies the ZLRMA against any claims for loss or damage, which may occur on the Development during the course of the contract.

3.8. Parking
Construction vehicles must not be parked in any area other than on the building site. Parking may

be permitted within demarcated footprints outside the site boundary. No excessive parking shall be permitted on roads. Parking on vegetation shall not be permitted. Vehicles must be parked with due consideration for users of the streets. Penalties for breaches shall be imposed as per the Penalty Schedule "Annexure A".

3.9. Storage of Construction Materials

All construction material must be stacked neatly behind the shade cloth at the site. Construction materials may not be stored on the verge.

3.10 Toilet Facilities

The Contractor must provide adequate portable toilet facilities, either water-borne (flushing) connected to the main sewer, or chemical, plus rubbish bins for construction workers during the construction period. SIZA Water, will on request, connect the sewer and place a temporary cap on the sewer until the development is completed, tested and approved by their inspector.

The location of such facilities must be placed to minimise offence to the owners of other units or sites at the Resort or adjacent developments. The toilets must be screened off within the site with green shade cloth. The toilets must be serviced regularly and as and when deemed necessary by the ZLRMA.

3.11 Staff Control

It is the responsibility of the Contractor to at all times maintain control of the staff employed on site and in this regard, staff is deemed to include all agents, suppliers and subcontractors and the following shall apply:

- All construction workers are expected to behave in a workmanlike manner. Behaviour must not disturb other residents or activities on the development. The ZLRMA shall have the right to control behaviour and noise generated by construction workers and to ban disruptive or disrespectful workers from the development.

- Construction workers are not permitted to walk on the Resort roads to and from the Gatehouse nor between sites. All construction workers must be transported via a construction vehicle.

- The Contractor must at all times maintain a register of staff employed on site (whether permanent or temporary) which may be inspected by the ZLRMA.

- Contractors are responsible for the conduct of all the sub-contractors on site. It is the main Contractor's responsibility to ensure that all sub-contractors are made aware of and abide by the Developers and Builder's Protocol.

3.12. No trees, shrubs or grasses may be removed, disturbed, or pruned without the full written permission of the ZLRMA. Any breach will be treated as serious and a penalty of **R1140.00 excl. VAT to R11 400.00 excl. VAT** per tree or branch, shrub or any other related offence will be imposed, according to the Department of Agriculture, Forestry and Fisheries (DAFF) guidelines. This amount may be reviewed by ZLRMA as and when deemed necessary.

3.13. Contractors must take care to avoid the introduction of any alien species to the site.

3.14. The Contractor must exercise special care with the storage, handling and transport of all materials which could adversely affect the environment on the Resort. Any spillage of any materials shall be rectified by the offending Contractor. A penalty shall be issued in accordance with the Penalty Schedule "Annexure A".

3.15. All construction related work will visually impact upon the environment. Each Contractor must, therefore, take care to reduce this impact and avoid the emotional outcry that an irresponsible development would generate.

3.16. Shade cloth must remain in place until the landscaper starts planting. The final planting of indigenous plants and shrubs as directed by ZLRMA's landscape architect is to blend into the

conservation theme of the Resort.

3.17. Landscaping in accordance with the approved landscapers plan must be completed within 2 months after the removal of the shade cloth.

4. A dedicated Health & Safety Officer for the duration of the project must be appointed to enforce all Health & Safety legislation applicable as required in terms of the Occupational Health & Safety Act (Act 85 of 1993) as amended. The Occupational Health and Safety file must be on site at all times and the ZLRMA may review the same from time to time.

5. SECURITY AND ACCESS CONTROL

5.1. All Contractors (and subcontractors) are required to be registered in accordance with the ZLRMA's policies and requirements. No access shall be permitted on site without this registration.

5.2. Subcontractors and suppliers shall only be given access to the site via the main Contractor and are bound to the same Protocol documents and the rules therein. All applications must be channelled via the main Contractor. All such contractors shall be required to wear ID cards (visual) at all times and be in possession of their access discs. All related Resort penalties will be for the main Contractor's account.

5.3. The Contractors / subcontractors / suppliers must comply with the security procedures as amended from time to time. These rules include the protocol in which all staff must be transported to and from site and may not walk on the Resort roads, Golf Course or Common Areas.

5.4. Vehicles using the internal road system shall be limited to a maximum of 7 ton [total GVM – Gross Vehicle Mass] on the Resort. All contractors shall be liable to pay a pro-rata levy of **R350** incl VAT per vehicle over the ton limit.

5.5. All suppliers of concrete deliveries will pay a pro-rata levy of **R55-00** per cubic meter. To this end all sub-contractors and suppliers of concrete and/or bricks are to supply ZLRMA with a monthly schedule of customer's name; address of delivery; contract/delivery invoice number; concrete volume/m³ and date of delivery. The roads were designed in terms of paving design and geometry to handle typical construction vehicles and furniture vehicles expected during construction and moving in.

To this end 5 rigid vehicles are identified as follows:

- Concrete Tuck – 26 tons (typically highest load expected)
- Steel reinforcement truck
- Brick Truck – rigid vehicle with no trailer
- Furniture removal vehicle
- Tour Bus – main roads only
- The kerbs and channel edged [inclined] will not tolerate heavy vehicles riding over them and off the road. Vehicles must be rigid and not longer than 10.5m.

5.6. The maximum height clearance of vehicles (including loads) using the roads shall be restricted to 4.8 metres. Vehicles are not to obstruct traffic when they park nor damage vegetation.

5.7 All new suppliers, other than those that the ZLRMA deem to be regular suppliers, shall be escorted to and from site by the Contractor's agent/foreman, who shall remain responsible for any contravention of the ZLRMA rules during the delivery process. Security must be notified of such deliveries prior to arrival at the entrance gate. These should be scheduled after the morning access of normal working staff so as not to congest the gates.

5.8 All Contractors will be issued with an individual disc or ID card, which may only be used by that person. Failure to do this is a breach of security.

5.9. All Contractors must only access and exit via the designated Gate (or alternative approved access) and all contraventions in this regard shall result in the suspension of the Contractors' access and the issuing of a penalty.

5.10. All Contractor's access shall be renewed to update the system every 6 months and a fee must be paid to renew the data base.

6. KWADUKUZA MUNICIPALITY BULDING INSPECTORATE

Compliance with the compulsory inspections as required by the KwaDukuza Municipality (KDM), as detailed below, are to be fully complied with:

6.1. Site Commencement and trenches/foundations inspection.

6.2. Open drainage inspection – to check for correct drainage materials, adequate plumbing falls etc.

6.3. Completion. This is conducted in line with the requirements of Section 14 of the NBR and Building Standards Act 103 of 1977.

6.4. The compulsory steps below, as extracted from the KDM circular dated 8 October 2019, are to be complied with: -

- Setting out inspections:

The applicant shall be required to submit a Surveyors Setting out Certificate together with a Setting out confirmation drawing, all this must be done by a Registered Land Surveyor. These will be required to be furnished to KDM upon completion of the project.

- Site Commencement/site establishment and foundation/trenches inspections.

Both will be combined as one stage. These are passed or failed according to the correctness of setting out; workmanship; provisions made for site ablution facilities; securing of property etc.

- Soil Poison Certificate

On completion of floor slabs a valid Soil Poison Certificate or a Structural Engineers Stability Report must be submitted to the KDM Building Inspectorate.

- Roof Truss Certificate

An A19-Roof Truss Certificate or a Structural Engineers Stability Report must be submitted to the KDM Building Inspectorate at the final stage of the project.

- Drainage

The appointed professional plumber will be required to submit over and above the current KwaDukuza Plumbers Compliance Certificate, a Plumbing Industry Registration Board (PIRB) Certificate-Plumbing Certificate of Compliance. Plumbers are there to ensure their registration with the respective Council.

These above processes may be amended as deemed necessary by the KwaDukuza Municipality, without prior consultation.

7. BREACH

7.1. In the event of the Contractor being in breach of any obligations in this Protocol, the ZLRMA shall be entitled to one or more of the following remedies:

- Give written notification to the Owner/Developer and Contractor to remedy the breach within a specified timeframe.
- Suspend the Contractor's access to the site until the breach/es have been remedied.
- Imposition of a penalty or other sanction as determined by the ZLRMA in accordance with the Penalty Schedule "Annexure A".
- The Owner/Developer is ultimately responsible for any breaches occurred on site.

7.2. Any new alterations or deviations made to the Zimbali Lakes | Design Review Committee (ZL | DRC) approved plans must be approved by ZL | DRC before being built.

7.3. The Architect/Owner is required to submit "As Built" drawings to ZL | DRC for recommendation as well as all compliance certificates before an occupation certificate may be issued by the relevant Municipality.

……. …….
SIGNED (Owner) DATE

Name: ……..

……. …….
SIGNED (Contractors' agent/foreman) DATE

Name: ……

Email: ……

Cell Number: ……

……. …….
ZLRMA duly authorised representative DATE

Name: ……

PENALTY SCHEDULE **Annexure A**

OFFENCE	1st **OFFENCE**	2nd **OFFENCE**	**REPEAT OFFENCE** per incident:
Speeding and/or dangerous/negligent driving	R500.00	R1000.00	Banned
Parking a Motor Vehicle on Vegetation / Gardens	R500.00	R1000.00	R1000.00
Parking on Roadway – causing obstruction	R500.00	R1000.00	R5000.00
Dangerous loads (people/goods)	R500.00	R1000.00	R5000.00
Spilling i.e., paints, oils, concrete etc. on roads and verges	R1000.00	R2000.00	R5000.00
Damage to trees/vegetation (per branch, tree, or shrub)	R250.00	R500.00	R5000.00
Littering	R 250.00	R 500.00	R1000.00
Working on site outside of specified working hours	R1000.00	R2000.00	R5000.00
Interfering with game / setting of snares	Banned + R1000.00	Banned + R2000.00	Banned + R5000.00
Possession of alcohol / drugs	Banned + R1000.00	Banned + R2000.00	Banned + R5000.00
Failure to use Toilets / washing in view of public	R1000.00	R2000.00	Banned
Damages to light poles	R500.00	R1000.00	R5000.00
Damage to services, paving etc	R500.00	R1000.00	R5000.00
Failure to secure site at the end of each working day	R500.00	R1000.00	R5000.00
No Toilet on site	R 500.00	R1000.00	R2000.00
No litter collection area on site	R500.00	R1000.00	R5000.00
Burning litter on site	R500.00	R1000.00	Banned
Storage of materials, dumping of sand and/or any other building materials on vacant sites or common property, verge/footpath without the express written permission of the owner and ZLRMA	R1000.00	R2000.00	R5000.00
Deviation from approved plans without the ZLRMA's approval	R5000.00 + Site suspension	R10 000 00 + Site suspension	R15 000.00 + Site suspension
Commence site levelling/building operations prior to the site being formally handed over	R5000.00 + Rectification	R20 000 00 + Rectification	Banned

Buildings not completed in 18 months for (SR sites) and 24 months for (MDR / PUD sites), the penalty will be: -

19-24 months: R5800.00/month
25-30 months: R8700.00/month
31-36 months: R11 600.00/month until the building is complete and final plans approved.

Failure to put up contractor signboard the penalty would be R1000.00 per week.

Gaining or attempting to gain access without the required security documents will be R2000.00 per person.

Compromising the security of the area by damaging, undermining, or storing material against perimeter security fences and/or kiosks will be R2000.00 per incident including the rectification of the damage.

ZIMBALI LAKES & GOLF COURSE ESTATE: EIA/4708 ENVIRONMENTAL MANAGEMENT PROGRAMME

ORIGINAL DOCUMENT TITLE:

Zimbali Lakes & Golf Course Estate EIA / 4708, Environmental Management Plan

ORIGINAL DOCUMENT PREPARED BY:

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Issue Date:	11 July 2008
Revision No.:	2
Project No.:	7996

ORIGINAL DOCUMENT REVISED BY:

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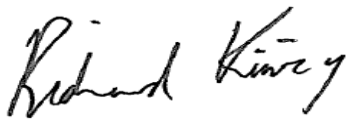

Dr. Richard Kinvig (***Pr. Sci. Nat.***)
Director / Ecologist

REVISED DOCUMENT TITLE:

Zimbali Lakes & Golf Course Estate EIA / 4708, Environmental Management Programme

Independence

Kinvig & Associates *follow a strict code of conduct which is guided by the* ***Section 12 & 13*** *of the National Environmental Management Act, Act 107 of 1998, which requires a specialist to be unbiased, independent and report on observations accurately.*

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Indemnity

The project deliverables, including the reported results, comments, recommendations and conclusions, are based on the author's professional knowledge as well as the latest available information.

The study is based on assessment techniques and investigations that are limited by time and budgetary constraints applicable to the type and level of survey undertaken.

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APPENDICES

ZIMBALI LAKES AND GOLF COURSE: ENVIRONMENTAL MANAGEMENT PROGRAMME

LIST OF TERMS USED

AUTHORITY	The ultimate authority responsible for approval of the EMPr together with ensuring compliance is the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA).
BULK SERVICES AND ASSOCIATED WORKS	As contained in the Engineering Report prepared by VelaVKE Engineers (SMEC), attached at Appendix 10a to the Draft EIA Report dated 12th June 2007.
CONSTRUCTION PHASE	The Construction Phase is comprised of two components: * Construction Phase (Developer) - Services and road construction, lakes construction, estate fencing, estate facilities and gatehouse construction. The Construction Phase is the period of commencement of physical disturbance to the land, excluding rehabilitation activities, such as re-vegetation and replacing of topsoil. This construction is the Developer's responsibility. * Construction Phase (Purchaser) - Site Construction: The site-specific disturbance of each individual site for the construction of private building development as well as the construction of the hotel and the golf estate, office park, sports amenity, community facility and resort villages.
CONSTRUCTION ZONE	The entire Construction Zone will be deemed to be the site approximately 300 ha in extent (as indicated on Drawing No. 2511/3 dated 20 November 2007), excluding the ecological corridors and wetlands with associated buffer zones and areas outside of the boundary of the lakes, and will contain construction machinery and related vehicles, construction staff, and other related equipment. All physical disturbances to the land will take place within the Construction Zone and will be restricted to the area demarcated by the Site Manager in association with the Environmental Consultant, for each phase of construction before construction commences. An individual site being developed by a Purchaser is also deemed to be a Construction Zone. All sites (Hotel Resort, Office Park, Free Standing Units, Medium Density Housing, Resort Villages, etc.) are to be fenced off with shade cloth during the entirety of the construction period and all construction work must occur within each site.

CONTRACTOR (DEVELOPER)	Persons/organisations contracted by the Developer to carry out parts of the servicing work for the planned development. The contractor must ensure that the provisions of this EMPr are implemented and adhered to and must request advice from the Environmental Consultant where considered appropriate. The Project Engineer is the first line of responsibility for the Contractor's (Developer) work.
CONTRACTOR (PURCHASER)	Persons / organisations contracted by the Purchaser to carry out site development work and building construction on a site. The contractor must ensure that the provisions of this EMPr are implemented and adhered to and must request advice from the Environmental Consultant where considered appropriate (at the Purchaser's cost). The work of the Contractor (Purchaser) falls under the Purchaser's responsibility in the first instance but ultimately under the jurisdiction of the Local Authority and DEDTEA. All sites must have an Environmental Control Officer (ECO) appointed by the Purchaser or Contractor (Purchaser) who must be directly responsible for implementation and compliance with the EMPr.
DEVELOPER	The Developer is the Zimbali Resort Developments Joint Venture who will construct the lakes, golf course, sports amenity and community facility, and installs the roads, bulk infrastructure and service reticulation to each individual property, estate fencing, gatehouses and ancillary features / structures.
DEVELOPMENT PHASE	The phase during which Zimbali Resort Developments Joint Venture is constructing the lakes, golf course, sports amenity and community facility, and installing roads, bulk infrastructure and service reticulation to the individual sites, estate fencing, gatehouses and ancillary features / structures.
ECOLOGICAL CORRIDORS	Ecological corridors promote and enable the flow of energy, water, nutrients, genetic material and plants and animals between each other. The natural watercourses, windbreaks containing portions of coastal forest and the wetland areas with associated buffer zones are considered to be the ecological corridors on site.
ENVIRONMENTAL CONSULTANT (DEVELOPER)	Person who will provide direction to the Project Engineer (Developer) during the Development Phase concerning the activities within the Construction Zone, and who will be responsible for conducting the environmental audit of the project during the Development Phase of the project according to the provisions of the Environmental Management Programme and Tongaat Hulett Developments' ISO 14001 requirements. The Environmental Consultant (Developer) will be the ECO for the Development Phase.
ENVIRONMENTAL CONTROL OFFICER (ECO)	The person, appointed by either the Purchaser or Contractor (Purchaser) who must be responsible for the implementation of the EMPr on all individual sites and who must audit all construction activity on such sites and provide such audit reports to the Developer and to the Authority.

EIA REPORT:	The Environmental Impact Assessment Report which identifies both the biophysical and social environmental impacts associated with the construction activities of the project, and which provides mitigation measures to minimise the impacts. Reference is made to the Draft EIR dated 12th June 2007, and the Final EIR dated 10th December 2007.
ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)	The EMPr is a detailed plan for the implementation of the mitigation measures to minimise the negative environmental impacts highlighted in the EIA Report. The EMPr contributes to the preparation of the contract documentation by developing clauses to which the contractor must adhere for the protection of the environment. The EMPr specifies how the construction of the project is to be carried out and includes the actions required for the Post-Construction Phase to ensure that all the environmental impacts are managed for the duration of the project's life-cycle.
ESTUARY	An estuary is typically the tidal mouth of a river; are often characterized by sedimentation or silt carried in from terrestrial runoff; and, is often associated with high rates of biological productivity. Estuaries are marine environments, whose pH, salinity, and water level are varying, depending on the river that feeds the estuary and the ocean from which it derives its salinity.
ESTUARY MANAGEMENT PLAN	An Estuary Management Plan provides a detailed plan for the implementation of the mitigation measures identified in the report prepared by Demetriades and Forbes dated May 2007.
HOME OWNERS ASSOCIATION (HOA)	The Home Owners Association, to which all Purchasers are obliged to become members, must be responsible for the maintenance of the internal roads, road verges, stormwater system and ecological corridors.
INTERNAL SERVICES	As contained in the Engineering Report attached at Appendix 10a to the Draft EIA Report dated 12 June 2008.
ISO 14001	The international standard for environmental management systems that seek to create a philosophy of environmental sensitivities at all levels of an organisation and assists those involved in the design, planning and implementation of new developments in recognising, understanding and implementing sustainable practises. ISO 14001 also provides for continual assessment and improvement of environmental performance.
LOCAL AUTHORITY	The KwaDukuza Local Municipality.
MANAGEMENT ASSOCIATIONS	The Zimbali Lakes Management Association is a formally structured organisation of representatives with the purpose of managing and operating the Hotel Resort, Lakes, Conservation Areas, Golf Course, Golf Estate, Driving Range, Sports Amenity, Office Park, Community Facility, beach parking, and services (such as private roads, sewer, electricity, solid waste management and stormwater), i.e. the entire Zimbali Lakes Development during the Operational Phase.
NEIGHBOURS	These are the directly adjacent neighbours.
OPERATIONAL PHASE	The period following the Construction Phase, during which the proposed development will be operational, and which will fall under the responsibility of

	the Zimbali Lakes Management Association, Local Authority and Authority (DEDTEA).
PRE-CONSTRUCTION PHASE (DEVELOPER)	The period prior to commencement of the Construction Phase for roads and services, during which various activities associated with the preparation for the Construction Phase of work done by the Contractor (Developer) will be undertaken.
PRE-CONSTRUCTION PHASE (PURCHASER)	The period prior to commencement of the Construction Phase for the individual site building development, during which various activities associated with the preparation for the Construction Phase of work done by the Contractor (Purchaser) will be undertaken.
PROJECT AREA	The area comprising the site that is indicated on the plan at **Appendix A** of the Record of Decision dated 27th February 2008, and with reference as Drawing No. 2511/3 dated 20th November 2007.
PROJECT ENGINEER (DEVELOPER)	Person / organisation appointed by the Developer to oversee the work of the Contractor (Developer).
PROJECT ENGINEER (PURCHASER)	An engineer that is appointed by the Purchaser to ensure and certify all works that are done on site that require such certification and where provided for in the EMPr in conjunction with the Purchaser's ECO.
PURCHASER	The person / company / organisation that has purchased a site from either the Developer or from another Purchaser. The sales agreement for the purchase will include this EMPR as a condition and the Purchaser will be obliged to comply with all of the requirements in the EMPr and must ensure that an ECO is appointed and must ensure that the Contractor (Purchaser) is provided with a copy of the EMPr and that such EMPr is made part of the contract between the two parties.
SITE MANAGER (DEVELOPER)	The person, representing the Contractor (Developer), responsible for all the Contractor's activities on the site including the construction staff and activities associated with the Construction Phase. The Site Manager (Developer) will liaise with the Project Engineer (Developer) to ensure that the project is conducted in accordance with the EMPr.
SUSTAINABLE DEVELOPMENT	Defined as balancing the fulfilment of human needs with the protection of the natural environment so that these needs can be met not only in the present, but in the indefinite future. The term was used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs." The field of sustainable development can be conceptually divided into four general dimensions: social, economic, environmental and institutional. The first three dimensions address key principles of sustainability, while the final dimension addresses key institutional policy and capacity issues.

SUSTAINABILITY INDICATORS	Indicators are pieces of information that reveal conditions, and over time, trends to identify whether goals and targets are being met, and in some cases, to predict change. An indicator's defining characteristic is that it quantifies and simplifies information in a manner that facilitates understating of environmental problems by both decision-makers and the public. The goal is to assess how project activities affect the direction of change in environmental performance, and to measure the magnitude of that change (**DEAT; 2004**). Sustainability indicators are therefore applied to the key components of the Zimbali Lakes Development to measure the achievement of sustainable development as defined for that key component.
SUSTAINABILITY PLANS	These are the specialist plans that describe the mitigation measures required to achieve sustainable development and the goal of each plan, e.g. wetland rehabilitation and management plan, estuarine rehabilitation and management plan, etc.
WETLAND	The areas formally delineated as wetland in terms of the Department of Water and Sanitation standards.
WETLAND BUFFER	The area directly adjacent to the wetland that has been designated as buffer.
ZIMBALI LAKES MANAGEMENT ASSOCIATION (ZLMA)	All owners within the development are obliged to become members of their respective component's Management Association, such as the Residential, Office Park, Resort and Golf Course Management Associations, and representatives from each Management Association are to be represented on the overarching Zimbali Lakes Management Association (ZLMA). Refer to the illustrative Organogram (**Figure 3**) in **section 6.2** of this EMPr.

1 VOLUME 0: BACKGROUND INFORMATION

1.1 Introduction to EMPr

The Draft EIA Report entitled "Zimbali Lakes and Golf Course", dated 12th June 2007, and the Final EIR dated 10th December 2007, provide a comprehensive assessment of the issues associated with the project. This Environmental Management Plan has been based on the environmental issues identified in the Draft and Final EIA Reports, and should be read in conjunction with the EIA Reports. This EMPr includes Tongaat Hulett Developments' ISO 14001 documentation and the conditions of the Record of Decision dated 27th February 2008 (attached at **Appendix A**).

The EMPr must be bound into all contract and sale documents, and must have contractual standing on the basis that its contents are an integral component of the environmental approval obtained in terms of the ECA (Environmental Conservation Act) and must be provided to Zimbali Resort Developments Joint Venture, the Project Engineer (Developer), Contractor (Developer), Purchaser, Contractor (Purchaser), Local Authority and Management Associations. The EMPr must be approved by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA – the Authority).

Zimbali Resort Developments Joint Venture (which is a joint venture between Zimbali Land Developments (Pty) Limited and Zimbali Hotels & Resorts South Africa (Pty) Limited) is the Primary Developer responsible for the following components of the project construction:

* Lakes;
* Golf course;
* Sports amenity;
* Community facility;
* Services, such as roads, sewer, electricity substations and stormwater;
* Golf course related bulk services for irrigation; and,
* Gate houses and security fences.

In addition, the Developer is responsible for the preparation of the EMPr, and the various Management Plans, and the initial rehabilitation/establishment work.

The Purchaser will be responsible for the onsite construction of buildings and ancillary elements within the following components of the project construction:

* Hotel resort;
* Golf estate;
* Office park; and,
* Resort villages.

Each individual property will be developed by the Contractor (Purchaser) who is responsible, through the Purchaser, for ensuring that the provisions of this EMPr are implemented and adhered to. The implementation and adherence will be monitored and audited by an ECO appointed by the Purchaser or Contractor (Purchaser).

The Zimbali Lakes Management Association will be responsible for the ongoing maintenance, management and monitoring of the various Sustainability Plans.

The Authority is ultimately responsible for ensuring compliance with this EMPr by all parties.

1.2 Layout of EMPr

The Environmental Management Plan identifies the three broad phases of development as:

* Pre-Construction Phase;
* Construction Phase, and;
* Operational Phase.

This EMPr has been structured to allow the various components to be referenced as "stand alone" volumes wherever possible.

1.3 Tongaat Hulett Developments' ISO 14001 Certification

Tongaat Hulett Developments is ISO 14001 certified, and this EMPr includes the relevant ISO 14001 Policies, Ground Rules, Standard Operating Procedures, and Templates.

The intent of an ISO 14001 environmental management system (EMS) is to develop a systematic management approach to the environmental concerns of the organisation. The standard expects commitment from the organisation, compliance with applicable legal requirements and continual improvement. The expected outcome of this approach is continual improvement in environmental management. An EMS provides an overall management approach for evaluating environmental risks associated with current operations, assessing how to avoid environmental impacts and risks, and developing new processes to improve environmental conditions.

Tongaat Hulett Developments' Health, Safety & Environmental Policy
Refer to the Tongaat Hulett Developments HSE Policy attached at **Appendix B**. The establishment of an Environmental Policy mandated by top management, and verified by them during Management Review, is the first requirement of the ISO 14001 Standard. The Policy sets the tone for the establishment of EMS principles. The Policy directs corporate goals, corporate responsibilities, and the establishment of corporate performance milestones against which the management system is assessed.

Aspects and Impacts Register (Record 4.3.1.1)
Environmental aspects are those elements of an organisation's activities, products, services or physical resources, which *may* have potentially beneficial or harmful effects on the environment. These may include discharges and emissions, raw materials and energy use, waste recycling, noise, dust, and visual pollution.

An environmental impact is the change that takes place from the occurrence of any given aspect. The relationship between the two is causal: an impact is the pollution that would result if an environmental aspect were not properly managed or controlled.

Aspects identification is important, since it is from this identification of the potential to impact the environment that the rest of the system is built. Identification of aspects is a continual process under any EMS system. The aspects identification process includes all past, present and future impacts that an organisation's activities have had, are having, and will have on the environment.

Ground Rules

Refer to the Tongaat Hulett Developments Ground Rules attached at **Appendix C**. The ground rules are based on Tongaat Hulett Developments' commitment towards sustainable development and the preservation of natural resources and human life. All contractors (Developers and Purchasers), the Environmental Consultant (Developer), and ECO are to be aware of these Ground Rules.

Standard Operating Procedures

Operational control over all activities significantly affecting the environment is a requirement of the ISO 14001 Standard. To assure this, operating methods and procedures must be written down for these activities. This provides consistency and clearly identifies what the different job responsibilities are.

This EMPr has referenced the various Standard Operating Procedures (SOPs) within the context of the mitigation measures provided in this EMPr. See list of SOPs in the list of Appendices.

1.4 Record of Decision on EIA

Refer to the Record of Decision (RoD) dated 27th February 2008 attached at **Appendix A** to this EMPr. The Specific Conditions of the RoD are detailed in **Table 1**, to indicate where in the EMPr the condition has been addressed.

1.5 Objectives of EMPr

The objectives of the EMPr are to:

- Ensure that development is in accordance with the EIA approval that was obtained in terms of Section 21 of the Environment Conservation Act of 1989;
- Ensure that the development process is structured and implemented in a manner that ensures that all necessary approvals (in terms of the EMPr requirements) are obtained from the Local Authority prior to development occurring onsite;
- Provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site;
- Guide and control the implementation of the findings and recommendations of the EIA Report conducted for the project;
- Ensure that the construction and operational phases of the project continue within the principles of Integrated Environmental Management; and,
- Provide guidance for the environmental auditing of the project.

1.6 Responsible Authority

The Project Engineer (Developer), Contractor (Developer) and Contractor (Purchaser) through the Purchaser, appointed to install services or to construct houses or other structures, must be responsible for ensuring that the provisions contained within the EMPr are implemented and adhered to, and must

be held accountable in terms of the EMPr. The Developer must appoint an Environmental Consultant (EC) and the Purchaser must appoint an Environmental Control Officer (ECO). The EC and ECO must audit and monitor construction work (per area of responsibility) within the development. All audit reports must be submitted to the DEDTEA, DWS, Local KwaDukuza Municipality and *E*KZNW, as shown in **Figure 1** and **2**.

The ultimate responsibility for compliance rests with the Authority (Department of Economic Affairs, Tourism and Environmental Affairs).

1.7 EMPr Compliance

The EMPr is a condition of the Record of Decision provided by the Authority in terms of Section 21 of the Environment Conservation Act. Refer to the Record of Decision (RoD) dated 27th February 2008, attached at **Appendix A.**

The specific conditions of the RoD have been included in the EMPr where relevant and are detailed in **Table 1** of **Appendix A.**

This EMPr is a key component of the management and implementation of the Zimbali Lakes and Golf Course Residential Development. Non-compliance with the EMPr will constitute non-compliance with the requirements of the Authority and therefore of the law.

The EMPr must be made binding on all contractors operating within the Project Area and must be included within the Contractual Clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance. The Project Engineer (Developer), Contractor (Developer) and Contractor (Purchaser) must ensure that the conditions of the Environmental Management Programme are adhered to. Should the Contractor (Developer or Purchaser) require clarity on any aspect of the EMPr the Contractor must contact the Environment Consultant for advice.

It must be noted that in terms of the Environment Conservation Act, and the National Environmental Management Act No 107 of 1998 (Section 28) those responsible for Environmental Damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and / or environmental damage, i.e. *The Polluter Pays Principle*.

The Authority is responsible for ensuring compliance with the EMPr.

1.8 Amendments to the EMPr

Any major issues not covered in the EMPr as submitted must be addressed as an addendum to the EMPr and submitted for approval prior to implementation. Any suggestions regarding changes to the EMPr must be submitted in writing to the environmental consultant for approval and a record of this must be kept (refer to **Appendix G,** Procedure 4.4.6.4**)**. DEDTEA must then approve / decline the amendment(s).

2 VOLUME 1: CONSTRUCTION EMPR (PRIMARY DEVELOPER)

2.1 Pre-Construction Activities: Primary Developer

The Developer must appoint a Project Engineer (Developer) and Contractor (Developer). The contractor must hire local labour, both male and female, where possible.

The Developer must appoint a suitably qualified Environmental Consultant (EC) to audit the implementation of the EMPr and Tongaat Hulett Developments' ISO 14001 requirements.

The Environmental Consultant must ensure that the construction team (at a management level) is adequately trained in the provisions of the EMPr and general environmental issues.

The Contractor (Developer) must identify a suitable site for the Construction Camp and storage areas for materials in consultation with the Project Engineer (Developer) and the Environmental Consultant prior to construction. These areas must be fenced off appropriately.

The Contractor (Developer) must demarcate, in conjunction with the Environmental Consultant and relevant specialists, areas of vegetation significance, ecological corridors (including the wetlands and wetland buffers), and the "no-go" boundary line for the lakes construction. Special emphasis is to be placed on the demarcation of the wetland and associated wetland buffer areas to ensure that these areas are clearly demarcated prior to the start of any construction activities on site.

Maintain / establish dense vegetative cover (including maintaining sugarcane) as far as possible within wetlands and adjacent buffer / riparian zones prior to construction activities commencing. Where vegetation cannot be maintained or established, suitable stormwater control measures must be constructed (such as silt fences, berms, etc.) outside the buffer zone and located to intercept runoff from the specific areas being excavated. The position of these temporary measures must be determined by the project engineers to minimise risk to the receiving streams and wetlands. This will assist in filtering sediments from the earthworks and landscaping runoff. (Refer to **section 3.1** and **Appendix Q**).

The Environmental Consultant must record the state of the environment prior to construction commencing and must ensure that all baseline environmental data is provided by the relevant specialists prior to construction commencing.

Stormwater drainage of the site must be ensured in the technical engineering design of the development. It is important that stormwater runoff is properly managed during construction to ensure no impacts downstream. Provision for this must be made in this Planning Phase by way of a Stormwater Management Plan and approved by the Developer and the Local Authority. The Stormwater Management Plan must ensure that the ultimate flow from the development does not result in any negative impacts on downstream properties or watercourses and must therefore ensure that stormwater is managed within the overall site as effectively as possible.

Reference must be made to the Engineering Report (Appendix 10a to the Draft EIA Report dated 12th June 2007) for details on Bulk Services and Associated Works, and internal Services.

The necessary permits from Amafa are required for the destruction of the sites of cultural significance as identified in the Archaeology Report (Appendix 10 of the Scoping Report), prior to the commencement of construction in the affected area.

The Contractor (Developer) must liaise, where necessary, with adjacent neighbours identified during the EIA phase, and provide them with reasonable advance notice of the nature, location and duration of the particular work concerned.

Notices of the proposed development must be placed in prominent positions to inform the general public of the proposed construction activities, expected interruption in road traffic movement, presence of construction vehicles, and planned interruptions to existing supply of services, such as electricity and water.

The Developer must have prepared the following Plans and obtained their approval by DWS, KwaDukuza Municipality and *E*KZNW (*Ezemvelo* KZN Wildlife), within the context of the overall EMPr, prior to construction commencing:

* Wetland Management and Rehabilitation Plan;
* Lake Monitoring and Management Plan;
* Estuarine Monitoring and Management Plan;
* Landscaping and Vegetation Rehabilitation Plan;
* Waste Management Plan in conjunction with EnviroServ;
* Stormwater Management Plan;
* Golf Course Management Plan;
* Flood Management Plan; and,
* Emergency Response Plan.

The Primary Developer must confirm that any development conditions from the Development Facilitation Act (DFA) Judgement have been addressed during the Planning Phase, prior to the Construction Phase commencing.

2.2 Conditions of Contract (Primary Developer)

2.2.1 Reporting Structure

The Organogram below illustrates the reporting structure and lines of communication during the Construction Phase between the Project Engineer (Developer), Contractor (Developer), Environmental Consultant (Developer), Contractor (Purchaser) and Environmental Control Officer (Purchaser).

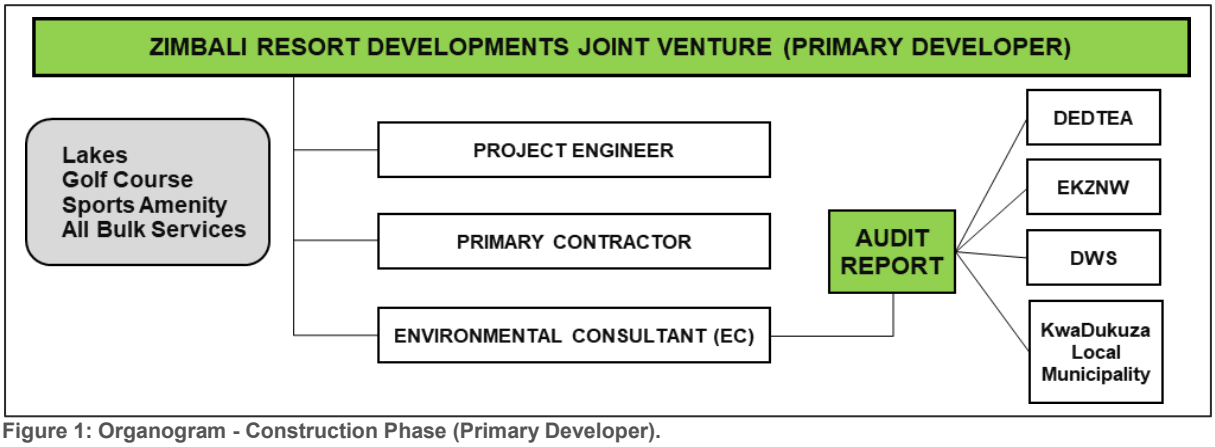

Figure 1: Organogram - Construction Phase (Primary Developer).

2.2.2 Zimbali Resort Developments Joint Venture (Primary Developer)

The Primary Developer is responsible for:

- Adherence to the RoD conditions as applicable (refer to **Appendix A**, Table 1);
- Construction of roads and services to individual sites and for construction of the lakes, golf course, sports amenity, all bulk services, gatehouses, and ultimate site fencing; and,
- Appointment of Environmental Consultant to implement and audit the EMPr.

2.2.3 The Project Engineer (Developer):

The Project Engineer (Developer) is responsible for ensuring that the Developer's responsibilities within the EMPr are implemented and adhered to (i.e. during the Construction Phase (Developer)).

The Project Engineer during the Construction Phase (Developer):

- Appointed by Zimbali Resort Developments Joint Venture for design of roads and services.
- Responsible for managing the Primary Contractors;
- Responsible for ensuring that Tongaat Hulett Developments' ISO and HSE reports are completed by the Primary Contractor as required and that all ISO and HSE documentation is in place at the site camp;
- Arranges information meetings for or consults with I&APs about the impending construction activities where necessary;
- Ensures that Zimbali Resort Developments Joint Ventures Requirements are provided for and adhered to;
- Maintains a register of complaints and queries by members of the public at the site office. This register is forwarded to the Environmental Consultant on a bi-monthly basis;
- Enforces the EMPr on site;
- Monitors implementation of the requirements of the EMPr;
- Assesses the Primary Contractor's (Developer) environmental performance in consultation with the Environmental Consultant; and,
- Documents in conjunction with the Contractor, the state of the site prior to construction activities commencing. This documentation must be in the form of photographs or video record.

2.2.4 Environmental Consultant

The Environmental Consultant (EC) during the Construction Phase (Developer):

- Undertakes site induction and staff training of the Project Engineer (Developer) and the Primary Contractor (Developer) at a management level about the requirements of the EMPr and holds a meeting with all primary suppliers and Contractors to discuss the EMPr prior to start of construction (Refer to Procedure 4.4.6.4 attached at **Appendix G**);
- Advises the Project Engineer (Developer) about the interpretation, implementation and enforcement of the Environmental Specification and other related environmental matters.
- Attends site meetings and addresses *ad hoc* queries as necessary;
- Monitors the Contractor's (Developer) compliance with the EMPr during the Construction Phase (Developer);
- Monitors, in a very general nature, the construction activities of the Contractor (Purchaser) where there is construction during the Construction Phase (Developer) and, where required, must report instances of non-compliance to the Authority and the Primary Developer;
- Undertakes environmental audits at least once a month (the frequency dependent upon the nature, extent and amount of work in progress during each particular month and on agreement with DEDTEA) on the effectiveness of the environmental specifications on the site as well as compliance with Tongaat Hulett Developments' ISO Requirements;
- Audit reports must be submitted to the Primary Developer. The EC must schedule audit dates and ensure that all necessary parties must be made aware of these dates and consult with DEDTEA compliance officer to ensure the officer can attend *ad hoc* audits;
- Report on the performance of the project during the Construction Phase (Developer), in terms of environmental compliance with the EMPr, to the Project Engineer (Developer), the Developer, DWS and KwaDukuza Local Municipalities, *E*KZNW and the Authority (DEDTEA).
- Provides technical advice relating to environmental issues to the Project Engineer (Developer); and,
- The EC is responsible for checking availability of the documents proving proof of raw material sourcing from the Primary Contractor.

2.2.5 Contractor (Developer)

The Contractor (Developer) is required to:

- Be appointed by Zimbali Resort Developments Joint Venture for construction of roads and services;
- Provide space and the location for the following ISO and HSE documentation and signage onsite (both at the site camp and where the work is being done):
    - Display of Tongaat Hulett Developments HSE Policy and Ground Rules (English and Zulu);
    - Display of Environmental awareness posters.
- Keep a hard copy of the EMPr on site;
- Keep files for the following:
    - Complaints Register;
    - Waste Disposal;
    - Emergency Response details;

- Training Records; and,
- Incident Reports.

* Be responsible for completing all the above records for submission to the Primary Developer (Zimbali Resort Developments Joint Venture);
* Must be able to produce all necessary documentation proving that all raw materials being used on site have been obtained in a sustainable manner (Refer to Procedure 4.4.6.5 – **Appendix H**). It is the Primary Contractor's responsibility to obtain this documentation from either the Sub-Contractor, Cartage Company or directly from the supplier of the material if necessary. No material must be used unless the responsible parties can provide the necessary permits or licences, and this documentation must be provided prior to material being brought onto site and must be included into any contractual agreement;
* Supply method statements for all activities requiring special attention as specified and / or requested by the Project Engineer (Developer) or Environmental Consultant during the duration of the Contract;
* Be fully conversant with the requirements of the EMPr;
* Comply with Zimbali Resort Developments Joint Venture's Requirements;
* Comply with requirements of the Environmental Consultant in terms of this EMPr;
* Ensure any sub-contractors / suppliers who are utilised within the context of the contract comply with the environmental requirements of the EMPr. The Contractor (Developer) must be held responsible for non-compliance on their behalf;
* Bear the costs of any damages / compensation resulting from non-adherence to the EMPr or written site instructions as per **section 2.2.8** below;
* Comply with all applicable legislation as per **section 2.2.6** below;
* Ensure that the Project Engineer (Developer) is timeously informed of any foreseeable activities that must require input from the Environmental Consultant; and,
* Conduct all activities in a manner that minimises disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.

2.2.6 Compliance with Applicable Laws

The supreme law of the land is "The Constitution of the Republic of South Africa", which states: "Every person must have the right to an environment which is not detrimental to his or her health or well-being". Laws applicable to protection of the environment in terms of Environmental Management (and relating to construction activities) include but are not restricted to:

* Atmospheric Pollution Prevention Act, No 45 of 1965;
* Explosives Act, No. 26 of 1956;
* Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, No 36 of 1947;
* Forest and Veld Conservation Act, Act No 13 of 1941;
* Hazardous Substances Act, No 15 of 1973;
* KwaZulu-Natal Heritage Act, No. 10 of 1997;
* KwaZulu-Natal Planning and Development Act No 5 of 1998 (re: soil conservation);
* KwaZulu-Natal Nature Conservation Management Act, No. 9 of 1997;
* Land Survey Act, No 9 of 1921;
* Machinery and Occupational Safety Act, No. 6 of 1983;
* Mines and Works Act, No. 27 of 1956;

- Minerals Act, No 50 of 1991;
- Mineral Development Draft Bill;
- National Environmental Management Act, No. 107 of 1998;
- National Environmental Management: Biodiversity Act, No. 10 of 2004;
- National Forests Act, No 84 of 1998;
- National Heritage Resources Act, No. 25 of 1999;
- National Water Act, No 36 of 1998;
- National Water Act (amendments);
- National Veld and Forest Fire Act, No 101 of 1998;
- Occupational Health and Safety Act, No 85 of 1993;
- Provincial and Local Government Ordinances and Bylaws;
- Soil Conservation Act, Act No 76 of 1969;
- Sub-division of Agricultural Land Act Repeal Act 64 of 1998 (re: soil conservation);
- Water Services Act No 108 of 1997; and,
- all regulations framed there under and amendments there to.

2.2.7 Compliance with Tongaat Hulett Developments' ISO 14001 Requirements

Tongaat Hulett Developments has implemented ISO 14001 as its formal Environmental Management System that governs all its activities and operations. In this regard there are several specific requirements that need to be adhered to, implemented and complied with by all parties.

The two (2) key documents are Tongaat Hulett Developments' HSE Policy and Ground Rules which are attached at **Appendix B** and **C** respectively. These documents provide the primary underlying policy and principle statements, vision and objectives that are used to guide all Tongaat Hulett Developments' operations and activities. These documents must be displayed onsite in both English and Zulu.

The following documents are also ISO 14001 requirements and must be maintained on site by the Primary Contractor (Developer):

- Complaints Register (**Appendix O**);
- Waste Disposal Register (**Appendix N**);
- Chemical Toilet Cleaning Register (to be sourced from Tongaat Hulett Developments); and,
- Incident and non-conformance Register (to be sourced from Tongaat Hulett Developments).

These registers must be filled out and forwarded to Zimbali Resort Developments Joint Venture on a monthly basis.

From a training perspective, the Environmental Consultant must be responsible for inducting and training of all contractor staff at a management level, which must include ensuring understanding of the EMPr requirements as well as on general environmental aspects and impacts. Records of on-site training must be kept.

Refer to section 5 of **Appendix G** "Procedure 4.4.6.4 SOP EMPr Monitoring".

2.2.8 Penalties for Non-Compliance

The Contractor (Developer) is deemed not to have complied with the EMPr if:

- Within the boundaries of the Project Area, during the Construction Phase (Developer), adjacent areas and haul / access roads there is evidence of contravention of clauses;
- If environmental damage ensues due to negligence;
- The Contractor (Developer) fails to comply with corrective or other instructions issued by the Local Authority, Authority, DWS, Project Engineer (Developer) or Environmental Consultant within a specified time; and,
- The Contractor (Developer) fails to respond adequately to complaints from the public.

Application of a penalty clause must apply for incidents of non-compliance. The penalty imposed must be per incident. Unless stated otherwise in the project specification, the penalties imposed per incident or violation must be:

Table 1: Non-compliance Violations and Penalties.

Incident / Violation	Penalty
Failure to demarcate the lake construction zone	R 50,000
Working outside lake construction zone	R 100,000
Failure to demarcate wetland buffer zones	R 50,000
Failure to demarcate working areas	R 50,000
Working outside of the demarcated area	R 50,000
Failure to strip topsoil with intact vegetation	R 50,000
Failure to stockpile topsoil correctly	R 10,000
Failure to stockpile materials in designated areas	R 10,000
Pollution of water bodies (including increased suspended solid loads)	R 100,000
Any unauthorised construction or related activities within wetland area	R 100,000
Failure to control stormwater runoff	R 50,000
Downstream erosion	R 50,000
Silting of stormwater systems	R 50,000
Failure to provide adequate sanitation	R 50,000
Unauthorised removal of woody vegetation	R 50,000
Failure to erect temporary fences where required	R 10,000
Failure to provide adequate waste disposal facilities and services	R 10,000
Poaching (fine per poached animal)	R 10,000
Nuisance to neighbours by Construction staff	R 10,000
Failure to reinstate disturbed areas within the specified time-frame	R 10,000
Failure to rehabilitate disturbed areas within the specified time-frame	R 10,000
Any other contravention of project specific specification	R 10,000
Any other contravention of particular (general) environmental specification	R 10,000

Such fines must be paid to the Primary Developer and must be used in rehabilitation and / or landscaping of the development.

2.3 Construction Activities: Developer

2.3.1 Construction Programme

The Construction Programme prepared by the Primary Developer must be provided to the Project Engineer, Primary Contractor and Environmental Consultant prior to construction commencing, and updated prior to each site meeting for the duration of the construction phase.

2.3.2 Construction Zone

- Movement of heavy-duty vehicles must be restricted to the construction zone as defined.
- The passage of vehicles not connected with work in progress must be restricted, to prevent unnecessary soil compaction and damage in the Construction Zone.
- The Contractor (Developer) must provide a sufficient number of potable ablution facilities. Such facilities, which must comply with local authority regulations, must be maintained in a clean and hygienic condition. Their use must be strictly enforced. They must be positioned in an appropriate place, e.g. away from watercourses and wetland buffer zones and general view, in consultation with the Project Engineer (Developer) and Environmental Consultant. The Contractor (Developer) must make his own arrangements for the necessary effluent removals and must bear all the costs in connection with such services. On removal of such conveniences, the sites thereof must be left in a clean, sanitary and tidy condition.
- The Contractor (Developer) is to ensure that sufficient potable water must be provided for consumption and watering of exposed surfaces to minimise dust (if deemed necessary). This should be arranged with the Local Municipality. The Contractor (Developer) must be solely responsible for the provision of all necessary connections, meters, pipes, storage and transport facilities. Care is to be taken to ensure that the area around the water supply does not turn muddy.
- The Contractor (Developer) must make arrangements with the relevant authority for obtaining electrical power and lighting requirements for the site. Lighting on site must take cognisance of neighbouring communities.

2.3.3 Construction Camp

- A formal Construction Camp will be required for the development of the service installation, estate fencing and facilities and road construction.
- The Construction Camp must be located in an appropriate location agreed to in advance by the Project Engineer (Developer) and the Environmental Consultant (during the Pre-Construction Phase). The area chosen for the camp should be level and away from watercourses.
- The Construction Camp must be appropriately fenced off. Checks for breaches in fencing should be done on a regular basis.
- One access route must be provided to the construction camp. This route must be clearly demarcated and maintained in a satisfactory condition.
- An impervious hardened surface should be constructed on which equipment or hazardous materials can be stored/handled/used. The surface should be graded to the middle so that any spillage can be collected and correctly disposed of.

- A lockable, mobile structure for storage should be erected on the impervious surface for the storage of materials, equipment, chemicals, etc.
- 24-hour security must be provided.
- The Contractor (Developer) must provide and maintain suitable and approved accommodation for the watchman, who must be the only person accommodated on site. Accommodation provided should be temporary and mobile.
- A copy of this EMPr must be kept in the Site offices.
- Tongaat Hulett Developments' HSE Policy and Ground Rules must be openly displayed where all staff can read them. These must be in English and Zulu.
- All the required ISO 14001 registers must be retained and maintained in the Site Offices. A Complaints Register must be maintained on site.

2.3.4 Storage areas

- The Contractor (Developer) must exercise special care with the storage, handling and transport of all materials that could adversely affect the environment. Such materials include chemicals, cement, lime, oil and fuel. The materials must be stored in watertight containers on a hardened and impervious surface graded to the middle.
- In locating stores consideration must be taken of the prevailing winds on site, topography, and water erosion impacts.
- The Project Engineer (Developer) after consultation with the Environmental Consultant must advise the Site Manager on the location of the stores.
- If pollution of hazardous substances occurs it must immediately be reported to the Environmental Consultant and dealt with in the prescribed manner suitable to the substance and disposed of in a permitted landfill.
- If pollution of any surface or groundwater occurs, it must immediately be reported to the Regional Representative of the Department of Water Affairs and Forestry, and appropriate mitigation measures employed.
- Security of storage areas is required.
- Documentation is required regarding the storage of hazardous materials on site, including Material Safety Data Sheets (MSDS's), *etc*.

2.3.5 Spoil Material

- Refer to the Materials Utilisation Plan attached as Appendix 10c to the Draft EIA Report dated 12 June 2007, which summarises the quantity of spoil material as:
  - 1 100 000 m³ of Cut to Fill for the Golf Course of which 300 000 m³ excess must be used to create the sites adjacent to the water body; and
  - The water body excavation is also 300 000 m³ and must be spoiled / filled at the business park.
- Movement of spoil is to maximise the existing cane road as haul road during construction.
- Maximisation of using eventual estate road routings for haul roads thus minimizing earthworks impact providing early compaction.
- Any operation in hauling along the M4 is contained to one operation with continuity as opposed to a series of operations that must be drawn-out with a longer impact.
- Balancing of cut and fill so that no spoiling of material outside of Zimbali is necessary

- Aside from the lake, crossings of wetlands at existing cane roads only.
- Additional uses of spoil material for plugging of drainage canals in the wetlands as part of rehabilitation management.

2.3.6 Stock pile areas

- Spoiling of unsuitable material must take place at an approved spoil site, sheltered from the wind, and must be shaped, trimmed and re-vegetated where necessary.
- Any trench excavation material that is classified by the Project Engineer (Developer) on site as unsuitable for use as backfill must be spoiled onsite at a spoil area designated by the Project Engineer (Developer) within the site boundaries
- The Contractor (Developer) will need to import suitable material on site. Such material must be stockpiled in a suitable area agreed upon by the engineer.
- The stockpiling of soil or any other materials must not be allowed near a watercourse or water body to prevent pollution or impediment to surface runoff, unless determined by the Project Engineer not to have any adverse impact on the watercourse / water body.
- The Contractor (Developer) must control the erosion of stockpiles. The Environmental Consultant must assess the appropriateness of methods employed.
- The Project Engineer (Developer) must determine the maximum stockpile height and the maximum period will be 6 months per phase of development.

2.3.7 Geotechnical Issues for consideration

- The recommendations contained in the Geotechnical Report (Appendix 4a & 4b of Draft EIA Report) dated 12th June 2007 must be adhered to.
- The Contractor (Developer) must ensure that imported soil materials are not contaminated.
- The primary contractor must be able to produce all necessary documentation proving that all raw materials being used on the site have been obtained in a sustainable manner, as detailed and stipulated in the Procedure 4.4.6.5 (attached at **Appendix H**).
- In certain cases, working space may be limited which may affect the method and / or type of plant used for excavations, as well as restrict the temporary storage space available for backfill material from excavations, *etc*.
- Unless otherwise permitted in writing by the Project Engineer (Developer), not more than 200 m of trench in any one place must be opened in advance of pipe laying operations.

2.3.8 Surface Runoff and Water Resources

- All stormwater run-off from road areas must be collected and piped to discharge into the township stormwater system in accordance with the Stormwater Management Plan (as described in Appendix 5a, 5b & 5c attached to the Draft EIA Report).
- Drainage must be controlled to ensure that runoff from the Project Area must not culminate in off-site pollution or cause water damage to properties further down from the site.
- Water reticulation to the properties including stormwater drainage should be an engineering and construction priority of each component of the development.
- No impediment to the natural water flow other than approved erosion control works or rehabilitation works is permitted.

- No liquid or solid waste must be allowed to be disposed of in any watercourses or water body. If this occurs, it must be reported to the Project Engineer (Developer) and Environmental Consultant and cleaning up thereof must be undertaken at the Contractors (Developer) expense.
- The water resources found on site must not be used for domestic purposes such as washing, bathing, drinking, etc.
- The provisions of the National Water Act 36 of 1998 must be complied with at all times.

2.3.9 Training of Construction Workers

- The Environmental Consultant for the Construction Phase (Developer) and the Contractor (Purchaser) or individual site ECO, for Construction Phase (Purchaser) must be responsible for the training of site staff prior.
- Environmental awareness training for construction staff, concerning the prevention of accidental spillage of hazardous chemicals; pollution and litter control, minimisation of disturbance to sensitive areas. The Contractor (Developer) and Contractor (Purchaser) must ensure that the training and capabilities of the site staff are adequate to carry out the designated tasks. This must be monitored by the Environmental Consultant and ESO's.
- Staff who are to operate equipment (such as excavators, loaders, etc.) must be adequately trained and sensitised to hazardous conditions associated with their work. No operator is permitted to operate critical items of mechanical equipment without having been certified competent by the relevant Contractor.
- Environmental Awareness Posters must be displayed on the construction site.
- All subcontractors must be made aware of the EMPr and their legal obligations.
- All key players on the site must be familiar with the requirements of the EMPr.

2.3.10 Supervision

- Adequate and constant supervision is required during construction.
- The contractor must keep a site diary detailing all incidences affecting the environment occurring on site.

2.3.11 Employment

- Local workforce should be favoured in job selection.

2.3.12 Site and Public Safety

- Provisions in the Occupational Health and Safety Act 85 of 1993 must be complied with at all times. Refer to **Appendix M**: Procedure 4.4.7. The responsibility for compliance with this Act lies with the Health, Safety & Environmental (HSE) Officer (Developer).
- The public must be given adequate notice in advance for noisy activities such as blasting, excavating, piling, etc.
- The Contractor (Developer) must control the access to the Project Area by the general public in collaboration with and as approved by the Project Engineer. No unauthorised persons may enter the construction site, including hawkers.

- The period that open excavations are left exposed must be kept to the minimum. Where such exposure is unavoidable, the excavation must be clearly demarcated and thoroughly protected against the passage of vehicles, pedestrians, or animals. Such protection must be effective during the day and night. No excavations may be left open over holiday periods.
- The Contractor (Developer) must erect the necessary signs, notices and barricades for the duration of the Contract to safeguard both the workers and the public.
- Suitable conspicuous warning signs in English and Zulu must be placed at all excavations or areas where safety could be compromised. These signs must be in accordance with the local by-laws.
- The Project Engineer (Developer) may use notices, signs and barricades, as well as advertisements only upon approval, and the Contractor (Developer) must be responsible for their supply, erection, maintenance and ultimate removal.
- SABS Standards and specifications governing dangerous processes such as welding and radiographic testing of welds must be strictly applied, to ensure proper protection of the public and workers.
- Workers have a right to refuse work in unsafe conditions.
- Cooking fires must only be allowed in designated areas.

2.3.13 Vegetation

- Vegetation such as sugar cane should be removed in a phased approach as it becomes necessary.
- Vegetation of significance such as plants of medicinal value that could be destroyed during construction activities should be removed and replanted at a later stage.
- Any construction activity within the ecological corridors must be done in accordance with the EMPr in such a manner as to ensure the maintenance of biological diversity in the area.
- Vegetation (except invasive alien vegetation) removed should be used where possible, e.g. as a brush mattress for erosion control or mulching.
- Initial rehabilitation of the wetland and buffer areas is the responsibility of the Primary Developer during the Construction Phase, and the ongoing rehabilitation and management is the responsibility of the Zimbali Lakes Management Association (Operational Phase).
- The Environmental Consultant (Developer) and Environmental Control Officer (Purchaser) [if applicable] must be responsible for implementing the “SOP for control and eradication of alien invasive vegetation” (**Appendix I**, Procedure 4.4.6.6), and for adhering to Section 9.2 of this EMPr during the Construction Phase.
- The Environmental Consultant (Developer) and Environmental Control Officer (Purchaser) [if applicable] must be responsible for implementing the Landscaping and Vegetation Rehabilitation Plan (refer to **section 9.3** of this EMPr) during the Construction Phase.

2.3.14 Fauna

- The construction activities will impact on the habitat of the bushbuck, adversely impacting on the likelihood of bushbuck in this area.
- No member of the construction team is permitted to harm or kill / poach any animal, bird or reptile.
- Pests must be discouraged by keeping the construction site free of litter.

- Refer to **section 9.4** of this EMPr regarding the Indigenous Vertebrate Management Plan - the Environmental Consultant must be responsible for monitoring the implementation of relevant mitigation measures described in this plan during the construction phase.

2.3.15 Soil Management and Erosion Control

- During grubbing and clearing the Contractor (Developer) must take care to remove as little topsoil as possible. All soil within 100 mm of the cleared surface level must be regarded as topsoil.
- Remove and separately stockpile any subsoil material that can be used for site backfilling.
- Topsoil must be stockpiled (and seeded) in areas within the site boundary and approved by the Project Engineer (Developer) in conjunction with the Environmental Consultant, for reuse and restoration.
- Avoid handling soil when wet as this may result in the loss of soil structure and compaction. Soils should not be handled during windy conditions, which may lead to the loss of soil through wind erosion.
- Soil erosion must be prevented at all times. Where evidence of soil erosion can and / or is taking place, this should be reported by the Contractor (Developer) to the Project Engineer (Developer) and Environmental Consultant.
- Unnecessary compaction of construction areas must be prevented, to reduce run off velocity.
- Remove vegetation, only as it becomes necessary for work to proceed. Prevent unnecessary removal of vegetation especially on steep areas.
- Steep slopes should be terraced, and horizontal areas vegetated.
- Areas that have become compacted must be deeply ripped to loosen soil.
- Appropriate mitigation during construction includes prompt rehabilitation of exposed soil areas with indigenous vegetation to ensure that soil is protected from the elements.
- Suitable erosion measures should be implemented in areas sensitive to erosion such as near water supply points, edges of slopes, etc. These measures could include the use of sand bags, hessian sheets, retention or replacement of vegetation.
- All the necessary precautions in terms of design and construction of earthworks, cuts and fills must be taken.

2.3.16 Pollution Control

2.3.16.1 General

- Should any incidence occur, the Contractor (Developer) must report it immediately to the Project Engineer (Developer) and Environmental Consultant and the Contractor (Developer) must be responsible for containing and cleaning up the spillage. Refer to **Appendix M**: Procedure 4.4.7.
- The Contractor (Developer) must ensure that correct mitigation of the pollution is undertaken.

2.3.16.2 Air pollution

- Excavations and other clearing activities should only be done during permissible weather conditions to avoid drifting of sand and dust into neighbouring areas.

- Soil and sand stockpiles must be located in sheltered areas not exposed to the wind.
- Retention of vegetation where possible must reduce dust travel.
- Exposed surfaces must be re-vegetated as soon as possible.
- Watering of exposed soil must be instituted and maintained on a continuous basis.
- The movement of construction and other vehicles should be strictly controlled to reduce the impact of increased air pollution. Adherence to speed limits must be enforced.
- Sensible and responsible use of equipment which generates dust.
- Adjacent roads are to be swept on a regular basis from up to 50 m from any point of ingress/egress to avoid dust or mud build up on the roads.

2.3.16.3 Noise pollution

- Noise levels must be kept within acceptable limits. All noise and sounds generated must adhere to SABS 0103 specifications for maximum allowable noise levels for residential areas. No pure tone sirens or hooters may be utilised except where required in terms of SABS standards or in emergencies.
- Noisy activities must be limited to between 06h00 to 18h00 to avoid disturbance of adjacent landowners.
- Noisy activities should not be allowed on weekends and public holidays unless specific arrangements have been made with the Developer and / or Association and provided that neighbours have been timeously notified.
- Vehicles and operating equipment must be regularly serviced.
- If piling is required, it will have to be carefully controlled and monitored to reduce noise level.
- Permission must be obtained from the relevant authorities if work is to proceed throughout the night.

2.3.16.4 Waste Generation and Litter

- The site must be kept in an orderly and clean condition. Solid waste must be collected on a daily basis from the construction zone and placed in a skip that must be emptied on a weekly basis, or as necessary. The waste must be disposed of at a permitted landfill site to the satisfaction of the Environmental Consultant.
- All builders' rubble must be removed from the site and suitably disposed of at a permitted disposal site unless considered suitable for infilling by the Project Engineer (Developer). A certificate indicating safe disposal is required to be forwarded to DEDTEA: Compliance, Monitoring and Enforcement.
- No burning of waste must be permitted on site.
- Flammable, toxic or poisonous materials and waste must be stored separately on an impervious hardened surface, graded to the middle, and disposed of at an approved landfill site.
- Littering by employees of the Contractors (Developer) and / or Sub-Contractors must not be allowed. The Environmental Consultant must monitor the work and construction-camp sites for cleanliness.

2.3.16.5 Water Pollution

- Pollution of surface and ground water, and soil through accidental spillage of hazardous chemicals and other substances must be avoided. Should spillage occur, the spillage must be reported to the Project Engineer (Developer) and Environmental Consultant and cleaned up immediately and any contaminated soil removed and disposed in a permitted landfill.
- Contaminated wastewater must be managed by the Site Manager to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp must be collected and removed from the site for appropriate disposal at a licensed commercial facility.
- The extent of dewatering measures in poorly drained areas must be finalised by the designer in discussion with the Project Engineer as deemed necessary during the construction programme.
- De-watering of vessels, tanks, etc is to take place in a controlled manner. No uncontrolled release of water must be allowed onto the site area. Water wastage must be kept to a minimum and where possible water must be recycled. Dewatering of contaminated water must only be done at an approved landfill site.

2.3.16.6 Concrete

- Concrete mixing must be restricted to certain areas within the construction zone and mixed in areas that are not to be vegetated in future. Cement mixing should take place on plastic liners to avoid contamination of soil.
- Cleaning of cement mixing, and handling equipment must only be done using proper cleaning trays.
- Ready mix concrete should be used where possible and where agreed upon by the Project Engineer (Developer) and should occur in accordance with the requirements of the Specifications.
- All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site to suitable landfill areas.
- All empty containers must be removed from the site for appropriate disposal at a licensed commercial facility.
- Any spillage, which may occur, must be investigated and reported to the Project Engineer (Developer) and Environmental Consultant, and immediate action must be taken by the Contractor to remove and clean up any spillage.
- Cement-contaminated water must not enter the water system as this disturbs the natural acidity of the soil and affects plant growth. Should a batch plant be established on site, wastewater must be contained in this area and arrangements for its removal must be made.

2.3.17 Blasting Activities

- The Contractor (Developer) must notify the community should blasting be required and must adhere to the requirements of the Explosives Act, 1956. Notices must be placed on site to inform the residents of blasting activities and the Contractor (Developer) must give all affected parties within a radius of 2 km notice of intent to execute any blasting work should blasting be required, with particular reference to the owners of the Crocodile Farm.

* Blasting must be done at appropriate times of the day to ensure that noise disturbance and vibrations are kept to a minimum. Blasting must be undertaken using appropriate techniques. By restricting blasting to early afternoon, (14:00) noise impacts must be reduced, as the inversion layer is usually eroded or sufficiently elevated to have a negligible effect in the reflection of sound.

2.3.18 Disruption of infrastructure and services

* The Contractor (Developer) must ensure minimal disturbance of roads, services and access.
* At all points of contact with the residents and the public, the Contractor (Developer) and his staff are requested to handle discussions and disputes with deliberate courtesy and understanding. All complaints and correspondence must be recorded and reported to the Project Engineer (Developer) and Environmental Consultant.
* Services such as electricity, telephones and water must not be disrupted without prior notice to the affected community and must be avoided where possible. Where disruption of services is unavoidable, this must be undertaken to the satisfaction of the Project Engineer (Developer).
* All vehicles used by the Contractor (Developer) on public streets or other routes used by any member of the public must comply with the relevant by-laws and regulations in the Province of KwaZulu-Natal. The Contractor (Developer) must avoid peak traffic times.
* All delivery vehicle drivers are to be issued with relevant maps to avoid disruption of adjacent residential routes.
* Construction of access points should be phased to prevent traffic congestion on the M4.

3 VOLUME 2: GOLF COURSE CONSTRUCTION MANAGEMENT PLAN (PRIMARY DEVELOPER)

3.1 Wetland Rehabilitation and Delineation

Referenced from the Report **(Appendix Q)** prepared by LRI dated May 2008, entitled: "Zimbali Lakes Wetland Rehabilitation Plan", section 6.1 and 6.2:

- Establish dense vegetative cover within the wetland and adjacent buffer/ riparian zone prior to golf course construction activities. This will assist in filtering sediments from the earthworks and landscaping runoff.
- The rehabilitation of the wetlands depends on the availability of the fill material from the excavation of the lakes in the floodplain. To avoid working with saturated soils, initiate the floodplain excavations and the wetland rehabilitation (including within the golf course component of the development) as soon as possible to take advantage of the current winter months.
- To spread potential sediment over time, adopt an incremental approach to landscaping.
- Promote re-vegetation of the wetlands as soon after landscaping as possible to further reduce the potential for sediment flow into the wetlands.
- Prioritise the rehabilitation of the wetlands within the development site close to the golf course.
- Demarcate the rehabilitated and re-vegetated wetland habitats and their adjacent buffer/ riparian zones clearly (preferably with fencing) and prohibit access to these areas.
- With regards to the installation of services (bulk water for irrigation) which encroach on the wetland buffers, adoption of the following management practices will assist in reducing potential impacts resulting from this temporary excavation:
    - Place excavated soil upslope of the trench.
    - Avoid long-term exposure of wetland adjacent-soils by means of incremental excavation.
    - Re-establish a vegetated buffer / riparian zone prior to further construction activities adjacent to the wetlands.

3.1.1.1 Recommendations referenced from Geoff Nichols:

- Many of the wetlands above the floodplain have been drained by herring bone drains. Block all agricultural drains, utilising a series of earthen plugs, to slow runoff and retain water in the system.
- Refer to the Wetland Rehabilitation Plan Report by LRI (**Appendix Q** section 4.4 and 4.5) which details the interventions to address the drains.
- Make a proper inventory of all the wetlands and seepage areas. These can be better managed by placing buildings and the golf course at a suitable distance away from them. Innovative use of these areas by the golf course designer would make this a functioning system that allows the natural processes to continue within the development.
- Ensure that no vehicles or earth moving machinery pushes or dumps soil or any other material into the natural wetlands. Make sure that any direct water runoff from dumped soil or other materials does not enter the wetlands as this will cause severe clouding of the water and physically cover the delicate aquatic fauna and flora with silt. Note that this point applies especially to the area to the south of the proposed new "lake impoundment": no spoil or berms

must be pushed into the *Phragmites australis* reed beds as these reeds act as a filtering buffer between the fresh and saltwater systems in the estuary.

* The provision of EPA (Environmental Protection Areas) for this course must include no-mow areas that are agreed to at the construction phase and are maintained as no-mow areas thereafter.

3.2 Buffer rehabilitation

3.2.1.1 Recommendations referenced from Geoff Nichols:

* A number of drainage lines traverse the site. Each drainage line must have a minimum of 10 m of natural / indigenous vegetation on either side of the stream or channel, to ensure improved ecosystem functioning. These newly developed ecosystems will provide habitat for fauna that will repopulate the area from source populations found in close proximity to the current site, namely the existing Zimbali development.
* Surround the wetlands on site with a 20 m buffer, replanted to indigenous vegetation that mimics the historic plant assemblages and ensures that the functioning of the wetland and buffer zone are improved.

3.3 Water resources

* Monitor water quality in the golf course impoundments.
* The plants in the artificial reedbed should be processed (harvested from time to time) into compost to recharge the soil with organic matter. This relatively simple cycle will help to reduce the discharge of nutrients into the natural systems and help prevent nutrification of the estuary as well as further reducing the amount of imported compost.

3.4 Habitat enhancement

3.4.1.1 Recommendations referenced from Geoff Nichols:

* To help patches of habitat survive and flourish under fragmented conditions, it is imperative to optimise the remaining systems that are probably currently functioning at less than 50% of their capacity. This can be done by inserting more opportunities for both faunal and floral species for feeding, breeding, nesting and resting in the urban environment.
    - Along the road reserves, especially the steep banks.
    - The wetland corridors with their buffers.
    - Over steep areas that cannot be utilized for development.
    - From the road corridors link back into the natural drainage lines that have been bisected.
* It is imperative that this system should continue to function as a filter and as a conduit for wildlife that needs to move through the landscape.

3.5 Soil and Wind Erosion

3.5.1.1 Recommendations referenced from Geoff Nichols:

- Ensure small berms are constructed to retain and slow runoff wherever this risk is evident. Leave as much of the natural and / or old sugarcane vegetation as possible to act as buffers for slowing down wind and water borne soil particles. This in turn will ensure there is no encroachment into the natural wetlands.
- Use a toothed or pad-foot roller to create pockets or imprints in the sandy soil: the pockets will slow water flow across and down slopes while the impressions created by the roller / imprinter will trap water and plant seeds in the hollows.
- Use a pad-foot roller or imprinter on all open areas where it can be dragged over the land. The vibrator mechanism can be switched off and one pass will be necessary as no compaction is needed.

3.6 Drainage interruption

3.6.1.1 Recommendations referenced from Geoff Nichols:

- Ensure that wherever earthworks are to be carried out in waterways, a zone of at least 20 m downstream of the workings is densely planted with naturally occurring pioneer plant species, for as long as possible prior to the commencement of the earthworks. This is done to help slow water velocity and reduce erosion potential. It would also be wise and useful to leave a silt trap upstream of any waterway crossings and make provision to allow for access with a large machine such as a back hoe to dig out silt or sludge from such traps as necessary.
- To mitigate further damage to the wetlands and waterways when digging out the silt, concrete line the base of all silt traps.
- On steep slopes when banks or roads are cut, ensure that the seepage lines that are intersected by the bank have a safe non-erodible surface for water to run off.
- If a fairway is to be built below seepage line outflows, ensure that proper drainage is put in place during construction. This ensures dry fairways after construction.
- Contour berms are needed to slow runoff and contain water.

3.7 Vegetation

3.7.1.1 Recommendations referenced from Geoff Nichols:

- Planting needs to be carefully planned and carried out in conjunction with the ECO, groundskeeper and landscape contractor.
- Some of the western slopes can be planted to drier plant species found in the area.
- Remove only what absolutely needs to be removed for construction of buildings, roads and the golf course.
- Leave both alien and natural species intact until the landscaping phase of the project. Exotic or alien vegetation is a minor problem in the building zones. Leave the vegetation till construction work is complete.

- Do as little clearing of land and vegetation as is possible or necessary when creating this golf course.
- The estuary inland of the bridge has been invaded by woody vegetation mainly due to the siltation of the river, due to poor management of the catchment inland of the estuary. Much of the woody vegetation in this floodplain is an introduced invasive plant the Brazilian Pepper – *Schinus terebinthifolius*. The other two dominant woody plant species, namely the Swamp Hibiscus – *Hibiscus tiliaceus* and the Puffball Tree – *Barringtonia racemosa*, are indigenous plants. The Brazilian Pepper has colonised the area that would have had natural mangrove populations before silting took place and will have to be removed from the estuary / floodplain edge as part of the Environmental Management Plan.

3.8 Soil preparation

- Investigate the use of sewage sludge "cake" to fertilise and compost the new fairways, which would provide a very cost-effective way of ensuring that the turf grass establishes rapidly.
- Investigate the establishment of a composting system.

3.9 Landscaping of Fairways, Greens & Rough

3.9.1.1 Recommendations referenced from Geoff Nichols:

- As part of the Integrated Pest Management strategy of the Golf Course, it is important to select grasses that have specific adaptations to the climate of this area and show resistance to the environmental stresses and pest problems they will be exposed to if used. This will aid in the reduction of the use of pesticides and fertilizers and the risk of contamination of the waterways by these chemicals.
- *Paspalum vaginatum* grass on the green, fairways and rough is recommended due to its ability to handle extremely high and low Ph soils and water.
- Avoid the application of fertiliser and pesticides and any other chemicals prior to or during rainfall events.
- Landscaping of fairways and rough to be done in association with the Landscaping Plan and recommended plants provided in the list attached as **Appendix S**.

3.10Golf cart paths: materials; location; wetland crossings

- Construction of golf cart paths are to adhere to the relevant mitigation measures provided in Volume 4: Construction EMPr (Purchaser) of this EMPr.
- Materials to be used for the construction of the paths are to be sourced from the site wherever possible, such as spoil material from cut and fill.
- Alternative materials should be investigated, such as the use of recycled plastic for "wooden" planks.
- Paths are to be located outside of wetlands and are to avoid steep slopes.
- Wetland crossings are to be designed to avoid impediment to water flow within the wetland, and preferably to be designed as bridges over the wetlands.

3.11 Fertilisers

3.11.1.1 Recommendations referenced from Geoff Nichols:

- Use slow release part-organic fertilisers to slow leeching process
- Application of fertiliser to *Paspalum vaginatum* grass which is able to survive on very little nutrients and has the capacity to store Nitrogen until it is needed:
  - The levels of Nitrogen applied per month vary between 8 and 12 kg of pure Nitrogen.
  - The levels of Potassium applied per month vary between 8 and 12 kg of pure Potassium
  - The levels of Phosphate applied per month are between 2 – 3 kg.
  - The N.P.K's are always mixed in the form of Calcium Nitrates, Potassium Nitrates, Super-phosphates etc.
- Application of fertilisers must avoid rainfall events such as thunderstorms, as far as possible to prevent leeching of nutrients.
- Establishment of *Paspalum vaginatum* grass on the fairways and rough is required for the protection of the soil by means of the grass binding the soil together preventing erosion, and the grass will also prevent leeching to a large degree in the case of a thunderstorm or heavy rains.

3.12 Pesticides

3.12.1.1 Recommendations referenced from Geoff Nichols:

- Use of environmentally friendly pesticides designed for the Turf Industry, such as Crop Guard.
- Ensure that the selection of pesticide does not kill earthworms – refer to section 7.3 and 7.4.
- Pesticides to be stored in a secure roofed building. Material Safety Data Sheets (MSDS) of the chemicals stored are to be displayed in the storage room.
- Transport of pesticides to the greens and fairways is to be undertaken in a secure manner to prevent accidental spillage.
- Avoid the application of pesticides during and prior to rainfall events such as thunderstorms, as far as possible to prevent leeching of nutrients.

3.13 Storage area for equipment and chemicals

- It is required that a storage area for equipment and chemicals is constructed.

3.14 Geotechnical Issues for Golf Course

- Refer to Section 8 of Appendix 4b attached to the Draft EIA Report dated 12 June 2007.

3.14.1 Excavatability

- Significant cuts and fills are planned for certain holes on the proposed golf course. Cut embankments of up to 9 m (Hole 1) and fill embankments of up 8.5 m high (Hole 3) are planned.

- Excavatibility within the sands and clayey sands of the Berea Formation, residual clays of the Vryheid Formation and Karoo-aged dolerite is generally not expected to be problematic but may become tedious within the deeper clayey sands and ferruginised subsoil horizons, should these occur at depth.
- Drilling of BH2, located in the vicinity of Hole 1 and 2, during the geotechnical investigation for the realignment of the M4 (Report Ref 12462), indicated that the sands of the Berea Formation at that position are in excess of 20 m and that the sands become medium dense at about 7 m depth. Dense clayey sands of the Berea Formation are considered easily rippable.
- Completely- to moderately weathered, very soft- to medium hard, thinly bedded shale and siltstone do occur in the areas around Hole 3 to 6. Excavatability and rippability of these rocks is generally not expected to be problematic. Cuts of an about 5 m height are proposed along Hole 3, which may, at depth, require the use of pneumatic tools and, in extreme cases, blasting.

3.14.2 Stability of cuts

- No slope instability problems were noted in the areas of the proposed golf course with the exception of the extreme lower portion of the fairway of Hole 1 directly above the existing sewer pipeline in the vicinity of IP2. All slopes steeper than 18° could potentially be unstable, especially during earthworks. South east facing valley slopes underlain by thinly bedded, shallow south east dipping shale, siltstone and dolerite have the potential for slope failure.
- Cut embankments in the loose aeolian and colluvial sands must be restricted to a slope batter of 1:2 (26°) whereas cuts in the more clayey sands and sandy clays of the Berea Formation may be layed back to a slope batter of no more than 1:1,75 (30°).
- On initial cutting, the Berea Formation sands will stand at steep batters, even vertically, due to the temporary cohesive strength imposed by the partially saturated conditions at natural moisture content. Such banks will however fail in time as they lose their temporary cohesive strength, either by drying out or by becoming stabilized. As such any excavation deeper than about 1.3 m should therefore be suitably battered back or shored to prevent the collapse of sides under adverse conditions.
- Cut embankments within the more competent shale and sandstone bedrock of the Vryheid Formation may be steepened to a batter of 1:1 (45°). Cut banks in excess of 2.5 m should be assessed by a Geotechnical Geologist as the time of cutting. Great care must be taken with regards to the orientation of the bedding within the shale, siltstone, sandstone and dolerite bedrock relative to the cut face as these may induce cut embankment failure if not retained.
- Cut embankments must be protected against surface erosion by the planting of vegetation immediately after construction. Surface water run-off should be diverted away from the crest of batters.

3.14.3 Fill Embankments

- Prior to the placement of any fills the natural ground must be stripped of all vegetation. Fills must be constructed in layers of 300 mm loose thickness and be compacted to at least 95% Mod AASHTO Density for the sand material and 93% for the more clayey material, prior to the placing of the next layer.
- Where the natural ground slope is steeper than about 1:6 (10°) fills must be constructed on surfaces benched into suitable in-situ material. The maximum slope angle of any fill must be

restricted to 1:2 (26°) and fills must be adequately grassed as soon as possible after construction.

3.14.4 Settlement of Fill Embankments

* Based on the cross-section provided, it is evident that fills up to a maximum height of 8.5 m above existing ground level are proposed. Some settlement of the fill material under its own weight and settlement of the underlying in-situ soils due to the loading of the fills will occur.
* As the fill material is likely to be derived from the in-situ soils occurring on site, comprising sands and clayey sands of the Berea Formation, it is likely that settlements will be relatively quick, the bulk of which will occur during construction. Total fill settlement is likely to be about 2% of the total fill thickness.

3.14.5 Drainage

* Due to the highly erodible nature of the subsoils in the area it is important to avoid concentrated run-off of surface water across unprotected areas. Where open channel drains are used, they should be lined.
* Deep cuttings could potentially expose perched water tables found above the less permeable very clayey sands and sandy clays of the Berea Formation or residual clays of the Vryheid Formation and dolerite. During periods of high rainfall, these zones might become saturated, which could result in water flowing from the exposed faces leading to potential slope instability. All cut faces should be adequately drained and surface water run-off should be diverted away from the crests of cut batters. This will reduce erosion, which could lead to localised slumps and instabilities.

3.14.6 Materials Suitability

* Laboratory test results have shown that the sands and clayey sands of the Berea Formation are generally classified as G10 quality material and are therefore considered suitable as bulk fill in road and pavement construction.
* In terms of TRH14 (of 1985) the highly weathered siltstone can be classified as G7 to G9 quality material and as such is considered suitable as bulk fill and lower selected layers in road and pavement construction.
* The Recent Aeolian sands and sands of the Berea Formation are highly susceptible to surface erosion by both wind and water and control of surface water run-off is important in this area.
* Earthworks are not expected to be problematic in the deep sands, clayey sands and sandy clays but the use of pneumatic tools in addition to soft ground ripping might be required in areas where more competent shale / siltstone and dolerite bedrock is intersected in deep cuts.
* The sands and clayey sands of the Berea Formation as well as the highly weathered siltstone are generally considered suitable as bulk fill material.
* Fertilizer tests conducted on representative subsoil samples from the golf course areas indicated that the soils generally are slightly alkaline to moderately acid in nature and that the concentrations of N, P, K, Ca, Al and Mg are generally very low to low.

3.14.7 Spoil Material

- The Project Engineers have prepared a Materials Utilisation Plan which is attached as Appendix 10c of the Draft EIA Report dated 12 June 2007, as updated.
- The Materials Utilisation Plan has been based on the following parameters to guide the movement of spoil during the construction phase:
  - Maximisation of the existing cane road as haul roads during construction.
  - Maximisation of using eventual estate road routings for haul roads thus minimizing earthworks impact providing early compaction.
  - Any operation in hauling along the M4 is contained to one operation with continuity as opposed to a series of operations that will be drawn-out with a longer impact.
  - Balancing of cut and fill so that no spoiling of material outside of Zimbali is necessary
  - Aside from the lake, crossings of wetlands at existing cane roads only.

3.15Irrigation system installation

- The entire irrigation system infrastructure, such as pipes and sprinklers, is to be installed prior to planting of vegetation, and after the bulk earth works and shaping has taken place.
- A record of the location of all underground pipes and sprinklers is to be kept for future maintenance purposes.

3.16Stormwater Control

Reference is made to the report prepared by the Project Engineers Vela VKE, entitled: "Zimbali Lakes Golf Course Stormwater Management Plan for Golf Course Construction Phase Policy, Regulations and Guidelines", dated May 2007, Appendix 5c[1] attached the Draft EIA Report dated 12 June 2007.

3.16.1 Stormwater Management Policy

The steep slopes and soil profiles at most sections around the proposed golf course require very careful management during and after construction. Detailed plans to control and prevent erosion by surface water and groundwater must be agreed prior to the commencement of any works, including site clearance, on any section of the course. The following rules are to be observed by all[2]:

- Prevent the concentration of stormwater runoff both spatially and in time wherever possible. Encourage the infiltration of stormwater, but checks must be made to ensure that there is no ex-filtration at a lower point that leads to erosion of slopes.
- Carry out the removal of vegetation cover with care and attention to the effect, whether temporary or long term, what this removal will have on erosion potential.
- Take precautions at all times on building sites to contain soil erosion and prevent any eroded material from being removed from the site.
- Programme the landscaping and re-vegetation of areas not covered by buildings or paving to proceed immediately once the building works have been completed, or as soon as work has

[1]This plan is intended to be used as a guide during the construction and establishment of the golf course to control stormwater and minimise damage due rain water runoff.
The technical report entitled "Zimbali Lakes Stormwater Systems Analysis" contains technical information on the performance of the major stormwater systems in Zimbali Lakes under 1 in 100-year flood conditions. Where necessary, reference should be made to the technical report for information on 100-year flow rates at specific places within the stormwater system where it affects, or is affected by, the golf course.
[2]Where the construction of the golf course modifies the major stormwater systems, the technical report must be updated with the relevant information.

reached a stage where newly established ground cover will not be at risk from on-going construction works.

* Construct stormwater control systems, such as swales and detention ponds before any construction commences on the site. As construction progresses, monitor and adjust the stormwater control measures to ensure complete erosion control at all times.
* Keep unprotected earthworks on sites to an absolute minimum. Where embankments have to be formed, the work may not be undertaken during adverse weather conditions and stabilisation and erosion control measures must be implemented immediately on completion of the earthworks.
* Stormwater must not be allowed to pond in close proximity to building foundations or at the edge of embankments, or flow across the open face of any unprotected excavation.
* Prior to any physical work proceeding on any hole, or inter-leading works between holes, submit stormwater control plans detailing the proposed stormwater control measures for that hole or section to the Project Manager and / or Resident Engineer for his/her approval. No work is to be undertaken without an approved Sectional Stormwater Control Plan (SSCP).
* SSCPs must describe what control measures are to be implemented before and during the construction of the golf course section, as well as the final stormwater control measures required after construction is completed. Plans must indicate who is responsible for the design of the control measures and the person on site who will be responsible for the implementation of the control measures.
* The SSCP must demonstrate that all the applicable provisions, regulations and guidelines contained in this Stormwater Management Plan have been taken into account.
* In the event of a failure to adequately implement the approved SSCP, the contractor must be responsible for making good all consequential environmental damage at his own cost, unless otherwise provided for in the contract documentation.
* The owner / developer should ensure that all members of the professional team and the contractors are competent to undertake the work and are adequately insured for the incumbent risks attached to work of this nature.

3.16.2 Critical Aspects During Construction

* Rainfall in this area has been recorded for many years and has provided a good record of daily rainfall. Local short-term weather forecasting will provide useful information on the probability of rain, its intensity and duration. The contractor must access the latest available data and take it into account in the programming of the works.
* Prepare in advance for probable rainfall during construction.
* Maintain adequate ground cover or erosion protection at all places and at all times to negate the erosive forces of wind, water and all forms of traffic.
* Prevent concentration of stormwater flow at any point where the ground is susceptible to erosion.
* Reduce stormwater flows as much as possible by the effective use of attenuation facilities, such as detention dams.
* Do not increase the rate of stormwater flow above that which the watercourse can safely accommodate.
* Ensure that all necessary stormwater control works are constructed as early as possible in a safe and aesthetic manner in line with the overall development theme for the golf course.

- Prevent pollution of waterways and water features by suspended solids and dissolved solids in stormwater discharges
- Contain soil erosion, induced by wind and water forces by constructing protective works to trap sediment at appropriate locations.
- Avoid situations where natural or artificial slopes may become saturated and unstable during storms or as a result of groundwater seepage.

3.16.3 Guidelines for Design & Construction of Stormwater Runoff Control

- Align infiltration trenches and flow-spreaders along the contours such that any spillage during major storms results in sheet overland flow. The design must be such that no instability occurs in the downstream slope
- Roads and pathways must not deflect or concentrate runoff along a particular path that is not a natural water course before adequate steps are taken to ensure the new watercourse has adequate hydraulic capacity and is structurally stable at the design flow.
- Design and construct roads and pathways to accommodate cross and parallel flows without precipitating erosion at the soil-structure interface, or elsewhere in the system, due to over-concentration of flow to a point where the capacity and stability of the receiving watercourse is negatively affected.
- The major and minor flow paths of the stormwater must be adequately protected against erosion and must be sufficiently rough to retard the runoff to pre-development, or less, flow rates.
- Where the construction of a building causes a change in the natural flora of the site that might result in soil erosion, eliminate the risk of soil erosion by stormwater by the provision of approved artificial soil stabilisation devices, or alternative flora suited to the changed conditions on the site.
- Design any parking area, yard or other paved area to attenuate stormwater runoff from a major storm by providing on average 8 mm of depression storage.
- Any area described above must discharge rainwater flowing over, or falling onto its surface, in a controlled manner either overland as sheet flow, or into a detention facility, or infiltration gallery suitably sized to accommodate the minor storm runoff.
- The sufficiency and effectiveness of on-site detention and retention storage to meet stormwater attenuation requirements within the minor and major stormwater systems is the responsibility of the property owner.
- Detention ponds must be maintained in good condition by the owner and must be integrated with the landscape.
- Retention ponds must be maintained in good condition by the owner and must not be permitted to become a public health hazard or nuisance.
- ZLMA must have the right to inspect any stormwater drainage control facility at any time and issue instructions for repair and maintenance works deemed to be necessary, which instructions must be carried out within the prescribed time period.
- Any construction providing for the subsurface disposal of stormwater should be designed to ensure that such disposal does not cause slope instability or areas of concentrated saturation or inundation.
- Integrate infiltration structures into the terrain so as to be unobtrusive and in keeping with the natural surroundings.

- Construct lined and unlined channels to convey stormwater to a natural watercourse, or other stormwater infrastructure forming part of the stormwater system, where deemed necessary and unavoidable, provided there is sufficient capacity in the downstream receiving conduit.
- Channels must be constructed with rough artificial surfaces, or lined with suitable, hardy vegetation, to be non-erodible and to provide maximum possible energy dissipation to the flow.
- Take measures to dissipate flow energy wherever concentrated stormwater flow is discharged down an embankment or erodible slope and the resulting supercritical flow poses a significant risk to the stability of the waterway.
- Provide attenuation structures at the head of the energy dissipating structure if possible.
- Provide a means of dissipating energy at the outfall of any drop structure to ensure stormwater flow is returned to a safe sub-critical state, or to disperse the flow.
- Retard stormwater flow wherever possible through the use of surface roughening or other flow restricting devices, provided these are designed and built to avoid blockages that could result in environmental and structural damage.
- All such constructions must be regularly maintained by the owner and may be inspected at any time by ZLMA.
- The principle of very shallow overland flow should apply to roadways where possible and roads should be designed and graded to avoid concentration of flow along and off the road.
- Where flow concentration is unavoidable, take measures to incorporate the road into the major stormwater system, with the provision of detention storage facilities at suitable points.
- Design inlet structures at culverts to ensure that the capacity of the culvert does not exceed the pre-development stormwater flow at that point and detention storage should be provided on the road and / or upstream of the stormwater culvert.
- Design outlet structures at road culverts as energy dissipaters and the downstream channel should be adequately protected against soil erosion.

3.16.4 Stormwater Erosion & Pollution Control

- Ensure that no materials, fluids or substances are allowed to enter the stormwater system that could have a detrimental effect on the flora, fauna and aquatic life in the water courses, wetlands and dams.
- Regularly monitor sites within the catchments where the golf course is being constructed.
- Where the storage of any substances that could be regarded as hazardous in terms of water pollution, the contractor must take measures to ensure spillages of the substance(s) can be adequately contained to prevent contamination of the water resources.
- No stormwater, wash water, or wastewater may be directed towards any permanent water body or wetland without the installation of a suitable filtration system to prevent pollution, including silt, from entering such water body.
- Inspect individual sections in the golf course on a regular basis to determine the effectiveness of these stormwater management policies and control measures.
- Amend SSCPs as and when necessary to meet the objectives of this Stormwater Management Plan.
- Undertake any repair, maintenance and improvement works required on the stormwater system where deficiencies are found.

3.16.5 Safety

- No habitable buildings are to be located below the 100-year flood line.
- All risk of inundation by flood water during construction is carried by the contractor, who should be aware of and the position of the 100-year flood lines for the Tongati River and Begota Stream.
- No flood water may be diverted or concentrated such that a risk of flooding or inundation of any section of the work, property or building is increased or created.
- The diversion or concentration of stormwater, whether on the surface or underground, must not increase the risk of structural damage to any section of the works.
- The above includes the undermining of structures due to erosion of soil due to floodwater.

3.16.6 Implementation Procedures

- Site survey and investigations are to provide sufficient detail to enable the design of the stormwater system to be completed with sufficient detail to meet the requirements of this guideline.
- Design team to take into account the stormwater management requirements contained in this document and must clearly indicate on all plans and in any contract document where and how measures have been provided in the design to ensure the stormwater management requirements are implemented.
- Obtain an approved SSCP for each section of the golf course before commencing construction on that section.
- The contractor must ensure that all construction methods adopted on site do not cause, or precipitate soil erosion and that adequate steps are taken to ensure that the requirements of this Stormwater Management Plan and relevant SSCPs are met before, during and after construction.
- The designated responsible person on site, as indicated in the SSCP (usually the contractor), must ensure that no construction work takes place before the stormwater control measures are in place.
- On completion of the works, the design engineer must inspect the works for compliance with the stormwater management requirements, prior to the issuing of a Certificate of Completion.
- After construction, periodic inspections during the maintenance period must be undertaken to ensure the stormwater system is functioning correctly. Provision must be made for minor modifications and repairs during this period.

4 VOLUME 3: WATER BODY CONSTRUCTION MANAGEMENT PLAN (PRIMARY DEVELOPER)

4.1 General

Reference is made to the Report prepared by Vela VKE dated April 2008, entitled: "Zimbali Lake Monitoring and Management Plan" for the mitigation measures for the monitoring and management of the lakes to ensure the required water quality is maintained in the lakes, and includes the preliminary design philosophy:

- The Lakes are constructed as two relatively shallow off-river dams on the banks of the Tongati River and are critical features in the Zimbali Lakes Development.
- Reference must be made to the report on the Zimbali Lakes design for general details on water elevations, capacities etc. (Appendix 9 in the Draft EIR dated 12th June 2008)
- A schematic of the Lakes and water resources system is given in the Figure attached as **Appendix T** to this EMPr.

4.2 Sequence of lakes construction

- Priority is the removal of the road causeway, river diversion works, irrigation pump station and pumped recirculation system.
- The earthworks require about 300 000 cubic metres of excavation, transport and placement of saturated sediment by special equipment by a contractor experienced in this type of excavation.
- A Method Statement is required to be prepared by the Contractor (Primary Developer) for the Lake Excavation, which must be approved by the Project Engineers in association with the Environmental Consultant.
- Outlet controls and other structures must be built as early as possible to reduce flood damage risks.
- Operations must be coordinated to take best advantage of the dry winter season between May and October.

4.3 Construction of Protection Works

- The Project Engineer must design the details of the lakes protection works to take into account the use of soft engineering methods, such as the use of indigenous planting to stabilise earthworks and screen structures.
- Hard engineering solutions must be designed to blend in with the natural environment wherever possible.
- The Construction Activities (Developer) described in **section 2** (**Volume 1**) must be applicable to the construction of the lakes.

4.4 Description of water resources system for construction purposes

4.4.1 Lower Lake

- The lower lake (A) will hold approximately 100 000 cubic metres of water at its normal level, but the water level can rise with the water level in the estuary when the mouth of the Tongati

River is closed. Therefore, water can be expected to flow into and out of the lower lake due to the rise and fall in the water level of the estuary.

* A pump must be located at the eastern end of the lake to circulate the water in the lower lake, or to pump the water to the wetland filter / buffer at the head of the upper lake.
* In addition to water from the estuary, the lower lake can also receive water from the upper lake, by way of a cascading spillway next to the No. 4 green, and from stormwater runoff and groundwater seepage from the north bank.

4.4.2 Upper Lake

* The upper lake (B) will hold approximately 120 000 cubic metres of water at is normal level, which is the level of the spillway into the lower lake.
* A pump must be located near the spillway at the 4th green to circulate the water in the upper lake through the wetland filter/buffer at the head of the upper lake.
* An outlet sluice gate and bottom outlet valve and pipeline will be provided through the land separating the upper lake from the Tongati River, so that should the need arise, water from the upper lake can be released directly to the river, instead of flowing through the lower lake.

4.4.3 Irrigation Transfer Dam

* The irrigation transfer dam (DAM 1) is to be located some distance up the Begota Stream, where the water for the Zimbali Golf Course is to be abstracted. This dam holds approximately 20 000 cubic metres of water flowing from the Begota catchment and the Fraser's wastewater treatment works and water pumped from the Tongati River.
* A pump located at this transfer dam will pump water to the various irrigation systems and to the main irrigation holding dam (DAM 2) located above the contractor's entrance.
* Spillages from the transfer dam will flow into the upper lake through the wetland filter / buffer system at the head of the lake.

4.4.4 Tongati Nutrient Removal via Wetlands

* The area in the Tongati River between the N2 and the old causeway is to act as a nutrient removal zone.
* The surface of the river bed area must to be lowered by removing sediment that had built up over the years.
* The alien vegetation and defined channels must be removed so that the full extent of the river bed can be more easily maintained as a shallow wetland nutrient filter and a buffer to any problematic water arriving from upstream before it enters the main body of the estuary.

4.4.5 Tongati River Irrigation Abstraction Point

* The location of the abstraction point for irrigation must be confirmed with the estuarine specialist and project engineers.
* It is proposed that the pump station is to be located on the north bank of the Tongati River above the old causeway site.

* Water in excess of the ecological reserve flow (determined by DWS as a flow rate in the river that varies on a seasonal basis) must be pumped from here to the irrigation transfer dam, within the abstraction limits set by the water license (note: currently with DWS for approval).

4.4.6 Tongati Estuary

* The estuary (E) must be the final receiver of water from the Tongati River and the upper lake B before the water is discharged to the sea.
* Under breached conditions and during the rebuilding of the sand bar, sea water can enter the estuary during high tides and sea surges.
* While not expected to be a problem, salinity levels in the lower lake could therefore at times be higher than the normal river flows entering the lakes.

4.5 Water quality monitoring points required

Water quality monitoring points must be established at six locations, as indicated in the Figure attached at **Appendix T.**

* MP1 – Tongati River inflow to NRWL
* MP2 – Main abstraction pump station
* MP3 – Begota Stream inflow to Dam 1
* MP4 – Lake B recirculation pump suction
* MP5 – Lake A recirculation pump suction
* MP6 – Estuary near M4 bridge.

Some of these must be fitted with transducers that provide continuous monitoring of water levels and selected water quality parameters to the pump stations and main control room.

4.6 Lakes Water Transfer System

4.6.1 Water Sources

* Water must be supplied to Lake B by spillages from Dam 1, or directly from main pump station on the Tongati River, which also pumps water directly to Dam 1.
* Water must be supplied to Lake A either by spillage from Lake B or by periodic inflows from the estuary.
* When Lake B is full, water entering the top of the lake flows into Lake A over the aerating cascade next to the 2nd Green.
* Pump Stations A and B both houses 4 number high-volume low-head pumps of total capacity 440 m^3 / hr (10 ml / day). This allow from 2.5% up to 10% of the water in the respective lakes be turned over each day, depending on requirements.

4.6.2 Open System

4.6.2.1 Estuary Open

* Pumps A must discharge to the Tongati River through a 300 mm diameter pipeline when valves V1 & V3 are closed. This setting must be used for the normal case when it is required that water entering Lake B must be discharged to the river through Lake A. The pumping rate must be automatically controlled by a water level transducer in Lake A. The water quality transducers at MP5 provide stop – go signals and alarms to the control centre depending on water quality range settings.

4.6.2.2 Estuary Closed

* When the estuary level is high enough, bi-directional flow between Lake A and the estuary creates an open system that will provide water turnover without the use of Pumps A.
* In this condition, flow entering Lake B can be pumped to the Tongati River by Pumps B or allowed to flow into Lake A over the cascade, as required.

4.6.3 Partial and Fully Closed System Options

4.6.3.1 Lake A fountain operation

* With V1 open, Pumps A recirculate all or part of the water in Lake A through a low-head fountain / cascade located near the 2nd green.

4.6.3.2 Lake B top cascade operation

* With V1 closed and V3 open, all or part of the water from Lake A flows into the top end of Lake B over an aerating cascade and back into Lake A.
* Pumps B discharge water from Lake B to the Tongati River through the 300 mm pipeline or recirculate the water back into Lake B over the top cascade if V3 is open.

4.6.3.3 Both Lakes closed

* If V2 is closed and V1 and V3 are open, Pumps A and Pumps B can be operated independently to circulate the respective lakes in closed systems without mixing the waters operation.

5 VOLUME 4: CONSTRUCTION EMPR (PURCHASER)

5.1 Pre-construction Activities (Purchaser)

- The Purchaser must appoint, or ensure the appointment of, an Environmental Control Officer (ECO) for the building construction work.
- A detailed geotechnical investigation must be undertaken for each site prior to construction activities commencing on site.
- The Purchaser and Contractor (Purchaser) must ensure that they are fully aware of any ecological corridor, including the Wetlands and associated Wetland buffer that is on or adjacent to the purchased site and to ensure that both building design and construction activity do not impact negatively upon these.
- Any requirements to remove vegetation within the ecological corridor must be directed to the Developer for approval prior to any such removal.
- The Building Design Code must be strictly adhered to and all designs must be in accordance with the Code.
- Reference must be made to the Engineering Report (Appendix 10a to the Draft EIA Report dated 12 June 2007) for details on Bulk Services and Associated Works, and Internal Services.
- Prior to development occurring on site and / or Building Plans submitted, a Site Development Plan (which must include inter alia, a stormwater management plan) must have been submitted, by the Purchaser, to the Developer (or the Management Association) for recommendation for approval to the Local Authority. Building Plans will not be considered by the Local Authority without the Developer's (or Association's) recommendation of the Site Development Plan (SDP) as provided for in the Town Planning Scheme and in the Building Design Code.
- The submission of Building Plans to the Local Authority must only occur once recommendation for approval of the SDP and approval of the final plans has been given by the Design Review Panel of the Management Association
- All Purchasers must be required to adhere to the Landscaping Philosophy and must submit a Landscaping Plan as part of the Site Development Plan to the Developer or Management Association.

5.2 Conditions of Contract (Purchaser)

5.2.1 Reporting Structure for Construction Phase (Purchaser)

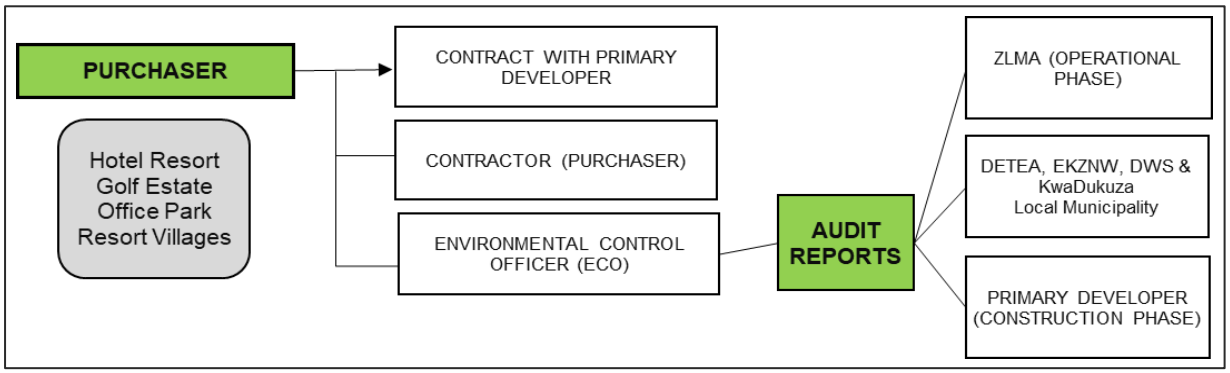

Figure 2: Organogram - Construction Phase (Purchaser).

5.2.2 Purchaser

- The Purchaser must enter into a development contract (sales agreement) with the Primary Developer and must appoint a Contractor to manage the construction of the development.
- The Purchaser and the Contactor (Purchaser) are responsible for environmental impacts associated with the construction of private buildings on a site and for adhering to the EMPr requirements and provisions.
- An ECO must be appointed by the Purchaser to monitor and audit building construction work and to submit such audits to the Authority (DEDTEA), DWS, KwaDukuza Local Municipality, EKZNW, the Zimbali Lakes Management Association (Operational Phase), and the Primary Developer (Construction Phase).

5.2.3 Contractor (Purchaser)

The Contractor (Purchaser) must:

- Be conversant with the relevant and applicable requirements of the EMPr;
- Brief staff about the requirements of the EMPr;
- Comply with requirements of the EMPr;
- Ensure that any sub-contractors / suppliers who are utilised within the context of the contract comply with the environmental requirements of the EMPr. The Contractor (Purchaser) will be held responsible for non-compliance on their behalf;
- Bear the costs of any damages / compensation resulting from non-adherence to the EMPr or written site instructions;
- Comply with all applicable legislation; and,
- Ensure that the Project Engineer (Developer) and Environmental Consultant, if during the Construction Phase (Developer), or the Local Authority and Authority (DEDTEA) if after the Construction Phase (Developer), are timeously informed of any foreseeable activities that will have an impact on the surrounding or downstream properties.

The Contractor (Purchaser) must conduct all activities in a manner that minimises disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.

5.2.4 Environmental Control Officer (ECO)

An ECO for all sites must be appointed by the Purchaser or Contractor (Purchaser) and is responsible for the following:

- Be conversant with the relevant and applicable requirements of the EMPr;
- Train construction staff at a management level about the requirements of the EMPr;
- Comply with requirements of the EMPr;
- Ensure that any contractors/sub-contractors / suppliers who are utilised within the context of the contract comply with the environmental requirements of the EMPr. The Purchaser will be held responsible for non-compliance of the EMPr;
- Compliance with all applicable environmental legislation;

- Ensure that the Project Engineer (Developer) and Environmental Consultant, if during the Construction Phase (Developer), or the Local Authority and Authority if after the Construction Phase (Developer), are timeously informed of any foreseeable activities that will have an impact on the surrounding or downstream properties; and,
- Submit regular audit reports to the Authority, DWS, KwaDukuza Local Municipality, EKZNW, the Zimbali Lakes Management Association (Operational Phase), and the Primary Developer (Construction Phase).

5.2.5 Compliance with Applicable Laws

The supreme law of the land is "The Constitution of the Republic of South Africa", which states: "Every person shall have the right to an environment which is not detrimental to his or her health or wellbeing". Laws applicable to protection of the environment in terms of Environmental Management (and relating to construction activities) include but are not restricted to:

- Atmospheric Pollution Prevention Act, No 45 of 1965;
- Conservation of Agricultural Resources Act, No 43 of 1983;
- Environmental Conservation Act, No 73 of 1989;
- Explosives Act, No. 26 of 1956;
- Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, No 36 of 1947;
- Forest and Veld Conservation Act, Act No 13 of 1941;
- Hazardous Substances Act, No 15 of 1973;
- KwaZulu-Natal Heritage Act, No. 10 of 1997;
- KwaZulu-Natal Planning and Development Act No 5 of 1998 (re: soil conservation);
- KwaZulu-Natal Nature Conservation Management Act, No. 9 of 1997;
- Land Survey Act, No 9 of 1921;
- Machinery and Occupational Safety Act, No. 6 of 1983;
- Mines and Works Act, No. 27 of 1956;
- Minerals Act, No 50 of 1991;
- Mineral Development Draft Bill;
- National Environmental Management Act, No. 107 of 1998;
- National Environmental Management: Biodiversity Act, No. 10 of 2004;
- National Forests Act, No 84 of 1998;
- National Heritage Resources Act, No. 25 of 1999;
- National Water Act, No 36 of 1998;
- National Water Act (amendments);
- National Veld and Forest Fire Act, No 101 of 1998;
- Occupational Health and Safety Act, No 85 of 1993;
- Provincial and Local Government Ordinances and Bylaws;
- Soil Conservation Act, Act No 76 of 1969;
- Sub-division of Agricultural Land Act Repeal Act 64 of 1998 (re: soil conservation);
- Water Services Act No 108 of 1997; and,
- all regulations framed thereunder and amendments there to.

5.2.6 Penalties for Non-Compliance with EMPr

The Contractor (Purchaser) and Purchaser will be deemed not to have complied with the EMPr if:

* There is evidence of any contravention of clauses within the boundaries of the purchased site, adjacent to the site or downstream of the site;
* Environmental damage ensues due to negligence;
* The Contractor (Purchaser) and / or Purchaser fails to comply with corrective or other instructions issued by the Local Authority, Authority, Zimbali Lakes Management Association (Home Owners Association, or ECO within a specified time,
* The Contractor (Purchaser) and / or Purchaser fails to respond adequately to complaints from the public.

Application of a penalty clause will apply for incidents of non-compliance. The penalty imposed will be per incident. Unless stated otherwise in the project specification, the penalties imposed per incident or violation must be:

Table 2: Non-compliance and Penalties.

Incident / Violation	Penalty
Failure to demarcate wetland buffer zones	R 50,000
Failure to demarcate working areas	R 50,000
Working outside of the demarcated area	R 50,000
Failure to strip topsoil with intact vegetation	R 50,000
Failure to stockpile topsoil correctly	R 10,000
Failure to stockpile materials in designated areas	R 10,000
Pollution of water bodies (including increased suspended solid loads)	R 50,000
Any construction or related activities within wetland area	R 100,000
Failure to control stormwater runoff	R 50,000
Downstream erosion	R 50,000
Silting of stormwater systems	R 50,000
Failure to provide adequate sanitation	R 50,000
Unauthorised removal of woody vegetation	R 50,000
Failure to erect temporary fences where required	R 10,000
Failure to provide adequate waste disposal facilities and services	R 10,000
Poaching (fine per poached animal)	R 10,000
Nuisance to neighbours by Construction staff	R 10,000
Failure to reinstate disturbed areas within the specified time-frame	R 10,000
Failure to rehabilitate disturbed areas within the specified time-frame	R 10,000
Any other contravention of project specific specification	R 10,000
Any other contravention of particular (general) environmental specification	R 10,000

Such penalties must be paid to the Primary Developer (Construction Phase) or the Zimbali Lakes Management Association (Operational Phase) and must be used in the rehabilitation or landscaping of the area or to remedy/rectify any issues that so require this.

5.3 Construction Activities: Purchaser

5.3.1 Construction Zone

- Movement of heavy-duty vehicles will be restricted to the construction zone as defined for each individual site.
- The passage of vehicles not connected with work in progress must be restricted, to prevent unnecessary soil compaction and damage in the Construction Zone.
- The Contractor (Purchaser) must provide a sufficient number of potable ablution facilities. Such facilities, which must comply with local authority regulations, must be maintained in a clean and hygienic condition and their use must be strictly enforced. They must be positioned in an appropriate place, e.g. away from watercourses and wetland buffer zones and general view, in consultation with the ECO. The Contractor (Purchaser) must make his own arrangements for the necessary effluent removals and must bear all the costs in connection with such services. On removal of such conveniences, the sites thereof must be left in a clean, sanitary and tidy condition.
- The Contractor (Purchaser) is to ensure that sufficient potable water must be provided for consumption and watering of exposed surfaces to minimise dust (if deemed necessary by the ECO). The Contractor (Purchaser) must be solely responsible for the provision of all necessary water connections, meters, water storage and water transport facilities. Care is to be taken to ensure that the area around the water supply does not turn muddy.
- The Contractor (Purchaser) must make arrangements with the Primary Developer for obtaining electrical power and lighting requirements for the site. Lighting on site must take cognisance of neighbouring communities and or developments.

5.3.2 Building Construction: General

- The site must be totally enclosed with shade cloth prior to commencement of construction and all construction activity must occur within the site and all storage and equipment must be within the site.
- All other aspects of are applicable to the Purchaser and Contractor (Purchaser) must have been adhered to prior to any construction activity taking place on site.
- An ECO must have been appointed prior to construction work onsite commencing.

5.3.3 Storage areas

- The Contractor (Purchaser) must exercise special care with the storage, handling and transport of all materials that could adversely affect the environment. Such materials include chemicals, cement, lime, oil and fuel. The materials must be stored in watertight containers on a hardened and impervious surface graded to the middle.
- In locating stores consideration must be taken of the prevailing winds on site, topography, and water erosion impacts.
- The ECO must advise the Contractor (Purchaser) on the location of the stores.
- If pollution of hazardous substances occurs it must immediately be reported to the Environmental Consultant and dealt with in the prescribed manner suitable to the substance and disposed of in a permitted landfill.

- If pollution of any surface or groundwater occurs, it must immediately be reported to the Regional Representative of the Department of Water Affairs and Forestry, and appropriate mitigation measures employed.
- Security of storage areas is required.
- Documentation is required regarding the storage of hazardous materials on site, including Material Safety Data Sheets (MSDS's), etc.

5.3.4 Stock pile areas

- Spoiling of unsuitable material must take place at an approved spoil site, sheltered from the wind, and must be shaped, trimmed and re-vegetated where necessary.
- The Contractor (Purchaser) will need to import suitable material on site. Such material should be stockpiled in a suitable area agreed upon by the ECO.
- The stockpiling of soil or any other materials must not be allowed near a watercourse or water body to prevent pollution or impediment to surface runoff, unless determined by the Project Engineer not to have any adverse impact on the watercourse/water body.
- The Contractor (Purchaser) must control the erosion of stockpiles. The ECO will assess the appropriateness of methods employed.
- The ECO must determine the maximum stockpile height.

5.3.5 Geotechnical Issues for consideration

- The recommendations contained in the site specific Geotechnical Report that is to be done by the Purchaser (where required) must be adhered to.
- The Contractor (Purchaser) is to ensure that imported soil materials are not contaminated.
- The Contractor (Purchaser) is to be able to produce all necessary documentation proving that all raw materials being used on the site have been obtained in a sustainable manner, as detailed and stipulated in the Procedure 4.4.6.5 (attached at **Appendix H**).
- In certain cases, working space may be limited which may affect the method and / or type of plant used for excavations, as well as restrict the temporary storage space available for backfill material from excavations, etc.
- Unless otherwise permitted in writing by the Local Authority, not more than 200 m of trench in any one place must be opened in advance of pipe laying operations.

5.3.6 Surface Runoff and Water Resources

- Drainage must be controlled to ensure that runoff from the Purchaser's site will not culminate in off-site pollution or cause water damage to properties further down from the site.
- No impediment to the natural water flow other than approved erosion control works is permitted.
- No liquid or solid waste must be allowed to be disposed of in any watercourses or water body. If this occurs, it must be reported to the Primary Developer, ECO and DWS and cleaning up thereof will be undertaken at the Contractor's (Purchaser's) expense.
- The provisions of the National Water Act 36 of 1998 must be complied with at all times.

5.3.7 Supervision

* Adequate and constant supervision is required during construction.
* The Contractor (Purchaser) must keep a site diary detailing all incidences affecting the environment occurring on site.

5.3.8 Employment

* Local workforce should be favoured in job selection.

5.3.9 Site and Public Safety

* Provisions in the Occupational Health and Safety Act 85 of 1993 must be complied with at all times. Refer to **Appendix M**: Procedure 4.4.7.1 and Procedure 4.4.7. The responsibility for compliance with this Act lies with the Contractor (Purchaser).
* The public must be given adequate notice in advance for noisy activities such as blasting, excavating, piling, etc.
* The Contractor (Purchaser) must control the access to the Project Area by the general public in collaboration with the Primary Developer (Construction Phase) or Zimbali Lakes Management Association (Operational Phase). No unauthorised persons may enter the construction site, including hawkers.
* The period that open excavations are left exposed must be kept to the minimum. Where such exposure is unavoidable, the excavation must be clearly demarcated and thoroughly protected against the passage of vehicles, pedestrians, or animals. Such protection must be effective during the day and night. No excavations may be left open over holiday periods.
* The Contractor (Purchaser) must erect the necessary signs, notices and barricades for the duration of the Contract in order to safeguard both the workers and the public. Suitable conspicuous warning signs in English and Zulu must be placed at all excavations or areas where safety could be compromised. These signs must be in accordance with the local by-laws. The Contractor (Purchaser) may use notices, signs and barricades, as well as advertisements only upon approval by the Primary Developer (Construction Phase) and Zimbali Lakes Management Association (Operational Phase), and the Contractor (Developer) must be responsible for their supply, erection, maintenance and ultimate removal.
* SABS Standards and specifications governing dangerous processes such as welding and radiographic testing of welds must be strictly applied, to ensure proper protection of the public and workers.
* Workers have a right to refuse work in unsafe conditions.
* Cooking fires must only be allowed in designated areas.

5.3.10 Vegetation

* Vegetation such as sugar cane should be removed in a phased approach as it becomes necessary.
* Vegetation of significance such as plants of medicinal value that could be destroyed during construction activities should be removed by the ECO and replanted at a later stage.

- Any construction activity within the ecological corridors must be done in accordance with the EMPr in such a manner as to ensure the maintenance of biological diversity in the area.
- Vegetation removed should be used where possible, e.g. as a brush mattress for erosion control or mulching.
- The Environmental Control Officer (Purchaser) is responsible for implementing the "SOP for control and eradication of alien invasive vegetation" (**Appendix I**, Procedure 4.4.6.6), and for adhering to Section 9.2 of this EMPr during the Construction Phase.
- The Environmental Control Officer (Purchaser) is responsible for implementing the Landscaping and Vegetation Rehabilitation Plan (refer to Section 9.3 of this EMPr) during the Construction Phase.

5.3.11 Fauna

- No member of the construction team will be permitted to harm or kill / poach any animal, bird or reptile.
- Pests must be discouraged by keeping the construction site free of litter.

5.3.12 Soil Management and Erosion Control

- During grubbing and clearing the Contractor (Purchaser) must take care to remove as little topsoil as possible.
- Remove and separately stockpile any subsoil material that can be used for site backfilling.
- Topsoil must be stockpiled (and seeded) in areas within the site boundary and approved by the ECO for reuse and restoration.
- Avoid handling soil when wet as this may result in the loss of soil structure and compaction. Soils should not be handled during windy conditions, which may lead to the loss of soil through wind erosion.
- Soil erosion must be prevented at all times. Where evidence of soil erosion can and / or is taking place, this should be reported by the Contractor (Purchaser) to the Primary Developer (Construction Phase), or Zimbali Lakes Management Association (Operational Phase) and ECO.
- Unnecessary compaction of construction areas must be prevented, to reduce run off velocity.
- Remove vegetation, only as it becomes necessary for work to proceed. Prevent unnecessary removal of vegetation especially on steep areas.
- Steep slopes should be terraced, and horizontal areas vegetated.
- Areas that have become compacted must be deeply ripped to loosen soil.
- Appropriate mitigation during construction includes prompt rehabilitation of exposed soil areas with indigenous vegetation to ensure that soil is protected from the elements.
- Suitable erosion measures should be implemented in areas sensitive to erosion such as near water supply points, edges of slopes, etc. These measures could include the use of sand bags, hessian sheets, retention or replacement of vegetation.
- All the necessary precautions in terms of design and construction of earthworks, cuts and fills must be taken.

5.3.13 Pollution Control

5.3.13.1 General

- Should any incidence occur, the Contractor (Purchaser) must report it immediately to the ECO and the Contractor (Purchaser) must be responsible for containing and cleaning up the spillage. Refer to **Appendix M**: Procedure 4.4.7.
- The Contractor (Purchaser) and ECO must ensure that correct mitigation of the pollution is undertaken.

5.3.13.2 Air pollution

- Excavations and other clearing activities should only be done during permissible weather conditions to avoid drifting of sand and dust into neighbouring areas.
- Soil and sand stockpiles must be located in sheltered areas not exposed to the wind.
- Retention of vegetation where possible will reduce dust travel.
- Exposed surfaces must be re-vegetated as soon as possible.
- Watering of exposed soil must be instituted and maintained on a continuous basis.
- The movement of construction and other vehicles should be strictly controlled in order to reduce the impact of increased air pollution. Adherence to speed limits must be enforced.
- Sensible and responsible use of equipment which generates dust.
- Adjacent roads are to be swept on a regular basis from up to 50 m from any point of ingress / egress to avoid dust or mud build up on the roads.

5.3.13.3 Noise pollution

- Noise levels must be kept within acceptable limits. All noise and sounds generated must adhere to SABS 0103 specifications for maximum allowable noise levels for residential areas. No pure tone sirens or hooters may be utilised except where required in terms of SABS standards or in emergencies.
- Noisy activities must be limited to between 06h00 to 18h00 to avoid disturbance of adjacent landowners. Noisy activities should not be allowed on weekends and public holidays unless specific arrangements have been made with the Primary Developer (Construction Phase) and / or ZLMA (Operational Phase) and provided that neighbours have been timeously notified.
- Vehicles and operating equipment must be regularly serviced.
- If piling is required, it will have to be carefully controlled and monitored to reduce noise level.
- Permission must be obtained from the relevant authorities if work is to proceed throughout the night.

5.3.13.4 Waste Generation and Litter

- The Purchaser's site must be kept in an orderly and clean condition. Solid waste must be collected on a daily basis from the construction zone and placed in a skip that must be emptied on a weekly basis, or as necessary. The waste must be disposed of at a permitted landfill site to the satisfaction of the ECO.

- All builders' rubble must be removed from the site and suitably disposed of at a permitted disposal site unless considered suitable for infilling by the ECO on advice by an engineer. A certificate indicating safe disposal is required to be forwarded to DEDTEA: Compliance, Monitoring and Enforcement.
- No burning of waste must be permitted on site.
- Flammable, toxic or poisonous materials and waste must be stored separately on an impervious hardened surface, graded to the middle, and disposed of at an approved landfill site.
- Littering by employees of the Contractors (Developer) and / or Sub-Contractors must not be allowed. The Environmental Consultant must monitor the work and construction-camp sites for cleanliness.

5.3.13.5 Water Pollution

- Pollution of surface and ground water, and soil through accidental spillage of hazardous chemicals and other substances must be avoided. Should spillage occur, the spillage must be reported to the Primary Developer (Construction Phase) and / or ZLMA (Operational Phase) and ECO and cleaned up immediately and any contaminated soil removed and disposed in a permitted landfill.
- Contaminated wastewater must be managed by the Contractor (Purchaser) to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp must be collected and removed from the site for appropriate disposal at a licensed commercial facility.
- De-watering of vessels, tanks, etc is to take place in a controlled manner. No uncontrolled release of water must be allowed onto the site area. Water wastage must be kept to a minimum and where possible water must be recycled. Dewatering of contaminated water must only be done at an approved landfill site.

5.3.13.6 Concrete

- Concrete mixing must be restricted to certain areas within the Purchaser's Construction Zone and mixed in areas that are not to be vegetated in future. Cement mixing should take place on plastic liners to avoid contamination of soil.
- Cleaning of cement mixing, and handling equipment must only be done using proper cleaning trays.
- Ready mix concrete should be used where possible and should occur in accordance with the requirements of the Specifications.
- All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site to suitable landfill areas.
- All empty containers must be removed from the site for appropriate disposal at a licensed commercial facility.
- Any spillage which may occur will be investigated and reported to the Purchaser, Primary Developer (Construction Phase) and / or ZLMA (Operational Phase) and ECO and immediate action must be taken by the Contractor to remove and clean up any spillage.
- Cement-contaminated water must not enter the water system as this disturbs the natural acidity of the soil and affects plant growth.

5.3.14 Blasting Activities

- The Contractor (Purchaser) must notify the Primary Developer (Construction Phase) and / or ZLMA (Operational Phase) should blasting be required in special circumstances (due to the presence of the Crocodile Farm) and must adhere to the requirements of the Explosives Act, 1956. Notices must be placed on site in order to inform the residents of blasting activities and the Contractor (Purchaser) must give all affected parties within a radius of 2 km notice of intent to execute any blasting work.
- Blasting will be done at appropriate times of the day to ensure that noise disturbance and vibrations are kept to a minimum. Blasting will be undertaken using appropriate techniques. By restricting blasting to early afternoon, (14:00) noise impacts will be reduced, as the inversion layer is usually eroded or sufficiently elevated to have a negligible effect in the reflection of sound.

5.3.15 Disruption of Infrastructure and Services

- The Contractor (Purchaser) must ensure minimal disturbance of roads, services and access.
- At all points of contact with the residents and the public, the Contractor (Purchaser) and his staff are requested to handle discussions and disputes with deliberate courtesy and understanding. All complaints and correspondence must be recorded and reported to the ECO for inclusion in the Audit Report.
- Services such as electricity, telephones and water must not be disrupted without prior notice to the affected community and must be avoided where possible. Where disruption of services is unavoidable, this will be undertaken to the satisfaction of the Primary Developer (Construction Phase) and ZLMA (Operational Phase).
- All vehicles used by the Contractor (Purchaser) on public roads or other routes used by any member of the public must comply with the relevant by-laws and regulations in the Province of KwaZulu-Natal. The Contractor (Purchaser) must avoid peak traffic times.

6 VOLUME 5: OPERATIONAL PHASE: ZIMBALI LAKES MANAGEMENT ASSOCIATION

6.1 Operational Phase (General)

- The Operational Phase commences as soon as construction has been completed on a particular development component, or private property.
- On completion of the Construction Phase, all surfaces used by the Contractor (Developer) and Contractor (Purchaser) must be rehabilitated, and vegetated where necessary according the Landscaping Plan and Vegetation Rehabilitation Plan (refer to Section 9.3). Appropriate rehabilitation of disturbed areas must be undertaken to enhance and contribute to an aesthetically pleasing environment.
- All infrastructure, equipment, plant, temporary structures and items used during the construction phase must be removed from site.
- Waste material of all descriptions must be removed entirely from the site area.
- All topsoil stored separately from excavated sub-soil must be correctly replaced after completion of activities.
- All exposed land must be tilled/hoed to loosen and break up surface clods. Where surfaces have been severely compacted these must be ripped.
- No excavation must be left in a condition such that it can be used as an unauthorised waste disposal site or so that it will collect water.

6.2 Operational Phase Reporting Structure

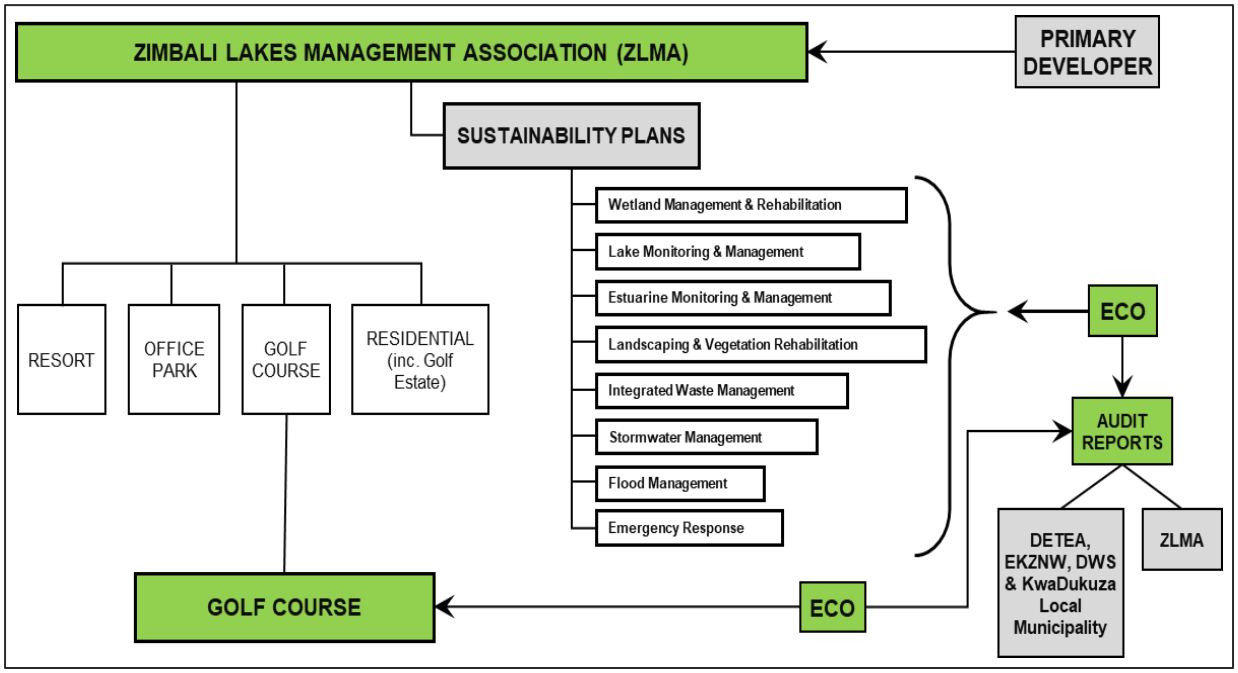

Figure 3: Organogram - Operational Phase.

6.3 Zimbali Lakes Management Association

- All owners within the development are obliged to become members of their respective Management Association, such as the Estate, Office Park, Hotel Resort, and Golf Course Management Associations.
- Representatives from each of these component Management Associations must be represented on the overarching Zimbali Lakes Management Association (ZLMA) as illustrated in **Figure 3**.
- The Zimbali Lakes Management Association must appoint a suitably qualified ECO to implement and monitor the Sustainability Plans listed in **Figure 3** above.
- A copy of this EMPr must be provided to the secretariat of the Management Association and must be available at all times.
- Members of the Management Associations must be made aware of sustainable development and the environmental issues highlighted in the EMPr.
- The provisions and requirements of this EMPr must be made legally binding on all Purchasers as well as the Management Association which must be responsible for monitoring the implementation of the EMPr.
- The Zimbali Lakes Management Association must be responsible (in general) for maintaining road verges, roads (within the development), open space areas (wetlands, lakes, floodplain, etc.), landscaping, building design details, signage, and monitoring building construction work.
- The Zimbali Lakes Management Association must be responsible for the implementation of the Sustainability Plans and the Environmental Control Officer (ECO) must assist the ZLMA to implement, manage, monitor and report on, these Plans.
- The ECO must prepare regular Monitoring Reports on these Sustainability Plans which must be submitted to the Authority (DEDTEA), DWS, EKZNW and the Local Municipalities and ZLMA. The Sustainability Plans are listed below:
  - Lake Monitoring and Management Plan;
  - Wetland Management and Rehabilitation Plan, including Landscaping and Vegetation Rehabilitation Plan;
  - Estuarine Monitoring and Management Plan;
  - Waste Management Plan in conjunction with EnviroServ;
  - Stormwater Management Plan;
  - Flood Management Plan;
  - Emergency Response Plan; and,
  - Safety Management Plan.
- The Golf Course Management Association (GCMA) must be responsible for monitoring the implementation of the Golf Course Management Plan as illustrated in **Figure 3** above. The GCMA must appoint the ZLMA Environmental Control Officer to implement, manage, monitor and report on, the Golf Course Management Plan.

6.4 Sustainability Plans

6.4.1 Lake Monitoring and Management Plan

- Refer to Volume 7: “Operational Plan for Water Management”, Section 8.1.

6.4.2 Wetland Management and Rehabilitation Plan, Including Landscaping and Vegetation Rehabilitation Plan

- Refer to Volume 8 "Wetland Management and Rehabilitation Plan…" Section 9.1 and **Appendix Q.**
- Refer to Procedure 4.4.6.8: "SOP Management of Sensitive Systems" (**Appendix J**), in particular section 5.8 "Wetlands"; and **Appendix K**: Procedure 4.4.6.14.
- The Wetland Management and Rehabilitation Plan (Chapter 3) must be implemented by the Developer and handed over to the ZLMA for ongoing monitoring and maintenance.

6.4.3 Estuarine Monitoring and Management Plan

- Refer to Volume 9 "Estuarine Monitoring and Management Plan", Section 10, and **Appendix R.**

6.4.4 Waste Management Plan

- Refer to **Appendix P** Waste Management Plan prepared by EnviroServ.
- The Developer must provide a Central Waste Area (refer to section 3.3 of the Waste Management Plan) inside the Zimbali Lakes development where waste can be stored whilst waiting for disposal to landfill and where further recycling separating can take place.
- This temporary storage area must be located within a secluded area and screened with vegetation such as trees.
- All potential recycling initiatives must further investigated by EnviroServe, such as composting of garden waste.
- The Management Association must implement, manage and monitor in association with EnviroServe, the methods of waste collection and recycling initiatives for the different components of the Zimbali Lakes development, as proposed in the Waste Management Plan (**Appendix P**).

6.4.5 Stormwater Management Plan

Refer to the report prepared by VelaVKE dated May 2007, attached at Appendix 5b to the Draft EIR dated 12 June 2007, entitled: "Zimbali Lakes Management Association: Zimbali Lakes Stormwater Management Plan Incorporating Policy Guidelines and Regulations"[3].

6.4.5.1 Guidelines for Owners and Developers

All developments within Zimbali Lakes must control stormwater runoff in accordance with the stormwater management philosophy and policies of Zimbali Lakes Management Association (ZLMA).

[3]**This plan is intended for distribution to developers and their professional support teams to guide and control the planning, design and construction of all development projects within Zimbali Lakes.**
It is supported by the technical report "Stormwater Systems Analysis for Zimbali Lakes" which contains technical information on the performance of the major stormwater systems within Zimbali Lakes under 1 in 100-year flood conditions. Where necessary, reference should be made to the technical report for information on 100-year flow rates at specific places within the stormwater system

6.4.5.2 Stormwater Runoff Control

No formal surface or underground stormwater system must be provided for stormwater drainage from private properties, except where deemed necessary by ZLMA to ensure the required performance of the major stormwater system in terms of the Stormwater Management Plan.

Roof Drainage

- Where no gutters are provided, stone pitching, packed rock, or other suitable paving must be provided to cushion the impact of discharges from the roof on the ground, provide a means of energy dissipation and induce the runoff to infiltrate the ground away from foundations.
- Where gutters are provided, down-pipes must be connected to infiltration galleries or trenches that are designed to contain runoff without overtopping within the first hour of a minor storm.
- Infiltration trenches must be aligned along the contour on the downstream side of the property such that any spillage during major storms results in sheet overland flow. The design must be such that no instability occurs in the downstream slope

Driveways

- Driveways must not be constructed to deflect or channel runoff onto a roadway, or to concentrate runoff along a particular path that is not a natural water course, without the prior consent of ZLMA.
- Driveways and paths must be designed and constructed such that the rate of flow of stormwater across and along the driveway or path is not increased when compared with the pre-development state.

Swimming Pools

- Back-wash from swimming pools must be discharged into a suitable soak-away or similar structure to ensure the flow is not concentrated without adequate attenuation. If approved by the local authority, backwash may be directed to the sewer.

Buildings

- Any building will inevitably result in some degree of flow concentration, or deflection of flow around the building.
- The developer / owner must ensure that the flow path of the stormwater is adequately protected against erosion and is sufficiently roughened to retard the flow by a degree not less than the degree of flow concentration or deflection.
- Where the construction of a building causes a change in the natural flora of the site that might result in soil erosion, the risk of soil erosion by stormwater must be eliminated by the provision of approved artificial soil stabilisation devices, or alternative flora suited to the changed conditions on the site.

Parking Areas and Yards

- Any parking area, yard or other paved area must be designed to attenuate stormwater runoff from a major storm by providing on average 8 mm of depression storage.
- Any area described in above must discharge rainwater flowing over, or falling onto its surface, in a controlled manner either overland as sheet flow, or into a detention facility, or infiltration gallery suitably sized to accommodate the minor storm runoff.

Storage facilities

- The sufficiency and effectiveness of on-site detention and retention storage to meet stormwater attenuation requirements within the minor and major stormwater systems is the responsibility of the property owner.
- Detention ponds must be maintained in good condition and must be integrated with the landscape on the site to the satisfaction of ZLMA.
- Retention ponds must be maintained in good condition by the owner and must not be permitted to become a public health hazard or nuisance.
- ZLMA must have the right to inspect any stormwater drainage control facility at any time and issue instructions for repair and maintenance works deemed to be necessary, which instructions must be carried out within the prescribed time period.

Subsurface disposal

- Any construction providing for the subsurface disposal of stormwater must be designed to ensure that such disposal does not cause slope instability or areas of concentrated saturation or inundation.
- Infiltration structures must be integrated into the terrain to be unobtrusive and in keeping with the natural surroundings.

Channels

- Lined and unlined channels must be constructed to convey stormwater to a natural watercourse, or other stormwater infrastructure forming part of the stormwater system, where deemed necessary and unavoidable, provided there is sufficient capacity in the downstream receiving conduit.
- Channels must be constructed with rough artificial surfaces, or lined with suitable, hardy vegetation, to be non-erodible and to provide maximum possible energy dissipation to the flow.

Energy Dissipation Devices

- Measures must be taken to dissipate flow energy wherever concentrated stormwater flow is discharged down an embankment or erodible slope and the resulting supercritical flow poses a significant risk to the stability of the waterway.
- Attenuation structures must be provided at the head of the energy dissipating structure if possible.
- A means of dissipating energy must be provided at the outfall of any drop structure to ensure stormwater flow is returned to a safe sub-critical state, or to disperse the flow.

Flow Retarders

- Stormwater flow must be retarded wherever possible through the use of surface roughening or other flow restricting devices, provided these are designed and built to avoid blockages that could result in environmental and structural damage.
- All such constructions must be regularly maintained by the owner and may be inspected at any time by ZLMA.

Roads

- The principle of very shallow overland flow must apply to roadways where possible and roads must be designed and graded to avoid concentration of flow along and off the road.

- Where flow concentration is unavoidable, measures to incorporate the road into the major stormwater system must be taken, with the provision of detention storage facilities at suitable points.
- Inlet structures at culverts must be designed to ensure that the capacity of the culvert does not exceed the pre-development stormwater flow at that point and detention storage must be provided on the road and / or upstream of the stormwater culvert.
- Outlet structures at road culverts must be designed as energy dissipaters and the downstream channel must be adequately protected against soil erosion.

6.4.5.3 Stormwater Pollution Control

- All property owners and developers must ensure that no materials, fluids or substances are allowed to enter the stormwater system that could have a detrimental effect on the flora, fauna and aquatic life in the water courses, wetlands and dams.
- Regular monitoring of sites within the catchments must be undertaken by ZLMA.
- The owner of any site that is required to store any substances that could be regarded as hazardous in terms of water pollution, must notify ZLMA and must take measures to ensure spillages of the substance(s) can be adequately contained to prevent contamination of the water resources of the Estate.
- No stormwater, wash water, or waste water must be directed towards any permanent water body or wetland without the installation of a suitable filtration system to prevent pollution, including silt, from entering such water body.

6.4.5.4 Stormwater Erosion Control

ZLMA must inspect the individual properties in the Estate on a regular basis to:

- Determine the effectiveness of the stormwater management policies and must amend policy as and when necessary to meet the objectives of the Stormwater Management Plan; and,
- Advise property owners of any repair, maintenance and improvement works required on the stormwater system control elements within their jurisdiction.

6.4.5.5 Safety

Inundation of property and buildings

- No buildings must be constructed below the 1:100-year flood line.
- The 1:100-year flood line must be altered by the development of the site, land-forming or other means, without the approval of ZLMA.
- All risk of inundation by flood water must be carried by the owner of the property.
- No flood water may be diverted or concentrated such that a risk of flooding or inundation of any property or building is created.

Structural damage

- The diversion or concentration of stormwater, whether on the surface or underground, must not increase the risk of structural damage to any development within the Estate.
- The above includes the undermining of structures due to erosion of soil.

6.4.5.6 Implementation Procedures

The following procedures must be followed by owners, developers, appointed agents, professional teams and contractors:

1. Application for permission to build
   A copy of the Stormwater Management Plan must be obtained from ZLMA.
2. Site survey and investigations
   Anyone involved in site survey and investigation work must be familiar with the contents of the Stormwater Management Plan.
3. Design stage
   The professional team must take into account the stormwater management requirements contained in this document and must clearly indicate on all plans and in any contract document where and how measures have been provided in the design to ensure the stormwater management requirements are implemented.
   Approval from ZLMA must be obtained before commencing construction.
4. Construction
   The contractor must ensure that all construction methods adopted on site and within the Estate do not cause, or precipitate, soil erosion and that adequate steps are taken to ensure that the requirements of the Stormwater Management Plan are met before, during and after construction. The designated responsible person on site, as indicated in the implementation plan (usually the contractor) must ensure that no construction work takes place before the stormwater control measures are in place.
5. Certificate of occupation
   On completion of the works, ZLMA or its representative must inspect the site for compliance with the stormwater management requirements, prior to the issuing of a certificate of occupation by the Borough of the Dolphin Coast.
6. Occupation period
   During occupation of any property, ZLMA may undertake periodic inspections, to ensure stormwater management policy is being correctly implemented, and may serve notice on occupants to undertake remedial work, which is necessary in the opinion of ZLMA.

6.4.5.7 Responsibility for Compliance with Stormwater Management Policy

* Within the jurisdiction of a site specifically and the Estate in general, the owner and his professional team, including the contractor, must be responsible for ensuring that the requirements of the Zimbali Stormwater Management Plan are met.
* The owner and his professional team must be responsible for the performance of all stormwater control measures implemented on a site under their jurisdiction and the impact such works may have on downstream property within the Estate.
* Approval of any plan or document, whether verbally or in writing, by ZLMA must not be construed as absolving the owner or the professional team of this responsibility.

6.4.6 Flood Management Plan

* Refer to Section 6.4.7.2 below, and Volume 7 “Operational Plan for Water Management”, Section 8.1.5.

6.4.7 Emergency Response Plan

6.4.7.1 Zimbali Lakes Management Association

* The ZLMA must prepare an Emergency Response Plan to address potential emergencies associated with the risks of floods and fire; and,
* The Emergency Response Plan must contain an Emergency Communication Protocol and must be approved by the DWS and the KwaDukuza Fire Department.

6.4.7.2 Flood Warning System

* The major floods will inundate the lakes to the levels determined by the design flood calculations and the lakes and associated infrastructure must be designed to accommodate the resulting forces.
* Flow velocities and water depths are the main components of a flood hazard determination. The hydraulic modelling will be able to identify critical flood hazard areas and recommend appropriate safety measures and procedures to be adopted.
* Early flood warnings for the Tongati Catchment, which is relatively large, will provided real-time rainfall monitoring stations that record the rainfall rates and accumulated rainfall. When rainfall rates reach the design flood rates flood warnings can be initiated. The pre-flood warning period from this system should be approximately 1 hour to 30 minutes in advance of a flood peak. In addition, major weather patterns likely to cause floods are usually known at least 24 hours before the storm event and enable early warnings to be issued and rainfall and water level monitoring systems to be checked and activated.
* Note that all floods in the Begota Stream flow through Lake B, but only storm return periods above 1 in 25 years cause both Lakes to become submerged by the flood waters in the Tongati River. (The final design will advise expected levels for various flood return periods).
* When the Tongati River flood waters rise above the level of the land separating the lakes from the main river, the Lakes must be considered unsafe and the public warning system must be activated. This can be done manually or automatically using the water level indicators installed at MP1 and MP2.

Type 1 Risks

* These are associated with floods and the risk to life due to high velocities and / or abnormally deep water at specific sites.
* The installation of an early flood warning system on the Tongati River is recommended. Safety procedures must be colour coded and linked to rising water levels. These must be determined during the design stage of the project but would include provisions for mandatory evacuation of flood hazard areas at specific trigger points.

Type 2 Risks

* These are associated with the damaging effect of floods on consolidation or settlement of materials, rising groundwater, overloads and impact loads on structures, etc.

- Failures are not usually predictable, but appropriate response procedures must be formulated during the design stage for inclusion in the developments safety manual.

Type 3 Risks

- These would not generally require an emergency response.

Type 4 Risks

- These are associated with changes in water quality that could be slow or rapid, depending on the nature of the pollutant and the buffering capacity and resilience of the aquatic bio-system of the water body.
- Regular water quality monitoring is required to identify the range of pollutants that enter the water body and the state of heath of the aquatic bio-system.
- During design, potential quality hazards must be identified, ranked in terms of significance and incorporated in a water quality monitoring plan, with recommended test procedures and emergency response procedures to deal with pollution events as and when they occur.

6.4.8 Security Management Plan

- The ZLMA must appoint a Security Company to manage and monitor the security system of the development; and,
- The Security Company must prepare a Security Management Plan.

6.5 Sustainability Indicators

6.5.1 Introduction

- The ECO must develop the Sustainability Indicators in more detail and in conjunction with the various specialists; and,
- Refer to suggested indicators listed in the sub-sections below.

6.5.2 Water quality monitoring – Begota stream, lakes & outlet at estuary

- Water quality measurement and monitoring;
- Removal of aquatic vegetation as measurement of water quality control;
- Monitoring of employment generation to remove vegetation; and,
- Water quality monitoring by an accredited laboratory.

6.5.3 Estuarine management and monitoring

- Refer to Volume 9 “Estuarine Monitoring and Management Plan” and **Appendix R**.

6.5.4 Wetland management & monitoring

- Refer to Volume 9, Section 9.1, and **Appendix Q**; and,
- Harvesting of aquatic plants (Refer to Section 6.5.2 above).

6.5.5 Management of alien vegetation

* Removal and monitoring of alien vegetation.

6.5.6 Monitoring of faunal biodiversity

* Provision of roosting and nesting structures for birds;
* Monitoring of bird habitat to avoid attraction of birds that could cause bird strikes;
* Research representative faunal groups associated with wetland and forest habitats; and,
* Monitor estuarine fauna.

6.5.7 Golf course

* Monitoring of establishment of vegetation;
* Monitoring use and type of herbicides and pesticides; and,
* Awareness generation of general public to avoid trampling of wetlands and moving off golf cart paths with golf carts.

6.5.8 Monitoring of recreational use of lakes

* Awareness creation of bilharzia;
* Use of recreational craft; and,
* Creation and use of areas for birding.

6.5.9 Noise zones associated with King Shaka International Airport

* Noise impacts to be monitored; and,
* Use of noise reduction materials in building construction.

6.5.10 Recycling of waste

* Creation of awareness amongst business and residents;
* Employment generation; and,
* Recycling of organic waste for composting.

6.6 Green Building Design

6.6.1 Introduction

* The detailed design of the development (as provided for in the architectural guidelines) must take green building principles into account to address energy and water efficiency and the use of materials.

6.6.2 Energy efficiency

- Energy efficient light bulbs;
- Solar panels;
- Building alignment for winter warmth and summer coolness and including wind for cooling; and,
- Use of energy efficient air conditioners, washing machines.

6.6.3 Water efficiency

- Stormwater design (infiltration);
- Irrigation design – accurate spray and night time irrigation to reduce evaporation; and,
- Water economy measures in building designs should be applied wherever possible to reduce the generation of sewage.

6.6.4 Materials

- Permitted materials;
- Renewable materials in building design; and,
- Indigenous landscaping.

7 VOLUME 6: GOLF COURSE OPERATIONAL PLAN

7.1 Golf Course Management Association

* The Golf Course Management Association / Golf Club is responsible for the implementation and management of the Golf Course Operational Management Plan (Volume 6 of this EMPr).
* A representative from the Golf Course Management Association must be a member of the Zimbali Lakes Management Association.

7.2 No-Go Areas

* Out-of-bounds / no-go areas must be established and cleared of invasive alien vegetation and replanted with appropriate indigenous vegetation to encourage the habitation of indigenous faunal species and increase biodiversity.
* Monitoring and clearing of recurring alien re-growth must be conducted in late autumn/ early winter to minimise disturbance to fauna and flora.
* Out-of-bounds / no-go areas must be clearly marked, and visitors / golfers / staff must be made aware that these areas are not to be disturbed in any way. This can be achieved, for example, through informational pamphlets or notice boards placed on the golf course.
* Out-of-bounds / no-go areas provide a valuable source of cover, food and nesting habitat for faunal species and must be allowed to function in as natural a manner as possible.
* Educational boards must be placed throughout the golf course to educate visitors/ golfers on local fauna and flora to encourage appreciation of their surroundings.
* A register of faunal species resident on site must be kept. Refer to **Appendix L** (SOP: Template Faunal Species Procedure 4.4.6.14) of this EMPr.
* The SOP's (Control and Eradication of Alien Invasive Vegetation Procedure 4.4.6.6 and Management of Sensitive Systems Procedure 4.4.6.8) contained in **Appendices I and J** of this EMPr must be adhered to.

7.3 Open Space Areas

* The Golf Course Management Association must maintain all open space linkages associated with the golf course within their ownership.

7.4 Stormwater Management

* The Golf Course Management Association together with Zimbali Lakes Management Association, within the jurisdiction of the golf course specifically and the estate in general are responsible for ensuring that the requirements of the stormwater management plan have been met as detailed in Volume 2 of this EMPr.
* The Golf Course Management Association together with the Zimbali Lakes Management Association are responsible for the performance of all stormwater control measures implemented on site under their jurisdiction and the impact such works may have on downstream property, wetlands and water bodies within the estate and the health of the estuary beyond, once the sites have been accepted and taken over from the Contractor (Developer).

- The SOP's (Stormwater Management Procedure 4.4.6.2 and Erosion Control Procedure 4.4.6.3) contained in **Appendices E and F** of this EMPr must be adhered to.
- Vegetative buffers around irrigation ponds and other water bodies which help to minimise chemical runoff (filtration) and erosion, must be maintained and checked for proper functioning.
- Water bodies and wetlands must be regularly tested for water quality (including but not limited to chemical and nutrient loads, suspended solids, dissolved solids, pH levels, the proliferation of algae and harmful bacteria). Should levels be higher than pre-decided set threshold levels, appropriate and timely mitigation measures must be undertaken.
- Monitor populations of aquatic invertebrates and amphibians inhabiting the water bodies and wetlands as these serve as bio-indicators of water quality.

7.5 Irrigation

- The irrigation system used should be computer operated and timed. Run-off from irrigation into water bodies without adequate treatment must be avoided.
- Soils must to be tested regularly to make sure that over-watering and nutrient-leaching is not taking place.
- The timing of irrigation must minimise evaporation (for example, irrigating at night).
- Spray direction and sprinkler placement must be optimised to maximise irrigation/ water efficiency. Ensure that configuration of sprinkler heads and nozzle sizes provide uniform coverage. Drip irrigation must be used wherever possible.
- Irrigation system maintenance: all pipes and sprinklers must be regularly checked for leakages, breaks and faults. Make use of the record of underground pipes and sprinklers to ensure that all parts of the irrigation system are maintained in good repair.
- Irrigation ponds: as for all water bodies, water quality must be routinely tested and a comprehensive management plan for these ponds must be in place and adhered to. Habitat creation through appropriate indigenous aquatic plant growth should be encouraged (refer to SOP Template Wetland Rehabilitation Procedure 4.4.6.14 contained in **Appendix K** of this EMPr).

7.6 Chemical Application and Storage

- Unless stated otherwise, the word "chemicals" includes, but is not limited to, fertilisers, herbicides, and pesticides.
- The least toxic and least persistent chemicals needed for the application required must be chosen.
- Limit pesticide applications by treating affected areas only, that is, spot treatment rather than excessive spraying; use non-chemical methods wherever possible.
- Rotate pesticides to minimise the potential for pests to develop resistance.
- To limit chemically-laden runoff, ensure that extensive applications of chemicals do not occur several days prior to expected rainfall or when the soil is very wet. Avoid the application of chemicals during high winds.
- Ensure that no chemicals are (accidentally or otherwise) applied to hard surfaces (paths, roads and other paved surfaces) to prevent stormwater and irrigation runoff from these surfaces having a high chemical load.
- Do not apply chemicals directly to any water body or wetland, or to the adjacent riparian zones.

- The storage area for chemicals must be a secure, watertight, waterproof concrete floored room. Notices clearly stating that this is chemical-storage area should be prominently displayed both outside and inside the room. A Materials Safety Data Sheet should also be displayed in the room.
- Each individual chemical must be stored separately in leak-poof plastic/ steel drums with secure lids (or as per safety instructions/ label requirements on individual chemical packages) and must be marked clearly as to their contents. Maintain a neat, tidy and secure chemical storage environment.
- Staff members must take all necessary precautions when working with chemicals. Gloves, masks, eye-wear and protective overalls may be required as per individual chemical handling instructions.
- Staff members must be instructed as to how to safely work with and transport all chemicals and should be instructed as to emergency procedures and measures should an accident (spillage, inhalation, consumption, skin or eye contact, etc) occur. Ensure adequate containment facilities for spills and leaks, and that mopping up and safety equipment is close to hand.
- Disposal of any chemicals and their packaging must be done at a licensed hazardous waste facility (or as per label instructions). Transportation to said facility is to be done in a secure manner to avoid spillage and / or leakage.
- The SOP: On Site Emergency Response Procedure 4.4.7 and Record 4.4.7.1, contained in **Appendix M** of this EMPr, must be adhered to.

7.7 Turf Management

- Investigate the application of sludge cake, in conjunction with a composting system.
- Grass clippings must be collected as mowing proceeds and are to be disposed of in a dedicated windproof composting site, and which will not lead to ground water contamination.
- Grass clippings must not be disposed of in or near the wetlands (or other aquatic systems) or in natural habitat areas.
- Avoid mowing during windy conditions to prevent wind-blown debris being deposited in sensitive natural environments.
- Reduce turf stress through traffic management and avoiding too low mowing heights.
- Identify local disease, insect and weed problems.
- Establish a regular scouting and monitoring programme to check turf quality, moisture levels, soil fertility and for signs of pests and diseases.
- Set up an Integrated Pest Management (IPM) system. This is an ecologically based programme which aims to prevent, or to limit, unacceptable levels of pest damage, using a combination of cultural, biological and chemical controls. IPM first takes a preventative approach, using sound cultural practices, regular scouting and monitoring of turf and environmental conditions, and the setting of damage thresholds. Chemical management practices are normally then used on a curative basis, and only where necessary.
- A series of chemical, physical and microbiological analyses of the soil must be done on a regular basis and any remedial programs to balance the soil under the local conditions should be done using small modifications rather than making radical changes through the excessive use of chemicals.
- Keep written records of monitoring activities, control measures used and the results thereof.

7.8 Storage of Equipment

- Unless stated otherwise, the word “equipment” includes but is not limited to maintenance vehicles, tractors, golf carts, mowers, weed-eaters, leaf-blowers, etc.
- All equipment that has regular access to the course must be routinely checked for petrol/ diesel and oil leaks.
- All equipment must be stored under-roof on concrete/ hard floor (not on soil or grass) to avoid soil contamination.
- Equipment cleaning: use compressed air and then low-pressure water hoses for cleaning equipment; this reduces the likelihood of grease and oil being washed off, as well as saving on water use.
- The waste water from washing equipment, which may contain a mixture of clippings, oil, fuel and chemicals, needs treatment prior to discharge. Simple oil-separators can be used to good effect and basket filters can remove much of the solid waste. The remaining water should be passed through a filtration area and detention pond before eventual discharge.
- When replacing or upgrading golf course equipment and machinery, specify models which are more fuel-efficient, and which run on more environmentally friendly fuels.
- Electric-powered golf carts must be considered rather than petrol driven ones.

7.9 Staff and Staff Facilities

- All staff must undergo instructions and training as to the contents and purpose of this Operational Plan. All encouragement to be environmentally friendly must be supported.
- Posters depicting basic environmental awareness as well as appropriate Health and Safety pointers should be displayed in staff facilities (bathrooms, canteen area, etc).

7.10Club House and Members

- Include regular features on the environmental aspect of the course in the club newsletter.
- Use the notice board to announce particular management projects or inform about recent wildlife sightings.
- Produce a pamphlet, leaflet, or small book about the natural heritage and environmental policy of the golf course. These can be distributed to members and staff as well as events participants (see below).

7.11Events Management

- Ensure that events sponsors and event participants (staff, suppliers, contractors, sponsors, officials, etc.) are aware of and endorse the golf course’s dedication to the ecological sustainability and environmental policy of the course. It is important to communicate the environmental policy to the event participants so that everyone can play their part.
- Dedicated access and parking areas for promotional vehicles must be demarcated and driving or parking outside of these demarcated areas prohibited.
- Keep a record of problems encountered and any positive or negative feedback from the event participants to benefit future events and enhance current environmental management of the course.

7.12Driving Range

* All preventative measures discussed in this document as relating to stormwater management, chemical storage and application, turf management, irrigation etc, must be applied to the driving range.

7.13Access of Maintenance Vehicles

* Access paths / roads for maintenance vehicles must be demarcated and driving outside of these demarcated areas prohibited.

7.14Solid Waste

* Solid waste stored on site must be caged in to prevent scavenging by Vervet monkeys, vermin, etc and dispersal by wind. The bottom of the cage must be bunded to prevent any runoff from the solid waste.
* Litter bins on the golf course must be monkey-proof.
* Litter bins must be abundant. Ensure one at least at each tee.
* Erect signs encouraging golfers, visitors and staff to not litter and to use the bins provided.
* Bins must be emptied regularly and be checked that the monkey-proofing is still functioning.
* Recycling: golf courses have their share of waste paper, tins, bottles, plastic, metal etc. Over time this can amount to sizeable quantities, which cost money to dispose of but could generate revenue instead.
* Implement a co-ordinated recycling policy for all golf club operations: course management, club house, pro-shop, restaurant, etc.
* Refer to **Appendix N**: Waste Management Plan contained in this EMPr.

8 VOLUME 7: OPERATIONAL PLAN FOR WATER MANAGEMENT

8.1 Lakes

* Refer to Volume 3 of this EMPr for the description of the water resources system, and its operation.

8.1.1 Water Quality Monitoring

* Water quality monitoring points must be established at six locations, as indicated in the Figure attached at **Appendix T**.
  - MP1 – Tongati River inflow to NRWL
  - MP2 – Main abstraction pump station
  - MP3 – Begota Stream inflow to Dam 1
  - MP4 – Lake B recirculation pump suction
  - MP5 – Lake A recirculation pump suction
  - MP6 – Estuary near M4 bridge.
* Some of these must be fitted with transducers that provide continuous monitoring of water levels and selected water quality parameters to the pump stations and main control room.

8.1.2 Water Quality Management

* Refer to **Appendix R** which provides frequency for water quality monitoring.
* The Lakes receive water primarily from the Begota Stream and the Tongati River, but also from ground water seepage, local stormwater runoff and potentially sewage spills.
* Nutrient runoff from the golf course and in Lake B must be monitored for levels of N, P, K and S and the pollution impact on Lake B calculated, taking into account the additional quantities of these element measured at the inflow monitoring stations MP1, MP3 the from.
* The quality of water from each source will vary in time and will largely be outside the control of management. However, by monitoring the water quality of the various influent streams, it should be possible to withhold or divert most polluted inflows away from the lake water bodies, including sewage spills.
* The exception will be flood waters that cannot be controlled, and which may result in a deterioration of the lake water quality.
* Post-flood actions to restore normal water quality would include flushing the lake and replacing the water with post-flood Tongati River water of acceptable quality.
* The recirculation system and irrigation abstractions can be used to remove low quality water, while replacement water is diverted from the river. It should take approximately one month to purge a lake completely, depending on the rate of unavoidable inflow.
* An important part of maintaining water quality will be the wetland filters on the streams leading to the lake and the natural processes that should occur within the lake water body itself. These must be monitored on a monthly basis to confirm effectiveness and sustainable resilience.

8.1.3 Use of Water Body for Recreation

- Subject to management approval, the Lake may be used for fishing, rowing, model boats, dingy sailing and swimming. However, in all cases where body contact with the water is involved, restrictions may be placed on the relevant activities where there is a health risk, particularly from parasitic infections where the vectors are found to be present.
- Microbiological sampling of the water bodies must be undertaken at six-monthly intervals (mid-summer and mid-winter), or when justified by specific event. Infection risks must be assessed, and results communicated to the public.

8.1.4 Impacts from the Golf Course and Local Infrastructure

- All sewage from the development must be pumped to Fraser's sewerage treatment works. There is a risk of sewage spillages flowing into the lakes, with potentially catastrophic results, and therefore the sewerage system must at all times be maintained in good working order.
- Water economy measures in building designs must be applied wherever possible to reduce the generation of sewage.
- Urban infrastructure and building designs must ensure that storm-water runoff cannot be polluted to a degree that will be detrimental to the wetland filters and, by consequence, the water quality in the Lakes.
- Stormwater must be retarded and filtered through wetland-type detention dams or infiltration chambers where ever feasible.

8.1.5 Flood Conditions

- The major floods will inundate the lakes to the levels determined by the design flood calculations and the lakes and associated infrastructure must be designed to accommodate the resulting forces.
- Flow velocities and water depths are the main components of a flood hazard determination. The hydraulic modelling must be able to identify critical flood hazard areas and recommend appropriate safety measures and procedures to be adopted.
- Early flood warnings for the Tongati Catchment, which is relatively large, will provided real-time rainfall monitoring stations that record the rainfall rates and accumulated rainfall. When rainfall rates reach the design flood rates flood warnings can be initiated. The pre-flood warning period from this system must be approximately 1 hour to 30 minutes in advance of a flood peak. In addition, major weather patterns likely to cause floods are usually known at least 24 hours before the storm event and enable early warnings must be issued and rainfall and water level monitoring systems to be checked and activated.
- Note that all floods in the Begota Stream flow through Lake B, but only storm return periods above 1 in 25 years cause both Lakes to become submerged by the flood waters in the Tongati River. (The final design will advise expected levels for various flood return periods).
- When the Tongati River flood waters rise above the level of the land separating the lakes from the main river, the Lakes are to be considered unsafe and the public warning system must be activated. This can be done manually or automatically using the water level indicators installed at MP1 and MP2.

8.2 Irrigation

Refer to Section 7.5.

8.3 Stormwater Management

8.3.1 Introduction

Refer to Section 6.4.5.

The Stormwater Management Policy must aim to:

- Maintain adequate ground cover at all places and at all times to negate the erosive forces of wind, water and all forms of traffic;
- Prevent concentration of stormwater flow at any point where the ground is susceptible to erosion;
- Reduce stormwater flows as much as possible by the effective use of attenuating devices;
- Ensure that development does not increase the rate of stormwater flow above that which the natural ground can safely accommodate;
- Ensure that all stormwater control works are constructed in a safe and aesthetic manner in keeping with the overall development theme for the Estate;
- Prevent pollution of water ways and water features by suspended solids and dissolved solids in stormwater discharges;
- Contain soil erosion, induced by wind and water forces by constructing protective works to trap sediment at appropriate locations; and,
- Avoid situations where natural or artificial slopes may become saturated and unstable.

8.3.2 Stormwater Management Policy

The steep slopes and soil profiles at most Zimbali Lakes sites require very careful management during and after construction. Detailed plans to control and prevent erosion by surface water and groundwater must be agreed with ZLMA prior to the commencement of any works, including site clearance, on any portion of the lot.

The following rules are to be observed by all developers, owners, professionals and contractors:

1. Concentration of stormwater runoff both spatially and in time must be prevented wherever possible. Infiltration of stormwater is encouraged, but checks must be made to ensure that there is no ex-filtration at a lower point that leads to erosion of slopes.
2. Removal of vegetation cover must be carried out with care and attention to the effect, whether temporary or long term, that this removal will have on erosion potential.
3. Precautions must be taken at all times on building sites to contain soil erosion and prevent any eroded material from being removed from the site.
4. Landscaping and re-vegetation of areas not occupied by buildings or paving must be programmed to proceed immediately building works have been completed or have reached a stage where newly established ground cover is not at risk from the construction works.

5. Stormwater control systems, such as swales and detention ponds must be constructed before any construction commences on the site. As construction progresses, the stormwater control measures must be monitored and adjusted to ensure complete erosion control at all times.
6. Unprotected earthworks on sites must be kept to an absolute minimum. Where embankments have to be formed, the work may not be undertaken during adverse weather conditions and stabilisation and erosion control measures must be implemented immediately on completion of the earthworks.
7. Stormwater must not be allowed to pond in close proximity to building foundations or at the edge of embankments, or flow across the open face of any unprotected excavation.
8. Prior to any physical work proceeding on any site, stormwater control plans detailing the proposed stormwater control measures must be submitted to the Senior Project Manager of Zimbali Lakes Management Association (ZLMA), or his representative. No work must be undertaken without the approval of ZLMA.
9. Stormwater control plans must describe what control measures are to be implemented before and during the construction period, as well as the final stormwater control measures required for the site on completion of site development. Plans must indicate who is responsible for the design of the control measures and who is or will be designated as the responsible person on site during each stage of the implementation of the control measures.
10. Stormwater control plans must show that all the provisions, regulations and guidelines contained in this document have been taken into account.
11. In the event of a failure to adequately implement the approved stormwater control plan, the owner/developer must be responsible for making good all consequential environmental damage at his own cost. Owner / developers are therefore advised to ensure that all members of their professional teams and their contractors are competent to undertake the development work and are adequately insured.

9 VOLUME 8: WETLAND MANAGEMENT AND REHABILITATION PLAN, ALIEN VEGETATION CONTROL AND LANDSCAPING PLAN

9.1 Wetland Management and Rehabilitation Plan

Environmental Management Plan issues have been referenced from the Report attached as **Appendix Q**, prepared by LRI dated May 2008, entitled: "Zimbali Lakes Wetland Rehabilitation Plan".

Reference is also made to the letter from EKZNW dated 1 July 2008 attached as **Appendix U**, where EKZNW accepts the wetland rehabilitation plan with an understanding that a nett gain of wetland habitat is required three years after the completion of the wetland rehabilitation activities; failure for this to occur would require the develop to submit a wetland offset management plan at that time.

9.1.1 Operational Phase

Referenced from **Appendix Q**, Section 6.3: "Zimbali Lakes Wetland Rehabilitation Plan":

- Manage and re-vegetate the wetland and adjacent buffer / riparian zone in accordance with best practise and the recommendations outlined by Geoff Nichols (see Section 3 above and 9.2 below).
- The control, eradication and removal of alien invasive vegetation within the wetlands and adjacent buffer / riparian zones must be ongoing.
- Manage the wetland systems so as to promote biodiversity on terms of species composition.
- Manage the following wetland systems as woody systems (this is due to the golf course layout design requiring players to play-over these wetland systems), with the remaining being managed as herbaceous wetland systems:
  - Unit C (allow existing vegetation to expand beyond the drainage canal);
  - Unit D (maintain and promote the spread of existing riparian forest through as much the unit as possible, except in the lower reaches of the system where a reed bed would need to be established in the deactivated ridge-and-furrow);
  - Unit K (maintain and promote the spread of existing riparian forest in the unit); and
  - Unit M, N and P (establish woody species within the wetland to assist in increasing the diversity of the wetland habitats in the development site).
- Defoliate the buffer area of herbaceous wetlands through either controlled burning (every two to three years) or mowing (note that mowing would need to be higher than 15cm and less frequent than lawn or recreational areas; in addition, care must be taken to ensure that the mowing debris does not enter the wetland system).
- Maintain rehabilitation structures.
- Maintain stormwater attenuation structures and the removal of excessive sediment accumulation within the buffer zone.
- Monitor the wetland habitats and receiving areas of the buffer / riparian zone for scour and erosion from excessive runoff.

9.1.2 Monitoring and Evaluation Plan

Referenced from **Appendix Q**: "Zimbali Lakes Wetland Rehabilitation Plan", Section 7: Monitoring and Evaluation Plan:-

Indicators to be measured (Section 7.1):

- Implementation of rehabilitation activities according to designs (Section 7.1.1)
- Structural integrity (Section 7.1.2)
- Fixed-point Photography (Section 7.1.3)
- Wetland integrity (Section 7.1.4)

Frequency, Interval and timing of monitoring as per Section 7.2:

- Pre-construction (Section 7.2.1)
- During construction (Section 7.2.2)
- Post-construction (Section 7.2.3)

Evaluation procedure (Section 7.3):

- Evaluation to demonstrate gain in wetland integrity and ensure 'no nett-loss'.
- If no gain in system integrity during the Operational Phase, then the Zimbali Lakes Management Association (in conjunction with the Primary Developer) would be required to identify additional areas of wetland for offsite mitigation to satisfy an agreed upon offset ratio determined with the relevant authorities.

9.2 Alien Invasive Vegetation Removal Plan

9.2.1.1 Prepared by Geoff Nichols

Many alien invasive species readily invade wetland and damp areas causing the preferred local vegetation to be smothered and thus out-competed leading to a series of negative impacts such as:

- Erosion;
- Increased water usage;
- Removal of valuable nutrients from the soils; and
- Further infestations.

The plants that have invaded this site are the usual palette of undesirable introduced species. The following list of plants is mainly agricultural weeds. The invasive species are written in **bold *italics***.

ALIEN / INVASIVE PLANTS

Table 3: Alien / Invasive Plant Species.

Species Name	Notes
Acacia mearnsii	
Ageratum conyzoides	
Ageratum houstonianum	
Albizia procera	**Planted in streambed**
Colocasia esculenta	**Escaped from cultivation**
Amaranthus spinosus	
Argemone Mexicana	**Hedging Bamboo**

Species Name	Notes
Bambusa vulgaris	**Bamboo is used to protect river banks & spring sources & is not invasive**
Bidens bipinnatifida	
Bidens pilosa	
Boerhavia erecta	
Caesalpinia decapetala	
Canna indica	
Cardiospermum grandiflorum	
Casuarina equisetifolia	
Cestrum laevigatum	
Chenopodium ambrosioides	
Chromolaena odorata	
Conyza albida	
Conyza bonariensis	
Cotula australis	
Datura stramonium	
Gamochaeta pennsylvanica	
Ipomoea foetida	
Ipomoea purpurea	
Jacaranda mimosifolia	**Planted**
Lactuca serriola	
Lantana camara	
Lepidium bonariense	
Melia azedarach	
Mimosa pudica	
Musa paradisica	**Banana**
Opuntia monacantha	
Oxalis latifolia	
Paspalum urvillei	
Passiflora foetida	
Passiflora suberosa	
Pennisetum purpureum	
Physalis viscose	
Plantago major	
Psidium guajava	
Richardia brasiliensis	
Ricinus communis	
Rumex crispus	
Schinus terebinthifolius	
Senna didymobotrya	
Senna septemtrionalis	
Sesbania punicea	
Solanum hispidum now *S. chrysotrichum*	
Solanum mauritianum	
Solanum nigrum	
Sonchus oleraceus	
Sorghum halepense	
Syzygium cumini	
Thelechitonia trilobata	
Tithonia diversifolia	
Tridax procumbens	
Tagetes minuta	
Verbena bonariensis	
Xanthium strumarium	

The two most difficult colonies of plants to remove consist of three main species:

* There is a large colony of Brazilian Pepper – *Schinus terebinthifolius* in the riverbed that has colonised the fragment of Swamp Hibiscus – *Hibiscus tiliaceus*.
* The other is a colony of *Pereskia aculeata* and *Caesalpinia decapetala* that are not as extensive, but these plants are notoriously difficult to eradicate.

The methodology of alien plant removal at Zimbali (existing golf estate) is mainly mechanical removal as this does less damage to the environment as the use of harmful chemicals is minimised.

Most of the plants are controlled by a cut and dig operation with subsequent follow up events. The whole Estate is demarcated into sections and each section is checked for alien invasive weeds every 3-6 months. In the "wild" parts of the Estate the alien plant control follow-up programme is suspended during the summer breeding season so as not to disturb the wildlife. In heavily infested areas the first control event is also done in the winter months.

The main chemical control undertaken is in the removal and control of aquatic plants with the use of glyphosate to control an exotic water lily, *Nymphaea mexicana.* We are using a glyphosate-based herbicide that has a surfactant or wetting agent added to the mixture to topically spray the lily pads this method has worked very well.

When it comes to the trees like the Brazilian Pepper – *Schinus terebinthifolius*, these are felled using a chainsaw and then the stump is treated with Chopper. This method of treatment will be used to remove the *Schinus* from the floodplain. In certain areas where habitat cover is needed the tree must be treated with a herbicide, Garlon-D and diesel fuel oil mixture to kill the plant *in situ*. This does leave a dead unsightly skeleton, but in some areas this skeleton provides good wildlife cover when creepers are allowed to grow over the dead tree. However, in the case of the floodplain I would recommend that the wood/timber be cut into 1 m lengths and left *in situ* so as not to create potential log jams in the event of a flood. The use of herbicides in the Estuary and Floodplain will have to be checked before it is finally decided on which herbicide will have the least effect on other life forms.

For the difficult to remove cactus the Barbados Gooseberry - *Pereskia aculeata* there is only one failsafe method of control and that is to cut the stems, dig out the roots that can be seen, place the stems and roots in a pile and set fire to them. In some cases, at Zimbali it took three growing seasons worth of follow up visits to eradicate one colony of this creeping cactus.

The huge stands of Giant Bamboo on the south bank of the river should be left due to the fact that these clumps have stabilized and hold the riverbank in place under flood conditions. They also provide nesting habitat for the Village Weaver.

9.3 Landscaping Plan & Vegetation Rehabilitation Plan

9.3.1 Introduction

Reference is made to the letter attached as **Appendix U**, dated 1 July 2008 from EKZNW regarding the need for rescue and relocation of significant flora, where they acknowledge that such a plan is not required.

9.3.2 Lake and Lake Edges

9.3.2.1 Prepared by Geoff Nichols

A Suggested Planting Palette for use on the Bank Edge of the Zimbali Lakes Development.

It is understood that the banks will be engineered to a 3:1 slope.

It is proposed that the lower two thirds of the bank will also be covered with a Reno mattress that will be planted up with the following plant species: Probably need to say how wide the bank / reno mattress is to be and how many metres of it are to be under water most of the time.

To prevent the proposed Lake edges from being eroded through wave action from the large body of water and also to act as a vegetation protection for the same banks in times of flood, the plants listed below have been selected. The species selected come from the more comprehensive list of wetland plants that are generally in use in the Durban area.

Table 4: Suggested Plant Species for use on Banks.

Species name	Common name	Description
Ficus capreifolia	Sand Paper Fig	Scrambling shrubby plant that occurs locally in the umDlothi and Tongati River systems.
Ficus trichopoda	Swamp Fig	A multi stemmed tree with large leaves and very robust rooting system
Barringtonia racemosa	Powder Puff Tree or Freshwater Mangrove	A medium sized tree of estuaries that holds river banks in one place.
Hibiscus tiliaceus	Swamp Hibiscus	A multi stemmed tree with large leaves and very robust rooting system
Phoenix reclinata	Wild Date Palm	A multi stemmed palm with a very tough fibrous root system ideal for bank reclamation.

In the more open areas the Reno mattress will have tougher more drought resistant sedges like:

Table 5: Suggested Plant Species for use in more open areas.

Species name	Growth form
Cyperus dives	Large sedge
Cyperus fastigiatus	Large sedge
Cyperus dives	Large sedge
Cyperus natalensis	Wetland edges with dryland.
Cyperus papyrus	Giant sedge
Cyperus prolifer	Dwarf sedge looks like a miniature Papyrus
Cyperus sexangularis	Medium sedge
Cyperus textilis	Medium sedge will take some shade

All the above species are able to live in damp boggy soil but will survive quite happily in just normal to damp soils.

All the plants on the Reno mattress covered bank will be able to withstand the scouring effect of flood waters as they are soft celled herbaceous plants that will be pushed flat by the rushing water. Their well-established fibrous root systems will bind in between the rock and wire framework of the Reno mattress forming a strong anti-erosion layer.

The combination of both woody and herbaceous plants used when planting will depend on the proposed human usage that is envisaged in specific sections of the bank. This flexibility allows for the bank to be fully covered and protected.

In addition, it is proposed to plant along the waters edge at the toe of the bank a mat of *Echinochloa pyrimidalis* - Antelope Grass to prevent bank erosion.

I would recommend that a 1,5 m deep and 2 m wide trench be dug with sides that are also at a 3:1 slope from the toe of the bank about 3-10 m in a curvilinear line be dug and the sand that is dugout be placed to the southern side of the trench in the water body which will raise the substrate level to just about 100-150 mm below the normal flow water level of the Lake. This raised portion of the berm must have a top width of about 3-4 m wide. Into this manufactured underwater berm, a further mat of *Echinochloa pyrimidalis* - Antelope Grass approximately 3-4 m wide must be planted. This will be the first line of defence for wave action caused by the south westerly winds. The berm will also act to divert water flow away from the bank edge during times of flooding. However, the berm might also be scoured out under flood conditions.

During normal flow times the deep channel between the berm and bank edge with the submerged aquatic plants that will be established in the trench and on both of the sloped sides will act as a wildlife feeding and refuge area.

The plants that would be best suited for this zone are:

Table 6: Suggested Aquatic Plant Species.

Species Name	Description
Cyperus articulatus	Wand sedge
Ludwigia adscendens prev. *L. stolonifera*	Floating edge plant yellow flowers good wave action energy dissipater.
Ludwigia octovalvis	Shrub, that will live in sodden soils at the waters edge grow in full sun has showy yellow flowers.
Nesaea radicans	Herb purple fine flowers sun can take some shade
Nymphaea nouchali	A true submerged aquatic blue water lily good for birds' food and frogs.
Nymphoides indica	A true submerged aquatic smaller yellow flowered lily type frogs and birds.
Persicaria senegalensis prev. *Polygonum senegalense*	Silver leaved edge plant ideal landscape and bird plant.
Schoenoplectus littoralis or *S. scirpoides*	The wand sedge is a sculptural joy. Large up to 3 m tall but worth it for ponds & their edges. Good energy dissipater.

9.3.3 Wetlands

General requirements for the rehabilitation of wetlands are:

* Do a baseline water quality study before construction then do regular tests during and after construction to monitor the water quality both above ground and as seepage. Checking for nutrients and turbidity are the two that would be useful for this system. (See Breedlove document done in 1998, but never enacted, points made are still valid today);

- To block all herringbone drainage lines to re-flood the soils and allow the sugar cane to drown. This will be a gradual process that will then allow the strips of wetland vegetation that still exist in the area to re-colonise the sodden soils;
- To stop all use of herbicides that control weed plants;
- To stop all cultivation and human interference within a 20 m buffer zone around the wetland areas;
- To add in the local wetland plant species that are missing from the system. This intervention needs to happen at a meaningful scale so that each section will have a nucleus planting that can then re populate the whole system. I would begin the process at the upper end of each drainage catchment so that the seed and other propagules are able to move down stream as the plants mature and set seed;
- If roads or stormwater / sewer lines are to breach the stream or wetlands, then this should be done before any replanting to minimise disturbance and plant wastage;
- If there are to be open water bodies designed into the systems get all this done in the early stages so as to get the maximum advantage of the replanting process; and,
- The plant material already grown on site at Zimbali on the original golf course development can be harvested as part of the normal horticultural maintenance programme and used on the new areas. It will also be necessary to grow many plants under nursery conditions to get the necessary numbers needed to repopulate the streams and wetlands.

Useful Wetland / Marsh and Aquatic Plants

This is a list of species that have been found to be easy to grow and maintain in the ponds on the KwaZulu-Natal east coast and inland regions. All the species listed below must be grown in full sun for best results. Those that are submerged aquatics are listed with an "***A***" in the first column.

These lists of plants are not mythical lists. They are lists of the most productive tree, shrub and herbaceous species for this habitat type within the Durban Metropolitan. All these plants can be grown though most are not commercially available but can be contract grown for this project.

The list of Herbaceous species is of plants that occur in any wetland within the Durban Metropolitan region, but it is not an exhaustive list. It does however cover species that are missing from this system. It does not include certain species that occur commonly and will be already growing as "weeds".

IMPORTANT: Do not substitute uncommon plant species that are not readily available in the nursery industry for common plants as this does not build biodiversity. Rather grow and increase the quantities of the uncommon species in a nursery.

Trees and Shrubs

Table 7: Suggested Trees and Shrubs Plant Species.

Species Name	Comments
Acacia robusta	
Acacia sieberiana var. woodii	Already in wetland edges at Zimbali
Barringtonia racemosa	
Bridelia micrantha	
Cryptocarya latifolia	
Ekebergia capensis	

Species Name	Comments
Erythrina caffra	On the drier banks for winter colour and food.
Erythrina lysistemon	On the drier banks for winter colour and food.
Ficus capreifolia	Occurs locally in the umDlothi and Tongati River systems.
Ficus lutea	On the drier banks for food.
Ficus natalensis	On the drier banks for food.
Ficus polita	On the drier banks for winter colour (leaf turn in autumn) and food
Ficus sur	
Ficus trichopoda	
Ficus verruculosa	This plant is from northern Zululand, but will do well here in the swampy conditions.
Harpephyllum caffrum	On the drier banks for winter colour and food
Hibiscus tiliaceus	
Macaranga capensis	
Phoenix reclinata	
Rauvolfia caffra	
Syzygium cordatum	
Tarenna pavettoides	
Voacanga thouarsii	

Herbaceous Species

All the species listed below must be grown in full sun for best results. Those that are submerged aquatics are listed with an "***A***" in the first column.

Table 8: Suggested Herbaceous Plant Species.

	Species Name	Comments
	Aspilia natalensis	scandent scrambler full sun yellow daisy
	Bacopa monnieri	a low growing groundcover for damp soils lovely white to pink flowers. Grows well in lawns and a good substitute for lawns.
	Centella asiatica	scandent herb sun or shade
	Coix lacryma-jobi	large grass with attractive seeds Job's Tears
	Cotula nigellifolia	pond edge species blue green leaves yellow button daisy flowers.
	Crassocephalum picridifolium	scandent herb in wetlands yellow button daisy flowers full sun
	Cyperus articulatus	wand sedge
	Cyperus dives	large sedge
	Cyperus fastigiatus	Large sedge
	Cyperus dives	large sedge
	Cyperus natalensis	wetland edges with dryland.
	Cyperus papyrus	giant sedge
	Cyperus prolifer	dwarf sedge looks like a miniature Papyrus
	Cyperus sexangularis	medium sedge angled stems
	Cyperus textilis	medium sedge will take some shade
	Dissotis canescens	wild tibouchina full sun smaller purple flowers to next plant
	Dissotis princeps	wild tibouchina full sun larger leaves and flowers
	Echinochloa pyrimidalis	Antelope Grass a good mat forming grass for bank edge energy dissipation and food source for wildlife
	Gunnera perpensa	scandent large round leaves texture plant
	Hydrocotyle bonariensis	creeping herb
	Isolepis prolifera	pioneer sedge for damp edges forms a neat mat of foliage
	Juncus kraussii	spiky matting rush, form plant full sun in estuary and ponds.
	Kniphofia rooperi	full sun large yellow to orange poker winter flowering
	Kniphofia tysonii	full sun large red hot poker - others good too
	Laportea peduncularis	stinging nettle found along stream edges

	Species Name	Comments
	Lobelia anceps	low growing blue flowers excellent groundcover
	Ludwigia adscendens (L. stolonifera)	floating edge plant yellow flowers
	Ludwigia octovalvis	shrub sun yellow flowers
	Nephrolepis biserrata	giant sword fern for shady areas
	Nesaea radicans	herb purple fine flowers sun can take some shade
A	*Nymphaea nouchali*	blue water lily good for birds food and frogs
A	*Nymphoides indica*	smaller yellow flowered lily - frogs and birds
	Persicaria senegalensis (Polygonum senegalense)	Silver leaved edge plant ideal landscape and bird plant
A	*Potamogeton crispus*	brown waterweed good for birds food
A	*Potamogeton schweinfurthii*	larger leafed waterweed
A	*Potamogeton thunbergii*	medium water weed birds
	Pycnostachys reticulata	Mint family pale pink to blue flowers birds shrub
	Pycnostachys urticifolia	Mint family blue flowers birds shrub
	Ranunculus multifidus	yellow buttercup full sun insects and canaries feed on seeds.
	Schoenoplectus littoralis or *S. scirpoides*	wand sedge sculptural large up to 3m tall but worth it for ponds and their edges.
	Stenochlaena tenuifolia	robust creeping swamp forest fern full sun or shade.
	Typha capensis	Bulrush nesting habitat, full sun, use away from homes and people - causes asthma, messy seed fluff windblown gets everywhere in late summer during January - March
	Zantedeschia aethiopica	sun or shade in damp spots white flowers

9.3.4 Estuary / Floodplain

Estuary / Floodplain Northern Bank Rehabilitation

The edges of the large lake need to be clearly demarcated as to where humans want a lawn like finish to the water's edge and where the natural pond or wetland edge plants will be allowed to grow.

No digging or excavation machinery must be allowed south of the proposed large lake edge. The normal riverbank and its attendant fringing vegetation must not be breached other than at the inlets and outlets to this large impoundment of water.

No soil or alluvium spoil must be pushed into the floodplain as this will exacerbate the already high silt load in the estuary.

Both the south and north banks of the Tongati River have infestations of alien plants. All these plants within the boundaries of the property will have to be removed during the progress of this project. The one area that must have serious attention paid to it is the huge infestation of the alien invasive Brazilian Pepper tree – *Schinus terebinthifolius* that fringes the estuary on the north bank growing with the indigenous Swamp Hibiscus - *Hibiscus tiliaceus*. (see Alien Invasive Vegetation Removal Plan)

The rehabilitation planting method is exactly as discussed in the Wetland Rehabilitation section. What really needs to happen here is that the once naturally occurring indigenous plants have to now be added to the equation. It is the one case where no fertilisers or composts need to be used in the planting process. Add the plants and the water and sunlight will do the rest

9.3.5 Forest patches

Zimbali Lakes Forest Patches

Some of the dominant alien invasive species in the area are Blue Gum – *Eucalyptus grandis, Acacia mearnsii, Solanum mauritianum, Cestrum laevigatum, Lantana camara, Chromolaena odorata, Psidium guajava* and *Schinus terebinthifolius*.

Indigenous plants present in the forest patches:
Albizia adianthifolia
Brachylaena discolor
Chrysanthemoides monilifera
Clerodendrum glabrum
Deinbollia oblongifolia
Digiteria diversinervis
Dioscorea sp.
Isoglossa woodii
Lagynias lasiantha
Maerua racemulosa
Panicum maximum
Pittosporum viridiflorum
Psychotria capensis
Psydrax obovata
Pyrenacantha scandens
Rhus chirindensis
Rhus nebulosa
Scadoxus puniceus
Senecio brachypodus
Setaria megaphylla
Strelitzia nicolai
Tabernaemontana ventricosa
Trema orientalis
Trimeria grandifolia

The plant list above is not exhaustive but shows a typical smattering of forest pioneer species one would expect to find in a coastal lowland forest in the Ballito area. There are a few plants that indicate a relictual state of maturity when the first disturbance happened in this area when sugar cane was first planted maybe 60-80 years ago.

9.4 Indigenous Vertebrate Management Plan

9.4.1 Introduction

Reference is made to the letter attached at **Appendix U**, dated 1 July 2008 from EKZNW regarding the need for rescue and relocation of significant fauna, where they acknowledge that such a plan is not required.

9.4.2 Vertebrates Supported by the lake

9.4.2.1 Prepared by Geoff Nichols

- The wetlands are an integral part of the open space system of the Tongati River valley. Ensure that there are links across valley systems within the built environment so that the wildlife can move throughout this development. Linkages up and downstream plus across catchments must be catered for in the open space plan.
- As road verges must not be fenced, signs need to be erected to warn motorists of animals crossing the road. The animals that are most at risk are the Banded Mongoose and Vervet Monkeys. For the mongoose underpasses using pipes would work. In more engineered roads a box culvert to allow taller mammals like the Bushbuck and Bush pig to move through the area should be used.
- The location of an overhead rope bridge must be investigated in more detail in conjunction with the ECO during the Planning / Construction / Operational Phase (whichever is relevant at the time).
    - Vervet Monkeys will make use of an overhead rope bridge for crossing roads. Rope bridges should be constructed during the rehabilitation process of the road verges. These bridges need to begin and end in the foliage of the surrounding tree canopy. The rope must be at least 8 m above the road. Construct the bridge using tall tanalised gum poles to hold the rope up. Then use a triple twined 25-30 mm hemp rope to give a thick enough area to hold onto. Two parallel ropes across the road would be better to help with stability. Woodland Dormice and Thick-tailed Galagos would also use such bridges.
- All road verges including banks above and below the road level must be replanted with plants that suit that specific zone that the road is traversing. For example, where a road passes through the forest the edges need to be re-vegetated with forest understorey and forest tree species not grassland or wetland species.

9.4.3 Habitat and Enhancement Features for the Fauna at Zimbali Lakes

Bird nest boxes

- In newly developed areas efforts must be made to try and increase the opportunities for birds and other mammals to nest, roost and find shelter. The larger trees and wilder parts of the area must be protected from damage during development operations. Nevertheless, the will be a shortage of cavities and dead branches into which birds like Woodpeckers and Barbets are able to bore their nesting holes. If extensive bush or natural areas remain it may not be necessary to do so much enhancement work. The use of nest boxes that are made from plain timber planks or even hollow logs, with intact tops and bottoms, nailed to the logs will work. Some bird species will bore out their own nests and while others rely on old nest cavities or naturally occurring holes in trees in order to nest.
- Nesting boxes are available commercially with in sizes to suit South African conditions in the Durban area and to date have a good success rate.
- Larger birds in our region like the Spotted Eagle Owls and Barn Owls are the most common. Again, these birds control rodents and should be encouraged in urban environments.
- A tea chest attached at least 8 m above ground to a wall or in a large tree will bring Owls and Falcons. The box needs to have a 100 mm bottom lip on the outer edge to prevent eggs and

chicks from rolling out of the box. Such a nesting box will be accepted in a season. Put a little sand or sawdust on the bottom to act as padding.

Hollow logs

- When selecting a hollow log, ensure the inner diameter of the cavity is at least 100 mm. Hollow logs can be cut into 400 mm lengths and have the ends sealed off with a plank or marine ply. Then drill a hole into the side of the log about 120 mm below the top of the log. The best diameter for the hole in the side is 35-40 mm which is large enough to let in Southern Black Tits, Black- bellied Starlings, Grey-headed Sparrows, Plum-coloured Starlings and African Hoopoe (only if the log is at between 2-3 m above the ground). Redbilled Wood Hoopoes like the hole a little wider at about 45 mm. Do not treat these logs with any paints or varnishes.
- For Barbets or Woodpeckers use a 500 mm dry log at least 120 mm in diameter at about 80 off the vertical on a sheltered but clear branch of a tree. The best species in the Durban area for me are Natal Fig (*Ficus natalensis*) or Broom Cluster Fig (*Ficus sur*), Avocado (*Persea americana*), Coral Tree (*Erythrina caffra* or *E. lysistemon*), Flamboyant (*Delonix regia*). If the wood is fresh, then let it dry out and then tie it up into the appropriate tree. A good thing with this method is that the Barbets or Woodpeckers create a hole for the Starlings or Sparrows in the next season. Sisal logs for this purpose are commercially available from nurseries.

Creating frameworks onto which Swallows, and other birds can attach their nests

- For our summer breeding Lesser Striped and White-throated Swallows, hammer a long nail into the wall where the swallows want to nest - about 80 mm below the roof and wait for the nest. The nail acts as a perch initially and then it acts as the foundation for the bowl. Leave a muddy patch for the Swallows to collect their little mud balls from. About 600 to 800 balls go into each nest. Line a hollow with plastic and add mud till it is at the right consistency not too wet or else the birds can't get the mud to stick to the concrete or plaster.
- Pieces of wire about 300 mm long with the end turned up to form a hook hung from sheltered parts of trees are often used by Sunbirds to attach their nest.
- The larger diameter culverts under the roads around the site could be used by species such as the Lesser Striped and White-throated Swallows if pieces of reinforcing rod are hammered into the joints between the pipes to act as starting frames for the nests. This has already happened at Zimbali.

Bat boxes

- Bats make very useful insect control agents. One insect-eating bat can consume in the order of 3 000 insects per evening. When it comes to mosquito control they will play an important role in keeping mosquito numbers at manageable levels.
- Bat numbers have decreased due to loss of roosting habitat. Bats need dark secure areas where they can rest during the day. In the service buildings like workshops and pump houses the architect must be required to design cavities in the building during the planning stage so that the cavity can be periodically cleaned and refurbished for the bats or owls that will live in the building.
- Boxes are an attempt to try and ensure that bats in the area remain at a reasonably high population level. The boxes are placed in fairly open but sheltered spots to ensure that the bats can get into and out of the boxes at dawn and dusk. Another method of attracting bats is to allow places in the roof cavities to be used.

* The large Epauleted Fruit Bats are not likely to roost in man-made boxes. However, they will use large dark trees like figs or Natal Mahogany trees to feed from and even roost in.

Otter Bolts and Sandbanks

* These structures can be dug and hidden in the larger dam areas around the course. The principle is to have a long narrow pipe 200-2500 mm diameter set below water level and rising gradually out of the water ending in a larger cavity created by a large diameter (1 m) pipe at the dry end on the dam edge. Here the otters and initially the Water Mongoose will be able to get into and out of their resting places without being seen by humans.
* Large sandbanks act as nesting site for terrapins. These reptiles would also look for these large cavities for roosting sites. Even the Southern African Python will move into a hole like the one I've just described.

Kingfisher, Swallow, Sand Martin and Bee-eater Nesting Banks

* In various sites around the golf course where the natural topography or terrain allows, banks of about a metre in vertical height should be constructed to provide opportunities for the following birds to excavate (dig) their nesting holes: Brown-hooded and Pygmy Kingfisher, Black Saw-wing Swallow, Brown-throated Martin and Little Bee-eater. In this system if we have high enough banks we could even get Giant Kingfisher nesting and on the larger water impoundments Pied Kingfisher could be attracted to secluded banks.

Perches

* A series of wooden perches need to be built to make more opportunities from which fish-eating birds will be able to hunt their prey. They must be set at different levels above the water so as to enable every conceivable type of bird to be able to hunt.
* Time of day is important from a fishing point of view, so these perches must be placed in such a way that the birds have good visibility into the water both in the morning or afternoon.

General Comments

* One then must look at the whole range of habitats and the plants that have been used in the landscaping so that a certain amount of enhancement can be added to the existing planting by adding more variety.
* For example: to attract butterflies all that has to be done is to select plant species that will act as larval food plants for a certain set of species. Then use other plants that will with their flowers attract the adult or flying butterfly to come and feed in a given area.
* Water gardens and tanks that are able to be looked into so that the frogs, fish and other forms of aquatic life can be seen at eye level are major talking points for visitors and staff.
* Refuge areas in the dams for birds and animals are important and are best created using locally occurring species of plants. Also, food-bearing plants that live in the water are important if one wants to attract ducks and other waterfowl. These aquatic plants will also help to reduce nutrients in the water plus act as bio filters and oxygenators of the water body.

Table 9: Mammals occurring on site.

Common Names
Bushbuck
Blue Duiker
Large Spotted Genet

Common Names
Banded Mongoose
Water Mongoose
Woodland Dormouse
Greater Cane Rat

Table 10: Lizards occurring on site.

Common Name	Species Name
Giant Legless Skink	*Acontias plumbeus*
Yellow-throated Plated Lizard	*Gerrhosaurus flavigularis*
Variable Skink	*Mabuya varia*
Striped Skink	*Mabuya striata*
Nile or Water Monitor or Leguaan	*Varanus niloticus*
Tree Agama	*Agama atricollis*
Flap-neck Chameleon	*Chamaeleo dilepis*
Moreau's Tropical House Gecko	*Hemidactylus mabouia*
Cape Dwarf Gecko	*Lygodactylus capensis*

Table 11: Snakes occurring on site.

Common Name	Species Name
Spotted Bush Snake	*Philothamnus semivariegatus*

Table 12: Frogs occurring on site.

Common Name	Species Name
Guttural Toad	*Bufo gutturalis*
Bushveld Rain Frog	*Breviceps adspersus*
Common Caco	*Cacosternum boettgeri*
Snoring Puddle Frog	*Phrynobatrachus natalensis*
Sharp-nosed Grass Frog	*Ptychadena oxyrhynchus*
Greater Leaf-folding Frog	*Afrixalus fornasinii*
Painted Reed Frog	*Hyperolius marmoratus*
Bubbling Kassina	*Kassina senegalensis*
Forest Tree Frog	*Leptopelis natalensis*
Bush Squeaker	*Arthroleptis wahlbergii*

Table 13: Birds seen on site.

Common Name	Common Name
African Firefinch	Little Egret
African Fish Eagle	Little Swift under bridge
African Goshawk in forest	Malachite Kingfisher
African Marsh Warbler	Natal Spurfowl
African Paradise Flycatcher	Neddicky
African Pied Wagtail	Olive Sunbird
African Sedge Warbler	Pied Kingfisher
Ashy Flycatcher	Puffback Shrike
Barn Swallow	Red-billed Firefinch
Bar-throated Apalis	Red-capped Robin-Chat
Black Saw-wing	Red-collared Widow
Black-bellied Starling	Rufous naped Lark
Black-collared Barbet	Rufous-winged Cisticola
Black-eyed Bulbul	Sanderling at waters edge on beach
Black-headed Heron	Sombre Greenbul
Blacksmith Lapwing	Southern Boubou

Common Name	Common Name
Black-throated Wattle-eye in *Barringtonia racemosa (Hibiscus tiliaceus* thicket)	Southern Red Bishop
Brown-throated Martin	Southern Tchagra
Bully Canary	Speckled Mousebird
Burchell's Coucal	Spectacled Weaver
Cape Batis	Spotted Ground Thrush in dune forest winter visitor
Cape Gull on beach	Spur-winged Goose nesting in dry wetland edge.
Cape Reed Warbler	Stonechat
Cape Wagtail	Tambourine Dove in forest
Cape White-eye	Tawny-flanked Prinia
Caspian Tern on beach over estuary	Terrestrial Brownbul
Common Fiscal	Three-banded Plover
Common Waxbill	Water Thick-knee
Dark-capped Bulbul	White browed Robin
Egyptian Goose	White-bellied Sunbird
Fan-tailed Widowbird	White-eared Barbet
Fish Eagle	White-fronted Plover on beach at mouth
Giant Kingfisher	White-throated Swallow
Goliath heron in estuary	Wire-tailed Swallow
Grassveld Pipit	Woolly-necked Stork in estuary and forest patch
Green Twinspot	Yellow eye Canary
Green-backed Heron in *Barringtonia racemosa (Hibiscus tiliaceus* thicket)	Yellow Weaver in reeds
Grey Heron	Yellow-bellied Greenbul
Grey Sunbird	Yellow-breasted Apalis
Hamerkop	Yellow-fronted Canary
Lesser Striped Swallow	Yellow-rumped Tinkerbird
Lesser Swamp-Warbler	Yellow-throated Longclaw

10 VOLUME 9: ESTUARINE MONITORING AND MANAGEMENT PLAN

10.1 Introduction

Refer to the attached report attached at **Appendix R**, prepared by MER dated May 2008, entitled: "Zimbali Lakes: Tongati Estuary and Zimbali Lakes Estuarine Rehabilitation and Management Plan".

Zimbali Lakes Resort Landscape Design Code

Kwa-Zulu Natal South Africa

November 2017

Issue 05

Zimbali Lakes Resort Landscape Design Code

Kwa-Zulu Natal South Africa | November 2017

Prepared for

IFA Hotels & Resorts

Prepared by

Uys & White Landscape Architects
Durban
www.landscapearchitect.co.za

Contents **Page**

1.***Agreement: Landscaping Design Code for Landscape Architect***

This document must be completed and signed (in black ink) in respect of all work carried out on all phases of the Zimbali Lakes Resort.

1.1 Parties

1.1 .1 Zimbali Lakes Resort Management Association - "ZLR"

1.1.2 Landscape Architect: _____
Identity / Registration Number: _____
Workman's Compensation Number: _____
Contact Telephone Number: _____
Physical Address: _____
Postal Address: _____

2.1 Recordal

2.1.1 All prospective Landscape Architects are required to submit a portfolio of their work to the ZLR for evaluation.

2.1.2 The Landscape Architect hereby acknowledges he/she has received a copy of this Protocol in respect of all work carried out on all phases of the Zimbali Lakes Resort, and accepts the obligations in favour of the ZLR, as set out in this agreement. He/she also acknowledges this agreement stands in respect of all present and future work carried out on the Zimbali Lakes Resort. The ZLR reserves the right to amend this Protocol from time to time. The Landscape Architect will be advised of any such amendments.

2.1.3 The Landscape Architect also hereby acknowledges that the ZLR has the right to add or remove any Landscape Architect from the list of Accredited Landscape Architects.

Signed by the Landscape Architect at_____this____day of_____20____.

As witness:

Witness Signature:	Landscape Architect Signature:
	For Landscape Architect

Signed by the ZLR at_____this_____day of_____20_____.

As witness:

Witness Signature:	ZLR Signature:
	For ZLR

2.***Glossary of Terms***

ZLR	Zimbali Lakes Resort Management Association
Landscape Architect	Designer of the layout for the garden
Landscape Contractor	Contractor installing and maintaining the garden
PUD	Planned Unit Development
SR	Single Residential
NEMA	National Environmental Management Act, 107 of 1998
Exotic	Plants not indigenous to South Africa
DRC	Design Review Committee

Landscape Design Code

Criteria for acceptance of Landscape Architects by ZLR

- All accreditations are at the discretion of ZLR.
- To be considered for accreditation, a comprehensive Company Profile must be submitted to the ZLR including, specifically, documentation to evidence a proven track record of at least 3 success fully installed designs within a residential development, including references.

3.*Introduction*

The aim of this design code for Zimbali Lakes Resort is to ensure that all gardens are designed and maintained according to tested basic environmental sensitive principles and horticultural standards, namely:

a) All designs have thoroughly considered the broader coastal environment during the planning process, incorporating the natural and man-made environments.
b) Landscape designs proposals must be sensitive to the buffer zones.
c) Landscape should have long term succession species.
d) The design should integrate the built environment into the natural landscape with minimal negative impact on the environment.
e) The design should make use of the proposed indigenous and non-invasive exotic plants on the planting palette (plant list is not exclusive
f) Non- invasive exotic plants (approved by DRC) may be used in contained areas within the building lines.
g) No existing indigenous trees are to be removed from properties without management consent.

NOTE: NO plant listed on the Declared Weed and Invader plant list (Regulation 15 of the Conservation of Agricultural Resources Act, Act 43 of 1983) will be permitted. Plants on the "watch-list" should be avoided.

3.1.*Landscape Philosophy*

a) The aim is to establish an open almost savannah like landscape with a plant palette that is mostly indigenous to the north coast of Kwa-Zulu Natal with a relaxed informal atmosphere.

3.2.*Landscape Guidelines*

a) Plant corridors between units to achieve privacy.
b) Xeriscape type planting to be promoted.
c) Landscape must be functional and enhance living quality. To that end we would promote lawn areas in social functioning spaces and where it is required.
d) Although biodiversity of planting is important, different monoculture groupings can make up part of the biodiversity.
e) In key areas in order to achieve and iconic landmark landscape we recommend monoculture planting to introduce structure in the landscape.
f) Streetscapes are an integral part of an Urban landscape, creating hierarchies & allowing Flora diversity into the built environment.
g) A mixed specie palette is proposed as against a single specie palette, except where. identity in the landscape is to be developed. These mixed species will enhance the habitat and ensure biological. continuity as well as affect the microclimate of the site; i.e. wind reduction, noise reduction and visual screening.
h) Use berming where possible as a screening function between residential and main arterial routes.
i) The reduction of the heat envelope can be achieved with lighter shades of paving materials.
j) Soil moisture levels can be retained by using mulch on a regular basis.
k) Rain water should be collected in swales and low points and natural terraces should be created to slow down the f low of water run-off.
l) Reduce, retain and treat run-off at source using retention ponds and swales especially next to hard surfaces.
m) The Developer and ZLR, in collaboration with the Controlling Landscape Architects, reserves the right to make additions or alterations to these guidelines which in their opinion are necessary to en hance and guide the development into the urban character envisaged.

3.2 Landscape Materials

a) Materials
Corobrik Onyx, Corobrik Graphite and polished concrete finishes may be installed. Dark and light textures may be used in any combination and all proposals submitted to the DRC will be considered in relation to the character of the project.

b) Hardscaping
Paving materials should be used to create character, sense of scale and communicate contrast in relation to the buildings to establish boundaries and specific places.

4.***Design Procedures***

ZLR aims to maintain a high landscape design standard through acceptable horticultural principles. All landscapes (hard and soft) are to be designed by approved Landscape Architect.

4.1.***Landscape Plan Submission***

a) First Submission:
An initial Landscape Concept Plan (addressing the points recorded in 7.2 of this Guide) must be submitted for both PUD and SR sites. Submit one colour copy with the first set of building plans together with the prescribed applica tion fee.

b) Second Submission:
The Final Landscape Plan, for both PUD and SR sites, must be submitted within 30 (thirty) days of the building reaching roof plate height. Two copies of the detailed Final Landscape Plan (of which one will be in colour) must be submitted to ZLR for approval through the DRC. The other copy will be stamped and signed and returned to the applicant on approval by the DRC. A colour copy of the approved plan will be kept on file by ZLR. No work may commence on site until the Landscape Contractor has an approved Final Landscape Plan in their possession.

c) Digital submission is also required in DWG format only.

d) All submissions must be accompanied by a letter from the owner stating that they have reviewed and approved the proposed design.

4.2 Landscape Plan Submission Requirements and Checklist

ZIMBALI LAKES RESORT

Landscape Plan Submission & Checklist

Erf No:
Development node:
Date Plan submitted for Evaluation:

PLAN SUBMISSION

1. Format (Digital and Hard Copy)			
	Compliant	**Not Compliant**	**Comments**
1.1 Electronic format: DWG:			
1.2 Hard Copy: - All Plans A1 Papersize:			
- All Plans folded to A4 Papersize (not rolled):			
- Scale: 1:200 or larger:			
2. Information Panel on drawing to show:			
2.1 Landscape Architect Details:	**Complies**	**Not Compliant**	**Comments**
2.1.1 Company Details:			
2.1.2 Contact person:			
2.1.3 Contact tel No:			
2.1.4 Fax No:			
2.1.5 Cell No:			
2.1.6 Email:			
2.2 Property Details:	**Compliant**	**Not Compliant**	**Comments**
2.2.1 Erf No / Unit No:			
2.2.2 Site and Unit Area:			
2.2.3 Percentage of Landscape:			
2.2.4 Name of Owner:			
2.2.5 Zoning:			
2.3 Plant Plan legend:	**Compliant**	**Not Compliant**	**Comments**
2.3.1 Plants on legend & plan easily identifiable:			
2.3.2 Plant sizes indicated:			
2.3.3 Plant ratio's indicated			
2.4 Drawing details:	**Compliant**	**Not Compliant**	**Comments**
2.4.1 Drawing number:			
2.4.2 Drawing scale:			
2.4.3 Date of drawing:			
2.4.4 Revision number:			
2.5 Landscape Contractor:			
2.5.1 Name:			
2.6 Irrigation Designer:			
2.6.1 Name:			

2.6 Irrigation Contractor:			
2.6.1 Name:			
3. Requirements on drawing:			
3.1 Site Location Plan			
3.2 Site Boundaries			
3.3 Neighbours including complete house lay-out and existing structures			
3.4 Identify all hard-scaping, water features,re-taining walls, paving and permanent structures			
3.5 Building footprint - Showing latest Floor plan, all window and door apertures, patios, external columns, and roof overhangs			
3.6 All existing trees both indigenous and exotic			
3.7 Stormwater disposal and management			
3.8 Existing and proposed contours			
3.9 Erosion Protection if required			
3.10 North Orientation:			
3.11 Soil amelioration methods:			

Reviewed By: (Name)	
Company:	
Signature	
Date of Evaluation:	
Date of Referral:	
Date of Re-evaluation:	

4.3. Landscaping Design Considerations

Due consideration is required to plan an environmentally sensitive and pet-friendly garden. This is a process in which many aspects are considered prior to preparing the actual layout. These include:

4.3.1 Site Assessment and Analysis

a) The site should be inspected very carefully.
b) It is recommended that the Landscape Architect consult with persons knowledgeable about the site conditions

2.3.2 Topographical Features

a) Height above sea level (The higher you are the more you are exposed to the wind).
b) The direction the site slopes.

4.3.3 Prevailing Winds

a) Wind velocities are high and mainly N.NE. and/or S.SW.
b) Curtailing of winds on site is promoted.
c) Average of 275 windy days per year.
d) Courtyard houses should be considered.

4.3.4 Views and House Orientation

a) Maximise North orientation for external living spaces to optimize passive energy.
b) Identify views and vistas together with the architect before designing the garden to capitalize on this natural asset and ensure that future growth will screen from neighbours but not block views.
c) Maximise vistas with picture frame windows.

4.3.5 Plant Species and Diversity

a) A proposed ratio for indigenous to exotic planting is 80% (min) to 20% (max) respectively.
b) Non- invasive exotic plants (approved by DRC) may be used in contained areas within the building lines.
c) Zimbali Lakes Resort's Planting Palette is proposed but not limited to what's permitted.
d) The landscape shall consist of no less than 35% of the total remaining area of the site after the building footprint was subtracted from the overall site (planting percentage should be indicated on plan).

4.3.6 Boundaries

a) Have a surveyor check the boundary pegs before you commence with the work.
b) Building of any structure into the Zimbali Lakes Resort conservation buffer zones is strictly forbidden.
c) Daylighting into neighboring properties is not permitted.
d) Owner to ensure that all landscaping is done within the boundary lines. Failing which, after 2 reminders within a given month, ZLRMA will attend to same and bill the owner.

4.3.7 Landscape Servitudes and Plant Corridors

a) The 3m planting servitude along the road frontage serves as a planting buffer between the sites and the road.
b) All large rooted trees within 2m from roads and services need to be planted with root protection.
c) ZLR is responsible for the rehabilitation of the road verge up to the cadastral boundary of the property as it is cost ed into the levies.

4.3.8 Micro Climates

a) It is important to relate the positioning and outline of the building on the site as this will create many micro-climates on the site which must be addressed individually in the design.

4.3.9 Platforms and Banks

a) Recommended maximum slope for banks is 1:2
b) If a bank is steeper than 1:1 then a vertical wall should be constructed.
c) If a bank is steeper than 1:2 Geo-fabric should be used to help stabilize banks.
d) Within 7 days after banks have been trimmed to their final levels, they must be planted and protected to prevent erosion.
e) Such planting should be sodding, ground cover and seeding so as to create natural vegetation coverage.
f) Temporary strip sodding should be maintained and integrated into natural rehabilitation.

4.3.10 Stormwater and Drainage

a) The design must comply with the standards set out in the storm water management plan lodged with the ZLR Of fice.
b) Storm water management must be presented on the submission plans.
c) Rain harvesting tanks (below ground or hidden) are strongly encouraged.

4.3.11 Services

a) The General Estate Services Plan covering your site is available at the ZLR office upon request.

4.3.12 Water Points and Irrigation

a) Provision for irrigation systems or adequate water takeoff points is required.
b) All Multi-Residential sites must have an automated irrigation system installed and rainwater harvesting is
c) recommended.
d) It is recommended that an irrigation system be installed on Single-Residential properties, but this is not compulsory.
d) A detailed irrigation design and specifications plan must be submitted with all landscape plans where irrigation systems are installed.
e) No water supply to be connected and or collected from the conservation and buffer zone.
f) Irrigation systems must be designed to be as visually unobtrusive as possible and may not encroach over boundaries.
g) No irrigation may commence prior to the submission and approval of an irrigation drawing.
h) all irrigation needs to comply with the Sustainability guideline and no potable/drink water may be used for irrigation

4.3.13 Hedges

a) Vertical screen planting (formal or informal shrubs) should be used to facilitate privacy between neighbours without obscuring vistas.

4.3.14 Lawn

a) Lawn is only permitted within the building lines as agreed with ZLR.

4.3.15 Paving

a) All external hard surfaces will be seen as paving.
b) Paving into property entrance to be integrated with street interface – to be approved by the DRC.
c) Permeable paving with planting in between to be considered.
d) No G-block paving or any other cement brick paving or imprint paving is allowed.

4.3.16 Fencing

a) All fencing to be hidden from view.
b) all fencing and Yard walls needs to comply with architect guideline and be secured and pet friendly.

4.3.17 Retaining Structures (All vertical)

a) All retaining structures should be shown on the Landscaping Plan as per the approved building plans.
b) No dry stack open base retaining walls higher than 500mm are permitted.
c) Dry stack open base retaining walls must have a maximum of 70% slope.
d) Every opening in the dry stack open base retaining wall is to be planted and irrigation to be provided on wall - drip irrigation preferred.
e) Vertical natural stone stacking or off-shutter concrete walls are allowed.
f) All vertical retaining walls must be softened with appropriate planting – e.g., creepers and/or plant openings in the wall.

4.3.18 External Lighting

a) LED or solar lighting to be used in the landscape
b) Indirect lighting is allowed
c) No light source must be visible – i.e. no lighting must shine in the viewer's eyes. Outdoor lighting must have a cowl ing to direct the light to the desired location.

5.***Disclaimers***

5.1. This document is to be considered supplementary to the Zimbali Lakes Resort Building Design Guidelines and can not take precedence. Should any provisions of this document be regarded as contrary to the Zimbali Lakes Resort Building Design Guidelines; the Zimbali Lakes Resort Building Design Guidelines shall prevail

5.2. Following this, all Approved Landscape Plans are to be considered supplementary to the Approved Building Plans for the property in question. Should any deviations on an Approved Landscape Plan be contrary to the Approved Building Plan, the Approved Building Plan and any associated decisions by the DRC shall take precedence.

5.3. This document serves as the landscape guidelines only and final approval is subject to a full review by the DRC. The DRC shall approve the landscape plan as an integral part of the building approval and full approval shall be deem to include BOTH the approval of the building plan and the landscape plan.

KWADUKUZA MUNICIPALITY

www.kwadukuza.gov.za

KwaDukuza Municipality
BUSINESS UNIT:
ECONOMIC DEVELOPMENT AND PLANNING

Enquiries Imobuzo Navrae	Langa Mthembu	**Telephone** Ucingo Telefoon	(032) 437 5559	**Postal Address** IsikhwamaSeposi PosAdres	P.O. Box 72 KwaDukuza 4450
Reference Inkomba Verwysing	SPLUMA 17/2017 BA (DP) (iv) MPT 03/2018	**Fax** iFeksi Faks	n/a	**Date** Usuku Datum	October 2023

Rob Kirby and Associates Town and Regional Planners
P.O Box 1326
Wandsbeck
3631

Attention: Jessica Appelgryn
Tel: 031 942 7104
Cell: 078 847 3231
Email: Projectmanager@zimbali.co.za
Posted, Delivered by Hand and/ or E-mailed

Dear Sir/Madam,

NON-MATERIAL AMENDMENT TO RECORD OF DECISION

APPLICATION IN TERMS OF SECTION 70 OF THE KWADUKUZA MUNICIPALITY KWADUKUZA SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW NO. 2002 (SEPTEMBER 2018) FOR THE PROPOSED NON-MATERIAL AMENDMENT OF A RECORD OF DECISION WITH MUNICIPAL REFERENCE SPLUMA 17/2017 BA (DP)(iii) AND MPT 03/2018 DATED 17 DECEMBER 2021.

AMENDMENT REFERENCE NUMBER	SPLUMA 17/2017 BA (DP)(iv)
DATE OF FOURTH AMENDMENT	02 OCTOBER 2023
ORIGINAL APPLICATION REFERENCE NUMBERS	SPLUMA 17/2017 BA (DP) MPT: 03/2018 COUNCIL: C 1290
DATE OF ORIGINAL RECORD OF DECISION	20 SEPTEMBER 2018
DATE OF FIRST AMENDMENT	30 JANUARY 2019
DATE OF SECOND AMENDMENT	17 DECEMBER 2021
DATE OF THIRD AMENDMENT	3 AUGUST 2023

KWADUKUZA MUNICIPALITY
MUNICIPAL PLANNING TRIBUNAL
APPROVED BY:
Aubrey Ngcobo 02/10/2023
NAME DATE
SIGNATURE:
SECOND DEPUTY CHAIRPERSON OF THE MUNICIPAL PLANNING TRIBUNAL APPOINTED IN TERMS OF THE SPLUMA.
MPT REF: 03/2018
SPLUMA REF: 17/2017 BA (DP) (iv)

THE FOLLOWING SPECIAL CONDITIONS WERE IMPOSED BY THE MUNICPAL PLANNING TRIBUNAL DURING THE MPT MEETING HELD ON THE 26TH SEPTEMBER 2023.

1. That the developer undertakes the improvement of the Ballito Drive and Moffat Drive intersection as per Section 7.1 of Zimbali Lakes TIA dated 05 April 2022 prepared by Zutari.

2. That the developer undertakes the traffic counts at the Zimbali Estate Access and Zimbali South Gate and submit the report prepared by a qualified traffic engineer to the municipality. Based on the resultant counts, the report shall clearly indicate whether there are any additional interventions that are required. If applicable, the report must clearly outline such interventions to be implemented by the developer at their own cost.

3. That certificates in terms of Section 53 may be processed and issued for Phases 6A, 6B, 9A, 9B, 9C, 9D as depicted on approved Layout Plan 2511/7/1A1.

4. No further certificates in terms of Section 53 beyond Phases 6A, 6B, 9A, 9B, 9C, 9D will be issued until Condition 1 above has been adhered to.

5. That this is a part approval in terms Chapter 4, Section 54(3)(a) of the SPLUMA bylaw, therefore once the counts and report referred to in Condition 2 above have been undertaken, the application must be referred back to the MPT for consideration and approval.

6. That all designs for road upgrades itemized in the TIA review report dated September 2023 prepared by GIBB, which have not yet been submitted and approved by the relevant authorities shall be submitted (timeously) and approved by the relevant roads authorities and/or municipal department prior to commencement of construction.

7. That all the costs related to implementing the abovementioned recommendations shall be borne by the developer.

8. Considering the delays in implementation of the original conditions which necessitated this exercise, the developer shall provide an update to the Registrar and Chief Planner on progress on the implementation of the road infrastructure upgrades once every six (6) months, to ensure compliance with conditions of approval.

The above conditions have been effected under Section C1 of this fourth amendment of the Zimbali Lakes Development Record of Decision with municipal reference SPLUMA 17/2017 BA (DP) (iv).

KWADUKUZA MUNICIPALITY
MUNICIPAL PLANNING TRIBUNAL
APPROVED BY:
NAME: Aubrey Ngcobo DATE: 02/10/2023
SIGNATURE:
SECOND DEPUTY CHAIRPERSON OF THE MUNICIPAL PLANNING TRIBUNAL APPOINTED IN TERMS OF THE SPLUMA.
MPT REF: 03/2018
SPLUMA REF: 17/2017 BA (DP)(iv)

RECORD OF DECISION

APPLICATION IN TERMS OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT NO 16 OF 2013) READ IN CONJUNCTION WITH THE KWADUKUZA SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW 1630 (MARCH 2016) FOR THE PROPOSED:

- SUBDIVISION OF THE REM OF ERF 1 ZIMBALI LAKES TO CREATE VARIOUS ERVEN WITHIN THE APPROVED ZIMBALI LAKES LAND DEVELOPMENT AREA;
- REZONING OF VARIOUS ERVEN WITHIN THE APPROVED ZIMBALI LAKES LAND DEVELOPMENT AREA IN TERMS OF THE KWADUKUZA LAND USE MANAGEMENT SCHEME;

- AMENDMENT OF THE KWADUKUZA LAND USE MANAGEMENT SCHEME

SITUATED ON PORTIONS 303, 304, 305 306, 307, 308, 310, 312, 313 ALL OF PORTION 28 OF ERF 1 ZIMBALI LAKES AND PORTIONS 315, 316, 317, 318, 319, 320, 322, 324, 326, 327 ALL OF PORTION 29 OF ERF 1 ZIMBALI LAKES AND REMAINDER OF ERF 1 ZIMBALI LAKES, ALL LOCATED WITHIN THE AREA OF JURISDICTION OF THE KWADUKUZA MUNICIPALITY: REGISTRATION DIVISION – FU: PROVINCE OF KWAZULU-NATAL.

MEMBERS OF THE MUNICIPAL PLANNING TRIBUNAL

1. Mr Ndlovu (MPT Presiding Officer)
2. Mr F Tomkins (External – Civil Engineering)
3. Mr B Mthembu (External – Environmentalist)
4. Mr M Sithole (Internal – Civil Engineering)
5. Mr A Schultz (External – Town Planning)

APOLOGIES

None

MUNICIPALITY REPRESENTATIVES

1. Mr L. Mthembu (Senior Town Planning Technician)
2. Ms. U. Madyibi (Development Administrator)

KWADUKUZA MUNICIPALITY
MUNICIPAL PLANNING TRIBUNAL
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Aubrey Ngcobo 02/10/2023
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MPT REF: 03/2018
SPLUMA REF: 17/2017 8A(DP)(iv)

3. Ms J. Kuzwayo (MPT Secretariat)

A. DETAILS OF THE APPLICATION

1. Nature of the application

1.1. The application proposal is a combined application for the subdivision, rezoning, scheme amendment and permanent closure of a municipal road on land with existing development rights that were approved in terms of the Development and Facilitation Act, 1995 (Act 67 of 1995) (DFA No. 2007/858 granted 9 July 2009).

1.2. Property Description

The various properties and the respective ownership subject to the Zimbali Lakes applications is as follows:

Table 1: Property Descriptions

PROPERTY DESCRIPTION	OWNERSHIP	EXTENT
Portion 303 (of 28) of Erf 1 Zimbali Lakes	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	5806 m²
Portion 304 (of 28) of Erf 1 Zimbali Lakes	Bewell Properties CC	2242 m²
Portion 305 (of 28) of Erf 1 Zimbali Lakes:	Lonestar Family Trust Trustees	2204 m
Portion 306 (of 28) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	4051 m²
Portion 307 (of 28) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	4247 m²
Portion 308 (of 28) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	4929 m²
Portion 310 (of 28) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	5036 m²

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Portion 312 (of 28) of Erf 1	Zimbali Office Estate Management Ass	6072 m²
Portion 313 (of 28) of Erf 1	Kwa Dukuza Municipality	5375 m²
Portion 315 (of 29) of Erf 1 Zimbali Lakes:	Shandu's Technical Service CC	2131 m²
Portion 316 (of 29) of Erf 1 Zimbali Lakes:	Sandra Property Investments (Pty) Ltd	2090 m²
Portion 317 (of 29) of Erf 1 Zimbali Lakes:	Oak Park Trading 147 (Pty) Ltd	2091 m²
Portion 318 (of 29) of Erf 1 Zimbali Lakes	BJ Zimbali Office Estates Cc	2222 m²
Portion 319 (of 29) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	12 072 m²
Portion 322 (of 29) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	4176 m²
Portion 324 (of 29) of Erf 1 Zimbali Lakes:	Lot 76 Forest Park CC	2317 m²
Portion 326 (of 29) of Erf 1 Zimbali Lakes:	Tongaat Hullet/ IFA Resort Dev. Joint Venture Partnership	5166 m²
Portion 327 (of 29) of Erf 1 Zimbali Lakes:	KwaDukuza Municipality	12 068 m²
Rem of Erf 1 Zimbali Lakes	Tongaat Hulett/IFA Resort Dev Joint Venture Partnership	270.221 ha

KWADUKUZA MUNICIPALITY
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MPT REF: 03/2018
SPLUMA REF: 17/2017 BA (DP) (iv)

1.3. Application Reference Number

- Municipal Application Reference No.: SPLUMA 17/2017 BA (DP)
- MPT Reference No.: MPT 03/2018

B. CONSIDERATIONS FOR THE NON-MATERIAL AMENDMENT APPLICATION

The MPT considered the following matters when deciding on the application on the 25th of November 2021.

(a) Schedule 8 of the Spatial Planning and Land Use Management By-law No. 2002 (September 2018) which outlines the matters that a decision making authority must consider when deciding on an application;

(b) Section 69 and 70 of the Spatial Planning and Land Use Management By-law No. 2002 (September 2018).

(c) The Registered Planner's Report and recommendations on the application.

(d) The applicant's motivation and supporting annexures.

(e) Non-compliance by the developer with instructions in relation to Condition D5.3 in the Record of Decision dated 30 January 2019.

PROCEEDINGS OF THE ORIGINAL MPT SITTING

The KDM MPT convened to consider the merits of the application as indicated in the summary below:

1. The Municipal Planning Tribunal deliberated on the application at its sitting:

- On the 23rd February 2018
- at 10h30; and
- at the Sembcorp Siza Water Boardroom

1.1. **Outcome:** after consideration of the information received, the KDM MPT resolved to **DEFER** the application as a result of a lack of clarity and broader planning in respect of the cumulative traffic impacts of the proposed development and surrounding developments. The MPT further noted that as a result of nonclarity with respect to traffic planning in the area, it posed a challenge in determining the required mitigation measures and consequently did not clearly guide the MPT in decision making as well as imposing the appropriate conditions. Other matters raised by the MPT were related to the of the required bulk services to support the development against the proposed densities and other related matters.

KWADUKUZA MUNICIPALITY
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2. Upon receiving a submission from the applicant in response to the matters raised during the MPT sitting on the 23rd February 2018, the MPT reconvened to deliberate on the application at its sitting:

- On the 15th June 2018;
- at 11h00; and
- at the iLembe Chamber of Commerce (Ballito)

2.1. **Outcome:** after consideration of the application proposal, The KDM MPT resolved to **DEFER** the application again as a lack of clarity with respect to the stormwater management for the development and inconsistencies in the proposal in relation references being made to the Environmental Authorisation (EA) and proposed zones.

3. Upon receiving a submission from the applicant in response to the matters raised during the MPT sitting on the 15th June 2018 , the MPT reconvened to deliberate on the application at its sitting:

- On the 13th July 2018;
- at 11h00; and
- at the Laviopierre Building, PMU Boardroom, KwaDukuza

3.1 **Outcome:** after consideration of the application proposal, The KDM MPT resolved to approve the application proposal subject to conditions as detailed in this Record of Decision (RoD). The KDM MPT further recommended that the application be referred to council for approval.

4. The application was referred to Kwa Dukuza Municipality Council and considered all the submissions before it at its sitting:

- On the 23rd August 2018;
- at 10h00; and
- at the KwaDukuza Municipality Council Chambers

4.1. **Outcome:** after consideration of the application proposal, The KDM Council resolved to approve the application proposal subject to conditions as detailed in this Record of Decision (RoD

5. CONSIDERATION

The MPT and Council considered the following matters when deciding on the application:

5.1. Schedule 8 of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016) which outlines the matters that a decision making authority must consider when deciding on an application;

KWADUKUZA MUNICIPALITY
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SPLUMA REF: 17/2017 BALDP) (LV)

5.2. The report recommendations of the registered planner's reports as presented to the KDM MPT on the 23rd February 2018, 15th June 2018 and 13th July 2018.

5.3. The item as presented to KDM Council on the 23rd August 2018.

5.4. The comments, instructions and conditions imposed by relevant Departments as well as organs of state. The MPT further recommended that the said instructions and conditions be incorporated in the final Record of Decision.

C. DECISION

IN TERMS OF SECTION 42 AND 43 OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT NO. 16 OF 2013) (SPLUMA) AND SECTION 54 OF THE KWADUKUZA MUNICIPALITY SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW NO. 1630 (MARCH 2016) (KDM SPLUM BY-LAW), THE MUNICIPAL PLANNING TRIBUNAL, ON THE 13th JULY 2018 AND THE KDM COUNCIL ON THE 23rd AUGUST 2018, RESOLVED THAT THE APPLICATION FOR THE PROPOSED:

APPLICATION IN TERMS OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT NO 16 OF 2013) READ IN CONJUNCTION WITH THE KWADUKUZA SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW 1630 (MARCH 2016) FOR THE PROPOSED:

- **SUBDIVISION OF THE REM OF ERF 1 ZIMBALI LAKES TO CREATE VARIOUS ERVEN WITHIN THE APPROVED ZIMBALI LAKES LAND DEVELOPMENT AREA;**
- **REZONING OF VARIOUS ERVEN WITHIN THE APPROVED ZIMBALI LAKES LAND DEVELOPMENT AREA IN TERMS OF THE KWADUKUZA LAND USE MANAGEMENT SCHEME;**
- **AMENDMENT OF THE KWADUKUZA LAND USE MANAGEMENT SCHEME**

SITUATED ON PORTIONS 303, 304, 305 306, 307, 308, 310, 312, 313 ALL OF PORTION 28 OF ERF 1 ZIMBALI LAKES AND PORTIONS 315, 316, 317, 318, 319, 320, 322, 324, 326, 327 ALL OF PORTION 29 OF ERF 1 ZIMBALI LAKES AND REMAINDER OF ERF 1 ZIMBALI LAKES, ALL LOCATED WITHIN THE AREA OF JURISDICTION OF THE KWADUKUZA MUNICIPALITY: REGISTRATION DIVISION – FU: PROVINCE OF KWAZULU-NATAL.

PHASES TO BE CREATED AS PORTIONS AS SET OUT BELOW:-

- **PHASE 1A:** **PORTION 373 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 362 TO 376 ZIMBALI LAKES;**

KWADUKUZA MUNICIPALITY
MUNICIPAL PLANNING TRIBUNAL
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SPLUMA REF: 17/2017 BA (DP) (iv)

- PHASE 1B: PORTION 374 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERF 380 AND ERF 382 ZIMBALI LAKES;
- PHASE 2A: PORTION 375 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 385 TO 405 ZIMBALI LAKES;
- PHASE 2B: PORTION 376 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 409 TO 423 ZIMBALI LAKES;
- PHASE 2C: PORTION 377 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 424 TO 443 ZIMBALI LAKES;
- PHASE 3A: PORTION 378 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 444 TO 466 ZIMBALI LAKES;
- PHASE 3B: PORTION 379 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 471 TO 487 ZIMBALI LAKES;
- PHASE 3C: PORTION 380 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 490 TO 497 ZIMBALI LAKES;
- PHASE 4A: PORTION 381 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 500 TO 517 ZIMBALI LAKES;
- PHASE 4B: PORTION 382 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 518 TO 544 ZIMBALI LAKES;
- PHASE 4C: PORTION 383 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 545 TO 563 ZIMBALI LAKES;
- PHASE 5A: PORTION 384 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 570 TO 610 ZIMBALI LAKES;
- PHASE 5B: PORTION 385 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 615 TO 631 ZIMBALI LAKES;
- PHASE 5C: PORTION 386 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 640 TO 642 ZIMBALI LAKES;
- PHASE 5D: PORTION 387 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 645 TO 651 ZIMBALI LAKES;
- PHASE 6A: PORTION 388 OF ERF 1 ZIMBALI LAKES, CONSISTING OF

KWADUKUZA MUNICIPALITY
MUNICIPAL PLANNING TRIBUNAL
APPROVED BY:
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ERVEN 660 TO 667 ZIMBALI LAKES;

- PHASE 6B: PORTION 389 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 670 TO 684 ZIMBALI LAKES;
- PHASE 6C: PORTION 390 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 690 TO 693 ZIMBALI LAKES;
- PHASE 7A: PORTIONS 303, 304, 305, 306, 307, 308, 310, 312, 313 (ALL OF 28) OF ERF 1 ZIMBALI LAKES;
- PHASE 7B: PORTIONS 315, 316, 317, 318, 319, 320, 322, 324, 326, 327 (ALL OF 29) OF ERF 1 ZIMBALI LAKES;
- PHASE 8A: PORTION 30 OF ERF 1 ZIMBALI LAKES
- PHASE 8B: PORTION 393 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 699 TO 700 ZIMBALI LAKES;
- PHASE 9A: PORTION 394 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 710 TO 735 ZIMBALI LAKES;
- PHASE 9B: PORTION 395 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 736 TO 750 ZIMBALI LAKES;
- PHASE 9C: PORTION 396 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 755 TO 780 ZIMBALI LAKES;
- PHASE 9D: PORTION 397 OF ERF 1 ZIMBALI LAKES, CONSISTING OF ERVEN 785 TO 786 ZIMBALI LAKES;
- PHASE 10A: PORTION 391 OF ERF 1 ZIMBALI LAKES
- PHASE 10B: PORTION 398 OF ERF 1 ZIMBALI LAKES
- PHASE 10C: THE REMAINDER OF ERF 1 ZIMBALI LAKES

BE APPROVED SUBJECT TO CONDITIONS AS DETAILED IN THIS RECORD OF DECISION.

Zimbali Lakes shall be subject to the following conditions: -

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APPROVED BY:
Aubrey Ngcobo 02/10/2023
NAME DATE
SIGNATURE:
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1. Special Conditions

1.1 That the developer undertakes the improvement of the Ballito Drive and Moffat Drive intersection as per Section 7.1 of Zimbali Lakes TIA dated 05 April 2022 prepared by Zutari.

1.2 That the developer undertakes the traffic counts at the Zimbali Estate Access and Zimbali South Gate and submit the report prepared by a qualified traffic engineer to the municipality. Based on the resultant counts, the report shall clearly indicate whether there are any additional interventions that are required. If applicable, the report must clearly outline such interventions to be implemented by the developer at their own cost.

1.3 That certificates in terms of Section 53 may be processed and issued for Phases 6A, 6B, 9A, 9B, 9C, 9D as depicted on approved Layout Plan 2511/7/1A1.

1.4 No further certificates in terms of Section 53 beyond Phases 6A, 6B, 9A, 9B, 9C, 9D will be issued until Condition C1.1 above has been adhered to.

1.5 That this is a part approval in terms Chapter 4, Section 54(3)(a) of the SPLUMA bylaw, therefore once the counts and report referred to in Condition C1.2 above have been undertaken, the application must be referred back to the MPT for consideration and approval.

1.6 That all designs for road upgrades itemized in the TIA review report dated September 2023 prepared by GIBB, which have not yet been submitted and approved by the relevant authorities shall be submitted (timeously) and approved by the relevant roads authorities and/or municipal department prior to commencement of construction.

1.7 That all the costs related to implementing the abovementioned recommendations shall be borne by the developer.

1.8 Considering the delays in implementation of the original conditions which necessitated this exercise, the developer shall provide an update to the Registrar and Chief Planner on progress on the implementation of the road infrastructure upgrades once every six (6) months, to ensure compliance with conditions of approval.

2. Acceptance of Conditions

The owner is advised to exercise his / her Right of Appeal in terms of Section 51 of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) and Section 57 of the Spatial Planning and Land Use Management By-law No. 1630, 2016.

3. Certification of compliance with conditions of approval

In terms of Section 60(1) of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016), a municipality must certify the conditions of approval imposed have been complied prior to the following being undertaken:

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(a) the erection of a structure on land or the use of land in accordance with the approval;
(b) the construction of a building on the land;
(c) occupation of the land; and
(d) registration of the land in separate ownership

In terms of section 43 (2) of the Spatial Planning and Land Use Management Act No. 16 of 2013 a conditional approval of an application lapses if a condition is not complied with, within a period of five years from the date of such approval, if no period for compliance is specified in such approval

4. Building Standards

The National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977) read with the South African National Building Standards 10 400 shall apply. The developer is further encouraged to incorporate the Green Building Guidelines as part of the proposed development and structures. A copy of the said guidelines may be made available upon request.

5. Amendment to Land Use Scheme

This approval contains notification that the necessary scheme amendment is required to be effected for "Zimbali Lakes" in the form of this land development area hereto will be incorporated into the KwaDukuza Land Use Management Scheme in the following manner:

5.1 Private Open Space (EPRS)

In respect of Zimbali Lakes (EPRS 1) the following will be applicable:

i. Ablution Facility, Boat Jetty, Boma, Conservation area, Maintenance Building and Playing fields shall be freely permitted.
ii. Erf 785 shall have a Garden Nursery and Kennels & Cattery as freely permitted uses.
iii. iii) Erven 699 and 700 shall freely permit the teaching of golf or any sport and its ancillary facilities together with a golf driving range and a golf course clubhouse. The combined area of floor space on both sites shall not exceed 7000m².
iv. iv) Erf 690 shall have an Equestrian Centre as a freely permitted use.

5.2 Mixed Use Light Impact 1 (MULI 1)

In respect of Erven 303-308, 310, 315-320, 322 & 324 all of Zimbali Lakes (MULI 1), the following shall be applicable:

i. Minimum lot size shall be 2 000m²
ii. The total GLA m² is restricted to 27 000m² (based on an average FAR of 0.45 over all erven)
iii. Residential units on the ground floor shall be permitted through Special Consent

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iv. Medium Density Housing and Crèche shall be freely permitted.
Personal Service Outlets, Travel Agents, Health Club and Multi-Use development shall be freely permitted.

5.3 Multi-Purpose Retail and Office 1 (MPRO 1)
In respect of Zimbali Lakes (MPRO 1), the following will be applicable

i. The total floor space of Erven 695-698 shall not exceed 25 000m² GLA of which no more than 5 000m²GLA can be used for shops or offices (Convention Centre Excluded)
ii. A convention centre limited to 100 seats on erven 697 or 698 shall be permitted through Special Consent.
iii. Residential units on the ground floor shall be permitted through Special Consent.
iv. Medium Density Housing shall be permitted through Special Consent.

5.4 Residential Only Detached (RODE)
In respect of Zimbali Lakes (RODE)

i. No additional self-contained residential unit shall be permitted on an erf without the written permission of the Zimbali Lakes Resort Management Association first being obtained.
ii. No erven shall be further subdivided.
iii. No more than one dwelling house shall be permitted on any erf.

6. With respect to the proposed introduction of two new land use zone by the applicant, being Retirement Village 3 (REVL 3) and Resort 5 (REST 5) to be incorporated into the KwaDukuza Land Use Scheme Management, the development parameters and land use controls are as follows:

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5.1. RETIREMENT VILLAGE 3 (REVL 3)

Proposed introduction of a new land use zone, being Retirement Village 3 (REVL 3) to be incorporated into the KwaDukuza Land Use Management Scheme in the following manner:

Table 2: Zone and Development Parameters

Zone	Minimum Lot Size	FAR	Coverage (%)	Height (Storey)	Front Setback Line (m)	Side Setback (m)	Rear Setback (m)	Frontage(m)	Zone Colour
	1500m²	0.65	80%	4	N/A	N/A	N/A	18	

Table 3: Land Use Controls

BUILDING AND LAND USE CATEGORY	RETIREMENT VILLAGE 3 (REVL 3)
Freely Permitted KWADUKUZA MUNICIPALITY MUNICIPAL PLANNING TRIBUNAL APPROVED BY: Aubrey Ngcobo 02/10/2023 NAME DATE SIGNATURE: SECOND DEPUTY CHAIRPERSON OF THE MUNICIPAL PLANNING TRIBUNAL APPOINTED IN TERMS OF THE SPLUMA. MPT REF: 03/2018 SPLUMA REF: 17/2017 BA (DP) (IV)	**CIVIC AND SOCIAL** • Institution • Place of Public Assembly **ENVIRONMENTAL AND RECREATIONAL** • Private Open Space • Recreational Building **COMMERCIAL** • Arts and Crafts Workshop • Launderette • Office, Building • Office, Medical • Shop (restricted to patrons of the use) • Personal Service Outlet • Restaurant **RESIDENTIAL**

	• Assisted Living • Assisted Living Developments • Dwelling House • Frail Care Facility • Medium Density Housing • Residential Building • Retirement Village
Consent	None
Prohibited land uses and uses	Land uses and buildings not listed in this table
Additional Controls	In respect of Portion 384 (Phase 5A) on Zimbali Lakes, zoned REVL 3 the following shall apply i) Development shall not exceed a combined floor area of 77500m² in total within Portion 384. Development shall occur substantially in accordance with the subdivisional layout and table of land usage and floor space linked to erven as shown on plan no. 2511/7/1A1 dated 11 April 2018. ii) All activities and uses shall be restricted to use by residents, their visitors and staff only. iii) The density for Medium Density Housing shall not exceed 50units/ha. iv) Parking shall be provided as per Section 6 : Planning Norms and Standards vii) Shops and a restaurant area are permitted within this but shall be restricted to 1000m² and to be for the exclusive use of the residents and their guests. viii) Floor space for land uses shall not exceed the following maximum m²:- Shops and restaurant : 1000m² All other non-residential uses (including staff accommodation) : 2500m² Retirement residential : 74000m² TOTAL : 77500m²

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	Note: The above figures are guidelines, and subject to change as per i.) above. Minimum floor area shall be as follows:- Retirement dwelling unit : 50m² Frail care two bed suite/unit : 24m² Frail care four bed suite/unit : 50m² Frail care units (4 beds = 1 unit) included in 750 retirement units.

5.2. RESORT 5 (REST 5)

Proposed introduction of a new land use zone, being Resort 5 (REST 5) to be incorporated into the KwaDukuza Land Use Management Scheme in the following manner:

Table 4: Zone and Development Parameters

Zone	Minimum Lot Size	FAR	Coverage (%)	Height (Storey)	Front Setback Line (m)	Side Setback (m)	Rear Setback (m)	Frontage(m)	Zone Colour
[redacted]	2000	1.0	60%	6	N/A	N/A	N/A	10m	

Table 5: Land Use Controls

BUILDING AND LAND USE CATEGORY	RESORT 5 (REST 5)
Freely Permitted	**CIVIC AND SOCIAL** • Place of Public Assembly **ENVIRONMENTAL AND RECREATIONAL** • Boat Jetty • Private Open Space • Recreational Building **COMMERCIAL** • Arts and Craft Workshop

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Consent	**COMMERCIAL** • Garden Nursery **RESIDENTIAL** • Caravan Park **UTILITIES AND SERVICES** • BTTS

Prohibited land uses and uses	Land uses and buildings not listed in this table
Additional Controls	In respect of Resort 5 Zimball Lakes the following shall apply:- i)Development shall not exceed 100500m² in total over all erven and shall occur substantially in accordance with the subdivisional layout and table of land usage and floor space linked to erven as shown on plan no. 2511/7/1A1 dated 11 April 2018 . ii) The density for Medium Density Housing shall NOT exceed 50units/ha.

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7. Layout Plan

6.1. The settlement shall be laid out and numbered as shown on the attached Layout Plan with Drawing No. 2511/7/1A1 dated 18 April 2023 and prepared by Rob Kirby Associates Town and Regional Planners. This layout is hereby approved.

6.2. Prior to the approval of the General Plan over that portion of the layout, where changes are required, the layout may be amended with the approval of the KwaDukuza Municipality.

6.3. Upon the approval of the General Plan the layout may be amended or cancelled in terms of Section 37(2) of the Land Survey Act, 1997 (Act No. 8 of 1997), with the prior consent of the KwaDukuza Municipality.

6.4. The following special conditions shall be applicable to the layout:

(a) All road servitudes in the township are to be laid out on the ground not less than the widths as shown on the approved plan.

(b) Except for splays forming part of turning devices, all corners formed at the junctions of roads and at the bends in the road having angles of less than 120 degrees, are to be splayed approximately symmetrically for road purposes.

(c) The erven must comply with the minimum Erf size as per the provisions of the KwaDukuza Land Use Management Scheme and exclusive of the area of any access strip in a panhandle shaped erf.

(d) Access strips serving panhandle erven are to be not less than 4 meters in width and are to be included wholly within and form part of the erf that they serve.

(e) The side boundary lines of erven, which are back to back, should, where possible, be arranged in the same straight lines to allow for through drainage without staggering the lines of drainage.

(f) Any specific servitude that is required for any purpose by the local Authority of the relevant service authority is to be surveyed in accordance with the survey regulations and shown on the General Plan of the township with the specified width, for the purpose of defining such servitude.

8. Servitudes to be indicated

7.1. 2m Sewer Servitude

A perpetual sewer pipeline servitude, 2 (two) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality, the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of sewerage

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over the servitude area by means of a sewer pipeline and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline.

7.2. 3m Sewer Servitude

A perpetual sewer pipeline servitude, 3 (three) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality, the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of sewerage over the servitude area by means of a sewer pipeline and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline.

7.3. 4m Sewer and Drain Servitude

A perpetual sewer pipeline and drain servitude, 4 (four) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality, the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of sewerage over the servitude area by means of a sewer pipeline and system of drains and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline and drains.

7.4. 3m Water Servitude

A perpetual water pipeline servitude, 3 (three) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality, the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of water over the servitude area by means of a water pipeline and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline.

7.5. 3m Irrigation Pipeline Servitude

A perpetual irrigation pipeline servitude, 3 (three) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of irrigation water over the servitude area by means of an irrigation pipeline and to enter upon the servient erven and portions for the

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purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline.

7.6. 3m Stormwater Servitude

A perpetual stormwater servitude, 3 (three) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the KwaDukuza Municipality (if required), the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of stormwater over the servitude area by means of a stormwater drainage and pipeline system and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline.

7.7. Pump station and overflow pond servitude

A perpetual pump station and overflow pond servitude, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality (if required), the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the operation of an appropriate pump station and overflow pond on the servitude area and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pump station and overflow pond.

7.8. Bulk Irrigation Tongati Pump station servitude

A perpetual nulk irrigation Tongati pump station servitude, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality (if required), the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the operation of an appropriate bulk irrigation pump station on the servitude area and to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pump station.

7.9. 3m Rising Gravity Main Servitude

A perpetual rising main gravity sewer pipeline servitude, 3 (three) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient erven and portions in favour of the Ilembe District Municipality, the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the conveyance of sewerage over the servitude area by means of a rising main gravity fed sewer pipeline and

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to enter upon the servient erven and portions for the purposes aforesaid, including the right to conduct maintenance and repairs to the said pipeline.

7.10. 5m Security Servitude

A perpetual security servitude, 5 (five) meters wide, depicted on the general plan or appropriate servitude diagram, shall be created and registered over the affected servient Erven 647 and 648 Zimbali Lakes in favour of the Zimbali Lakes Resort Management Association, their successors in title and/or any service provider designated by them, with the right to use the said servitude in perpetuity for the purposes of security in its broadest terms and to enter upon the servient erven for the purposes aforesaid, including the right to patrol and to conduct maintenance and repairs to security fences and installations.

7.11. 8m Right of Way Servitude

A right of way servitude, 8 (eight) meters wide, as depicted on the layout plan (parallel to the N2) shall be registered over Portion 398 of Erf 1 and Erf 785 Zimbali Lakes in favour of the KwaDukuza Municipality. This servitude shall lapse at the discretion of the KZN Department of Transport and/or SANRAL.

7.12. 10m Right of Way Servitudes

7.12.1. Erf 370 Zimbali Lakes shall be subject, as the servient tenement, to a right of way servitude, 10 (ten) meters wide, in favour of the Zimbali Lakes Resort Management Association and also in favour of Erf 372 Zimbali Lakes, as the dominant tenement.

7.12.2. Portion 30 of Erf 1 Zimbali Lakes shall be subject to a right of way servitude, 10 (ten) meters wide, in favour of the Zimbali Lakes Resort Management Association.

7.13. All servitudes are to be surveyed in accordance with the Land Survey Act and applicable Regulations prior to, or simultaneously with the registration of the affected erven.

9. Instruction and information

8.1. KwaDukuza Municipality Electrical Engineering Directorate:

Application is supported on condition that approved electrical technical report be submitted by the registered Professional Electrical Engineer appointed by the applicant detailing how electrical supply will be made available to this property and obtaining approval of such report from the electrical department all costs pertaining to making adequate electrical supply available to this property shall be borne by the applicant/ developer, however the supply may be made available from Zimbali 33/11kV substation. Should the required electricity capacity exceed the available capacity at this substation the developer shall bear the costs of any upgrade required to cater for the requirement.

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8.2. KwaDukuza Municipality Civil Engineering Directorate:

Application supported subject to availability of bulk services, proper channelling of stormwater to municipal approved storm water systems that contribute towards the realignment of the M4. Developer contribution as per the municipality requirements will be applicable. Access be upgraded should need arise. Public roads remain accessible to the public and approval from KZN DoT on intersection be obtained.

8.3. KwaDukuza Municipality Community Services:

The department acknowledges the proposed development layout and can confirm that the department will be able to supply waste management services on the proposed development.
In terms of waste management services, the layout must be able to provide for circulation of the waste vehicles and the surfaces must be able to accommodate a 100 ton waste compactor truck for the kerb side waste collection service. The council shall, subject to the service provisions, provide council services for the collection of business and domestic waste at a cost to the owner of the premises determined in accordance with the prescribed tariff of charges promulgated by the council.

8.4. KwaDukuza Municipality Building Control Unit

No objection.
Subject to that all parties affected/ concerned must be consulted for comments.
No Earthworks or build works should commence without prior written consent by this office and building plans for all proposed units must be submitted for approval.
Any outdoor advertising activities to be submitted to the KwaDukuza Municipality for scrutiny and formal approval.

8.5. Sembcorp Siza Water

We acknowledge the proposed development layout and can confirm Sembcorp will be able to supply Bulk Water and Sanitation to the proposed development with the necessary upgrades to the existing infrastructure as stated in your engineering report.

The current service level agreement for the Zimbali Lakes Development which was signed in 2007 is still valid however with Sembcorp utilizing a new Template for Service Level Agreements since 2015, we will incorporate the existing the existing agreement into the new agreement which is currently in the process of being finalised.

8.6. Department of Economic Development, Tourism and Environmental Affairs

The following environmental authorisations must be adhered to:
(a) Environmental Authorisation dated 27 February 2008
(b) Environmental Authorisation dated 13 February 2012 (first amendment)
(c) Environmental Authorisation dated 10 October 2014 (second amendment)
(d) Environmental Authorisation dated 18 May 2018 (third amendment)

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8.7. KZN Department of Transport (Letter dated 10 October 2017):
In their letter dated 10 October 2017 the following is stated:

a) With reference to your application dated 22 June 2017 in connection with the above mentioned proposed Zimbali Lakes Development, I have to inform you that the Minister as the Controlling Authority as defined in the KwaZulu-Natal Provincial Roads Act No. 4 of 2001, has in terms of Section 20 of the Said Act, been pleased to approve the proposed layout as represented on the accompanying layout plan No. 2511/7 prepared by Rob Kirby Associates dated 5 October 2017.

b) The proposed Zimbali Lakes Development may proceed in terms of the Spatial Planning and Land Use Management Act No. 16 of 2013 read with the KwaDukuza Municipality Spatial Planning and Land Use Management By-law No. 1630 subject to the following conditions:-

c) In terms of section 21 of the Kwazulu-Natal Provincial Roads Act No. 4 of 2001, 5 copies of a detailed to scale site development plan showing Erven boundaries with co-ordinates, elevations and sections on Erven 307, 308, 310, 319, 320, 322, 324, 501-509, 518-528, 664, 696-698 and 785 adhering to the following conditions, are to be submitted to this Department for assessment and comment.

d) In terms of Section 13 of the KwaZulu-Natal Provincial Roads Act No. 4 of 2001, no buildings or any structures whatsoever, other than a fence, hedge or a wall that does not rise higher than 2.1 meters above or below the surface of the land on which it stands, shall be erected on the land within a distance of 15 meters measured from the road reserve boundary of the Main Road 398-2.

e) No new service roads or parking as required in the Town Planning Scheme, shall be erected on the land and within a distance of 7.5 meters measured from the road reserve boundary of Main Road 398-2.

f) The road reserve boundary of Main Road 398-2 shall be determined in consultation with this Departments Road Information Services (Tel: 033-355 8600).

g) The owner/s attention is drawn to the relevant Stormwater clause contained in Section 12 of the KwaZulu-Natal Roads Act No. 4 of 2001 and Section 5 of the Roads Regulations, wherein it is advised that the of stormwater emanating from the road reserve through the layout, or any stormwater emanating from the layout through the road reserve, MUST be indicated on a detailed to-scale site development plan, which is to be submitted to this Department for assessment and comments. The implementation of stormwater disposal, shall be undertaken in consultation with and to the satisfaction of the Departments (DoT) Cost Centre Manager.

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KwaDukuza (Telephone: 032 469 8900) during further development of the property concerned.

h) Subject to the Municipal approval of the application, authority is hereby granted in terms of the Roads Act No. 4 of 2001, for the use of existing round-about access (marked "A" on the layout Plan No. 2511/7); and the existing cross access (marked "C" on the layout Plan No. 2511/7) for the purpose of serving the Zimbali Lakes Development

i) The existing access to the Main Road 398-2 (marked "B" on layout Plan No. 2511/7) shall be upgraded to a roundabout access and shall be designed by a registered professional engineer, in consultation with the Design Engineer: Transport, Department of Transport KwaZulu-Natal, and such design shall be symmetrical about the centre line of Main Road 398-2 in accordance with the checklist and the design thereof inclusive of a pavement design obtainable from the Design Engineer: Transport, Department of Transport KwaZulu-Natal, for approval.

j) A safe sight distance shall be maintained at all times by cutting of grass or other vegetation on either side of the access.

k) In terms of section 10 (2) (d) of the said Roads Act, this Department reserves the right to amend or cancel the authorization of access.

l) **PLEASE NOTE THAT:** On assessing the Plan No. 2511/7 it is noted that the land requirements for the proposed Roundabout 'B' extends beyond the existing road reserve boundary of Main Road 398-2. In light of this, the boundaries of Main Road 398-2 are to be finalised once the design of the proposed Roundabout design has been finalised.

m) The additional land requirements for the Roundabout is to be subdivided off from Erf 604 and upon registration of the Erven to be transferred to the Department of Public Works as custodians of State assets.

n) All cost incurred as a result of the requirements shall be borne entirely by the developer.

o) **PLEASE NOTE THAT:** Upon completion of the above conditions the owners/s shall request the said Cost Centre Manager to inspect and submit a letter of compliance of the above conditions to the Head: Transport.

p) This correspondence does not grant authorisation or exemption from compliance with any other relevant applicable legislation.

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q) In terms of section 22 of the KwaZulu Natal Provincial Roads Act No. 4 of 2001, this approval is valid for a period of 18 months from date hereof, failing which application must be made to this department for re-consideration

8.8. The South African National Roads Agency (SANRAL)

8.8.1. On the letter dated **31 August 2007** the following is stated:

a) This development as far as gaining access to the National Road is concerned, is far removed from the Ballito Interchange and if MR398 functions at an acceptable level of service there should be very little attraction of vehicles to the Ballito interchange unless motorists are wanting to proceed up the coasts in a Northerly direction.

b) The development however adds to the overall impact in the area and the traffic generated by it will have to be included in the Local Authority's overall transport plan for the area with proposed infrastructure upgrading being funded jointly between the developers and the Local Authority

c)

d) The SA National Roads Agency (SARNAL) will not get involved in the funding of any required upgrading of National Road Infrastructure as a result of the traffic generated by these types of developments.

e) Building lines of 20 meters will be applicable to structures adjacent to the National Road Reserve and advertising visible form the National Road shall conform to the SARNAL regulations.

8.8.2. On their letter dated **24 January 2008** the following is stated:

The SA National Roads Agency (SANRAL) has no objection to the registration of servitude in favour of the KwaDukuza Municipality within the building restriction area of the National Road, subject to the following conditions:

a) The servitude shall be restricted to 8 meters wide.

b) It shall be registered in favour of the farmers currently utilizing the road only. Descriptions of the properties which the road serves shall be listed on the servitude diagram.

c) Should any township establishment take place on the properties mentioned in b) above, the gravel road shall not be used as an access to serve such development.

d) The servitude shall be limited to 8 meters wide and shall not encroach into the National Road Reserve.

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e) The servitude shall expire after 5 years from the date of registration but if still required for the same purposes, and by the same properties, an extension of the validity period can be considered on application to this office.

f) Should any suitable alternative access become available, the servitude shall be cancelled with immediate effect.

g) Should it be found that head lights from vehicles using the gravel access road has a blinding affect on motorists heading south on the National Road, SANRAL reserves the right to insist on some form of screening being implemented by the KwaDukuza Municipality.

h) No registration of properties forming part of the Zimbali Lakes development which is flanked by the gravel access road shall be allowed prior to the SANRAL conditions regarding the registration of the gravel access road servitude is met.

i) A letter is required from KwaDukuza Municipality in which the above conditions are accepted.

8.8.3. On their letter dated **29 September 2017**, the following is stated:

a) The south African National Roads Agency SOC LTD (SANRAL) hereby confirms that there is no objection to the above application provided that:
b) All conditions imposed as per letters of approval dated 31 August 2007 and 24 January 2008, reference 11/4/3-2/27-M, are still applicable.
c) Please note that these comments do not exempt the applicant from the provisions of any other law. Please contact the undersigned should you have any queries or comments in this regard.

8.9. Geotechnical Investigation

A detailed geotechnical investigation shall be conducted by a registered professional engineer prior to the development of each phase of the development and all recommendations shall be adhered to. Any site steeper than 1:3 shall be subject to a specific detailed report prior to its development.

8.10. KwaZulu Natal Heritage Act of 1997

The archaeological mitigation as identified within the Archaeological Report and authorised and approved by Amafa, shall be carried out to the satisfaction of Amafa before construction commences.

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8.11. Stormwater Management

With the use of stormwater retention features and dams, stormwater post development shall approximate the natural flow characteristics of the natural system.

Prior to the construction any stormwater feature or dam in the development, a wetland functional analysis, a management plan and a flow monitoring programme must be undertaken. Such analysis, plan and programme must be submitted to the Department of Water Affairs and Forestry, Agriculture and Environmental Affairs and Ezemvelo KZN Wildlife for approval.

River systems and drainage lines are to be rehabilitated to their natural state in accordance with a landscaping/rehabilitation plan ensuring that the natural features are safeguarded in perpetuity.

The following clause shall be included in the Environmental Management Plan and Architectural Controls for the Estate:

"In order to facilitate groundwater infiltration and reduce accumulated surface runoff, hardened parking and driveway surfaces which optimize the infiltration of surface water into the ground, shall be utilized where possible".

8.12. Building Plans and/or Applications made in terms of the KDM scheme and/or by-laws:

Every erf or portion shall have a Site Development Plan (in terms of the adopted KwaDukuza Municipality Land Use Management Scheme, Landscaping Plan and Building Plan prepared for it by the owner and approved by the Local Authority prior to any construction or development on the erf or portion, provided that such plans have been recommended as acceptable in writing by the Zimbali Lakes Resort Management Association prior to submission to the Local Authority for approval.

All development related applications shall be recommended as acceptable in writing by the Zimbali Lakes Resort Management Association prior to submission to the Local Authority for approval.

8.13. Noise Level Area

Erven 570, 581, 582, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 645, 646, 647, 648, 649 and 650, all erven of Zimbali Lakes, fall within the 55-60 LRDN noise zone and shall be subject to the appropriate sound proofing as accepted by the Management Association. This clause shall be included in the affected portions' Sales Agreements.

8.14. Transfer of Private Roads to the Zimbali Lakes Resort Management Association

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Erven 374, 375, 376, 405, 423, 443, 466, 487, 497, 517, 544, 563, 604, 605, 606, 607, 608, 609, 610, 631, 642, 651, 667, 684, 693, 735, 750, 780 and 786, all erven of Zimbali Lakes, shall be transferred to the Zimbali Lakes Resort Management Association prior to completion of the phase within which it is situated.

8.15. Management of Animal Waste

Treatment and removal of horse related waste products must be undertaken on a continuous basis to the satisfaction Zimbali Lakes Resort Management Association, the Municipality and the Department of Economic Development, Tourism and Environmental Affairs.

8.16. Screening of the N2 National Road

Should it be found that head lights from vehicles using the gravel access road has a blinding affect on motorists heading south on the National Road, SANRAL reserves the right to insist on some form of screening. All costs and responsibilities shall be borne by the developer/owner.

8.17. Proposed Closure of a Municipal Road – Erf 327 (of 29) of Erf 1 Zimbali Lakes

The proposal for the closure of the section of the unbuilt road on Erf 327 (of 29) of Erf 1 Zimbali Lakes was withdrawn by the applicant and therefore is not approved as part of this application.

8.18. Telkom:

Telkom infrastructure may be affected by the proposal and alterations to the existing plant may be necessary. An estimate of the cost involved will be furnished upon receipt of a written request to Telkom. A request to relocate the plant shall be undertaken at the owners request and cost. Telkom cannot accept responsibility for any re - instatement cost and the plant should be accessible at all times.

8.19. Eskom:

No building or structure is to be permitted within a specific distance from either side of the center line of any Eskom reticulation power lines.

D. CONDITIONS TO BE COMPLIED WITH PRIOR TO CERTIFICATION IN TERMS OF SECTION 53

Prior to the issuing of any of the certificates contemplated by Section 53 of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) the owner shall, comply with the following conditions in respect of the consolidated and subdivided sites to be registered, to the satisfaction of the Municipality or where the Municipality is not the supplier of a particular service, to the satisfaction of the relevant service authority. Written proof of compliance, from the authority concerned, will be

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required in respect of each condition. The owner shall act on the advice of a professional engineer in respect of any work done in compliance with the conditions below:

For the purpose of these conditions a "professional engineer" shall mean: -

A person who is registered as a professional engineer in terms of Act No. 81 of 1968 and who possesses cognate experience in the particular branch of engineering applicable to the service under consideration.

In the event of any dispute arising between the owner and the local municipality, or any other servicing authority, regarding compliance with the following conditions, the owner shall have the right of appeal to the Municipal Planning Appeal Authority whose decision shall be final.

The development may be serviced as individual erf/erven or phases and in any sequence, provided that, before any Erf/Erven or Phase is transferred, conditions D1, D2, D3, D4, D5.1, D5.2, D5.3.1, D5.4 and D7 shall be complied with.

Notwithstanding the above, Portion 384 (Phase 5A) may be transferred to the prospective owner, with the relevant bulk services provided to the boundary of the property. The prospective owner shall submit an application in terms of the relevant legislation to obtain approval for the redesign of the subdivisions of the site and install the necessary services to the individual erven. No erven of Portion 384 shall be transferred until conditions D1, D2, D3, D4, D5.1, D5.2, D5.3.1 and D7 have been complied with for Phase 5A.

1. Water supply

An approved Water supply reticulation and connection must be constructed to the boundary of each Erf, Erven or Phase in the township for the issuing of the "D" Water certificate.

2. Sewage disposal

An approved Sewage disposal system must be constructed to the boundary of each Erf, Erven or Phase in the township for the issuing of the "D" Sewage certificate.

3. Electricity

3.1. The developer shall provide a copy of the amended and signed Services Level Agreement.

3.2. An approved supply of Electricity shall be constructed to within the normal connection distance of the boundaries of each Erf, Erven or Phase in the township for the issuing of the "D" Electricity certificate.

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4. Stormwater drainage

The developer shall construct such facilities as are necessary and approved for the control and disposal of storm-water from the Erf, Erven or Phase in the Township for the issuing of the "D" Stormwater certificate.

5. Roads

5.1. The developer shall construct the roads reflected as Erven 374, 375 and 376, 405, 423, 443, 466, 487, 497, 517, 544, 563, 604, 631, 605, 606, 607, 608, 609, 610, 642, 651, 667, 684, 693, 735, 750, 780 and 786, all of Zimbali Lakes as shown on the attached Layout Plan with Drawing No. 2511/7/1A1 dated 11 April 2018 and prepared by Rob Kirby Associates Town and Regional Planners to the satisfaction of the municipality, be maintained and repaired by the Zimbali Lakes Resort Management Association for the issuing of the "D" Roads certificate.

5.2. The existing three-way priority access to the Main Road 398-2 (marked "B" on layout Plan No. 2511/7) shall be upgraded by the developer at his own cost to a roundabout access and shall be designed by a registered professional engineer, in consultation with the Design Engineer: Transport, Department of Transport KwaZulu-Natal, and such design shall be symmetrical about the centre line of Main Road 398-2 in accordance with the checklist and the design thereof inclusive of a pavement design obtainable from the Design Engineer: Transport, Department of Transport KwaZulu-Natal, for approval.

5.3. The developer must :-

5.3.1 As an interim measure, the developer shall provide a financial guarantee of R6.5 million in favour of the KwaDukuza Municipality within 7 days of this Record of Decision. This guarantee will be a "non-event" guarantee i.e. it can only be called upon for non-performance of the undertakings below within the specified time periods.

5.3.2 The final value of the financial guarantee for the proposed road upgrades is subject to an updated traffic impact assessment and the conclusion of consultations between the developer and KZN Department of Transport (the department) which shall provide comments on the recommendations of the study. All costs thereto shall be borne by the developer.

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5.3.3 The developer must:-

a. Considering that the M4/Douglas Crowe/Albertina Way Intersection which was previously identified as one of the key intersections that needed to be upgraded by the developer – but such upgrades are currently being implemented by another developer. The Zimbali Lakes developer shall therefore undertake an updated traffic impact assessment that will assess the cumulative traffic impacts of the Zimbali Lakes development and make recommendations on road upgrades required for implementation.

b. The traffic study shall be submitted to the KZN Department of Transport for approval. The approval must itemise the upgrades and road improvements that need to be implemented by the developer in order to support the proposed development as well as the obligations of the developer. This shall be submitted to the department by no later than 31 March 2022.

c. The approved traffic impact assessment and consent/approval from the department must be submitted to the municipality and shall be referred to the relevant Municipal Planning Approval Authority for consideration and ratification.

d. All costs relating to a), b) and c) above and identified road upgrades shall be borne by the developer and/or successors in title.

5.3.4 The developer shall commence with construction of the recommended road infrastructure improvements within 60 days of the KwaZulu-Natal Department of Transport approval.

5.3.5 Prior to the commencement of construction of the required road infrastructure upgrades, the developer shall submit to the municipality the approved designs for the road infrastructure upgrades, the final Bill of Quantities (BoQ) and construction timelines in relation to such approved road upgrades.

5.3.6 Any shortfall in the cost of such upgrades in relation to the value of the financial guarantee referred to in D5.3.1 arising as a result of the finalisation and approval of the required road upgrade designs, shall be borne by the developer and/or successors in title.

5.4 Section 53 certificates may be issued for Phases 4A, 4B, 4C, 5A, 5B, 5C, 5D & 6C as depicted on Layout Plan 2511/7/1A1 upon receipt of the financial guarantee as detailed in D5.3.1 above. No further Section 53 certificates will be issued for any erven/phases until Condition D5.3.3, D5.3.4, D5.3.5 and D5.3.6 have been adhered to.

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6. Water Use License

Prior to the issuing of any occupation certificate for any building a Water Use License shall be obtained for the development application

7. Surveyor-General

Lodging for approval of General Plan or Diagram with the Surveyor-General

7.1. In terms of Section 64(1) of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016), an owner must: -

(a) ensure that all unapproved diagrams, unapproved general plans, plans and documents, that the Surveyor-General may require for the registration of the subdivision or consolidation of land or establishment of a township are lodged with the Surveyor-General;

(b) An owner must submit a certified copy of the approved diagram or general plan, to the Municipality within 30 days after the date on which the Surveyor-General has approved the diagram or general plan, if the applicant is a person or an organ of state, other than the Municipality.

(c) In terms of Section 64(2) of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016), a professional land surveyor who lodges unapproved diagrams, unapproved general plans, plans and other documents on behalf of an Owner with the Surveyor-General, must include an affidavit in the submission confirming: -

(i) that the decision of the KwaDukuza Municipality is authentic and that it was made by a person or body authorised to make the decision; and
(ii)that the layout plan is the layout plan that was approved by the KwaDukuza

8. Approval of property description

Approval of the property description is subject to the requirements and final endorsement of the Surveyor-General for the township establishment.

E. CONDITIONS OF TITLE

Zimbali Lakes shall be subject to the following condition:-

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1. Zimbali Lakes Resort Management Association:

Zimbali Lakes Resort Management Association shall be formed by the applicant in respect of the entire development area to control and manage matters of common interest to all portions of the development and co-ordinate the affairs of the various Member Associations comprising the Zimbali Lakes Resort Management Association

All owners must, on registration of transfer, become a member of the Member Association that has geographical jurisdiction over their erf, portion or sectional title unit, with such Member Associations in turn being compulsory members of the Zimbali Lakes Resort Management Association.

All owners, their guests, lessees and any other member of the public utilising the estate accommodation and facilities must comply with the rules and regulations issued by the Zimbali Lakes Resort Management Association from time to time. No portion, erf or sectional title unit shall be transferred without the consent of the Zimbali Lakes Resort Management Association, which consent may not be withheld if the purchaser agrees to become a member of the relevant Member Association and the seller has complied with all their obligations to the relevant Member Association and the Zimbali Lakes Resort Management Association.

2. Member Associations:

Given the relative size of the development, a number of Member Associations shall be formed by the applicant in respect of sub-development areas to control and manage matters of common interest to all portions of the development falling within each such sub-area.

All owners must, on registration of transfer, become a member of the Member Association that has geographical jurisdiction over their erf, portion or sectional title unit.

Each Member Association will be and remain a member of the Zimbali Lakes Resort Management Association and ascribe to and abide by all rules, regulations and guidelines issued by the Zimbali Lakes Resort Management Association from time to time.

All owners, their guests, lessees and any other member of the public utilising the estate accommodation and facilities must comply with the rules and regulations of the relevant Member Association.

No erf, portion or sectional title unit shall be transferred without the consent of the relevant Member Association, which consent may not be withheld if the purchaser agrees to become a member of the relevant Member Association and the seller has complied with all their obligations to the Member Association.

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3. Development Review Committee

A Development Review Committee shall be established by the applicant and retained by the Zimbali Lakes Resort Management Association for the purpose of scrutinizing and recommending to the Municipality in respect of ALL applications required in terms of the conditions pertaining to its management.

The Development Review Committee shall comprise such representatives from the Zimbali Lakes Resort Management Association and the Local Authority and/or their duly appointed officials and professional advisors as may be agreed from time to time.

In the event of there being any dispute between the Zimbali Lakes Resort Management Association and the Local Authority as to the membership of the said Committee, the membership shall be determined by mediation.

All recommendations of the Development Review Committee shall be given to the Zimbali Lakes Resort Management Association for final confirmation and recommendation to the Municipality.

4. Inter-relationships between the Zimbali Lakes Resort Management Association, the Development Review Committee and the various Member Associations.

The inter-relationship between the Zimbali Lakes Resort Management Association, the Development Review Committee and the various Member Associations shall be established in terms of a legal agreement between them based on customary terms and law.

5. 3m Services Omnibus Servitude (including street frontage):

The KwaDukuza Municipality, the Zimbali Lakes Resort Management Association and any other service provider appointed by either of the former entities, reserve in perpetuity the right, without compensation, to erect, lay, maintain use and remove any infrastructural services inclusive of standards, lines, cables, pipes, drainage channels, poles, pole stays and the like under, on and over the said land for the purpose of providing a infrastructural services to the said land and other land, including the conveying of electric current, fibre optic cables, Telkom lines, water, waste water (sewage), drainage and the like.

The owner of any erf/portion/site the said land must agree to the servicing of the said land and any other land and street by such infrastructural services as described, and further agrees not to obstruct or interfere with or allow any obstruction or interference with any bulk services as described, or to erect any building or other permanent structure within 1 (one) meter of any such bulk service as described, unless express consent in writing is obtained from the relevant authority i.e. the KwaDukuza Municipality, the Zimbali Lakes Resort Management Association or the relevant service provider.

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Any damage done to the said property whilst in the process of erecting, laying, maintaining, using and removing the described bulk services outside of 1 (one) meter from all sides of the said service shall be made good by the KwaDukuza Municipality, the Zimbali Lakes Resort Management Association. or such service provider as may have installed, removed or maintained the said services.

The owner also agrees that the KwaDukuza Municipality, the Zimbali Lakes Resort Management Association and the relevant service provider may, by itself or through others appointed on its behalf, or by the Municipality, enter upon the said land at all reasonable times for the purpose of carrying out and enforcing the rights reserved and obligations accepted in this clause.

The rights granted to the KwaDukuza Municipality, Zimbali Lakes Resort Management Association and any other service provider appointed by either of the former entities in terms of this clause may be extended by it, in its discretion, to any other service provider it may nominate.

6. 3m Road Banks Servitude

All erven/portions (excluding portions to be transferred to the KwaDukuza Municipality) shall be subject to the following condition:

The owner of the portion shall, without compensation, be obliged to permit such deposit of material or excavation on the Erf as may, in connection with the formation of any road or street in the township and owing to differences in level between the Erf and the road or street, be deemed necessary by the Zimbali Lakes Resort Management Association, Local Authority or relevant service provider in order to provide a safe and proper slope to the cut and fill commencing from the boundary of the Erf unless the owner, at his own cost, elects to build a retaining wall to the satisfaction of the Zimbali Lakes Resort Management Association, Local Authority or relevant service provider.

Encroachment over this servitude shall be at the discretion of the Zimbali Lakes Resort Management Association, Local Authority or relevant service provider.

7. 20 metre building line applicable to Erf 690 Zimbali Lakes and Portions 391 and 398, both of Erf 1 Zimbali Lakes, abutting National Route N2

No building or structure whatsoever other than a fence, hedge or wall which does not rise higher than 2,1m above the surface of the land on which it stands shall be erected on the land within a distance of 20 meters measured from the road reserve boundary of National Route N2 (unless approval to relax these norms is received from the relevant authority).

No access to the individual portions shall be permitted from National Route N2.

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8. 15m building line applicable to Portions 307, 308 and 310 (of 28), all of Erf 1 Zimbali Lakes, Portions 319, 320, 322 and 324 (of 29), all of Erf 1 Zimbali Lakes, as well as Erven 380, 382, 471, 472, 501, 502, 503, 504, 505, 506, 507, 508, 509, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 665, 695, 696, 697, 698, 699, and the Remainder of Erf 1 all of Zimbali Lakes and the Remainder of Erf 1 Zimbali Lakes, abutting Main Road 398.

   No building or structure whatsoever other than a fence, hedge or wall which does not rise higher than 2,1m above the surface of the land on which it stands shall be erected on the land within a distance of 15 meters measured from the road reserve boundary of Main Road 398 (M4) (unless approval to relax these norms is received from the relevant authority).

   No access to the individual portion shall be permitted from Main Road 398 (M4).

9. Private Road Omnibus Condition:

   All Private Roads, namely erven 374, 375 and 376, 405, 423, 443, 466, 487, 497, 517, 544, 563, 604, 631, 605, 606, 607, 608, 609, 610, 642, 651, 667, 684, 693, 735, 750, 780 and 786, all erven of Zimbali Lakes, shall be subject to the following condition over the entire width:

   The KwaDukuza Municipality or any other service provider shall, without compensation, have the right to erect, lay and maintain sewers, drains, water supply piping and electricity mains underground within such servitude and shall have reasonable access thereto for the purposes of maintenance, removal or extension and the owner of the land shall, without compensation, be obliged to allow the sewerage and drainage of any other land or street to be conveyed along such sewers and drains and shall not permit such drain to be damaged or allow any material from whatever source to impede the flow of water within it.

   No buildings or other structures shall be erected within the aforesaid servitude area without the permission of the KwaDukuza Municipality or any other service provider and no large-rooted trees shall be planted within the area of such servitude or within 1 (one) meter thereof nor shall the ground level therein be altered without the written consent of the local authority or relevant service provider.

   The KwaDukuza Municipality or any other service provider shall be entitled to deposit temporarily on the land within the aforesaid servitude such material as may be excavated by it during the course of construction, maintenance or removal of such servitude mains and other works as it, in its discretion, may deem necessary and shall further be entitled to reasonable access to the said land for the aforesaid purpose, subject to any damage done during the process of the construction, maintenance or removal of such service mains and other works being made good by the KwaDukuza Municipality or relevant service provider.

Encroachment over this servitude shall be at the discretion of the Local Authority or relevant service provider and the Zimbali Lakes Resort Management Association.

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The Zimbali Lakes Resort Management Association shall have the right to regulate and monitor all pedestrian and vehicular access within the above Private Roads, save for bona fide and relevant service providers, who shall not be subject to any of the proposed regulatory and monitoring conditions.

F. REGISTRAR OF DEEDS

a) Registration of ownership with the Registrar of Deeds

1.1. When the first registration is sought, a copy of this Record of Decision, the certificate contemplated by Section 53 of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) and the approved General Plan or Diagrams together with the deeds and other documents that the Registrar of Deeds may require for the registration of the township as required in terms of Section 66(1) of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016), shall be lodged with the Registrar of Deeds.

1.2. In terms of Section 66(2) of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016), the Registrar of Deeds may not register land in separate ownership, unless the Municipality has issued a certificate stating that the conditions of approval for the subdivision of the land, consolidation of the land, or township establishment that must be complied with before the land may be registered in separate ownership as contemplated in item 1(c)(iv) of Schedule 9, have been complied with.

G. REASONS FOR THE DECISION

1. The application is not in conflict with the SPLUMA development principles as outlined in Section 7 of SPLUMA, 2013 (Act No. 16 of 2013).

2. The proposed rezoning is not in conflict with the Municipal IDP and SDF, it can be seen as enhancing the key spatial concepts outlined in the municipal SDF which include densification and infill development.

3. The applicant has complied with the public consultation process as per the provisions of Schedule 5 of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013). There were also no objections received objecting to the application proposal.

4. The services authorities and organs of state have not objected to the proposed development and have imposed conditions that need to be complied with by the developer in order to accommodate the proposed development.

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5. The DEDTEA has taken into consideration the ecological and hydrological impact of the proposed development and have expressed that there will be no negative impact in this regard.

6. The amendment decision by DEDTEA will not trigger any listed activities listed in the 2014 NEMA EIA Regulations.

7. The proposed subdivisions are compliant with the minimum frontage required as per their respective zonings.

8. The engineering services required to accommodate the proposed development will be provided and/upgraded at the developer's cost.

9. The scheme amendment proposals for the Zimbali Lakes have been disapproved, on the basis that they are, to a large extent, considered to not be in line with the current KwaDukuza Land Use Management Scheme (LUMS) and therefore such scheme amendment proposals are considered to be producing a series of controls that effectively create a "special zone" unique to Zimbali Lakes. The applicant shall comply with the LUMS without considerable deviations insofar as land use controls are concerned for the respective zones in terms of the LUMS.

10. The reduction of Floor Area Ratio (FAR) and the increasing of parking does not require a scheme amendment. The owners/ developers have the liberty to limit the FAR or provide more parking than the minimum requirement prescribed by the land use scheme at their own discretion.

11. The proposed registration arrangement allowing for the exemption of installation of services prior to transfer was not granted, as it is considered not to be in the interest of the municipality to accept guarantees for the servicing of the land. This could present a risk to the municipality and therefore the MPT resolved to not accept the proposal.

H. PUBLIC CONSULTATION PROCESS

a) Public Consultation

1.1. The application was advertised in the North Coast Courier on 20th October 2017 and the closing date for comments and representations being 20 November 2017. An erratum was subsequently advertised on 27th of October 2017 on the North Coast Courier notifying interested and affected parted parties that the closing date for comments and representations will be 21 November 2017, therefore complying with the 30-day statutory period.

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1.2. Neighbour's notices were sent via registered mail to neighbours falling within a 100 radius from the boundary of the project area. A copy of the receipt from the post office confirming that letters were sent to the correct properties is attached as part of the motivation memorandum.

1.3. Site notices were displayed on site on a visible location along the application site for a continuous period of 30 days from the date of advertisement. A picture of the notice as it was shown on site is attached as part of the motivation memorandum.

b) Site Inspection
A site inspection was conducted by the KDM MPT and the User Department on 23rd February 2018.

I. COMMENTS RECEIVED

There were no comments and/or objections received during the public consultation process.

J. SUMMARY OF RIGHTS AND OBLIGATIONS OF APPELLANTS

1. A person whose rights are affected by a decision taken by a Municipal Planning Authorised Officer or the Municipal Planning Tribunal may appeal against that decision by giving written notice of the appeal and reasons to the Municipal Manager within 21 days or 30 days of the date of notification of this decision, as set out in Section 51 of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) and Section 57 of the Spatial Planning and Land Use Management By-law No. 1630, 2016.

2. The right to appeal against a decision by a Municipal Planning Authorised Officer or the Municipal Planning Tribunal lapses if a person fails to lodge a memorandum of appeal within 30 days of the date of notification of this decision, as set out in Section 57(3) of the Spatial Planning and Land Use Management By-law No. 1630, 2016.

3. In terms of Schedule 10, Section 1(5) of the Spatial Planning and Land Use Management By-law No. 1630 (March 2016), on submission of the notice of appeal and/ or the memorandum of appeal, the appellant must pay the relevant tariff stipulated in the Municipal Tariff of Charges as adopted by the Municipal Council.

K. CONTACT DETAILS

1. The Applicant/ Agent:
Name – Rob Kirby Associates Town and Regional Planners
Tel – 031 266 3011
Fax – 031 266 9017

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E-mail – rkassoc@iafrica.com

2. Municipal Planning Appeal Authority Registrar:
Name – Pamela Govender
Tel – 032 437 5019
E-mail – PamelaG@kwadukuza.gov.za

3. Municipal official to whom an appeal may be lodged:
Name – Office of the Municipal Manager
Tel – 032 437 5000
E-mail – MunicipalM@kwadukuza.gov.za

L. EFFECTIVE DATE OF DECISION

This decision by the KwaDukuza Municipality Municipal Planning Tribunal comes into effect upon the date of the Record of Decision, as set out in Section 58 of the Spatial Planning and Land Use Management By-law No. 1630, 2016.

M. LAPSING OF APPROVAL

1. This conditional approval lapses if a condition is not complied with, within a period of five (5) years from the date of the Record of Decision, as set out in Section 43(2) of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013).

2. Considering the period for compliance specified above, no extension will be granted as the period of compliance together with any extension may not exceed five (5) years, as set out in Section 43(2) of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013).

N. SECTION 53 CERTIFICATE

The Owner's/ Developer's attention is drawn to the fact that no compliance certificate, as required in terms of Section 53 of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013), shall be issued until the Owner/ Developer has complied with Conditions D1 – D5.1, D5.2, D5.3.1, D5.4 and D7.

Mr. Aubrey Ngcobo

Deputy Chairperson: KwaDukuza Municipal Planning Tribunal

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