SECTION J: ADDENDUMS

8.1 ADDENDUM A - BIO Atlas Species Report



8.2 ADDENDUM B - Matrix for Suitability Requirements



GOURITS RIVER CATCHMENT AREA: SUITABILITY ZONING REQUIREMENTS

MACRO SCALE

ZONING ELEMENTS	AGRICULTURE	CONSERVATION	BUILT-UP	RECREATION
LAND COVER				
Bare rock and soil		Χ		
Built-up land: commercial			Χ	
Built-up land: residential			Χ	
Cultivated grass				Х
Cultivated land: commercial	Χ			
Degraded: shrubland and low fynbos		Χ		
Degraded: thicket and bushland		Χ		
Exotic Plantations	Χ		Χ	
Grassland		Χ		Χ
Indigenous forest		Χ		
Mines and Quarries			Χ	
Shrubland/fynbos		Χ		Х
Thicket and Bushland		Χ		Χ
SOILPOTENTIAL				
No dominant class		Χ	Χ	Χ
Not suitable for agriculture or commercial forestry; suitable for conservation, recreation or water conservation		Χ		Χ
Soils highly suited for arable agriculture where climate permits	Χ			
Soils not suitable for arable agriculture, suitable for forestry or grazing where climate permits		Χ		
Soils of intermediate suitability for arable agriculture where climate permits	Χ			
HYDROLOGY				
Dry pan		Х		
Non-perennial		Χ		
Perennial	Χ	Χ		Χ
Wetland		Χ		Χ
HERITAGE	<u> </u>			<u> </u>
Buffelspoort	<u> </u>	Χ		Χ
Rietvlei		Χ		Χ
Tierberg		Χ		Χ

	AGRICULTURE	CONSERVATION	BUILT-UP	RECREATION
ESTUARY				
Blinde Rivi	er	Х		Х
Gouri	is	Х		Х
Hartenbo	s	Х		Х
Kafferkui	is	Х		Х
BROAD TERRAIN MORPHOLOGY				
Dune hills and lowland	ls X	Х		Х
Escarpmen	is	Х		Х
Extremely irregular plair	IS	Х		Х
High mountair		Χ		Х
Lowlands with hil		Χ	Х	Х
Lowlands with parallel hil		Х	Х	Х
Moderately undulating plair	ns X	Х	Х	Х
Mountains and lowland				Х
Parallel hills and lowland	ls X	Х	Х	Х
Plair	ıs	Х	Х	Х
Slightly irregular plair	iS	Х		
Undulating hil	s	X		
LANDUSE				
Commercial / industri	al		Х	
Conservation	'n	Х		Х
Cultivated Ian				
Forest	ry X	Х		
Minir	g		Х	
Residenti	al		Χ	
RIVER BUFFER ZONE				Х
FLORA AND FAUNA				
Acmedania agrillophila, Agathosma species, leopard and fis	h	Х		Х
Afromontaine fore	st	Х		Χ
Indigenous fore	st	Х		Х
				_

		AGRICULTURE	CONSERVATION	BUILT-UP	RECREATION
NATURAL FEATURES AND PHENOMENON'S					
В	ufflelskloof gorge		Х		Χ
	Calitzdorp Spa		Х		Х
	Congo caves		Х		Х
Me	eiringspoort gorge		Χ		Х
Rust e	en Vrede waterfall		Χ		Х
Sceni	c beach - Stilbaai		Χ		Х
Sleeping beau	ty Mountain peak		Χ		Х
	Towerkop peak		Χ		Х
WHALE WATCHING					
Southern Right wh	ales- Mossel Bay			Х	Х
MOUNTAIN PASSES					
	aquas Kloof pass		Χ		Х
Ca	aledon Kloof pass		Х		Χ
	Cloetes pass		Х		Х
	Huis River pass		Χ		Χ
	Meirings poort		Х		Х
Otto	du Plessis Road		Х		Х
	Swartberg pass		Х		Х
DIVING SITES					
	Dolosse		Х		Х
	Klein Brak		Х		Х
	Mitchs Reef	_	Х		Х
	Santos Reef		Х		Х
	Stingray Reef		Х		Х
					<u> </u>
					<u> </u>

		AGRICULTURE	CONSERVATION	BUILT-UP	RECREATION
SCENIC ROUTES					
	Calitzdorp		Χ	Χ	Х
	Gamka Mountain 4x4 trail		Χ		Х
	Gamkaskloof		Χ	Х	Х
	Karoo National Park		Х		Х
	Meiringspoort		Χ		Х
	Mossel Bay		Χ	Χ	Х
	Oudtshoorn		Χ	Χ	Х
	Scenic Garden route		Χ		Х
	Scenic Karoo route		Χ		Χ
	Scenic route		Χ		Χ
	Stil Bay		Χ	Χ	Χ
	Swartberg pass		Χ		Χ
GRAVES					
	Grave / burial site		Χ		Χ
	Monument - graves		Χ		Х
MONUMENTS AND MUSEUMS					Х
MAJOR TOWNS					
	Beaufort West	X	Х	Х	Х
	Ladismith	X	Х	Х	X
	Leeu-Gamka	X	Х	Х	X
	Mossel Bay	X	X	X	X
	Oudtshoorn	X	X	Х	X
PRIMARY ROADS		Χ	Х	Х	Х
					_

		AGRICULTURE	CONSERVATION	BUILT-UP	RECREATION
CONSERVATION AREAS					
	Boesmansbos State Forest		Χ		Х
	Garcia State Forest		Χ		Х
	Grootgvadersbosch State Forest		Χ		Х
	Karoo National Park		Χ		Х
	Klein Karoo Conservation Area		Χ		Х
	Langkloof State Forest		Χ		Х
	Niegenaamd Nature Reserve		Χ		Χ
	Paardeberg State Forest		Χ		>
	Ruitersbos State Forest		Х		\rangle
	Spionkop State Forest		Х		\rangle
	Swartberg State Forest		Х		>
	Towerkop State Forest		Х		>
NVIRONMENTAL SENSITIVITY					
	0.0 to 1.0	Χ		Χ	
	1.0 to 3.0	Χ		Χ	
	3.0 to 5.0		Х		>
	5.0 to 7.0		Х		>
	7.0 to 8.0		Х		>
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	HIKING	WALKING	CLIMBING	CAMPING	SWIMMING	CANOEING	GAMELODGE	ADVENT	VIEWING	SCENIC DRIVES	CYCLING	PARAGLIDING
		u,	G		G	IG	DGE	ADVENTURE CAMPS		ORIVES		DING
BROAD TERRAIN MORPHOLOGY												
Dune hills and lowlands												
Escarpments	Χ	Χ	Х					Χ	Χ	Χ		Χ
Extremely irregular plains		Χ		Χ				Χ			Χ	L
High mountains	Χ	Χ	Х	Х				Χ	Χ	Χ		Χ
Lowlands with hills											Χ	
Lowlands with parallel hills							Χ				Χ	
Moderately undulating plains											Χ	
Mountains and lowlands	Χ	Χ		Χ			Χ	Χ	Χ	Χ		Χ
Parallel hills and lowlands	Χ	Χ										<u> </u>
Plains				Х			Х		Χ	Χ	Χ	<u> </u>
Slightly irregular plains												<u> </u>
Undulating hills											Χ	<u> </u>
LAND COVER												<u> </u>
Bare rock and soil												<u> </u>
Built-up land: commercial												
Built-up land: residential											Χ	<u> </u>
Cultivated grass												<u> </u>
Cultivated land: commercial									Χ	Χ	Χ	<u> </u>
Degraded: shrubland and low fynbos												
Degraded: thicket and bushland												
Exotic Plantations	Χ	Χ		Χ				Χ				
Grassland	Χ	Χ		Х			Χ	Χ			Χ	
Indigenous forest	Χ	Χ		Χ			Χ	Χ	Χ	Х	Χ	
Mines and Quarries												
Shrubland/fynbos		Χ		Χ			Χ	Χ				
Thicket and Bushland	Χ	Χ		Χ			Χ	Χ	Χ	Х	Χ	
			1	1	1	1	1		l			1

	HIKING	WALKING	CLIMBING	CAMPING	SWIMMING	CANOEING	GAMELODGE	ADVENTURE CAMPS	VIEWING	SCENIC DRIVES	CYCLING	PARAGLIDING
NATURAL FEATURES AND PHENOMENON'S												
Bufflelskloof gorge		Χ	Χ					Χ	Χ	Χ		<u> </u>
Calitzdorp Spa	Χ											<u> </u>
Congo caves												<u> </u>
Meiringspoort gorge												<u> </u>
Rust en Vrede waterfall												<u> </u>
Scenic beach - Stilbaai												<u> </u>
Sleeping beauty Mountain peak												<u> </u>
Towerkop peak		Χ	Χ					Χ	Χ	Χ		
FLORA AND FAUNA												
Acmedania agrillophila, Agathosma species, leopard and fish							Χ	Χ	Χ			
Afromontaine forest								Χ	Χ	Χ		<u> </u>
Indigenous forest	Χ	Χ		Χ			Χ	Χ	Χ	Χ		
HYDROLOGY												<u> </u>
Dry pan	Χ											
Non-perennial	Χ											
Perennial	Χ	Х		Х	Х	Х	Χ	Χ	Χ		Χ	
Wetland	Χ	Х			Х	Х		Χ	Χ	Χ		
ESTUARY												
Blinde Rivier												
Gourits	Χ	Χ			Χ	Χ	Χ	Χ	Χ	Χ		
Hartenbos												
Kafferkuils												
HERITAGE												
Buffelspoort	Χ	Χ							Χ	Χ		
Rietvlei												
Tierberg												
ARCHITECTURAL TOWN									Χ	Χ		
MONUMENTS AND MUSEUMS									Χ	Х		

	HIKING	WALKING	CLIMBING	CAMPING	SWIMMING	CANOEING	GAMELODGE	ADVENTURE CAMPS	VIEWING	SCENIC DRIVES	CYCLING	PARAGLIDING
(RANTZ												╙
15-25%	Х							Χ				Ļ
>25%	Χ		Χ						Χ	Χ		Χ
CONSERVATION AREAS												<u> </u>
Boesmansbos State Forest												lacksquare
Garcia State Forest												ota
Grootgvadersbosch State Forest												
Karoo National Park												
Klein Karoo Conservation Area	Χ			Χ			Χ	Χ	Χ	Χ		
Langkloof State Forest												
Niegenaamd Nature Reserve												
Paardeberg State Forest												
Ruitersbos State Forest												
Spionkop State Forest												
Swartberg State Forest												
Towerkop State Forest	Χ			Х			X	Χ	Χ	Х		
GRAVES												
Grave / burial site									X			
Monument - graves									Χ	Χ		
MOUNTAIN PASSES												
Attaquas Kloof pass												
Caledon Kloof pass									Χ	Х	Χ	
Cloetes pass												
Huis River pass												
Meirings poort												
Otto du Plessis Road												
Swartberg pass												
3, 11, 3, 11, 11, 11, 11, 11, 11, 11, 11												
												t

8.3 ADDENDUM C - Risk Assessment



RISK IDENTIFICATION AND ASSESSMENT

The assessment of the risks during the development of the Gourits River Catchment Area is divided into the 3 phases of the project namely Predevelopment, Construction and Operations and Maintenance.

Table 9 is the key that describes the symbols used in the process of analysing the risks.

Table 10: Symbols of Risk Analysis

Consequence	С	Probability	Р	Risk Category	RF
Measure		Measure			
Catastrophic	5	Likely	5	High	15-25
Major	4	Moderate	4	Medium	7-14
Moderate	3	Unlikely	3	Low	2-6
Minor	2	Rare	2		
Insignificant	1				

Table 11: Risk Analysis

DESCRIPTION	Risk	Control	Risk	Assurance
	Assessment C	Assessment P	Factor RF	Priority
Pre-development Phase				
Licences	4	2	8	MEDIUM
Contractual misinterpretation	4	2	8	MEDIUM
Misunderstanding	4	2	8	MEDIUM
Legislation	4	4	16	HIGH
Size of the project	2	2	4	LOW
Feasibility	4	4	16	HIGH
Rezoning	3	4	12	MEDIUM
Construction Phase				
Legislation	2	2	4	LOW
Non-performance	3	4	12	MEDIUM
Poor quality	4	3	12	MEDIUM
Pollution	3	5	15	HIGH
Erosion	4	4	16	HIGH
Safety	3	2	6	LOW
Control	3	2	6	LOW
Materials availability	2	2	4	LOW
Operations and Maintenance Phase				
Contractual	4	4	16	HIGH
Change in technology	1	2	2	LOW



RISK MITIGATION

Pre-development Phase:

Legislation:

A comprehensive legislative study must be done in all aspects of the framework to ensure that all the relevant legislature is covered.

Feasibility:

A comprehensive feasibility study of each development must done to ensure that each development is a success. The framework give just an overall possibilities view of each area.

Construction Phase:

Pollution:

The impact of pollution in this area will be significant and a pollution control system must be put into place.

Erosion:

Erosion must be prevented at all costs. Full erosion control programme must be drawn up.

Operations and Maintenance Phase:

Contractual:

A detailed contract for the operational and maintenance phase must be drawn up to ensure continual performance of the contractor.



8.4 ADDENDUM D - Project Analysis



KANNALAND TOURISM NODE ZONE 2 RECREATIONAL PARK

SCHEDULE OF ACCOMMODATION

NO	SPACE DESCRIPTION	QUANTITY	AREA (TOTAL)	RATE PER SQ.M	TOTAL COST
			m ²		R
1	Parking Areas	2	6230	R 67	419,092
2	Road	1	4290	R 83	357,057
3	Paved Walkways	2	6825	R 67	459,118
4	Gravel Walkways	2	13000	R 10	130,000
5	Lawn Walkways	3	6500	R 10	65,000
6	Lawn	1	46475	R 4	185,900
7	Curio Shop	1	105	R 4,344	456,120
8	Administration Building	1	105	R 4,344	456,120
9	Lookout Point	1	100	R 3,200	320,000
10	Ablution Facilities	5	90	R 4,267	384,021
11	Swimming Pools	2			116,058
12	Pump Room	1			59,734
13	Play equipment	8			18,674
14	Restaurant	1	256	R 4,830	1,236,480
TOT	AL		83976	R 1,930	4,663,374

PROJECT BUDGETING AND CASH FLOW

PROJECT ANALYSIS	
AREA OF PROJECT	83976
ESTIMATED COST PER M.SQ	R 1,929.70
ESTIMATED BUILDING COST	R 4,663,373.95
PROFESSIONAL FEES	R 363,743.17
ESTIMATED DISEMBURSEMENT COSTS	R 109,122.95

SUBDIVISION OF FEE FOR VARIOUS STAGES OF WORK

STAGE	STAGE			COST PER				REMAINING	NO OF	HOURS	WEEKS
	DESCRIPTION	%	FEE/STAGE	MAN HOUR	AVAIL	USED	% USED		PER	DURATION	DURATION
1	Master Planning	5%	R 18,187.16	R 179.00	102		0%	1	1	102	2.54
2	Sketch Plans	35%	R 127,310.11	R 104.00	1,224		0%	62	2	612	15.30
3	Documentation	30%	R 109,122.95	R 104.00	1,049		0%	53	2	525	13.12
4	Supervision	30%	R 109,122.95	R 104.00	1,049		0%	53	1	1,049	26.23
TOTAL			R 363,743.17		3,424	0	0%	169		2,288	57.19

OFFICE CASH FLOW

NOVEMBER 2003 TO OCTOBER 2004

PROJECT	BUILDING COST	FEES AND DISBURSEMENTS				NOVE	MBER	DECE	MBER	JANUARY	
DESCRIPTION			Budget	Receive	Remain	Fee	Disb	Fee	Disb	Fee	Disb
Recreational Park	R 4,663,374	Fees	R 363,743	R 0	R 363,743			R 18,187		R 31,828	
		Disb	R 109,123	R 0	R 109,123		R 9,094		R 9,094		R 9,094
TOTAL DISBURSEMENTS	R 0						R 9,094		R 9,094		R 9,094
TOTAL FEES	R 0		R 363,743					R 18,187		R 31,828	
OVERHEADS						R 18,187		R 18,187		R 18,187	
BALANCE						-R 18,187		R 0		R 13,641	

FEBRUARY			MARCH			APRIL			M	AY	JUNE		
Fee	Disb		Fee		Disb	Fee		Disb		Fee	Disb	Fee	Disb
R	31,828		F	R 31,828		R	31,828			R 36,374	•	R 36,374	
		R 9,094			R 9,09	+		R	9,094		R 9,094		R 9,094
		R 9,094			R 9,09	+		R	9,094		R 9,094		R 9,094
R	31,828		F	R 31,828		R	31,828			R 36,374		R 36,374	
F	R 18,187			R 18,187		F	R 18,187			R 18,187	!	R 18,187	
F	13,641			R 13,641		F	7 13,641			R 18,187	!	R 18,187	

JULY AUGUST			SEPTEMBER		OCTOBER	TOTAL REMAINING				
Fee	Disb	Fee	Disb	Fee	Disb	Fee	Disb	Check	Fee	Disb
R 36	6,374	R 36,374		R 36,374		R 36,374			R 363,743	}
	R 9,094		R 9,094		R 9,094		R 9,094			R 109,123
	R 9,094	-	R 9,094		R 9,094		R 9,094			
R 36	6,374	R 36,374		R 36,374		R 36,374		R 195,51°	1	
R 1	18,187	R 18,187		R 18,187		R 18,187		R 127,310)	
R 1	18,187	R 18,187		R 18,187		R 18,187		R 68,20	1	