BERGRIVIER MUNICIPALITY

SPATIAL DEVELOPMENT FRAMEWORK

2024-2029

By CK Rumboll & Partners
March 2024

Bergrivier Municipality Spatial Development Framework 2024 – 2029

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Bergrivier Municipal Spatial Development Framework 2024 – 2029

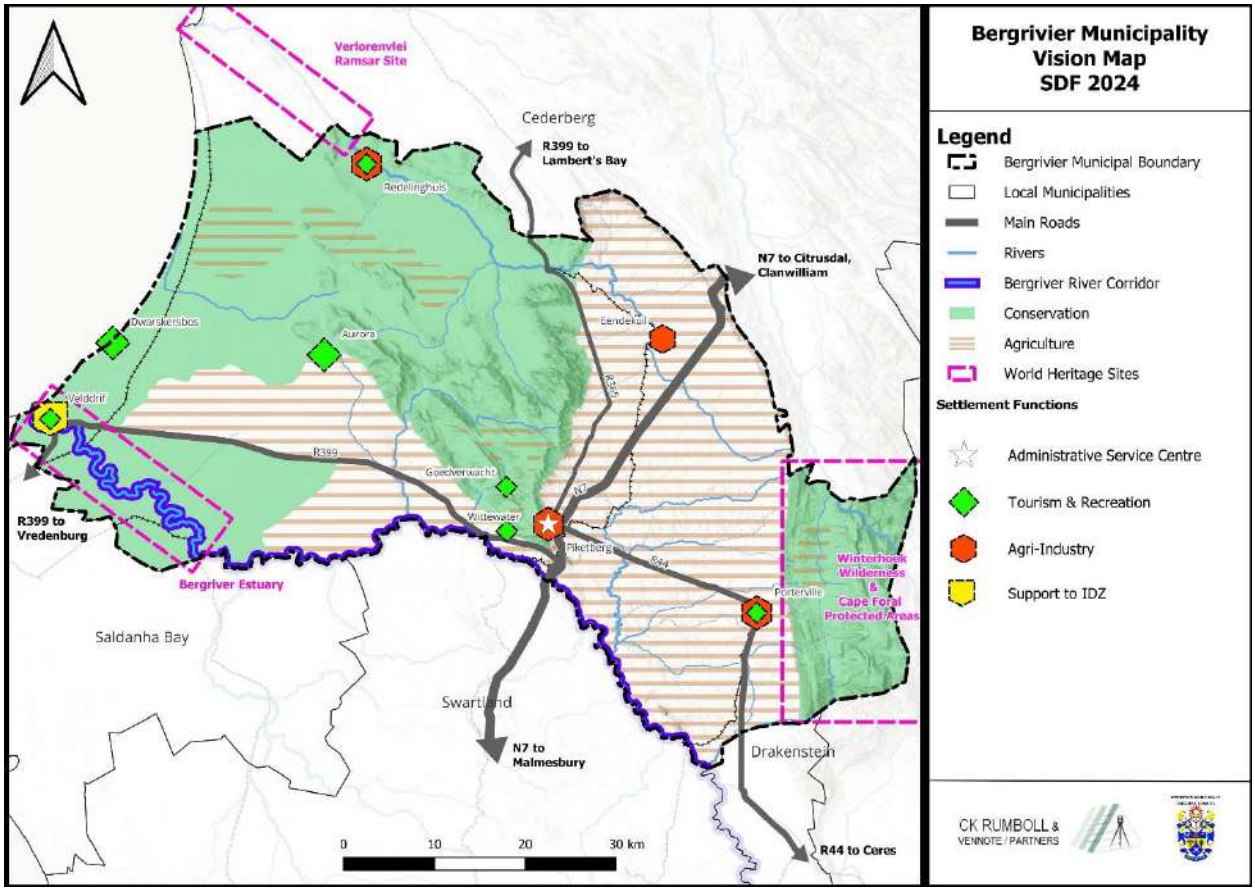
Why?

The Bergrivier Municipal Spatial Development Framework (MSDF), 2024 - 2029, is adopted as a core component of the 5th generation Bergrivier IDP, 2023 – 2027 (MSA Section 26(e)).

The MSDF guides growth and development in the Bergrivier municipal area in a sustainable manner over the next five-year and 20-year development cycles aligned with the Capital Expenditure Framework of Bergrivier Municipality (MSA, 2000). The MSDF adopted the vision for Bergrivier Municipality: "Bergrivier as a prosperous community where all want to live, work, learn and play in a dignified manner", as spatial vision.

How?

Bergrivier Municipality envisages, as per the map below, to protect and celebrate its conservation worthy agricultural and natural landscape and world heritage and conservation sites whilst capitalising on the N7 as powerful North South connector and the R44 and R399 as East West connector to the Saldanha Bay IDZ. Both connectors present a variety of economic opportunities within the rural landscape, intersecting Piketberg as administrative capital and Velddrif as economic growth point supportive to the Saldanha IDZ.



Within settlements and the rural areas, the following transitions are important:

Built Environment
Revitalised, livable and economically thriving settlements preserving or establishing distinct precinct identities whilst accommodating economic diversification, mobility and participation and supported by: - Implementing sensitive signage and replacing insensitive signage. - Enhancing natural settlement gateways. - Intensifying business nodes and along activity streets. - Densification along activity streets. - Seamless connection and transition between different urban elements and settlement precincts. - Protecting trees 20 years and older, planting trees (two trees per cadastral unit) and tree lanes or clusters. - Well-maintained Non-Motorized Transport (NMT) routes. - Adherence to development, flood and coastal management lines. - Promoting underground instead of above ground service reticulation including communication networks. - Implementing measures to soften main roads in settlements and calm traffic flow. - Topographical considerations informing development. - Defining urban edges for settlements over 5- and 20 -year horizons.
Socio Economic
Ensure accessible opportunities to: - Early childhood education facilities including crèches and preschools. - Safe and comprehensive multi-disciplinary schools. - Supportive and high-quality community healthcare services. - Skills development and training initiatives. - Suitable areas for entrepreneurial activities and small-scale businesses.
Biophysical and Environment
- Encourage the establishment of biodiversity corridors, open spaces and corridors. - Identify and designate areas for intensive agriculture and conservation. - Promote the development of agritourism areas and associated corridors and routes. - Establish scenic and historic routes showcasing the natural and cultural heritage. - Exclude sensitive areas for alternative energy and mining. - Delineate development buffers to safeguard environmentally sensitive zones. - Focus on preserving waterways and cultural-historical landscapes. - Support social focal points and community facilities and activities. - Protect world heritage and nature conservation areas. - Enhance connector routes and corridors to support economic development within the region.

When?

Settlement and economic development are dependent on services infrastructure. Upgrades are in process or planned in Dwarskersbos, Eendekuil, and Piketberg whilst in Piketberg, Porterville and Velddrif/ Laaiplek upgrades are planned for the period between 2028 – 2033.

Table: Bergrivier Municipality Infrastructure Status Quo Summary

Settlement	Water Source	WTW	Water Storage	WWTW	Electricity
Aurora	2028 – 2033	2028 – 2033	>2033	Septic Tanks	>2033
Dwarskersbos	2028 – 2033	2028 – 2033	< 2028	< 2028	< 2028
Eendekuil	2028 – 2033	< 2028	< 2028	2028 – 2033	>2033
Goedverwacht	Private	Private	Private	Private	Eskom
Piketberg	2028 – 2033	2028 – 2033	< 2028	2028 – 2033	2028 - 2033
Porterville	>2033	>2033	2028 – 2033	>2033	2028 – 2033
Redelinghuis	>2033	>2033	>2033	Septic Tanks	>2033
Velddrif	2028 – 2033	2028 – 2033	>2033	2028 – 2033 & <2028	<2028
Wittewater	Private	Private	Private	Private	Eskom

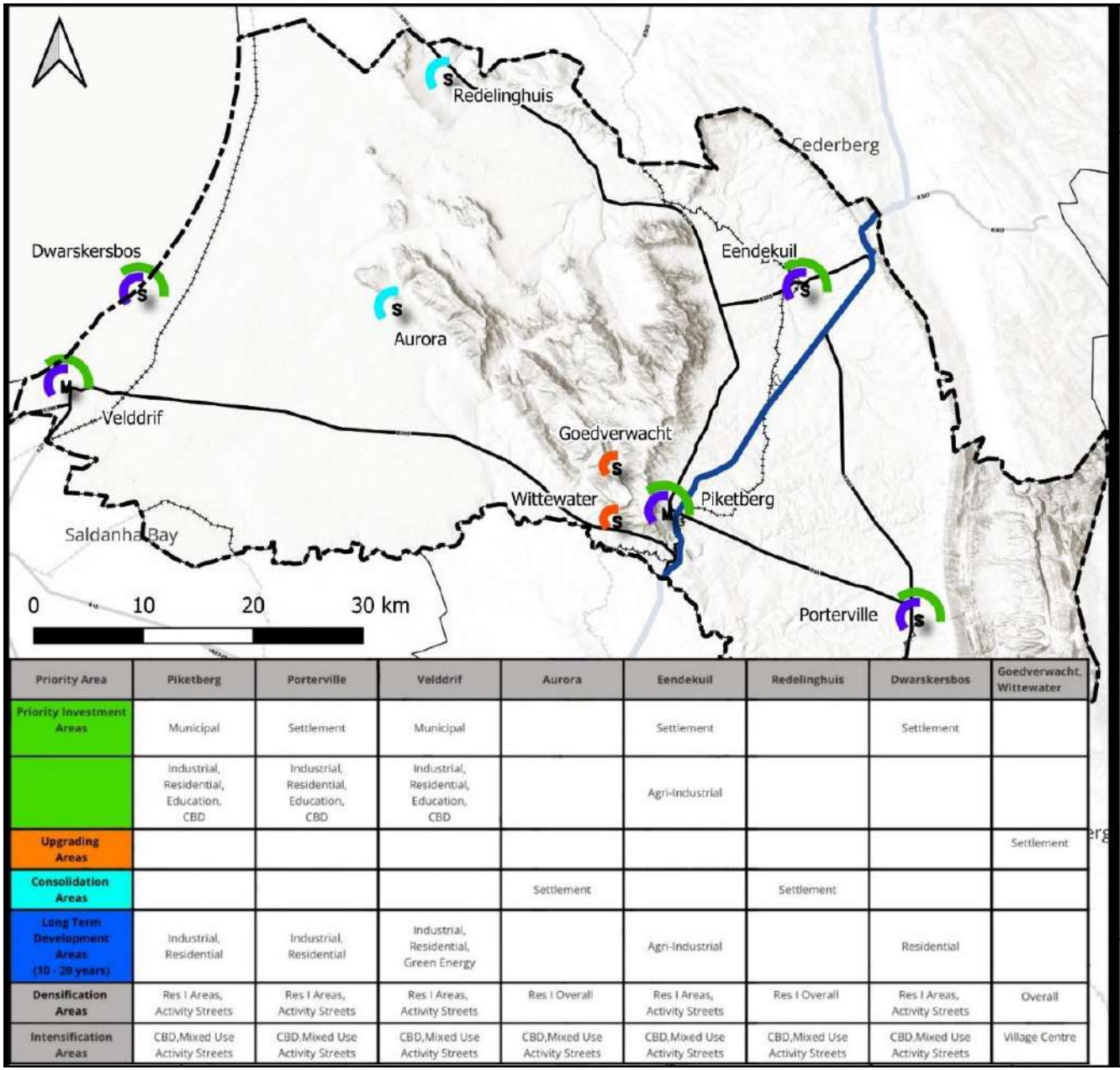
In addition to services, land requirements and supply are tabled below. The Bergrivier Municipality's waiting list informed the total land needed to accommodate households awaiting tenure. The calculations were based on the erf size of RDP erven as 160 m², GAP/FLISP erven as 250m², and non-subsidised erven as 450 m². In urban areas, land need and demand over short-term (5 year) and long-term (15-20 year) periods were considered in the spatial proposals. Housing need reflects population projections every 5 years, while demand corresponds to the municipal waiting list, prioritised by the pipeline.

The below table indicates the 5-year household projections per category (Subsidised) or (Other including GAP, FLISP, Affordable and non-subsidised) and net land requirements, including the total netto (net) land required for amenities.

Additional Households & Land (ha)			2027				2032				2037				2042				Additional 20 Year Total					Amenities until 2037
Settlement	Waiting list	Net Land Required (ha)	Households		Net Land (ha)		Households		Net Land (ha)		Households		Net Land (ha)		Households		Net Land (ha)		Households		Net Land (ha)		Total add. net land per settlement incl Wlist	Total Land per settlement (ha)
			Sub	Other	Sub	Other	Sub	Other	Sub	Other	Sub	Other	Sub	Other	Sub	Other	Sub	Other	Sub	Other	Sub	Other		
Aurora	88	**1,5**	9	14	0,14	0,62	9	14	0,15	0,63	12	18	0,19	0,80	12	18	0,19	0,80	41	63	0,66	2,86	**5,02**	**4,45**
Dwarskersbos	0	**0**	8	11	0,12	0,50	8	11	0,13	0,51	10	14	0,16	0,65	10	14	0,16	0,65	35	51	0,57	2,30	**2,87**	**0,56**
Eendekuil	273	**4,9**	17	26	0,27	1,16	17	26	0,28	1,18	22	33	0,35	1,51	22	34	0,35	1,51	79	119	1,26	5,35	**11,51**	**5,26**
Goedverwacht	26	**0,5**	28	27	0,45	1,21	29	27	0,46	1,23	37	35	0,59	1,57	37	35	0,59	1,57	131	124	2,10	5,59	**8,19**	
Piketberg	2318	**42,2**	130	208	2,08	9,35	132	211	2,12	9,51	169	270	2,71	12,15	169	270	2,71	12,16	601	959	9,61	43,17	**94,98**	**6,39**
De Hoek			2	8	0,03	0,34	2	8	0,03	0,34	2	10	0,04	0,44	2	10	0,04	0,44	8	35	0,13	1,56	**1,69**	
Porterville	1324	**24,2**	82	116	1,30	5,21	83	118	1,33	5,29	106	150	1,70	6,77	106	150	1,70	6,77	376	534	6,02	24,04	**54,26**	**8,07**
Beaverlac			2	0	0,02	0,00	2	0	0,03	0,00	2	0	0,03	0,01	2	0	0,03	0,01	7	0	0,11	0,02	**0,13**	
De Lust			0	19	0,01	0,84	0	19	0,01	0,86	0	24	0,01	1,10	0	24	0,01	1,10	2	87	0,03	3,90	**3,92**	
Redelinghuis	254	**4,7**	9	7	0,15	0,31	9	7	0,15	0,32	12	9	0,19	0,40	12	9	0,19	0,40	42	32	0,67	1,44	**6,81**	**1,81**
Velddrif	1084	**19,2**	159	148	2,54	6,67	162	151	2,59	6,78	207	193	3,31	8,67	207	193	3,31	8,67	734	685	11,75	30,80	**61,75**	**5,38**
Wittewater	12	**0,2**	10	13	0,17	0,60	11	14	0,17	0,61	14	17	0,22	0,78	14	17	0,22	0,78	48	61	0,77	2,76	**3,73**	
Rural	0	**0**	385	300	6,16	13,51	392	305	6,27	13,74	501	390	8,01	17,56	501	390	8,01	17,56	1778	1386	28,45	62,37	**90,83**	
Total	5 379	**97,3**	841	896	13,32	39,70	855	911	13,69	40,37	1082	1147	17,49	51,61	1082	1147	17,50	51,62	3860	4101	62,00	183,30	**345,70**	**31,92**

Where?

The Capital Expenditure Framework assisted with the identification of Priority Investment Areas within Bergrivier Municipality as illustrated by the map.



Priority Area	Piketberg	Porterville	Velddrif	Aurora	Eendekuil	Redelinghuis	Dwarskersbos	Goedverwacht, Wittewater
Priority Investment Areas	Municipal	Settlement	Municipal		Settlement		Settlement	
	Industrial, Residential, Education, CBD	Industrial, Residential, Education, CBD	Industrial, Residential, Education, CBD		Agri-Industrial			
Upgrading Areas								Settlement
Consolidation Areas				Settlement		Settlement		
Long Term Development Areas (10 - 20 years)	Industrial, Residential	Industrial, Residential	Industrial, Residential, Green Energy		Agri-Industrial		Residential	
Densification Areas	Res I Areas, Activity Streets	Res I Areas, Activity Streets	Res I Areas, Activity Streets	Res I Overall	Res I Areas, Activity Streets	Res I Overall	Res I Areas, Activity Streets	Overall
Intensification Areas	CBD,Mixed Use Activity Streets	CBD,Mixed Use Activity Streets	CBD,Mixed Use Activity Streets	CBD,Mixed Use Activity Streets	CBD,Mixed Use Activity Streets	CBD,Mixed Use Activity Streets	CBD,Mixed Use Activity Streets	Village Centre

What?

Settlement Development Proposals

The following directives guide settlement Form, and Function (Livability and Mobility):

- **Roads and Streets:**
  - Promote activity streets and corridors where intensification of use and densification of residential opportunities are desired;
  - Support and concentrate higher order development and mixed-uses along activity corridors;
  - Provide supporting infrastructure (street furniture and ITC hubs) to improve mobility of community and tourists;
  - Create a clear and connected movement system integrating existing amenities and new residential developments;
  - Soften main roads in settlements and calm traffic.
- **Gateways:**
  - Sensitively and naturally landscape gateways to announce settlement entrances. Encourage tree lanes and landscaping along activity streets.
- **Activity Streets & Corridors:**
  - Concentrate higher order social amenities and mixed-use development along activity streets;
  - Promote intensification (mixed-use and densification);
  - Support safe pedestrian routes along activity streets to improve connectivity in town.
- **Rail:**
  - Promote the use of rail as alternative transport for freight (agriculture and mining);
  - Support the renewal and upgrading of existing railway stations and siding buildings including grain silos and water storage facilities.
- **Pedestrians & Non-Motorised Transport (NMT):**
  - Provide safe NMT routes throughout settlements;
  - Provide cycle routes along activity corridors.
- **Sense of Place:**
  - Promote underground instead of above ground services including communication networks;
  - Mandate two tree plantings per land unit. Protect trees older than 20 years;
  - Prepare for climate change. Allow topography to inform development;
  - Protect or create precinct character.
- **Alternative resources: Energy and Water:**
  - Promote green energy at Velddrif and Dwarskerbos and solar at all remaining settlements;
  - Promote desalination of water.

The following proposals guide specific development per settlement:

Development Type	Porterville	Piketberg	Velddrif	Dwarskersbos	Eendekuil	Aurora	Redelinghuis	G: Goedverwacht & W: Wittewater
Commercial and Business Development	Protect and intensify CBD along Park to Basson Street.	Implement Piketberg Gateway and Integration Zone Precinct Plan.	Support secondary businesses in residential areas.	Contain central business node.	Promote agri-processing.	Protect and intensify CBD.	Promote urban agriculture and local markets.	
	Create Market Plaza for recreation activities.	Realign streets: Close Sarel Cilliers Street at Rhino Park intersection. Extend Watsonia Street to Long Street. Upgrade Long Street.			Create local produce market for farmers and urban gardens.	Establish local agricultural market.	Protect and intensify aesthetics of CBD.	
	Promote as agri-industrial hub.	Promote as regional administrative hub, - service centre and agri-industrial hub.	Promote as tourism destination and supportive to IDZ.	Promote as tourism hub.	Promote agri-industrial hub.	Promote tourism destination.	Promote tourism destination.	G&W: Promote tourism destination.
Residential Developments	Encourage diverse housing options for various markets.	Encourage diverse housing options for various markets.	Encourage diverse housing options for various markets.	Encourage diverse housing options for various markets.	Promote residential infill development.	Encourage limited infill development to keep settlement character.	Encourage limited infill development to keep settlement character.	G&W: Support individual ownership (erven) and leases (agriculture).
		Promote and provide for housing for retirees.	Protect settlement as coastal holiday destination for residents, retirees, and short-term visitors.	Protect village as coastal holiday destination for residents, retirees, and short-term visitors.		Allow future residential expansion southwards.	Promote single residential development as dominant land at 3 earmarked sites.	G&W: Protect surrounding landscape and resources (water) by delineating development line along mountains.
Education and Amenities	Upgrade or provide new high school.	Develop a skills centre.	Develop educational and social facilities on vacant school site.	Promote community facilities.	Encourage crèches and education facilities in residential areas.	Encourage skills development in agritourism industry.		
		Renovate Pietie Fredericks Youth Centre.	Establish a Community College.	Allocate a school site.	Establish multi-purpose community facility.	Upgrade to a high school.		
Tourism, Sports and recreation	Establish settlement as a sports destination and academy (incl. hang gliders).	Develop a sports academy.	Protect the main beach as public amenity.	Provide seasonal facilities, with off-season alternatives.	Support equestrian activities.	Install and maintain playpark equipment.		G: Protect and promote the Snoek and Patat Fees.
	Establish settlement as West Coast Arts Capital.		Protect fishing industry uses in Bokkom Lane and promote tourism.		Cautiously utilise water- course corridor for recreation.			G: Sensitively develop ecotourism facilities along river plain.
	Establish arts train service between Riebeek Valley and Porterville.		Develop a community swimming pool.					G: Develop Arts and Crafts centre. W: Promote Tourism and the Cape Camino.

Rural and Regional Proposals:

Within Bergrivier Municipality three distinct rural bio-regions have been identified based on environmental and economic significance. These bio-regions are:

- Coastal Sandveld region;
- Berg River Estuary Sandveld region;
- Intensive agricultural area:
  - Verlorenvlei to Piket Bo Berg;
  - Piket Bo Berg to Berg River and Vier-en-Twintig River including Winterhoek Mountains and Wilderness Area.
- Piketberg Porterville Grain Growing region.

Rural development proposals guiding development are:

Hydrology:

- Promote open space networks and restore, rehabilitate, maintain and enhance various river corridors including:

  In rural areas:
  - Berg River;
  - Papkuils River (feeding into Rocherpan River);
  - Vier-en-Twintig River (southern boundary shared with Drakenstein);
  - Olifants River (tributaries: Dwars and Ratel Rivers);
  - Verlorenvlei, Krom Antonies; Hol and Kruismans Rivers.

  In settlements:
  - Platkloof River at Goedverwacht;
  - Tributary through Wittewater;
  - Tributaries through Piketberg feeding into the Pyls River;
  - Tributaries through Eendekuil feeding into the Kruismans River;
  - Tributaries through Porterville feeding into the Jakkalskloof River;
  - Berg River along Velddrif;
  - Verlorenvlei River along Redelinghuis.

Agriculture:

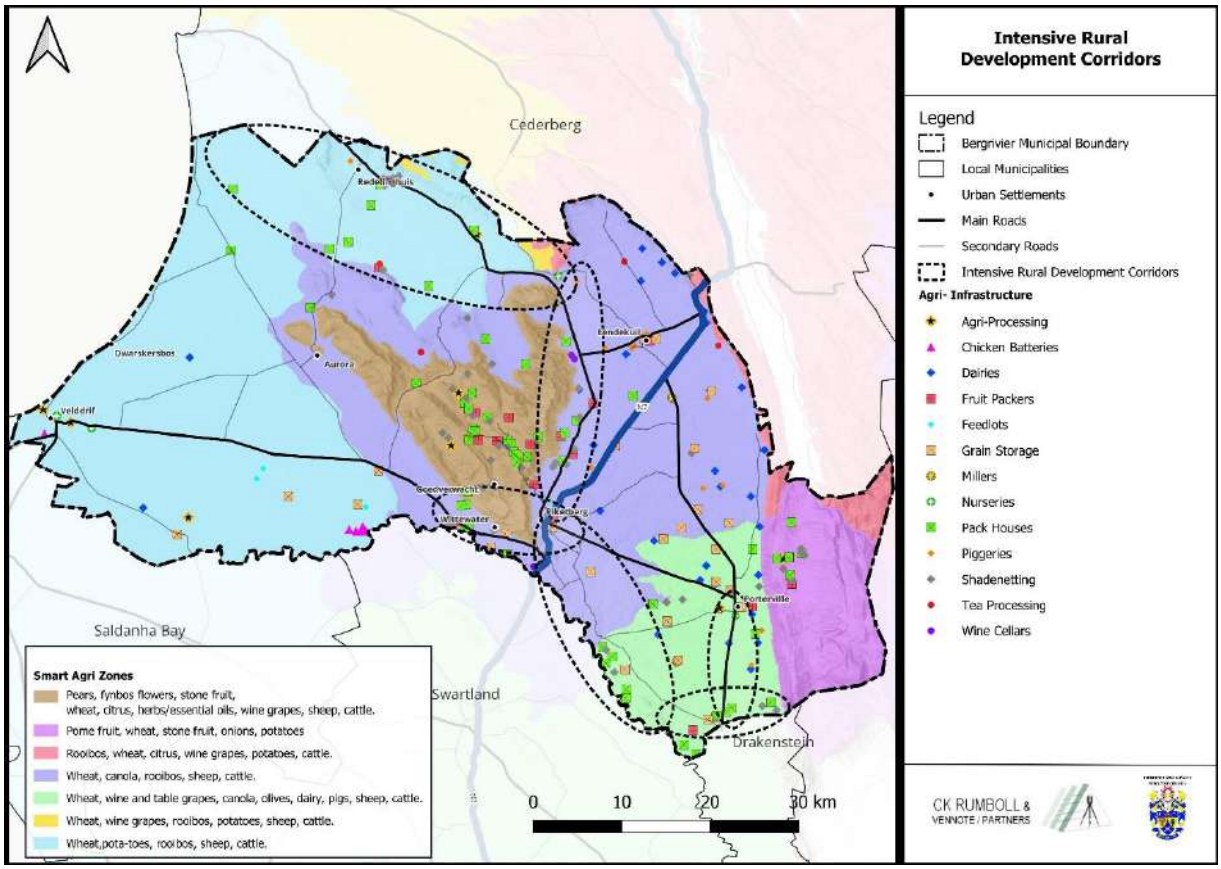
- Support development of an Intensive Rural Development Corridor along prominent transport links and at intersections:
  - (Production and agri-industry) along the R44 between Voorberg Prison (Blikhuis, Porterville), Saron (Gouda) and the Berg and Vier-en-Twintig Rivers Confluence;
  - Along the R366 between Piketberg and Eendekuil along the foot of Piketberg Mountains;
  - Along the Upper Verlorenvlei (along the R365);
  - Including agricultural industries and big box agricultural buildings (to scale within agricultural context);
  - Including tourist facilities and farm stalls;
  - Including the heritage areas in the rural areas.
- Delineate intensive and extensive agricultural land to protect sensitive natural and agricultural environments as agriculture is the biggest GDP and employment contributor and an important economic, environmental and cultural resource.

- Promote the production of niche products on farms (value adding) and investigate the production of new agriculture related and complimentary products.

Landfill Sites and Cemeteries:

- Investigate and provide for drop off locations for waste:
  - In rural areas along major routes and at large farming operations;
  - In Redelinghuis, Dwarskersbos and Eendekuil.

Map: Proposal: Intensive Rural Development Corridors



Fisheries:

- Upgrade harbour precinct at Laaiplek and Carinus bridge precinct at Velddrif and enhance maintenance of existing permanent and less permanent fishing infrastructure to support local fishing (food security) and to keep sense of place (tourism).

Agritourism:

- Promote agritourism on farms;
- Support Bergrivier cultivation routes (wheat, fruit and potatoes) and the development of related infrastructure, facilities and accommodation;
- Support the renewal and upgrading of existing railway stations and siding buildings including grain silos and water storage facilities, specifically in Piketberg, Porterville and Eendekuil.

Mining:

- Caution mining activities which are not viable (all types but sand mining specifically) and/or are conflicting with and counterproductive to the character and value of the landscape in wards 1 and 5 and partially wards 2 and 3 excluding a buffer of ±5km from the Berg River.

Conservation:

- Promote the establishment of cross border initiatives (important conservation corridors) such as the Cederberg Conservancy, Greater Cederberg Biodiversity Corridor, West Coast Conservation Corridor and West Coast Biosphere to establish links between the natural environment to the larger network of reserves and conservation areas in and beyond the Bergrivier Municipal area;
- Formalise development lines around mountains, marshes and floodplains and coast.

Public Utilities, Netting, Tunnels, Agricultural industry:

- Promote communication corridors and zones to improve communication networks and access to information & technology in rural areas;
- Develop guidelines for agricultural shade netting, big box agricultural buildings, alternative energy and mines to address landscape Impacts.

Social amenities:

- Promote access for agricultural workers and rural dwellers to education and development programmes.

Alternative energy generation:

- Promote the establishment of alternative energy generation facilities (wind, solar, and hydrogen) only in viable zones whilst considering sensitivity around visual impact in protected and conservation areas:
  - Solar energy in wards 1 and 6, which have the highest solar radiation and suitable topography;
  - Wind energy in wards 6 and 7 with an exclusion zone around the settlements of Velddrif and Dwarskersbos;
  - Hydrogen along the coast.

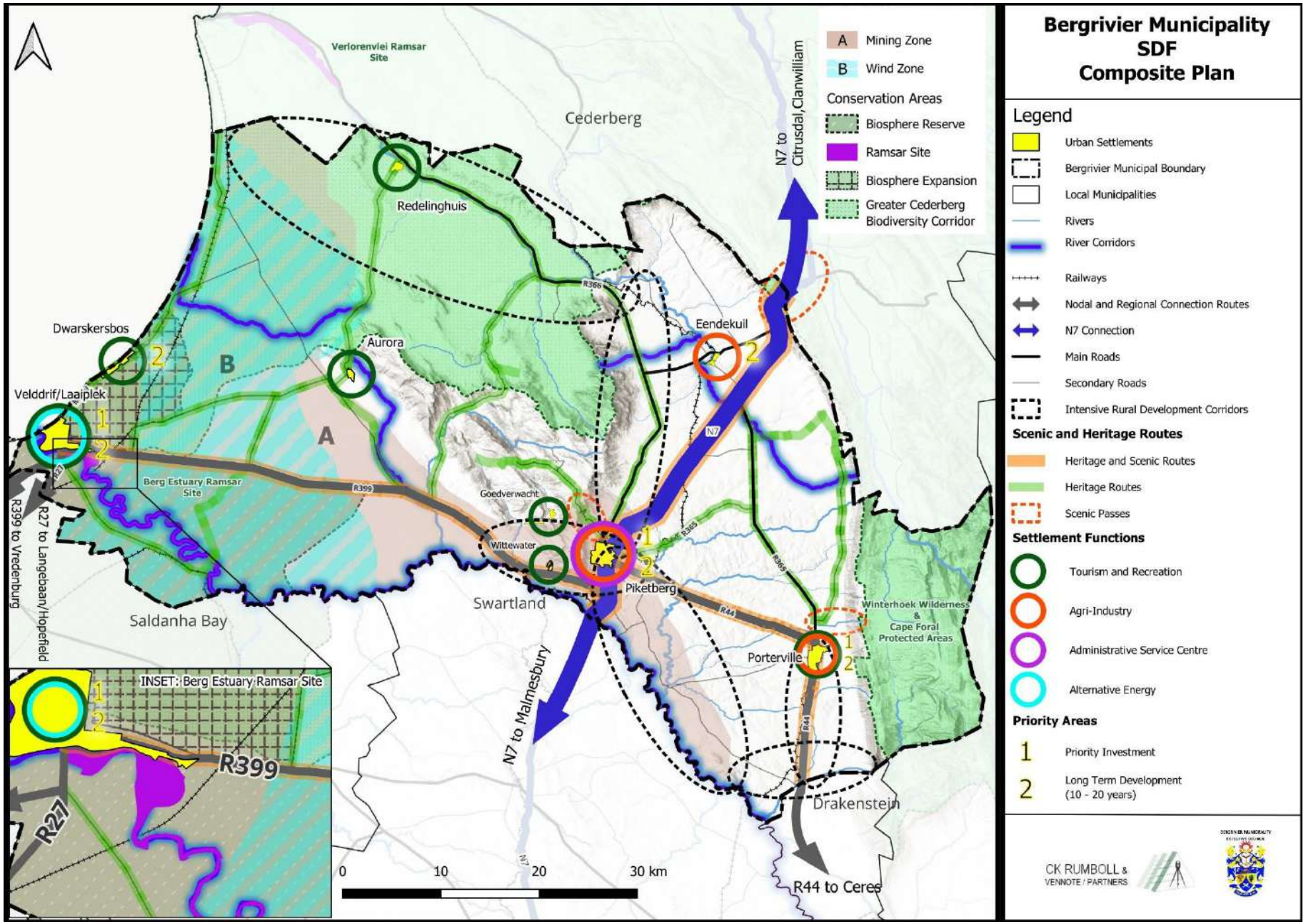
Connectors:

- Promote establishing of Tourism and Freight nodes along N7, R44, R365, R366 and R399 and at intersection.

Conclusion:

The map to follow illustrate all rural and urban SDF proposals:

Map: Bergrivier Municipality SDF Composite Plan



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LIST OF ACRONYMS:

Acronym	Definition
ESA	Ecological Support Areas
BCMP	Bokkomlaan Conservation Management Plan
BRE	Berg River Estuary
CBA	Critical Biodiversity Area
CBAs	Critical Biodiversity Areas
CBD	Central Business District
ECD	Early Childhood Development
EIIF	Ecological Infrastructure Investment Framework
IDP	Integrated Development Plan
IDZ	Industrial Development Zone
ICT	Information and Communication Technologies
KBA	Key Biodiversity Area
LUMS	Land Use Management Services
MPE	Moutonshoek Protected Environment
MYPE	Mid-Year Population Estimates
NDVI	Normalised Difference Vegetation Index
NMT	Non-Motorized Transport (NMT) includes all means of transport that are human powered. Non-Motorised Transportation includes walking, animal-power and bicycling, and variants such as small wheeled transport (skates, skateboards, push scooters and hand carts) and wheelchair travel. -DRAFT NATIONAL NON-MOTORISED TRANSPORT POLICY
PDDWF	Peak Daily Dry Weather Flow
RSEP	Regional Socio-Economic Programme
SANBI	South African National Biodiversity Institute
TFR	Transnet Freight Rail
VPUU	Violence Prevention through Urban Upgrading
WC BSP	Western Cape Biodiversity Spatial Plan
WCG	Western Cape Government
WMA	Water Management Area
WTW	Water Treatment Works
WWTW	Waste Water Treatment Works

See description of terminology in Annexure 3.

CHAPTER 1: Bergrivier MSDF Purpose, Principles and Legislative Context

This chapter states the purpose of the Municipal Spatial Development Framework (MSDF) and details the principles required to achieve the desired spatial form proposed in the MSDF.

1.1 Purpose

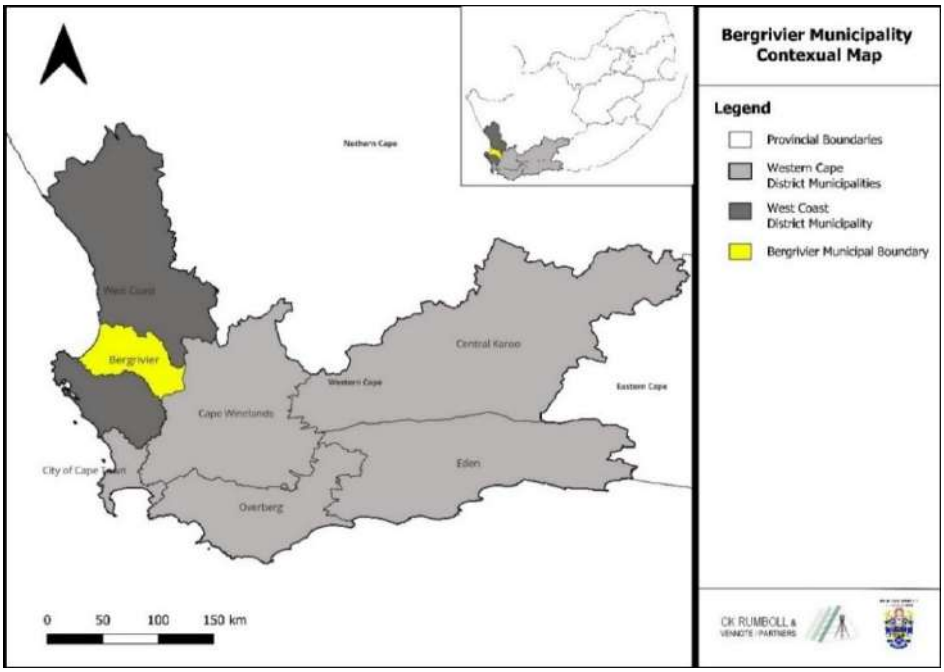
The purpose of the Bergrivier Municipal Spatial Development Framework (MSDF) is to guide growth and development in the Bergrivier municipal area in a sustainable manner. Hence, future growth, development and land use planning will embrace the spatial vision and principles to protect and develop integrated, sustainable settlements and liveable environments, and enable economic and social prosperity. This rewritten version of the Bergrivier MSDF is for the 2024 – 2029 period and builds on the Bergrivier MSDF 2019 – 2024.[1]

1.2 Spatial Context

Bergrivier Municipality (WCO13) is located along the west coast of the Western Cape. Bergrivier and four other municipalities (Cederberg, Matzikama, Saldanha and Swartland) are part of the West Coast Region under the jurisdiction of the West Coast District Municipality.

The Municipality covers a geographic area of 4 407.04 km² which represents 14% of the West Coast region. The Municipality is geographically diverse and includes 7 proclaimed towns and 2 church settlements, approximately 40 kilometers of coastline, one RAMSAR (Convention of Wetlands under auspices of UNESCO) site, one World Heritage Site and a vast rural area.

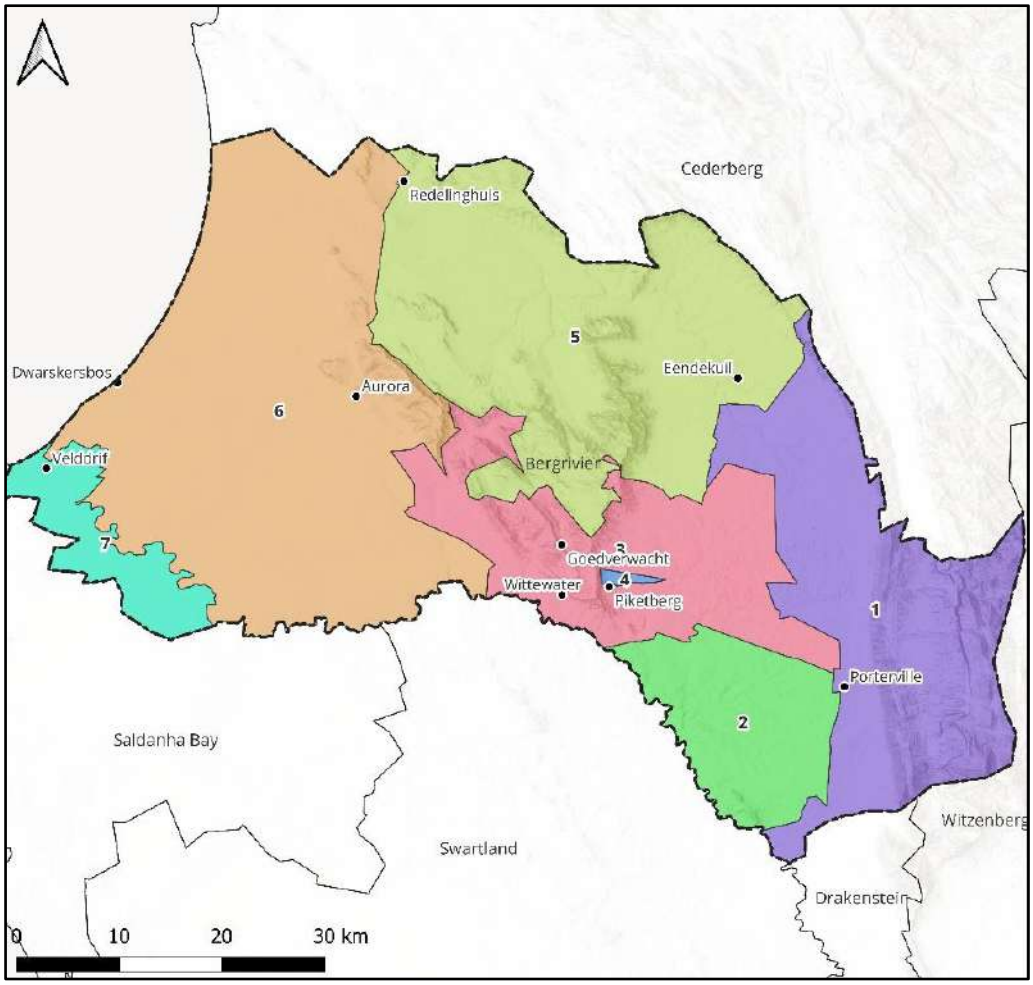
Map 1: Contextual Map



[1]Scope of Work: SPLUMA Section 12 and SMA Section 24 (1) and 26 (e)

The municipality is divided into seven (7) wards which include the towns and settlements of Piketberg the administrative capital, Porterville, Velddrif/Laaiplek, Dwarskersbos, Eendekuil, Aurora, Redelinghuis, Goedverwacht and Wittewater (IDP, 2022).

Figure 1: Municipal Wards



Ward 1	Porterville, Voorberg, Rural areas north of Porterville.
Ward 2	Monte Bertha (Porterville), Rural areas south of Porterville.
Ward 3	Western & southern portions of Piketberg, De Hoek, Wittewater and Goedverwacht.
Ward 4	North-eastern portion of Piketberg.
Ward 5	Western and southern portions of Eendekuil, Redelinghuis and Genadenberg.
Ward 6	Aurora, Noordhoek, Dwarskersbos and rural areas between these settlements.
Ward 7	Velddrif, Port Owen and Laaiplek.

1.3 Structure of the Bergrivier MSDF Document

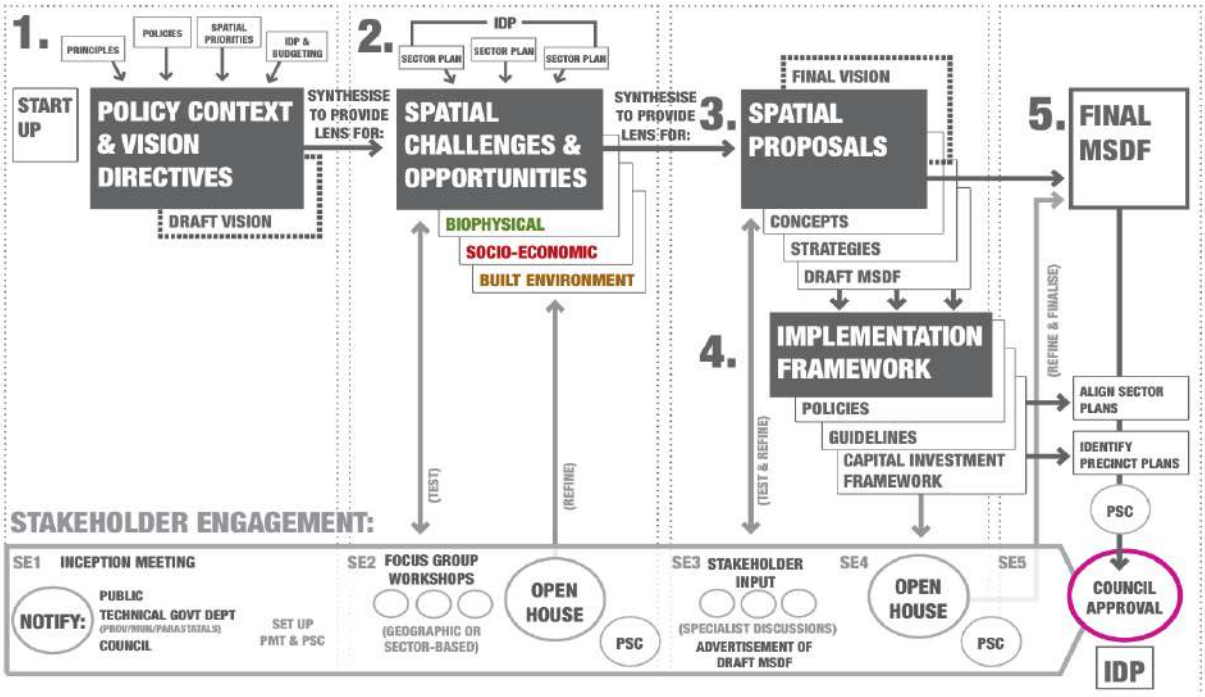
The Bergrivier MSDF provides the municipality with the necessary tools for the effective management of future development to ensure that development is balanced, sustainable and creates socio-economic opportunities. The document comprises the following chapters:

Chapter 1:	MSDF Purpose, Principles and Legislative Context
Chapter 2:	Spatial and Sectoral Plan Analysis and MSDF Review
Chapter 3:	Land Demand, Supply and Settlement Development Guidelines
Chapter 4:	Issues, Vision and Goals
Chapter 5:	Settlement Proposals
Chapter 6:	Rural and Regional Cross-Border Proposals & Environmental Management and Climate Mitigation Framework
Chapter 7:	Implementation Plan and Capital Expenditure Framework

1.4 Bergrivier MSDF Status, Process and IDP, National & Provincial Policy Alignment

The diagram presented below provides a general overview of the steps involved in the preparation of a Municipal Spatial Development Framework (MSDF). This MSDF process can be broadly divided into five phases. The initial two phases primarily focus on getting structures in place to support the MSDF development followed by an analysis, establishing the current state of spatial aspects within the municipal area. The subsequent two phases are characterised by conceptualising the desired spatial form, the formulation of definitive guidelines and defining proposals for settlements and rural areas that embody policy decisions and the desired spatial form.

Figure 2 The SDF Process (from DRDLR's SPLUMA Guidelines, 2014)



An implementation framework and capital budget as well as framework are developed after government departments and public comments are received. The final phase is getting the SDF print ready after presenting it to Council for adoption. Bergrivier Municipality had an Intergovernmental Project Steering Committee (IGSC) guiding the compilation of the MSDF, as required by the Land Use Planning Act (LUPA) together with a project steering committee (PSC). The process is documented below.

Phase	Overview	Important Dates
1. Policy Context & Vision Directives	Project Initiation, Stakeholder registration and establishing an IGSC on receipt of departmental nominations.	April 2023.
2. Spatial Challenges and Opportunities & Council Status Quo presentation	Compilation of comprehensive assessment, including the review of government plans and policies, an analysis of challenges and opportunities related to four key themes (biophysical, socio-economic, built environment and institutional). Comments from citizens and the department and interest groups regarding community and municipal issues. Compilation of Status Quo.	Mid-June 2023.
3. Spatial Proposals & Public Participation	Creation of a spatial concept for future development and management of MSDF area, derived from key challenges and opportunities. Compilation of settlement and rural proposals. Comments from IGSC on Draft MSDF. Comments and contributions from public.	August 2023 – October 2023 & November 2023 – January 2024.
4. Implementation Framework	Amendment of Draft SDF informed by issues and comments report supported by IGSC. Compilation of capital requirements and money available. Compilation of implementation framework and Council presentation.	February 2024 – March 2024
5. Final MSDF	Final presentation to Council.	April 2024

The Bergrivier MSDF, 2024 -2029, will be adopted as core component of the 5th generation Bergrivier IDP, 2023 – 2027 (MSA Section 26(e)). The rewrite of the SDF included the review of the next five-year cycle MSDF projects and 20-year development plan and its alignment with the Capital Expenditure Framework of Bergrivier Municipality (MSA, 2000).

In accordance with Section 3(1) of the Bergrivier Municipality: By-Law on Municipal Land Use Planning, 11 December 2020 and the Municipal Systems Act (MSA) (Act 32 of 2000) the Bergrivier MSDF was prepared as part of the municipal IDP. SPLUMA (Act 16 of 2013) Section 12, 20 and 21 and LUPA (Act 3 of 2014) Sections 10 – 14 and Sections 3 - 10 of the Bergrivier Municipality: By-Law on Municipal Land Use Planning, 11 December 2020 guides the content of and procedure to follow to compile or amend an MSDF. The approval or adoption of this MSDF will be undertaken in accordance with Section 10 of the Bergrivier Municipality: By-Law on Municipal Land Use Planning, 2020[2]. According to Section 21 of SPLUMA (Act 16 of 2013) and Section 10 (2) of LUPA (Act 3 of 2014), MSDFs have to be aligned with different national, provincial and local legislation, policies[3] and strategies which provide a spatial planning agenda.

[2]Scope of Work: SPLUMA Section 12; MSA Section 24 (1) & 26 (e)

[3]National Policy Context: SPLUMA Section 12(5) and Section 7e(ii) & Municipal Policy Context SPLUMA Chp4, Section 12.1, Sec 20(2) and Sec 7(e)(ii)

National			Provincial	Local	
Political Mandate	**NDP 2030**	**IUDF 2016**	**WCPSDP 2014**	**Bergrivier MSDF (proposed)**	**Bergrivier IDP**
Political Theme & SPLUMA & LUPA Principle**: Jobs & Opportunities, Spatial Justice**					
- Infrastructure-led growth. - EPWP expansion. - LED one stop shops, prioritise job creation, partner local business. - Implement taxi & bus services. - Provide a range of housing topologies. - Ownership transferred. - Connect communities to internet.	- Economy & Employment (No 1). - Infrastructure (No 2). - Inclusive rural economy (No 4). - Local vs. SA (No 5).	Integrated urban planning and management (No 1). Integrated transport and mobility (No 2). Inclusive economic development (No 6).	Housing: Effective approach to integrated human settlements and improved living conditions of all households. Safeguard inland and coastal water resources and manage the sustainable use of water (R2). Safeguard the Western Cape's agricultural and mineral resources and manage their sustainable use (R3). Diversify and strengthen the rural economy (E2). Revitalise and strengthen urban space economies as the engine of growth (E3). Improve inter and intra-regional accessibility (S2).	*Grow economic prosperity* (Obj 1) [Economic Environment].	SG3: To improve the regulatory environment for ease of doing business. SG3: To facilitate an environment for the creation of jobs. SG3: To improve transport systems and enhance mobility of poor isolated communities in partnership with sector departments. SG3: To alleviate poverty.
Political Theme & SPLUMA & LUPA Principle: Responsive Local Government **– Efficiency & Good Administration**					
- Graduate recruitment appointments. - Access drug addiction treatment.	- Building capable state (No 11).	Efficient land governance and management (No 5). Empowered active communities (No 7). Effective urban governance (No 8). Sustainable finance (No 9).	Protect biodiversity and ecosystem services (R1). Recycle and recover waste, deliver clean sources of energy, shift from private to public transport and adapt to and mitigate against climate change (R4). Safeguard cultural and scenic assets (R5).	*Protect and grow place identity and cultural integrity* (Obj 4) [Built Environment]. *Protect ecological and agricultural integrity* (Obj 5) [Biophysical or Natural Environment].	SG3: To be responsive to the developmental needs of the communities.
Political Theme & SPLUMA & LUPA Principle: Better Service Delivery **– Efficiency & Spatial Sustainability**					
- Maintain roads (potholes). - Access to electricity, water & sanitation. - Regular maintenance of infrastructure.	- Improve education, training & innovation (No 7). - Health care for all (No 8).	Integrated transport and mobility (No 2). Integrated urban infrastructure (No 4). Inclusive economic development (No 6).	Use regional infrastructure investment to leverage economic growth (E1).	*Sustain material, physical and social well-being* (Obj 3) [Social Environment]. *Grow economic prosperity* (Obj 1) [Economic Environment].	SG2: To develop and provide bulk infrastructure. SG2: To maintain existing bulk infrastructure and services.

Political Theme & SPLUMA & LUPA Principle**: Stop Corruption – Good Administration**					
- Effective systems: complaints processing. - Staff appointed: add value. - Exclude councillors from recruitment. - Open tender adjudication. - Open council meetings.	- Fighting Corruption (No 12).	Efficient land governance and management (No 5). Empowered active communities (No 7). Effective urban governance (No 8). Sustainable finance (No 9).	Protect, manage and enhance sense of place, cultural and scenic landscapes (S1).	*Protect and grow place identity and cultural integrity* (Obj 4) [Built Environment].	SG1: To create an efficient, effective, economic and accountable administration. SG1: To provide a transparent and corruption free municipality.
Political Theme & SPLUMA & LUPA Principle: **Meaningful redress – Spatial Justice**					
- Inclusive amenities & spaces. - Reliable public transport. - True B-BBEE. - Urban planning integrates communities across levels of income.	- Environmental resilience (No 3). - Transform settlements (No 6). - Nation Building (No 13).	Integrated urban planning and management (No 1). Integrated transport and mobility (No 2). Integrated sustainable human settlements (No 3).	Promote compact, mixed use and integrated settlements (S3). Balance and coordinate the delivery of facilities and social services (S4). Promote sustainable, integrated and inclusive housing in formal and informal markets (S5).	*Proximate, convenient and equal access (Obj 2)* [Economic Environment].	SG4: To promote a safe environment for all who live in Bergrivier Municipality. SG4: To promote healthy lifestyles through the provision of sport and other facilities and opportunities. SG3: To alleviate poverty.
Political Theme & SPLUMA & LUPA Principle: **Making Communities safer – Spatial Resilience**					
- Prevention units: gangs & drugs. - Law enforcement service: traffic & crime.	- Social protection (No 9). - Safer Communities (No 10).	Empowered active communities (No 7). Effective urban governance (No 8).	Promote compact, mixed use and integrated settlements (S3). Balance and coordinate the delivery of facilities and social services (S4).	*Sustain material, physical and social well-being (Obj 3)* [Social Environment].	SG4: To promote a safe environment for all who live in Bergrivier Municipality. SG4: To promote healthy lifestyles through the provision of sport and other facilities and opportunities. SG5: To create innovative partnerships with sector departments for improved education outcomes and opportunities for youth development. SG1: To communicate effectively with the public.

1.5 Legislative Directives

Several national acts, policies and frameworks provide spatial directives which enable Municipalities to guide development and to focus capital expenditure.[4]. The following are of particular relevance:

International policy:

The United Nations' Sustainable Development Goals (SDG), 2016 include all three dimensions of sustainable development – social, economic and environmental. The SDGs should benefit all – eradicating poverty and reducing inequalities. SDG Spatial Directives are:

- Create sustainable employment opportunities (SDG 1).
- Protect agricultural land and food security (SDG 2).
- Provide for social amenities and recreation (SDG 3).
- Provide inclusive and equitable quality education and promote lifelong learning opportunities for all (SDG 4).
- Achieve gender equality and empowerment of women and girls (SGD 5).
- Promote efficient and effective water and sanitation infrastructure (SDG 6).
- Provide for clean energy (SDG 7).
- Promote, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8).
- Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation (SDG 9).
- Promote equal opportunity for all people (SDG 10).
- Promote cities, communities and human settlements that are inclusive, safe, resilient and sustainable (SDG 11).
- Ensure sustainable consumption and production patterns (SDG 12).
- Take urgent action to combat climate change and its impacts (SDG 13).
- Conserve and sustainably use the oceans, seas and marine resources for sustainable development (SDG 14).

[4] National Policy Context: SPLUMA Section 12(5) and Section 7e(ii)

- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reserve land degradation and halt biodiversity loss (SDG 15).
- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and built effective, accountable and inclusive institutions at all levels (SDG 16).
- Strengthen the means of implementation and revitalise all partnerships for sustainable development (SDG 17).

The New Urban Agenda (NUA), 2016 aims for city sustainability and responds to the growth of cities and their spatial, social, cultural and economic inequalities. The NUA Implementation Framework promotes effective planning and design dependent on the principles of connectedness, inclusivity and resilience.

The Habitat III Issue Papers, No 10 – Urban-Rural Linkages, 2016 emphasise the interdependence between urban and rural areas. Urban centres rely on rural regions for various essentials like food, water, and resources, while rural areas depend on urban areas for services, jobs, and markets. Small to medium towns play a crucial role as they connect rural and urban populations, boosting economic prospects and providing essential services. Instead of competing for limited resources, the focus should be on sustainable investments that promote a balanced development approach, fostering a shared vision and future.

The NUA acknowledged the International Guidelines on Urban and Territorial Planning (IG-UTP), 2015 and has one goal: to foster sustainable and climate change resilient urban development, through improved policies and implementation processes of more compact, integrated and connected cities and territories:

- Make cities, communities and human settlements inclusive, safe, resilient and sustainable (SDG 11).
- Promote connectedness, inclusivity and resilience to promote compact urban footprints (SDG 11), agricultural and natural protection areas (SDG 2 & 15), preventing unwanted urban sprawl, and strengthening urban-rural linkages.
- Improving policies, plans, designs and implementation processes leading to more compact, socially inclusive, better integrated and connected cities and territories that foster sustainable urban development and are resilient to climate change (SDG 11).

The International Framework for the Evaluation of Sustainable Land Management (FESLM) (1993) focuses on sustainable agriculture and integration of natural resources socio-economic principles. FESLM spatial directives are:

- Drives for sustainable agriculture by combining technology, policies and activities to integrate natural resources with socio-economic principles.

National Laws and Policies:

The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA) provide control over the utilisation of the natural agricultural resources of RSA to promote the conservation of the soil, the water sources and the vegetation. CARA spatial directives are:

- The conservation of the natural agricultural resources by the maintenance of the production potential of land and promoting the conservation of the soil, the water sources and the vegetation (SDG 15).

The National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) calls for development to be socially, environmentally and economically sustainable as the environment is held in public trust for the people. The Act provides for a framework for integrating good environmental management into all development activities. Several Specific Environmental Management Acts (SEMAs) follow from NEMA for example NEM: Air Quality Act (No 39 of 2004). NEMA spatial directives are:

- The beneficial use of environmental resources must serve the public interest and the environment must be protected (SDG 15).

The Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA) has re-affirmed the role of municipalities as the authorities of first instance and the Act allows for the creation of Provincial Legislation and Municipal By-laws. SPLUMA spatial directives are:

- Provision of a three-sphere system of integrated planning at the national, provincial and municipal level (SDG 17).

The 2012 National Development Plan (NDP) envisaged, by 2030, a united South Africa, unleashing the energies of its citizens, growing an inclusive economy, building capabilities, and enhancing the capability of the state and leaders working together to solve complex problems. NDP spatial directives are:

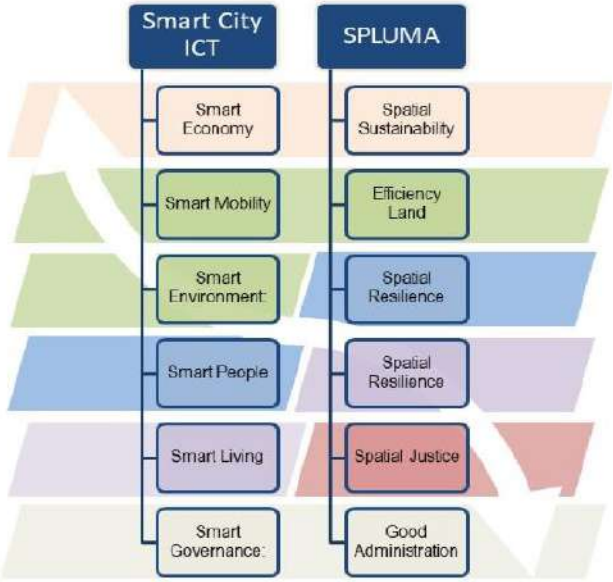
- To eliminate income poverty and reduce inequality (SDG 1 & 10).
- Setting of spatial priorities of Urban and Rural Transformation, Improving Infrastructure, Building Environmental Sustainability and Resilience (SDG 11).

The 2016 Integrated Urban Development Framework (IUDF) sets four strategic goals promoting Spatial integration, Inclusion and access to social and economic services, opportunities and choices, Inclusive, sustainable economic growth and development and Governance which provides a roadmap for spatial transformation. Quality infrastructure should drive socio-economic progress by granting access to urban markets, healthcare, education, and jobs. It's essential for road and rail networks to connect rural farmers to food processing industries. National and provincial authorities, collaborating with local governments, ought to invest in robust transport systems and ensure that Strategic Infrastructure Projects (SIPs) align with other key transportation investments. IUDF spatial directives are:

- Steers urban growth towards a sustainable model of compact, connected and coordinated towns and cities.
- Creating liveable, inclusive and resilient towns and cities (SDG 11).
- Promoting access to ICT infrastructure (such as fast broadband and mobile coverage) in both urban and rural areas is also critical in improving rural-urban linkages.

The Smart City Initiatives can include establishing and enhancing hubs, incubators and development precincts (Smart Economy); using big data, machine learning and sensors for enhancement of transportation (Smart Mobility); promotion of energy and water efficient buildings (Smart Environment); the usage of ICT-based technologies for communication with authorities (Smart People); ease of access to public WiFi, surveillance to reduce crime, improving walkability, and providing leisure and fitness facilities in public open spaces for more liveable settlements (Smart Living) and technology-based decision making and improved service delivery (Smart Governance).

Figure 3: SMART City Information and Communication Technology (ICT) outcomes vs SPLUMA principles



Smart Cities Initiative spatial directives are:

- Promotes **Smart Economy** boosting economic development (SDG 8).
- **Smart Mobility** enhancing reliability, convenience and efficiency of traditional transport.
- **Smart Environment** retrofitting buildings for energy and water efficiency and generation (SDG 6 & 7).
- **Smart People** using ICT-based technologies to communicate with city authorities.
- **Smart Living** improving settlement liveability (SDG 11).
- **Smart Governance** using technology to support decision making and deliver improved services to the public.

The National Strategy for Sustainable Development and Action Plan 2011 – 2014 (NSSD 1) defined sustainability in a South African context by ensuring that sustainable development is socially and economically justifiable and ecologically sensitive. NSSD 1 spatial directives are:

- A sustainable society implies ecological sustainability and recognises that maintaining healthy ecosystems and natural resources are preconditions for human well-being (SDG 11).
- Sustainable development is achieved by selecting and implementing a development option, which allows for appropriate and justifiable social and economic goals to be achieved (SDG 11).

The Rural Land Use Management and Regulatory Guidelines for South Africa (2019) provide the necessary guidance in the definition of rural areas, framing of desired rural spatial planning outcomes and facilitating interaction between the various spheres of government in achievement of such outcomes.

The Guideline on Need and Desirability (2017) provides instructions on meeting requirements for assessing the necessity and desirability of developments involving NEMA-listed activities. The focus is on achieving sustainable development that addresses the triple bottom line (ecological, social, and economic factors). Guideline on Need and Desirability spatial directives are:

- Promotes information on best practice and how to meet the requirements prescribed by the legislation for the consideration of the need and desirability of a development involving any one of the NEMA listed activities (SDG 16).
- Sustainable development that is ecologically sustainable and socially and economically justifiable (SDG 11).

The National Spatial Development Framework, 2018 (NSDF) drives the Post-Apartheid Spatial Development Pattern. NSDF recognises the need for enhanced 'regional development anchors' in rural areas. NSDF 2018 spatial directives are:

- Recognises the need to develop and strengthen regional-rural 'regional development anchors' in rural areas to:
    - (1) connect urban to rural areas in mutually beneficial ways.
    - (2) act as catalysts for regional-rural development and promote a 'polycentric rural service-delivery network, such service delivery networks need to provide quality public services, and ensure far greater levels of rural-to-rural interaction and local economic development.
    - (3) determine 'rural edges' in rural areas to ensure the protection of (a) the unique, intrinsic qualities of our rural areas, (b) their cultural, customary and historical value, and (c) the often highly sensitive ecosystems they harbour, pursuing intra-rural trade and greater resilience of rural areas through diversification avoiding 'single economic sector' places.

The Small Town Regeneration (STR) Programme aims to look for ways to strengthen small town economies; provide better quality of life; and build and leverage local assets. It recognises that regional connectivity and economic value chains are key drivers of large-scale economic development. This understanding offers opportunities for cross-boundary municipal collaboration, cooperative spatial governance, and joint planning to foster a shared economy. STR Programme spatial directives are:

- Regeneration, restoration and fulfilling the economic potential of underperforming small towns (SDG 8).

Provincial Laws and Policies:

The PSDF builds on the complementary national and provincial development agendas of the NDP and OneCape 2040 to promote three spatial themes: resources, space economy and settlement embedded in spatial governance. The PSDF serves to guide the location and form of public investment in the natural and built environment, so that the returns on these investments are consistent with the Province's development objectives.

Land use planning principles set out in SPLUMA and the Western Cape Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA) apply to all organs of state responsible for the implementation of legislation regulating the utilisation and development of land, and guide spatial development frameworks, zoning schemes or any policy concerning land use planning, any steps to ensure sustainable development and the consideration of applications that impacts on the utilisation and development of land.

The Provincial Strategic Plan (PSP) sets out the Western Cape Government's vision and strategic priorities. The WCG remains committed to building an "Open-Opportunity Society for All" in the Province. The PSP follows a "whole-of-society" approach in which citizens, civil society and business actively partner with the state – encapsulated in the WCG's "Better Together" slogan. The PSP commits South Africa to ending poverty by 2030 and the longer term OneCape 2040 vision of "a highly skilled, innovation-driven, resource-efficient, connected, high-opportunity society for all". The PSP underpins the six core values of the WCG: Caring, Competence, Accountability, Integrity, Innovation and Responsiveness.

The Provincial Biodiversity Strategy and Action Plan (PBSAP) aligns with the National and Provincial Medium Term Strategic Framework 2014-2019 and the National Biodiversity Strategy and Action Plan (NBSAP) 2015 - 2025. It integrates South Africa's obligations under the Convention on Biological Diversity into the provincial context. PBSAP spatial directives are:

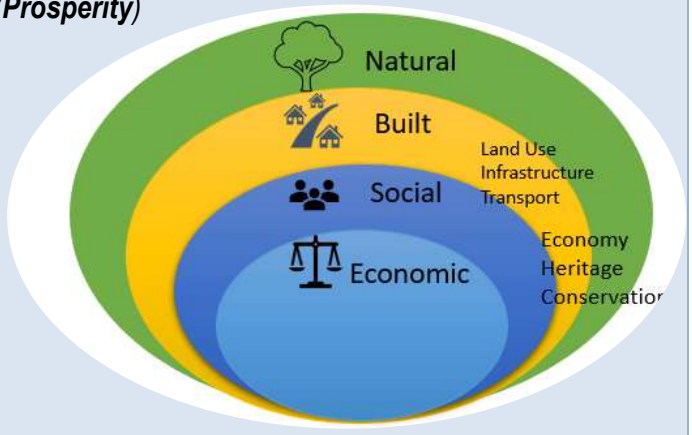
- Prioritises and co-ordinates the collective efforts of stakeholders to ensure that biodiversity and ecological infrastructure is optimally conserved, sustainably utilised and that benefits are equitably shared (SDG 17).

The SmartAgri Plan, the Western Cape Climate Change Response Framework and Implementation Plan for the Agricultural Sector (2016) builds on the Western Cape Climate Change Response Strategy (2023) and its Implementation Framework, specifically the focus area of "Food Security". It also aligns closely with the WCG. SmartAgri Plan spatial directives are:

- Protect agricultural land and food security (SDG 2).

1.6 Values and Performance Qualities

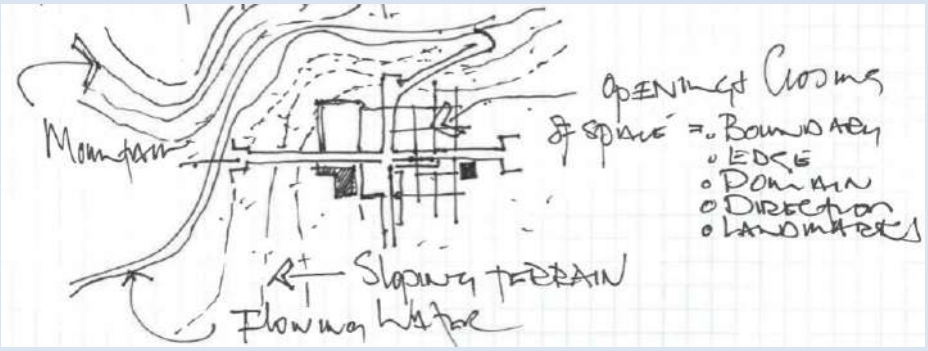
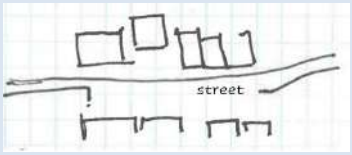
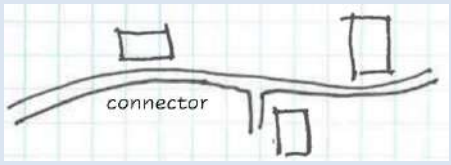
Planning shifted from separate development and modernism (with its basis of functionalism) to human and nature-centred approaches to settlement making. Such settlements are scaled for pedestrians (neither pedestrians nor vehicles dominate); are compact (with high building densities); are integrated; have composite parts which reinforce each other; have a strong spatial feel with well-defined public spaces and have complex spatial structures offering choices i.t.o. intensity of interaction, privacy of living conditions, lifestyles, housing options and movement systems (physical, social and economic integration). Well-performing settlements and regions have the qualities of Liveable Environments and Sustainable Settlements. These performance qualities are defined and described below and reference is made to the SPLUMA principle each quality represents:

Definition	Features and qualities
Liveable Environments: *A liveable settlement satisfies more than the basic needs of a community as the individual as well as the community's needs for social facilities and health facilities are met. Quality of life is key. (Van Kamp et al, 2003). (**Social Justice**)*	*Liveable environments are recognised by the present relationship between people and their settlements and features economic growth, accessibility and place identity. (**Resilience**)*
Sustainable Settlements: - *Are well-managed entities in which economic growth and social development are in balance with the carrying capacity of the natural systems on which they depend for their existence and result in sustainable development, wealth creation, poverty alleviation and equity. (Department of Local Government and Housing, 2005). (**Sustainability**)* - *Improve the liveability of settlements by reducing the impact on the environment through reduced use of resources and the generation of less waste. (**Efficiency**)*	*Present the future relationship between **settlement and environment and features**. Ecological integrity (Planet), Social justice (People) and Economical effectiveness. (**Prosperity**)* 

1.6.1 Spatial Elements of Settlements and Regions

Settlements are structured spaces that facilitate the interplay between a) formally planned development (assigned land uses and corresponding engineering services) and spontaneous development (settlement plans which accommodate uncertainty and change) as well as b) public environments, shared by all inhabitants, vs. private realms of individual households. The spatial elements of regions are topography

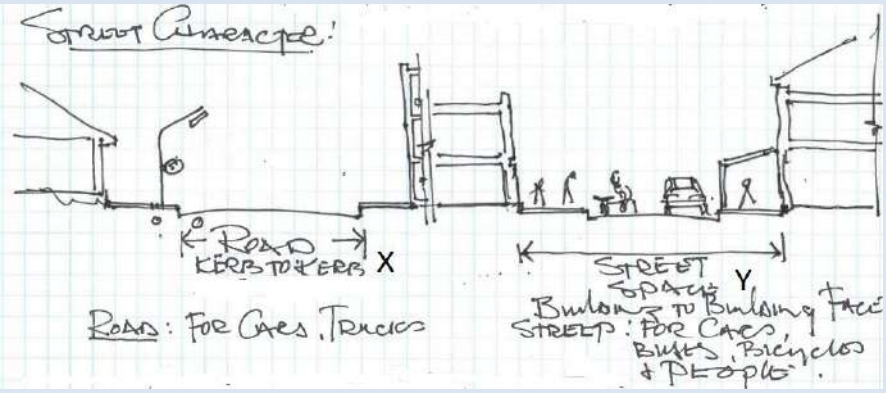
(form), cultivation and landscape and man-made elements that include road networks and settlements, as described and illustrated [5] below:

Space, built and natural	
At settlement level	**At regional level**
• Lie at the heart of a non-programmatic approach to settlement making, not just one element or space e.g. public open space, but part of the whole. • Characterised by diversity, different spaces on continuum of public to private. There is a structural order. • Public spaces in settlement are meeting places of people, comprising urban "rooms" and "seams" of connectivity. There is a degree of both publicness and privacy. • A continuum or hierarchy of public spaces and movement systems, which attract and give order to activities, events and elements in accordance with their need for publicness or privacy. Considering roads as public spaces.	• Delineated and merged landscapes which are characterised by conservation, cultivation and nature. • Mountains and Fynbos ecosystems, Rivers and Freshwater ecosystems, Wetlands, Formal and Informal Conservation areas, Arable land.
	
Institutions (public amenities)	
At settlement level	**At regional level**
• Institutions most valued by society, e.g. institutions of learning, worship, exchange and markets serve as structuring elements. • Their location determines the location of other more private uses. Most important public institution today is the open or social space. Location of institutions in relation to other elements of structure is of critical importance (central places, easily accessible i.t.o movement patterns, announced by public space). • Abutting institutions give unique character and often attract informal activities.	
	

[5] Illustrations by Johan Van Papendorp

Connection including networks and systems

At settlement level

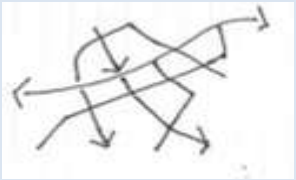


Refers to movement of all kinds, including fixed line systems e.g. roads, light and heavy rail, underground rail, pedestrian and bicycle routes, public and private transport systems.

Movement system is a network of spaces through which people move whilst allowing for the public life of a community.

At regional level

- Movement system and movement or circulation network; linear spaces connecting settlements.
- Movement Infrastructure includes Main Routes, Railway line and Stations between and within settlements.
- Movement of people, goods and services are channelled along specific routes.



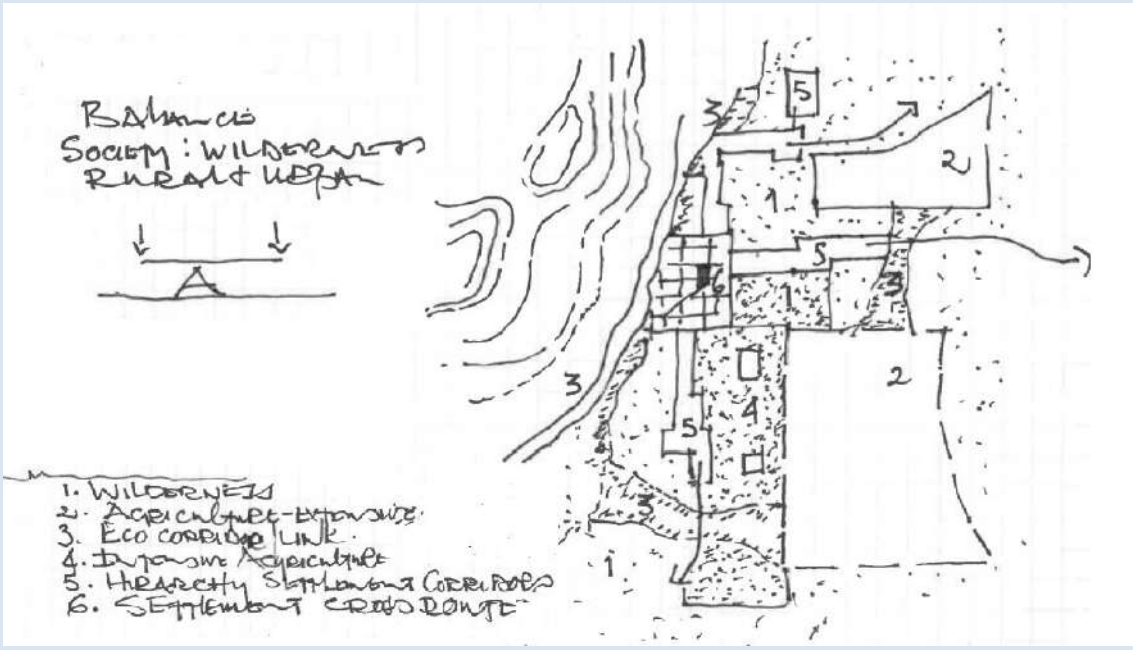
Utility services (engineering services)

Settlement

- Refer to engineering services that are essential services for settlements to function and to maintain public health and include water provision, sewage removal, stormwater disposal, solid waste removal and electricity supply.
- Should be provided as efficiently and cost-effectively as possible, taking due cognisance of human and nature centred approach to settlement making.
- Utility services should follow structure, not lead.

Regional

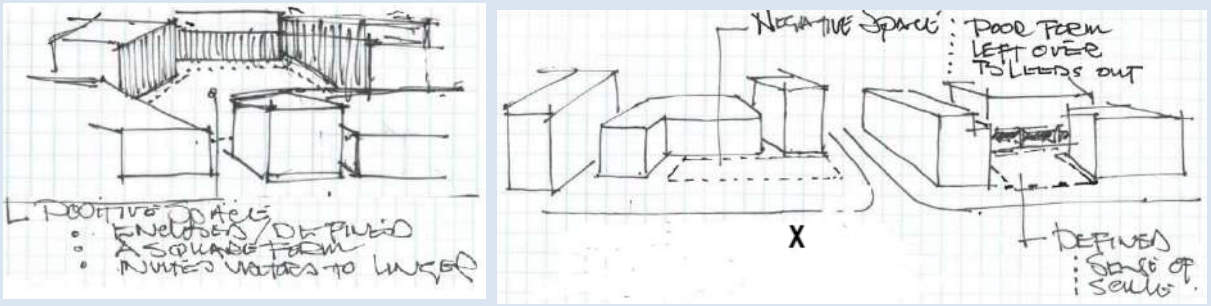
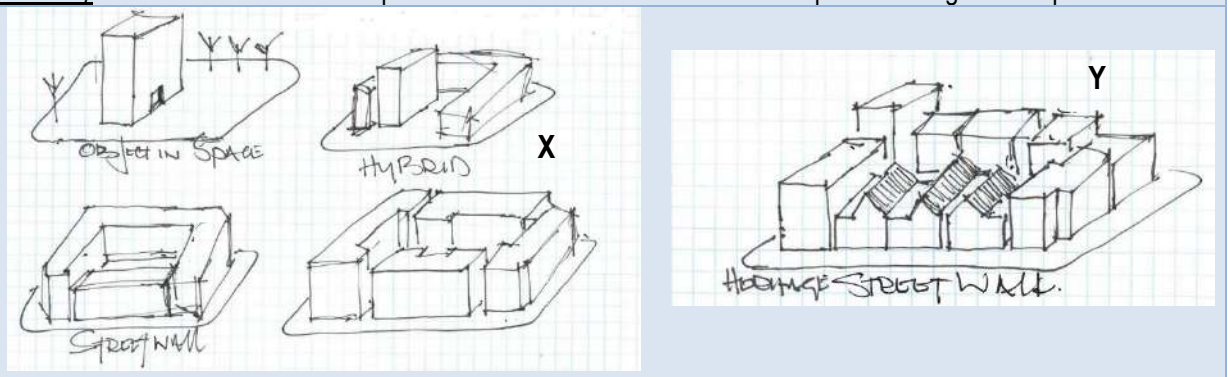
Refer to bulk services that are essential to functioning of regions (area) e.g. solar farms.



1.6.2 Structural Tools: Measures and SPLUMA Principles

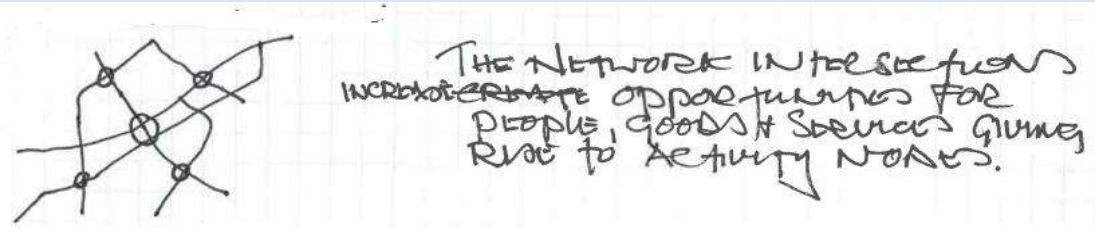
Settlements demonstrating desirable spatial element qualities are scaled for pedestrians (neither pedestrians nor vehicles dominate); are compact (with high building densities); are integrated and composite parts reinforce each other; have a strong spatial feel with well-defined public spaces and have complex spatial structures offering choices i.t.o. intensity of interaction, privacy of living conditions, lifestyles, housing options and movement systems.

The application of four spatial measures is central to the use of space to create positive settlements: definition, scale, flexibility and intensity. Each spatial measure consists of two opposite measures or structural tools as per the table below:

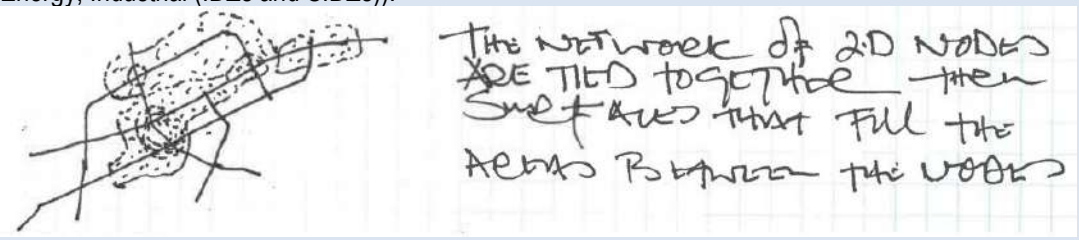
Spatial Measures
Definition: In positive environments, public open spaces are defined by buildings and other space defining elements such as walls and landscaping. The elements create a feeling of enclosure in contrast to free standing elements in a shapeless sea of space.

Structural Tools: Continuity and Discontinuity (Containment).
Scale: Refers to the relationship between size, distance and height. "Human Scale" is a norm for all development planning.
Structural Tools: Externalization and Localization.
Flexibility: Refers to the creation of spatial structures that accommodate unexpected change over a period of time.

Structural Tools: Same and Different (Homogeneity and Heterogeneity).
Intensity: Refers to the creation of: • high level support for economic and social goods and services to prosper economic activities, • the conditions for sustainable public transport systems, • effective infrastructure use, improved land use, contributing to compact urban areas, reduced transportation and energy use as well as the reduction of pollution.
Structural Tools: Denseness and Sparsity (Openness).

The application of structural tools creates man-made spatial elements e.g.

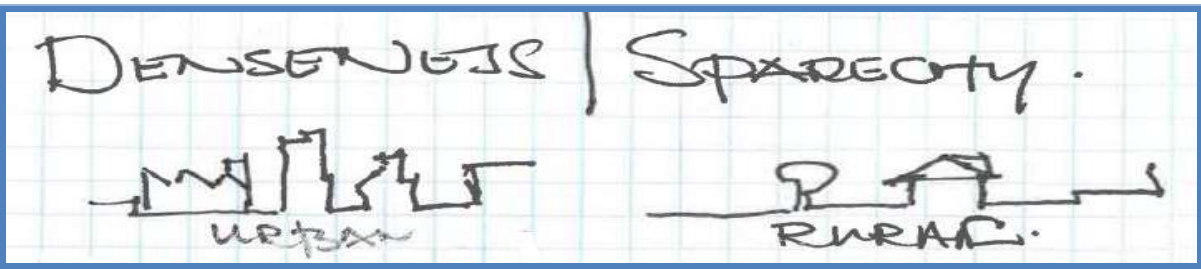
- Centres/ Parks/ Precincts (Administrative, Educational, Legal and Services).
- Nodes (Collective & Specialised Economies, Services, Manufacturing, Tourist Attractions). Highly accessible: high-intensity land use activity located along or at the start and end points of existing, emerging or national corridors: include areas of residence, industrial activity or trade that are either generators of transport demand and/or supporters of transport functions.



- Hubs (Economic specialisation: Jewellery, Petro Chemical, Logistic). Highly accessible.
- Axis or Streets (Transport & mobility spines).
- Corridors (include, but not limited to scenic, tourism, freight, transport, industrial development zones (IDZ), intensive agriculture or rural including agri-industry & related & supportive services and conservation etc.).
- Zones/ Precincts (Tourism, Commercial (special economic zones), Agricultural and Irrigation, Alternative Energy, Industrial (IDZs and SIDZs)).

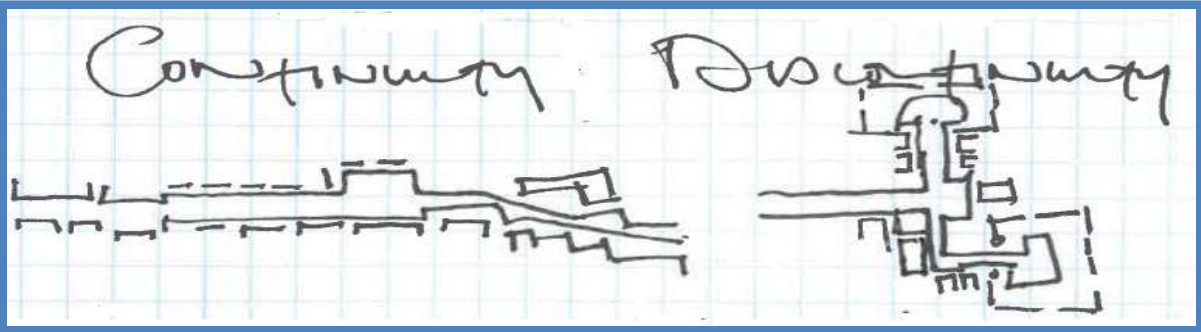


The table below provides a description of the structural tools applied to the spatial elements and its resultant man-made elements and or qualities:



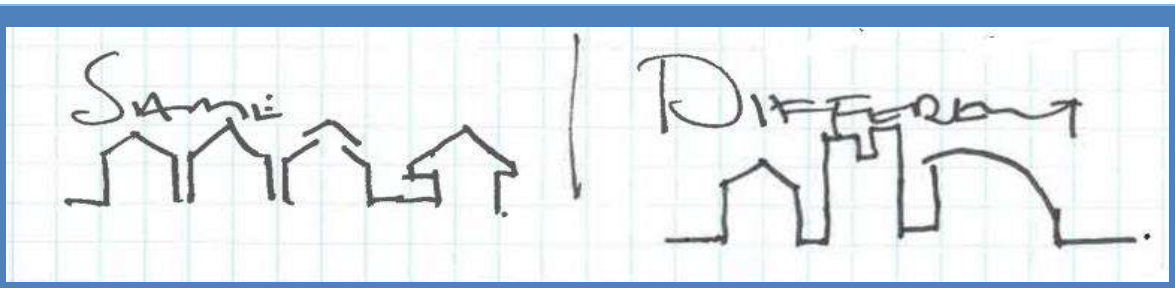
	DENSENESS (REINFORCEMENT)	SPARSITY (OPENNESS)
Connection	Single corridor movement network: Different forms of transport are brought together (pedestrian, bicycle, train, taxi, bus and vehicles). Activity Axis: The core of activity corridor/ tertiary network or Street (local network). Activity nodes: Different forms of transport connect.	Single mode transport networks (thresholds are too low to justify other modes) or Roads.
Space	Economic agglomeration: Integration of different developments (new and old). Densification and Strategic densification: Reduction of erf size, alternative housing types (housing topologies), infilling, redesign, mixed development. Natural open space network is a key component of a sustainable urban landscape.	Movement networks (part of a system of public places). Protection and enhancement of Heritage Resources through either Heritage overlay zone or Conservation (biophysical) overlay zones and categories.

Public Institutions	Multipurpose facilities and nodes where different social services are offered. A system of public spaces and hierarchy of facilities which order activities and resources.	A single facility e.g. school.
Public Utilities	Infrastructure cluster where different utilities are managed e.g. water & sewerage.	Single Infrastructure yard e.g. sewerage works or solar farm.



	CONTINUITY	DISCONTINUITY (CONTAINMENT)
Connection	Ordering structure of movement networks: Settlement level: network energy released through stopping, exit (not through movement); server rather than integrate space. Inter-settlement level: Routes which do not allow stopping (e.g. freeways) serve as integrators of space.	Along higher-order routes, create special places, such as public open space (squares) and parks. On lower-order routes create qualities of secrecy or privacy, discourage through-traffic.
Space	Enclosure: Achieving a sense of enclosure and definition. Buildings, either through the building itself, its walls, or planting, should contribute to defining the public space it abuts.	Natural habitats: Ecological systems, complex, continuous, allow migration of species, productive/ conservation/ preservation space. Integrate natural and rural areas into urban landscape.
Public Institutions	Integration: Integrate new parcels of development with existing development to obtain agglomeration economies. Absorb settlement output: in green spaces i.e. evaporation ponds and storm water retention systems.	Use public space to interrupt built form, to ensure convenient access or create dimensions of scale. Multifunctional centres. Mobile services.
Public Utilities	Above Ground Infrastructure.	Underground Infrastructure.

	EXTERNALIZATION	LOCALIZATION
Connection	Social facilities and higher order urban activities should be located along continuous movement routes rather than within residential precincts.	Intensive activities to be concentrated at most accessible points along continuous movement routes.
Space	Higher order facilities should reinforce private quality of residential areas and contribute to symbiotic relationship between different activities and facilities.	Multi-purpose facilities as public spaces. Corridors as agglomeration of economic and industrial activities.
Public Institutional	Higher order facilities not to be entirely dependent on the resources of a particular local community. Facilities to be widely accessible.	Functional integration ensures availability and accessibility of a wide range of service and facilities.
Public Utilities	District or regional utilities.	Local Utilities.



	SAME	DIFFERENT
Connection	Non-motorized vs motorized.	Non-motorized vs motorized corridors: intensification of development; mix uses; pedestrian and cycling friendly; high quality streetscaping.
Space	Public and private space are either separated or clustered and could be part of a mixed-use development.	Connection between space and structure recognises that different activities, cultures, and lifestyles have their own requirements, which must be met in the settlement making process.
Public Institutional	Minimalism: Centralise decisions at institutional level, not at site level.	Mixed use: commercial, social, service, trade and residential areas of different densities and types.
Public Utilities	Centralise decision making involving local directives and needs.	Various Utility types e.g. solar farm, electrical transformers, etc.

1.7 Structural Tool: Bioregional Spatial Planning Categories

The Bioregional Spatial Planning Categories (SPCs), consistent with the principles of bioregional planning and UNESCO's MaB (Man and the Biosphere) Programme have their origins in the Bioregional Planning Framework for the Western Cape. Bioregions can occur across municipal boundaries to provide meaningful geographical areas with common interest. SPCs guide development to the most appropriate areas and supports conservation and integration of natural areas, e.g., nature reserves and biospheres. In addition, these SPCs are aligned to the Western Cape Biodiversity Spatial Plan, 2017 (WCBSP) category management objectives.

The conservation and biodiversity categories, their definition and management objective, as well as the Bioregional Spatial Planning Categories (SPCs) in brackets, follow in the summary and detailed table below. The table must be used together with the Land Use Guidelines and Activities as per WCBSP and Western Cape Biodiversity Act (Act 6 of 21).

BSP Category / SPC	Protected Areas	CBA 1	CBA 2	ESA 1	ESA 2	ONA	NNR
Core 1							
Core 2							
Buffer 1							
Buffer 2							
Intensive Agriculture							
Settlement							
Industry & Existing Mining							

*(CBA – Critical Biodiversity Areas, ESA – Ecological Support Areas, ONA – Other Natural Areas, NNR – No Natural Remaining)

Table 1: CBA & ESA Map Categories, recommended corresponding Spatial Planning Category

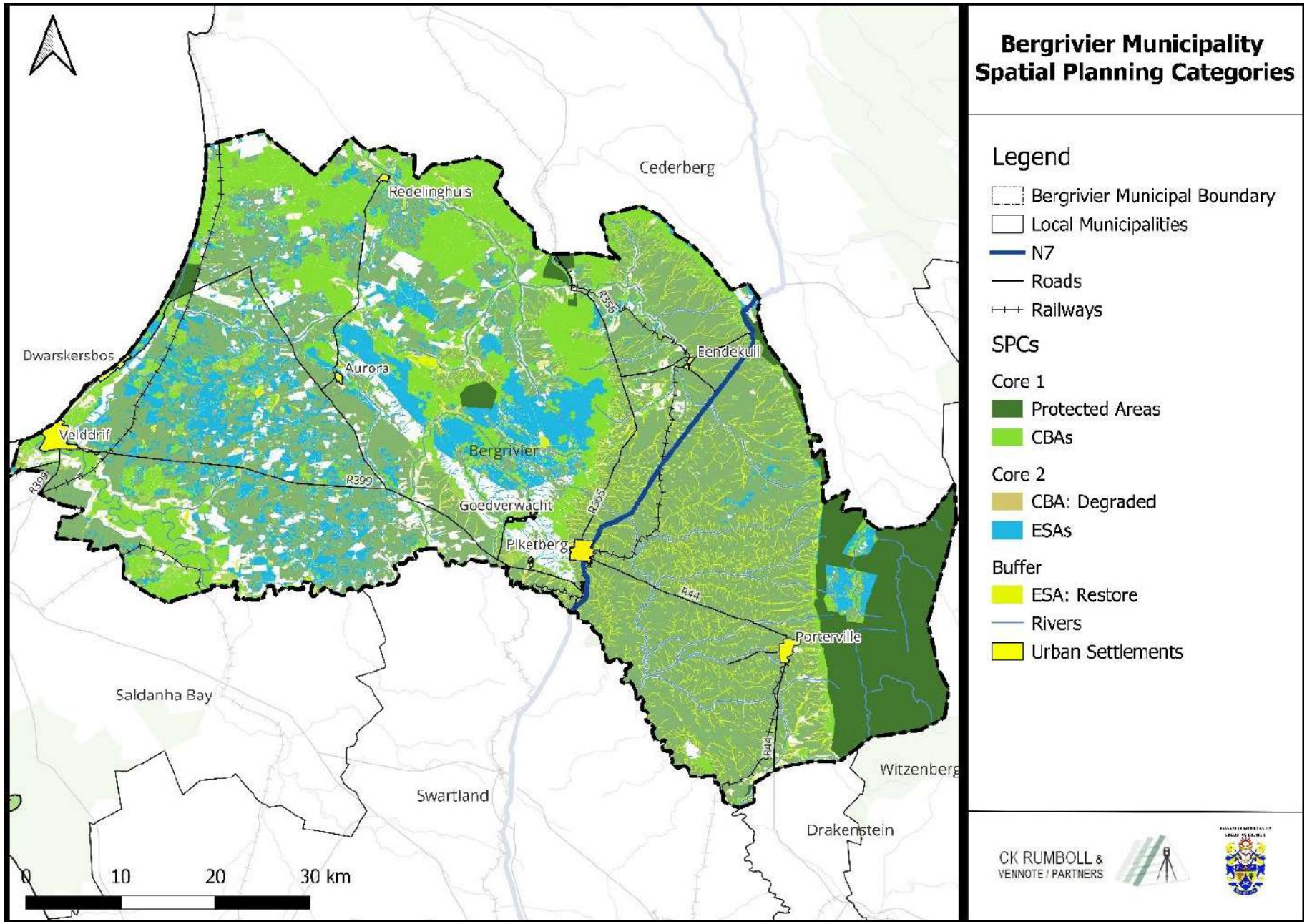
Map Category (SPCs)	DEFINITION	DESIRED MANAGEMENT OBJECTIVE	SUB-CATEGORY	ALLOWABLE LAND USE
Protected Area (Core 1)	Areas that are proclaimed as protected under national or provincial legislation.	Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.	n/a	No go area, only non-consumptive activities are permitted, e.g. passive recreation and tourism (hiking trails, bird watching), religious ceremonies, research and environmental education & associated buildings. No agriculture.
Critical Biodiversity Area 1 – CBA 1 (Core 1)	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses area appropriate.	CBA: River CBA: Estuary CBA: Wetland CBA: Forest CBA: Terrestrial	
Critical Biodiversity Area 2 – CBA 2 (Core 2)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a functional, natural or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated.	CBA: Degraded	Biodiversity compatible and low impact conservation land uses as per Core 1 areas, but allowing for a limited increase in the scale of development in less sensitive areas.
Ecological Support Area 1 – ESA 1 (Core 2)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.	Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.	ESA: Foredune ESA: Forest ESA: Climate Adaptation Corridor ESA: Coastal Resource Protection ESA: Endangered Ecosystem ESA: River ESA: Estuary ESA: Wetland ESA: Watercourse Protection ESA: Water Source Protection ESA: Water Recharge Protection	
Ecological Support Area 2 – ESA 2 (Buffer 2)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.	Restore and/manage to minimise impact on ecological infrastructure, especially soil and water related services.	ESA: Restore from NN	Activities and uses directly related to primary agricultural enterprise, including a homestead, agricultural buildings and worker accommodation, (additional dwelling units limited to 5 units). Additional land uses include small-scale holiday accommodation (farm stay, B&B, guesthouse, boutique hotel); restaurant, lifestyle retail, venue facility; farm stall & farm store; home occupation; local product processing (e.g. cheese making), and tourist and recreational facilities (e.g. hiking trail, mountain biking, 4 x 4 routes).

ONA: Natural to Near-Natural (Buffer 1 & 2)	Areas that have not been identified as a priority in the current systematic biodiversity plan, but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem.	Minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high-impact land uses.	ONA: Natural to Near-Natural ONA: Degraded	Biodiversity compatible uses as informed by transformation thresholds, including: low density rural residential development, resort and holiday accommodation, tourist and recreation facilities, additional dwelling units, renewable energy projects. Extensive agriculture: game and livestock farming.
No Natural Remaining (Intensive Agriculture Settlements, Industry, Mining)	Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritised for conservation action.	Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Offers the most flexibility regarding potential land uses, but some authorisation may still be required for high-impact land uses.	No Natural Remaining	Activities and uses directly related to the primary agricultural enterprise, Farm buildings and associated infrastructure (e.g. homestead barns, agricultural/ farm worker accommodation, etc.). 5 additional dwelling units. Ancillary rural activities of appropriate scale, which do not detract from farming production but diversify farm income, and add value to locally produced products. Agricultural activities of an excessive scale (regional product processing) and non-agricultural activities not suited for location in the Intensive Agricultural and Buffer 1 and Buffer 2 areas to be located within settlements or their "fringe areas".

Sustainable development is generally defined as development that satisfies the needs of the current generation without jeopardising the ability of future generations to provide for their needs. The National Environmental Act, Act 107 of 1998, defines sustainable development as integration of social, economic and environmental factors through planning, implementation and decision making to ensure that development can support future generations.

A SPC map has been developed for the Bergrivier municipal area.

Map 2: Bergrivier Municipality Spatial Planning Categories



1.8 Structural Tools: Coastal Management Lines

Continuous economic and population growth and climate change will predominantly impact the coastline. Despite climate change increasing the abrasive nature of wave action and storm events, the onshore areas will remain host to settlements along the coast. Coastal zones direct the most desirable location of settlement, industry, harvesting of natural resources as well as recreational activities. The sensitive, vulnerable, often highly dynamic and stressed ecosystems found along the coast require specific attention in management and planning to preserve coastal resources, protect coastal quality and reduce coastal related risk.

In 2014 the Western Cape Department of Environmental Affairs and Development Planning delineated coastal setback or management lines for the West Coast District.

Coastal Management/Setback Lines:

The use of coastal management/setback lines involves both qualification and risk and proactive planning of future development. The West Coast management/setback lines differentiate between areas along the coastline with existing development rights and future development options and those areas that should be left undeveloped due to a high risk from dynamic coastal processes or as coastal public property. The following coastal features were considered along the coastal risk zone to determine the coastal management/setback lines:

- *Environmental buffers* required inland to form the high-water mark to maintain a functional coastal ecosystem under future sea level rise scenarios;
- *Social buffers* required along the coast. For example, public beach access through and along the coastal frontage, areas which have cultural significance or heritage resources and historically sensitive locations that require specific management;
- *Economic development requirements* for the coast, for example allowance for new beach facilities that will need to be placed closer than standard development to serve the public.

**CML - Coastal Management Line*

Economic Buffers			
Resource	**Description**	**Location**	**Action/comment**
Pelican Harbour	Historic buildings on riverfront.	Velddrif, west of Carinus Bridge.	Retain CML on 1:100yr risk line.
Laaiplek Harbour, Stywelyne and Pelikaan Holiday Resorts	Jetties, boat repair yards, related buildings, resort infrastructure.	At Berg River mouth and north of river mouth along the coast (within urban footprint).	Will be within CML once Admiralty Reserve is included as sensitive area.

The area below the coastal management line or resultant zone, includes all sensitive areas along the coast, both in terms of biophysical sensitivity and socio-economic value.

The demarcation of the actual coastal management/setback lines is different for developed and undeveloped areas. In ***rural areas*** the coastal management/setback line follows the landward boundary of the long-term risk projections. Where necessary a separate line can be drawn around existing development and development rights within the risk zone to protect the development rights. As it is not the intention to use the coastal management/setback lines to impact on existing development rights, lines are drawn seaward of properties abutting the shoreline with existing development or development rights in ***urban or developed areas***.

Spatial Directives from Coastal Management/Setback Lines

- *Maintain buffers* inland to form the high-water mark to maintain a functional coastal ecosystem.
- Allow for new beach facilities likely to be placed within setback lines in order to serve the public.
- Provide public beach access through and along the coastal frontage.
- Provided public beach access to areas which have cultural or heritage significance or heritage and historically sensitive locations that require specific management.

Coastal Management Overlay Zones:

Coastal management overlay zones are collectively envisaged as the area close to the sea within which development should be managed to preserve coastal quality and protect property and lives. Development in these zones is possible under certain circumstances and after appropriate environmental and risk assessments have been undertaken. Restrictions in this area can be applied strictly and consistently, since they are informed by scientifically modelled coastal processes or hazard zones.

Three Coastal Management Overlay Zones are proposed for **urban areas** along the West Coast:

1. *High risk zone* – 20-year horizon – 0 meter above mean sea level;
2. *Medium risk zone* – 50-year horizon – high risk line to medium risk line;
3. *Low risk zone* – 100-year horizon – medium risk line to low-risk line.

Overlay zones refer to areas designated by risk modelling as subject to short term (1:20 year), medium term (1:50 year) or long term (1:100 year) risk emanating from coastal processes such as coastal erosion, storm surges, sea level rise and storm wave run-up. In **rural areas**, the risk grading from low to high is not necessary, and hence only a default 'risk' zone is indicated as the entire area between the 0 m above mean sea level and landward boundary of the low risk (long term risk) zone. This risk zone is expanded in places where littoral active zones are present, as these contribute to the risk of exposure to possible future coastal erosion.

Coastal Protection Zone:

The National Environmental Management: Integrated Coastal Management Act (ICM Act 24 of 2008) makes provision for the demarcation of a zone adjacent to coastal public property that "*plays a significant role in a coastal ecosystem*". The demarcation allows the area to be managed, regulated or restricted in a way that differs from non-coastal areas, in order to:

a) Protect the ecological integrity, natural character and the economic, social and aesthetic value of coastal public property;
b) Avoid increasing the effect or severity of natural hazards in the coastal zone;
c) Protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise;
d) Maintain the natural functioning of the littoral active zone;
e) Maintain the productive capacity of the coastal zone by protecting the ecological integrity of the coastal environment; and
f) Make land near the seashore available to organs of state and other authorised persons for performing rescue operations; or temporarily depositing objects and materials washed up by the sea or tidal waters.

The ICM Act defines a default CPZ which consists of a continuous strip of land, starting from the high-water mark and extending 100 metres inland in developed urban areas zoned as residential, commercial, or public open space, or 1 000 metres inland in areas that remain undeveloped or that are commonly referred to as rural areas. These default boundaries may only be changed through a formal process of adjustment by the relevant Provincial MEC or National Minister.

The SPLUMA principles and structural and spatial tools will be applied at regional (rural) and settlement levels to generate MSDF proposals (Chapters 5 and 6) to enhance the desired performance qualities.

Spatial Directives from Coastal Protection Zones:

- Protect the ecological integrity, natural character and the economic, social and aesthetic value of coastal public property and coastal environment.
- Protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise.

1.9 Structural Tools: The Saldanha Strategic Offset Strategy 2020

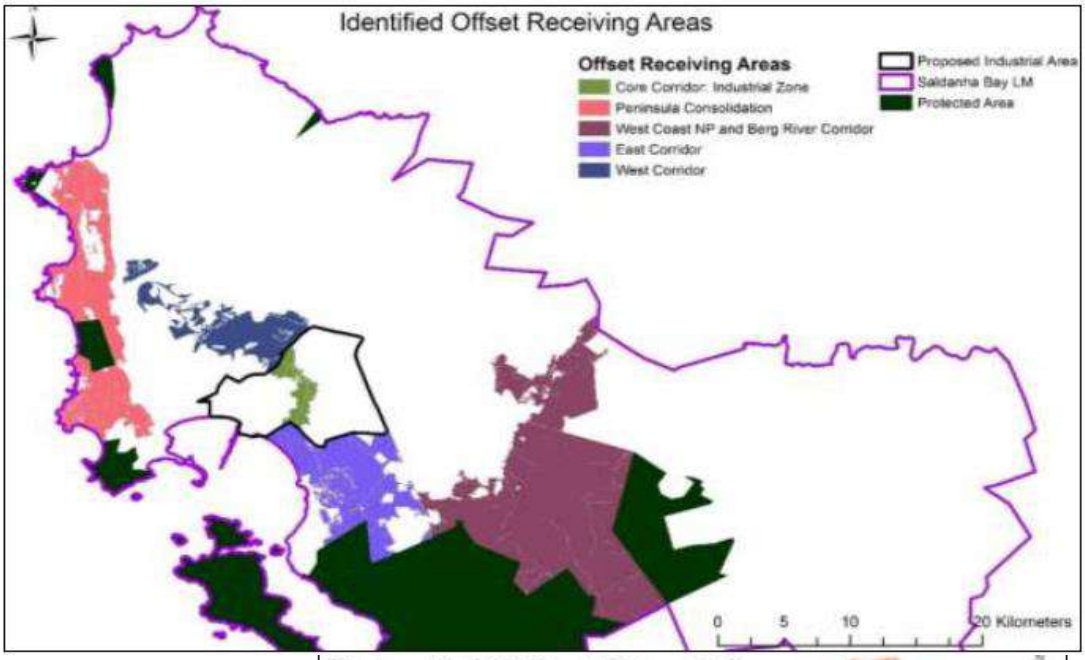
The Saldanha Bay Offset Strategy 2020 was developed in response to the conflict between Critical Biodiversity Areas (CBAs) and the area designated for large scale industrial expansion around the Port of Saldanha, the Saldanha Bay Industrial Development Zone (SBIDZ) highlighted by the Greater Saldanha Environmental Management Framework (EMF).

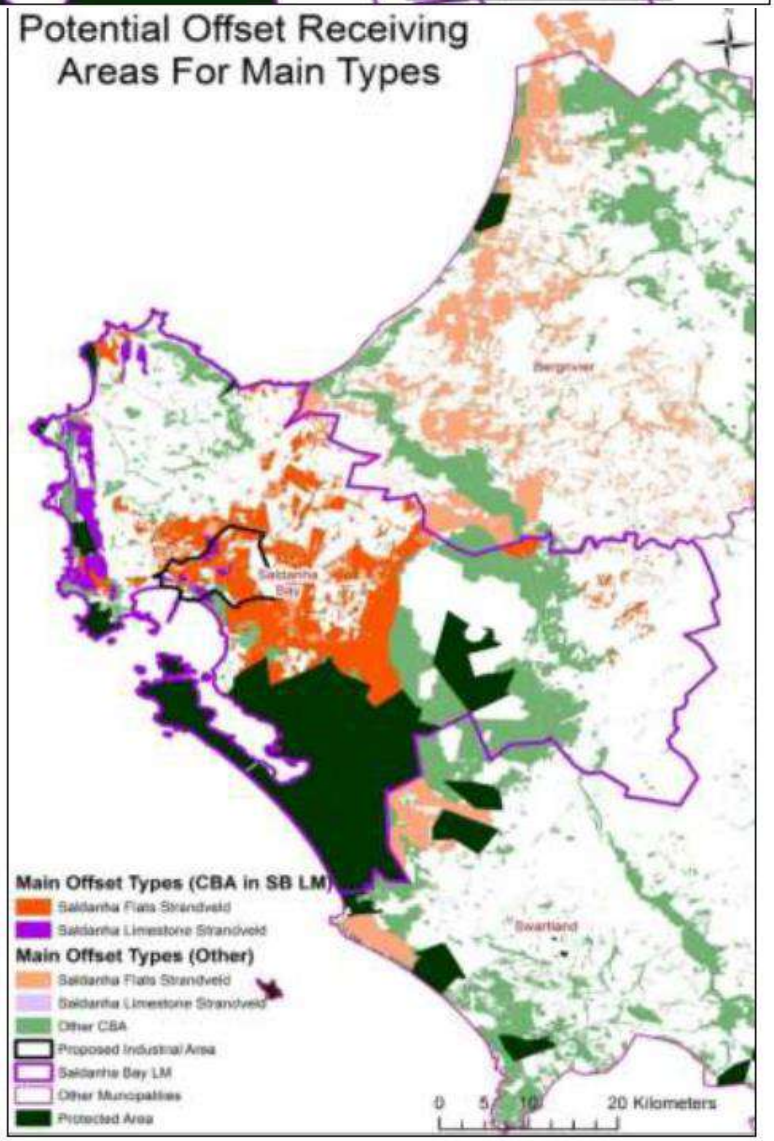
The strategy departs from, should a development within the IDZ not be able to avoid negative impact (and in particular on biodiversity), a hierarchical approach to impact management in accordance with the National Environmental Management Act, 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2017 should be followed.

Should negative impacts remain after mitigation and remediation, they must be compensated for by offset options. The five primary offset receiving areas identified within Saldanha Bay Municipality include a Core Corridor: Industrial Zone in the Besaansklip Industrial Area; a Peninsula Consolidation of the important biodiversity areas of the Saldanha Peninsula; a West Coast National Park and Berg River Corridor which secures expansion areas around the national park and connectivity inland; and an East Corridor and a West Corridor which secure the remainder of the climate adaptation corridor outside of the proposed Industrial Area. The five primary offset receiving areas were evaluated in terms of their potential to collectively deliver targets for ecosystems and other important biodiversity features.

The map shows the CBA areas in Saldanha Bay Municipality being home to Saldanha Flats Strandveld and Saldanha Limestone Strandveld (in darker colours), as well as the non- CBA intact areas of these types in Saldanha Bay Municipality and in adjacent municipalities (in lighter colours), as well as additional CBA areas consisting of other vegetation types.

Map 3: Identified Offset Receiving Areas



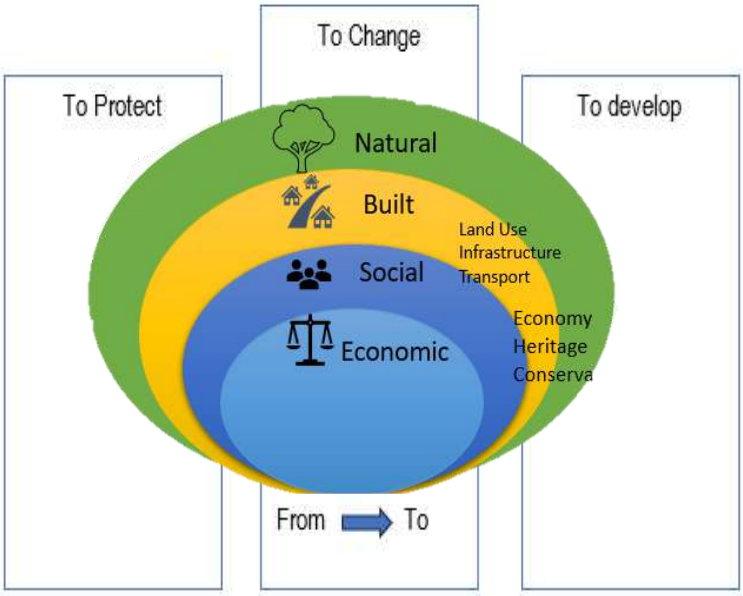


CHAPTER 2: Spatial and Sectoral Plan Analysis

The spatial analysis of three environments, that is biophysical, socio-economic, and built environment and the sector plans will provide broad directives within and across the border of the Bergrivier Municipality. These and the directives derived from the applicable legislation governing these environments and related sector plans form the basis for the proposals to be made at settlement and rural area level. Directives generated from the legal and Status Quo analysis, can broadly be categorised into three proposal types:

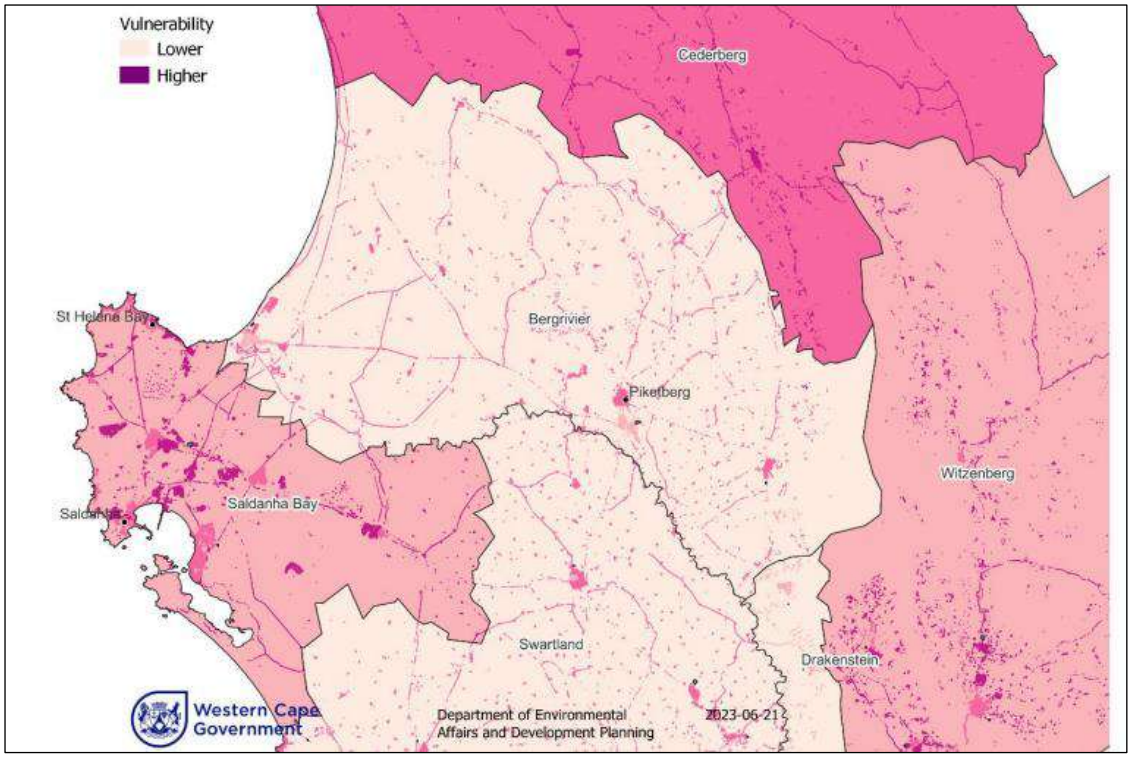
- to protect,
- to change, and
- to develop resources in the three environments.

The proposals and directives in the chapters to follow, are presented accordingly.

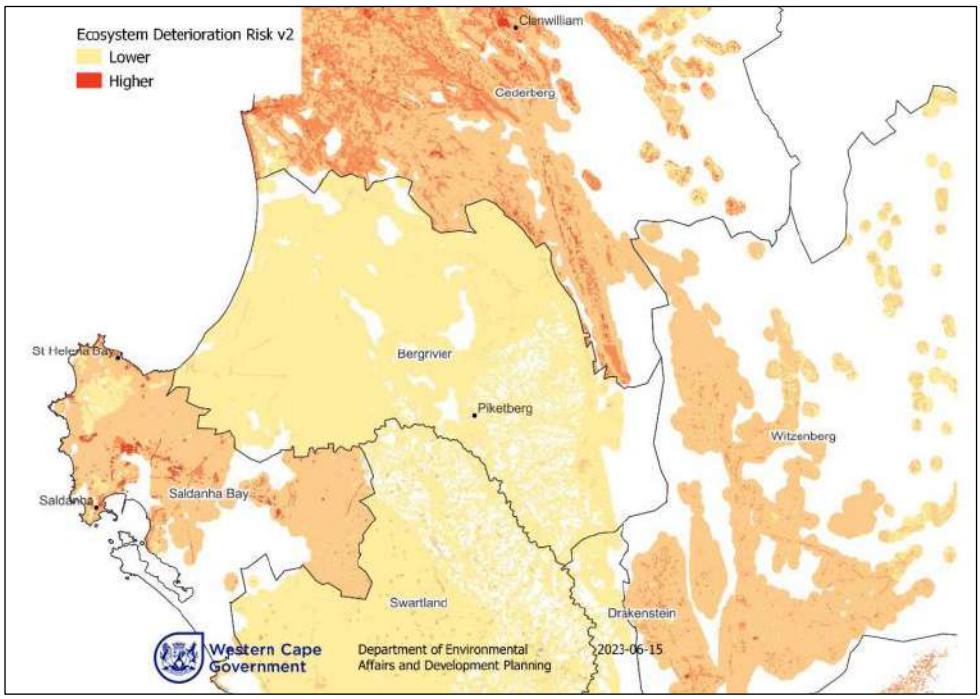


2.1 Spatial Analysis of Status Quo

	Biophysical
Geology & Soils:	The geology and soils of the municipal area encompass various rock formations, including sandstone, shale, limestone, granite, and basalt, among others. The diverse geology and soil composition present both opportunities and challenges for agricultural productivity and land management practices. Agricultural activities rely on the suitability and fertility of the soil, and have to employ soil conservation techniques to prevent erosion and maintain soil health. Several types of soil are found across the region, including sandy soil, loamy soil, clay soil and soil derived from weathered shale or sandstone, with most of the soils having a clay percentage of less than 15%. The distribution and properties of these soils have implications for land use, agricultural practices, and water filtration capabilities. The soil depth, as illustrated in Map 12, in the municipal area varies generally between 450 – 750 cm over most of the area with the exception of soils north and east of Piketberg where soils are deeper than 750 cm. Southwest of Porterville clay appears at a depth of 450 mm. The majority of the Bergrivier municipal area has a soil clay percentage of less than 15%. The eastern side of the Bergrivier municipal area, has a clay percentage of between 15% and < 35%. (Cape farm mapper).
Climate:	Bergrivier Municipality's Mediterranean climate is typically characterised by mild, wet winters and warm, dry summers. Temperature: Summers (December to February) are generally warm to hot, with average high temperatures ranging from 25°C to 30°C. Winters (June to August) are mild, with average high temperatures around 17°C to 20°C.

Sun	Sunshine: There is a good amount of sunshine throughout the year, with an average of 8 to 10 hours of sunshine per day during the summer months. (Refer to Map 14)
Rainfall	Rainfall: Most rainfall occurs during the winter months. The average annual precipitation ranges from around 300 to 500 millimeters (12 to 20 inches). However, rainfall patterns can vary within the municipality due to its diverse topography.
Wind	Wind: Strong winds, particularly during the summer season, bring relief from the heat. The South-Easter can blow at high speeds, reaching gusts of 50 kilometers per hour (31 miles per hour) or more. Map 15 illustrates wind speeds for Bergrivier Municipality. Summers in the Bergrivier Municipal area are generally warm to hot and relatively dry. The region experiences a decrease in precipitation during this time. The summer season may also be accompanied by occasional heat waves and strong winds. Spring and autumn are likely characterised by moderate temperatures and more variable weather patterns. These seasons may exhibit fluctuations in temperature and occasional rainfall. The climate is influenced by its proximity to the Atlantic Ocean, prevailing winds and the topography of the region. The ocean's influence helps moderate temperature extremes, keeping summers cooler and winters milder compared to inland areas. Prevailing winds, such as the southeasterly winds influence weather patterns and contribute to the region's climate characteristics.
Climate Change	Overall, the Bergrivier municipal area is evaluated to be at a lower risk and less vulnerable given its natural resources and its governance (see Map 4 below). The map does not illustrate the severity of the risks. ***Map 4: Vulnerability to environmental threats in Bergrivier (combining socio-economic and governance indicators)***  The combination of a) impacts on the environment referred to as environmental threats and b) the vulnerability of the Bergrivier Community measured as governance and municipal management, are illustrated in the maps below. The maps highlight areas and sites in the Bergrivier Municipal area where compound risks threaten people, their livelihoods and/ or infrastructure. The governance of the socio-economic conditions of the Bergrivier community by the municipality to mitigate threats and protect the environment reflects the municipal area's vulnerability to climate change. Ecosystem deterioration assesses the likely loss of ecosystems and impact on communities closest to it as a source of ecological infrastructure and solutions to natural threats related to vegetation and health. Map 5 below illustrates that the vulnerability of the Bergrivier municipal area is lower than the vulnerability of Saldanha and Cederberg. Refer to Map 20 for Bergrivier Municipality's Ecological Infrastructure.

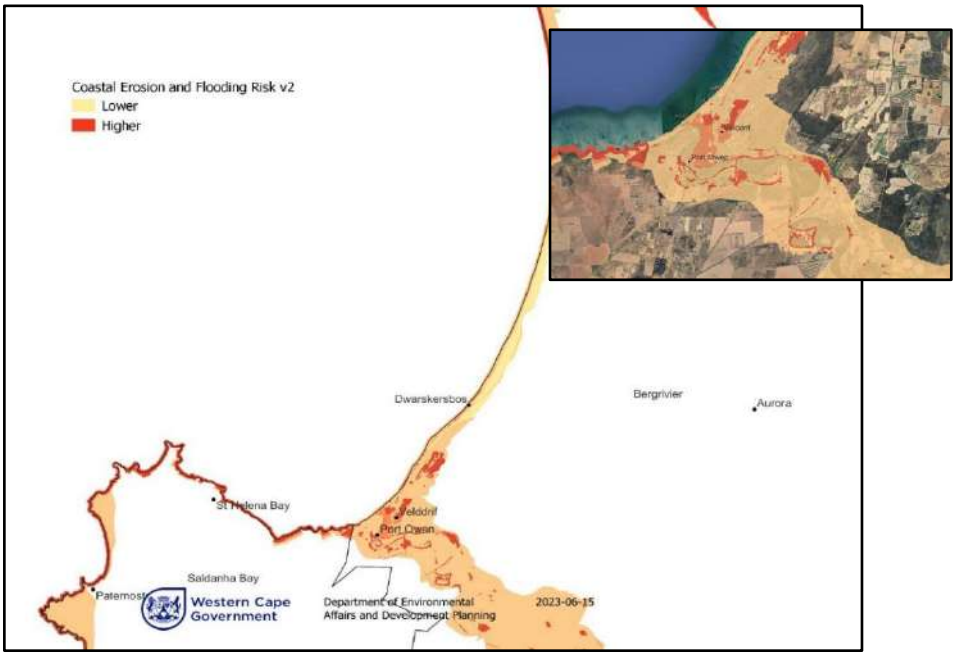
Map 5: Ecosystems Deterioration Risk (compromised natural features coincide with vulnerable populations)



Coastal Erosion and Flooding:

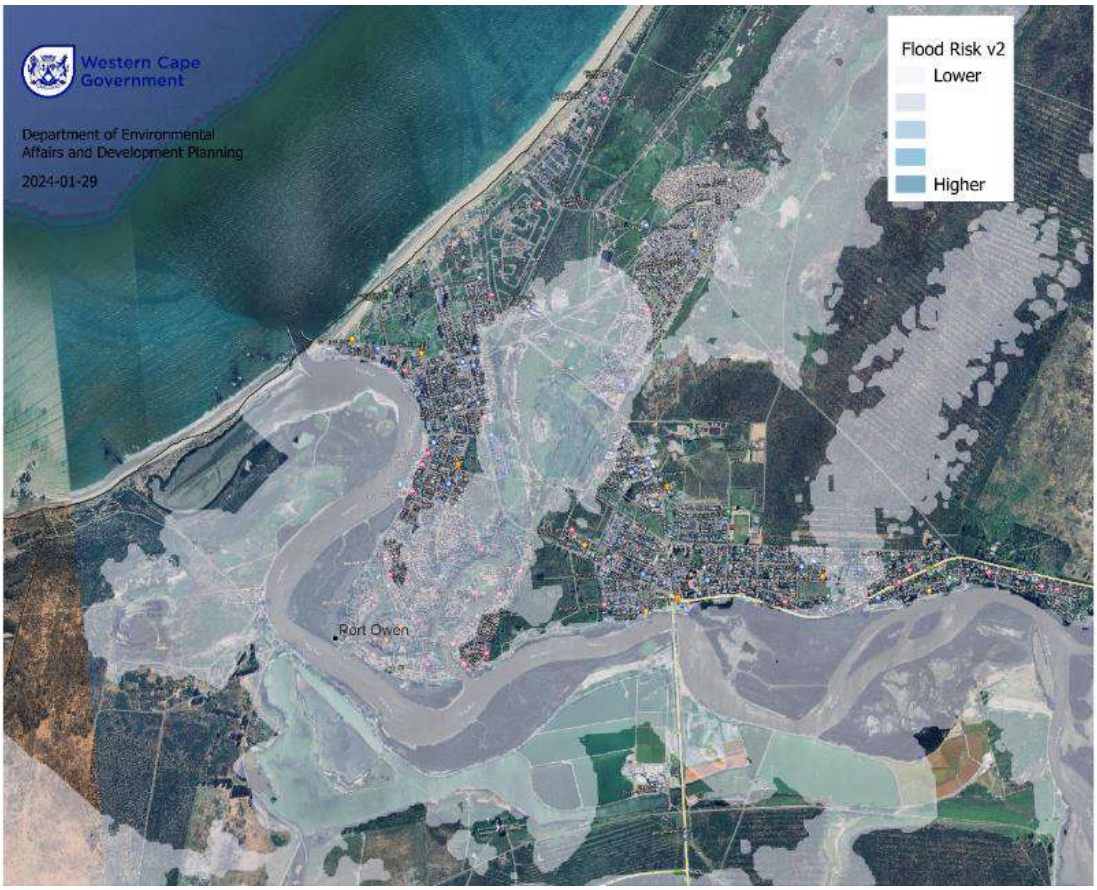
Dynamic coastal processes of erosion and deposition cause the sandy coastline and estuarine environment in the Bergrivier Municipality to be subject to flooding. Historically, there has been limited development in the high-risk and sensitive coastal and estuarine areas, except for Laaiplek and Velddrif where the number of buildings in high-risk coastal areas increased. Coastal erosion, sea surges and flooding risk are expected at Dwarskersbos (refer to Map 7) and in and around Velddrif (refer to Map 8). Map 6 below illustrates the Bergrivier Municipality coastal erosion and flooding risk.

Map 6: Bergrivier Municipality Coastal Erosion and Flooding Risk



Map 7: Dwarskersbos Flood Risk

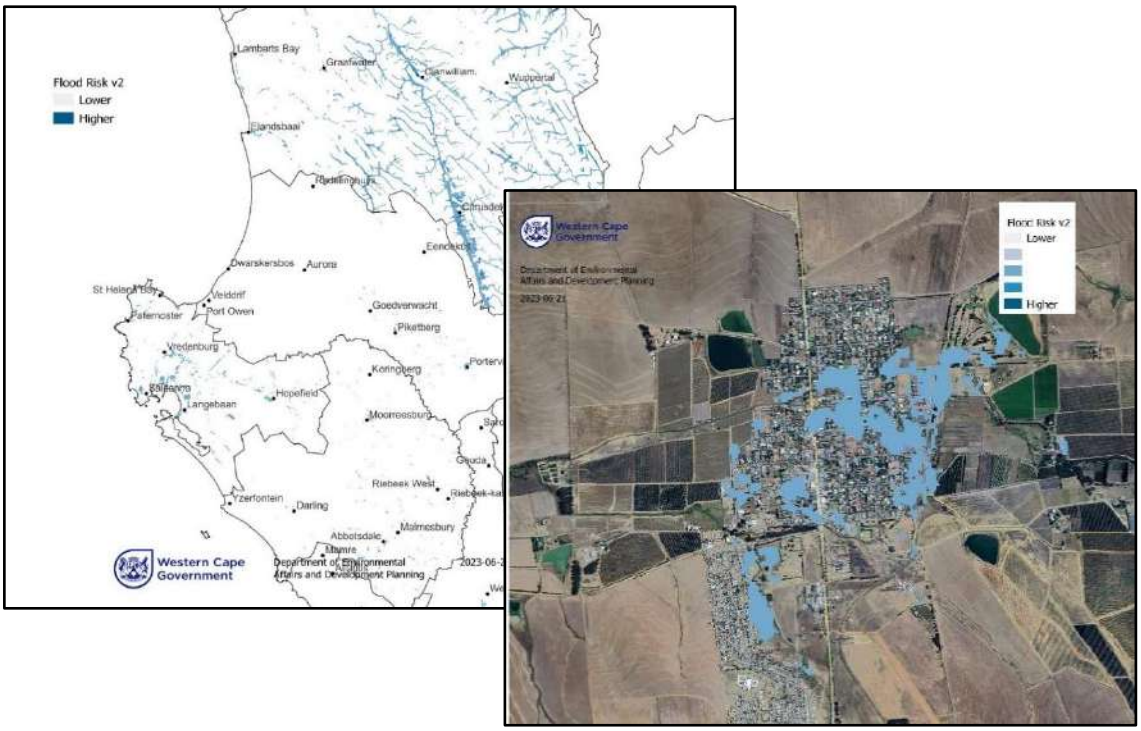
Map 8: Velddrif Flood Risk



Terrestrial Flooding:

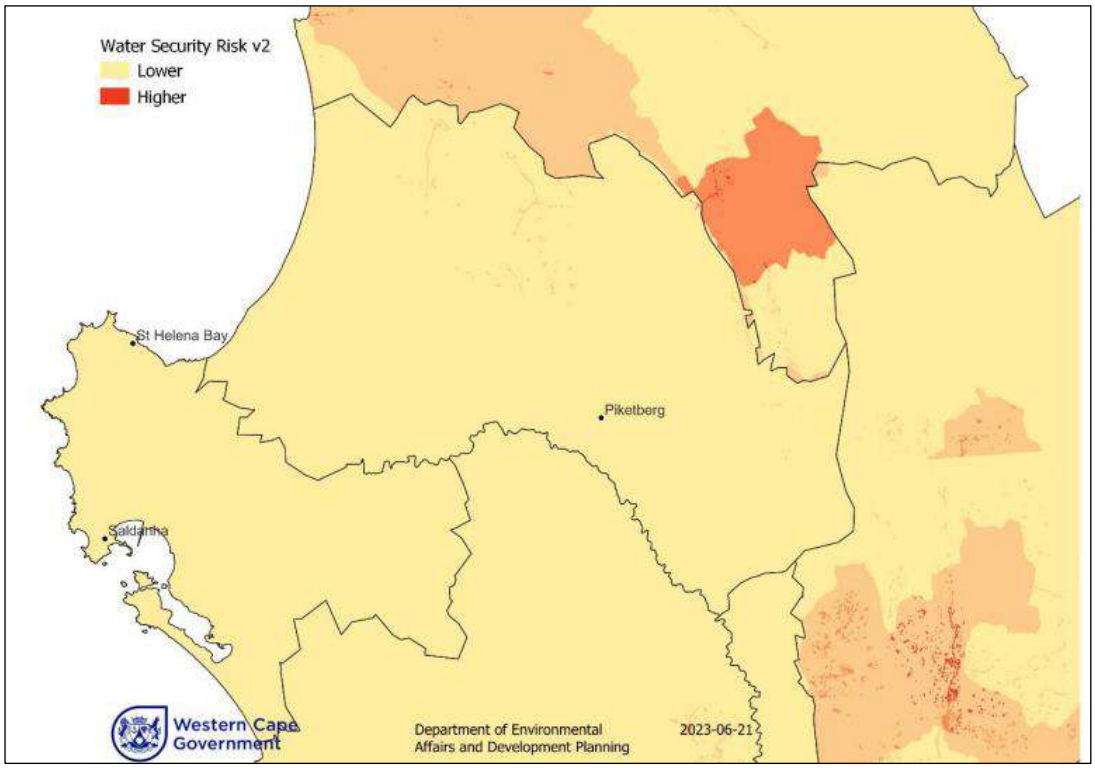
Flooding of the Upper Verlorenvlei and the Berg Rivers is expected at 50-year intervals. Terrestrial flooding is assessed as a low risk but highlighted Porterville and Velddrif as a flooding risk. The flooding risk and flood area in Porterville is illustrated in Map 9 below.

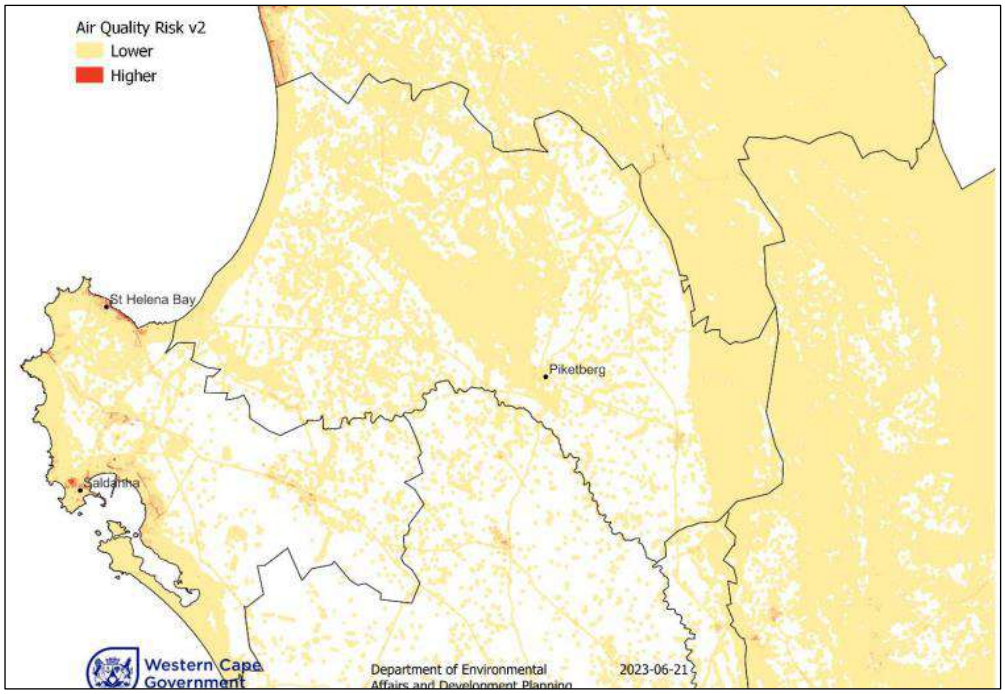
Map 9: Bergrivier Municipality Flooding Risk and Flood area in Porterville



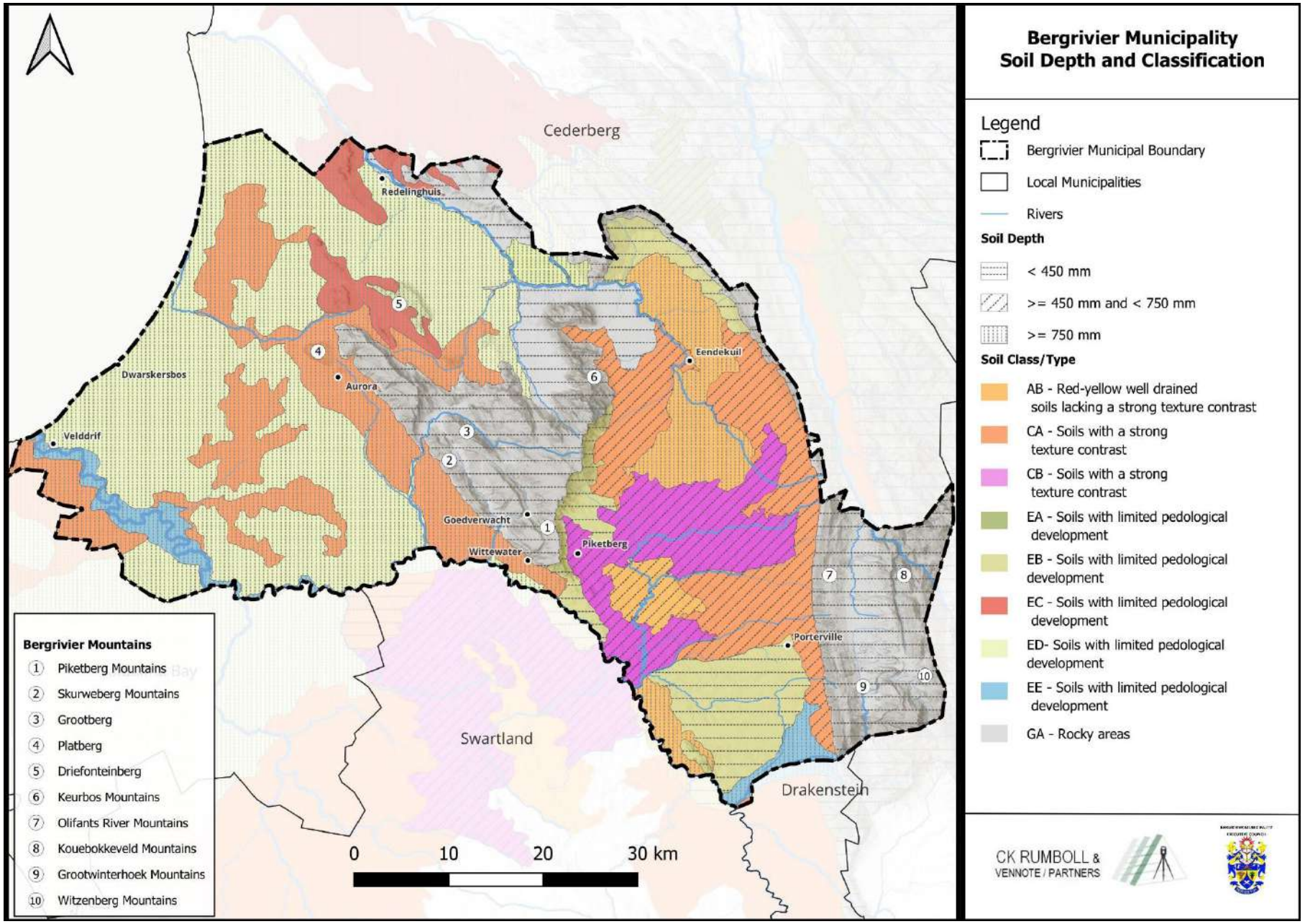
Water security, informed by available water resources and the management (catchment area and storage) thereof, was assessed as low (refer to Map 10 below). The vulnerability score is derived by combining the default socio-economic/ governance score with a groundwater dependency score obtained from the Ecological Infrastructure Investment Framework (EIIF) project of DEA&DP.

Map 10: Water Security Risk in Bergrivier and alternative water sources requirement.

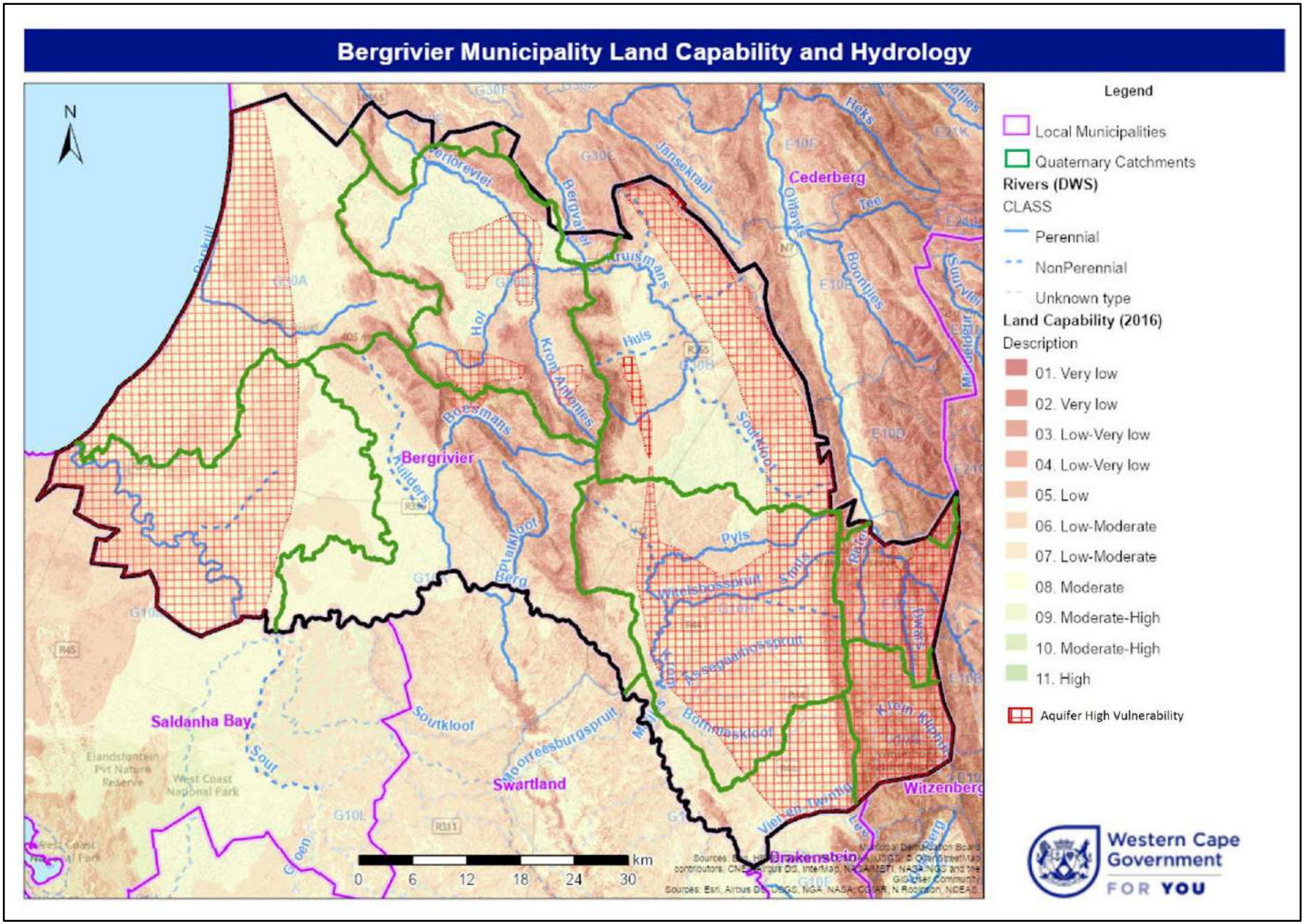


	Air quality, measured as exposure to atmospheric pollutants and health (air pollution hazards, potential emissions and exposure of communities thereto and their health) is rated as lower. Poor socio-economic areas and poor indoor air quality due to the use of domestic fuels are the main contributor to the score. Map 11 illustrates the relative index of air quality related risk. ***Map 11: Relative index of air quality related risk***  Wildfires (likelihood and impact on communities) are rated as medium and particularly so around settlements such as Piketberg and Aurora. Wildfires are likely in the mountain areas such as the Piketberg cluster, Olifants and Winterhoek Mountains. Solid Waste management is scored as a low-risk. The vulnerability assessment considers accumulation of waste (removal services) and environmental pollution from formal waste sites combined with the likelihood of being affected. Food production, and thus food security is not scored, yet is at risk from: • Climatic variation impacting on yields and type of produce together with market dynamics in the dominant grain production area between Piketberg and Porterville; • Water availability impacting on intensive irrigation enterprises of different scales at Olifants River Mountain at Porterville, Piket Bo Berg, and the farms along the Berg River; • Soil erodibility which is more prevalent on the western side of the Bergrivier municipal area than on the eastern side. Erodibility is particularly prevalent along the Papkuil and Kuilders Rivers and the plain between these two rivers in the north and the Berg River in the south. And along the eastern side of the northern foot of the Piketberg Mountain around the Huis River and along the Soutkloof River near the Olifantsrivier Mountains. (Refer to Map 16)
Topography:	The topography of the Bergrivier Municipality is characterised by mountainous areas, valleys, plains, and coastal zones. Classic landscapes (Norberg-Schulz, 1980) are established by two prominent mountain ranges, the Olifants River Mountains (1500 m above sea level), the Piketberg Cluster (800 m above sea level) consisting of Piketberg and Skurweberg Mountains. In addition, other notable mountain ranges, such as the Kouebokkeveld Mountains, Witzenberg Mountains, and Cederberg Mountains, surround the municipal area. Cosmic landscapes are made up of valleys and low-lying areas found adjacent to rivers or along the coast. The coastal zone along the Atlantic Ocean exhibits a unique topography influenced by processes such as wave action, tides, and coastal erosion.

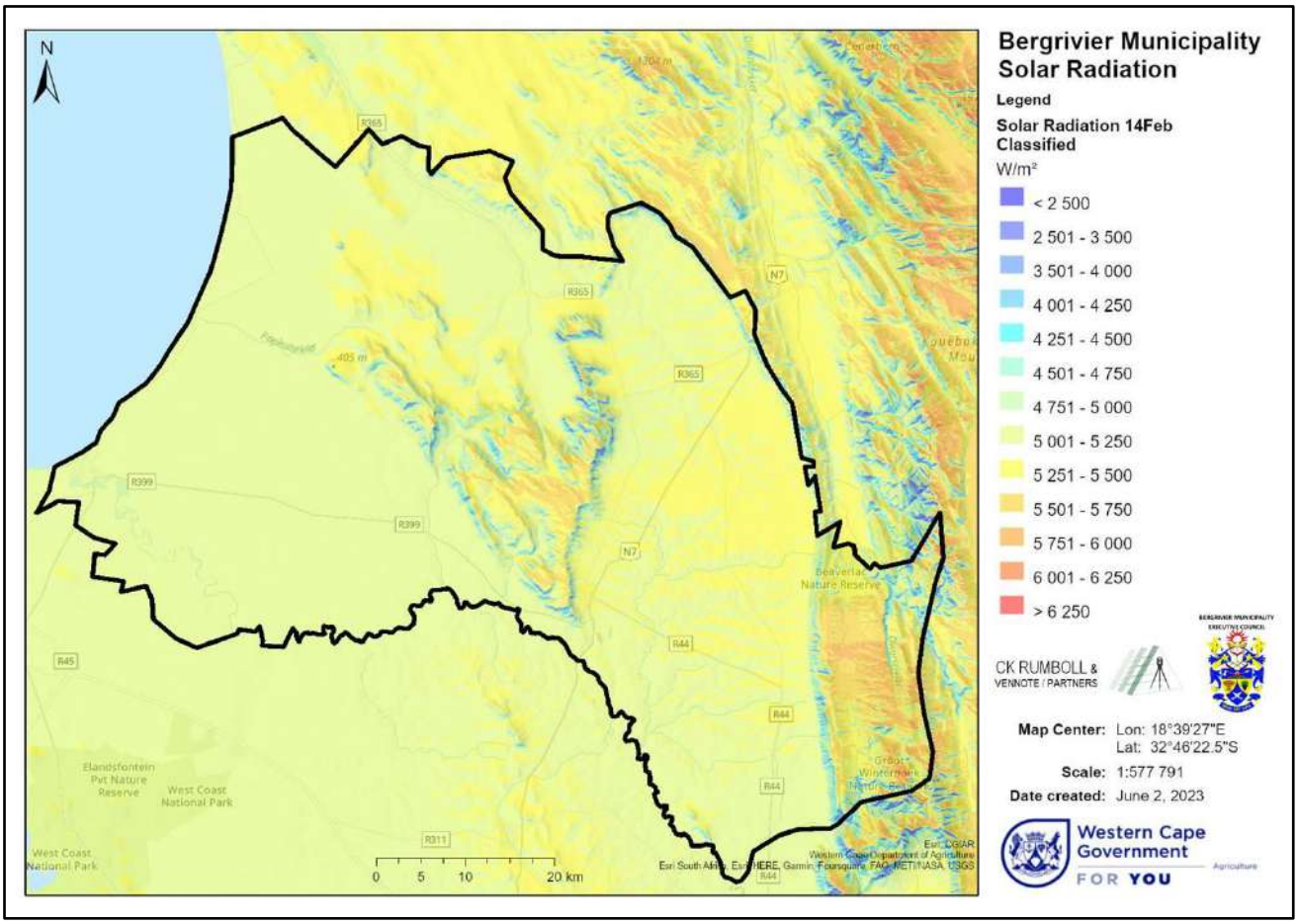
Map 12: Bergrivier Municipality Soil Depth and Classification



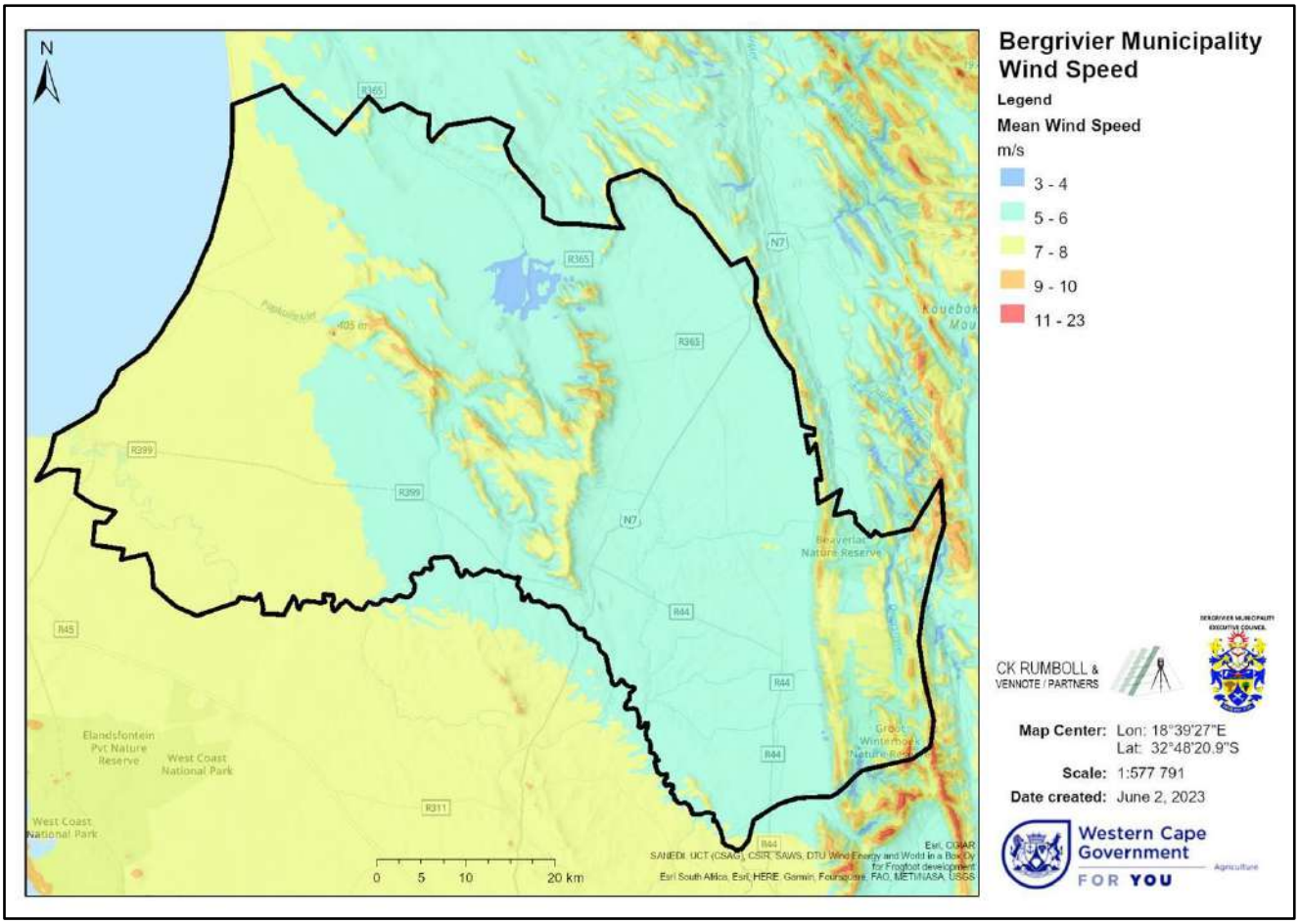
Map 13: Bergrivier Municipality Land Capability and Hydrology



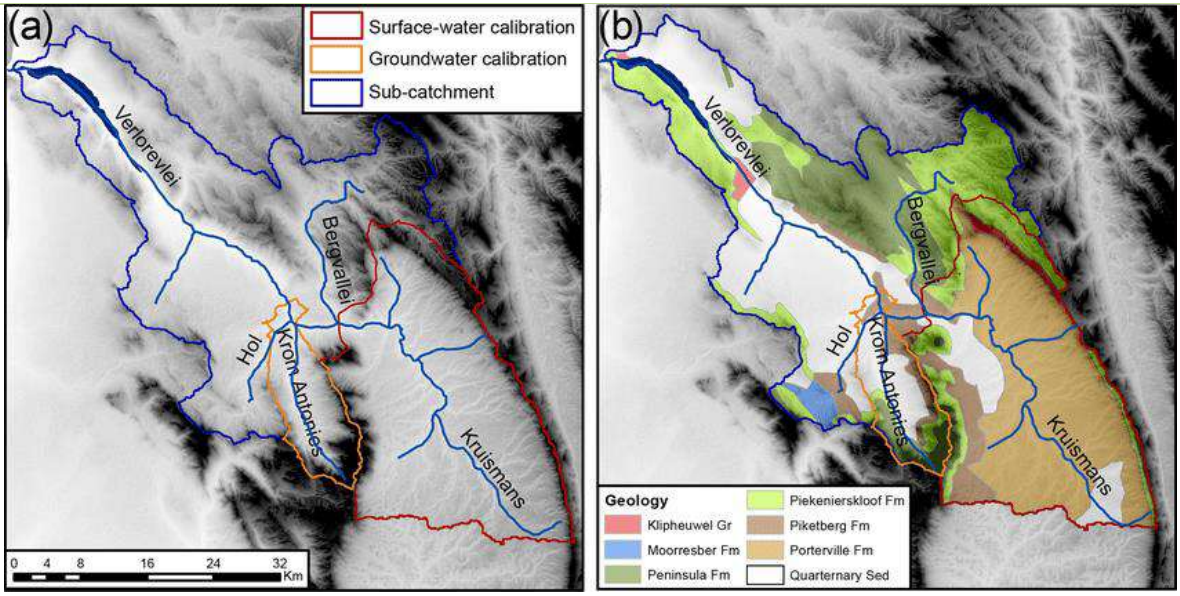
Map 14: Bergrivier Municipality Solar Radiation

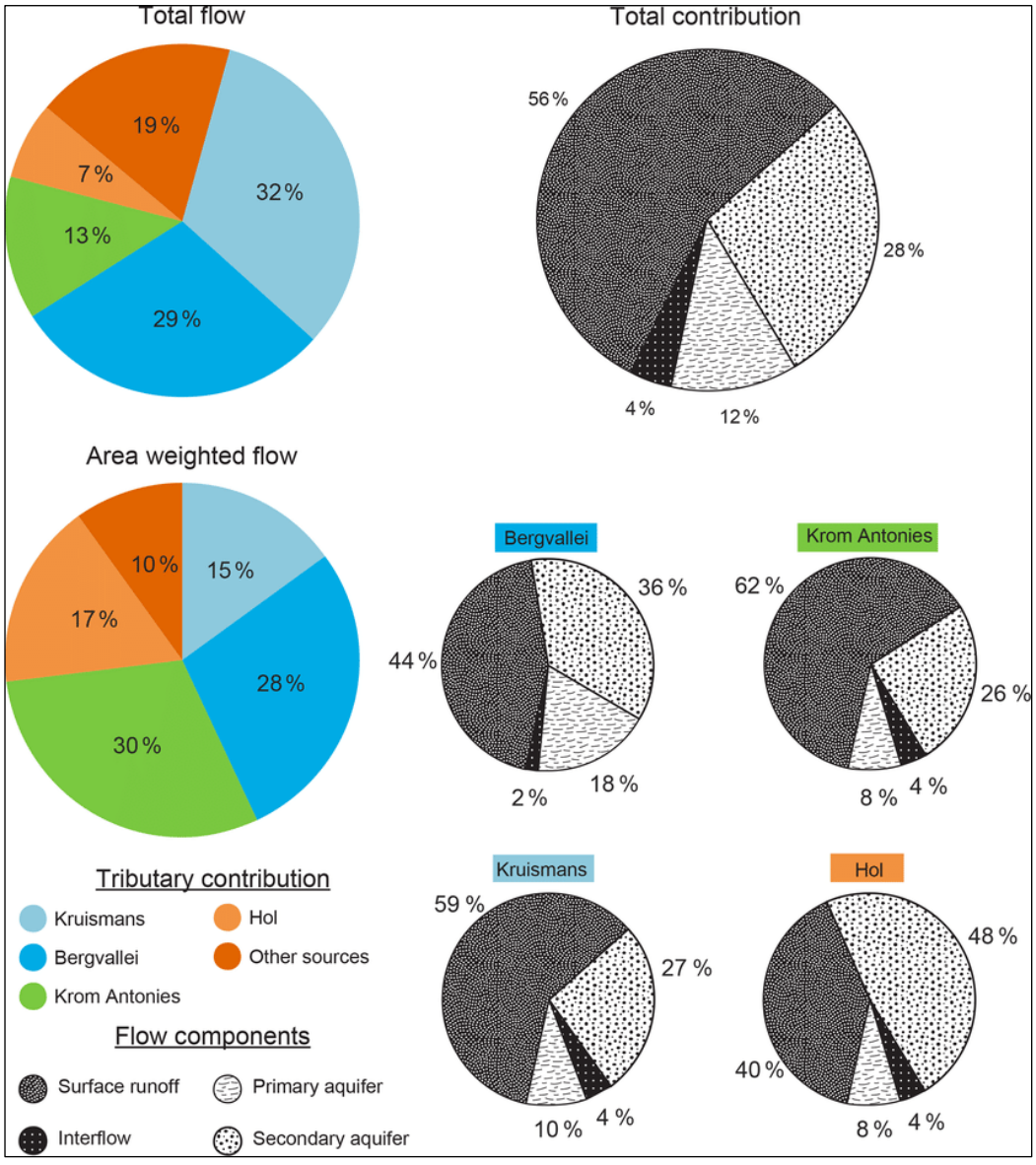


Map 15: Bergrivier Municipality Wind Speed



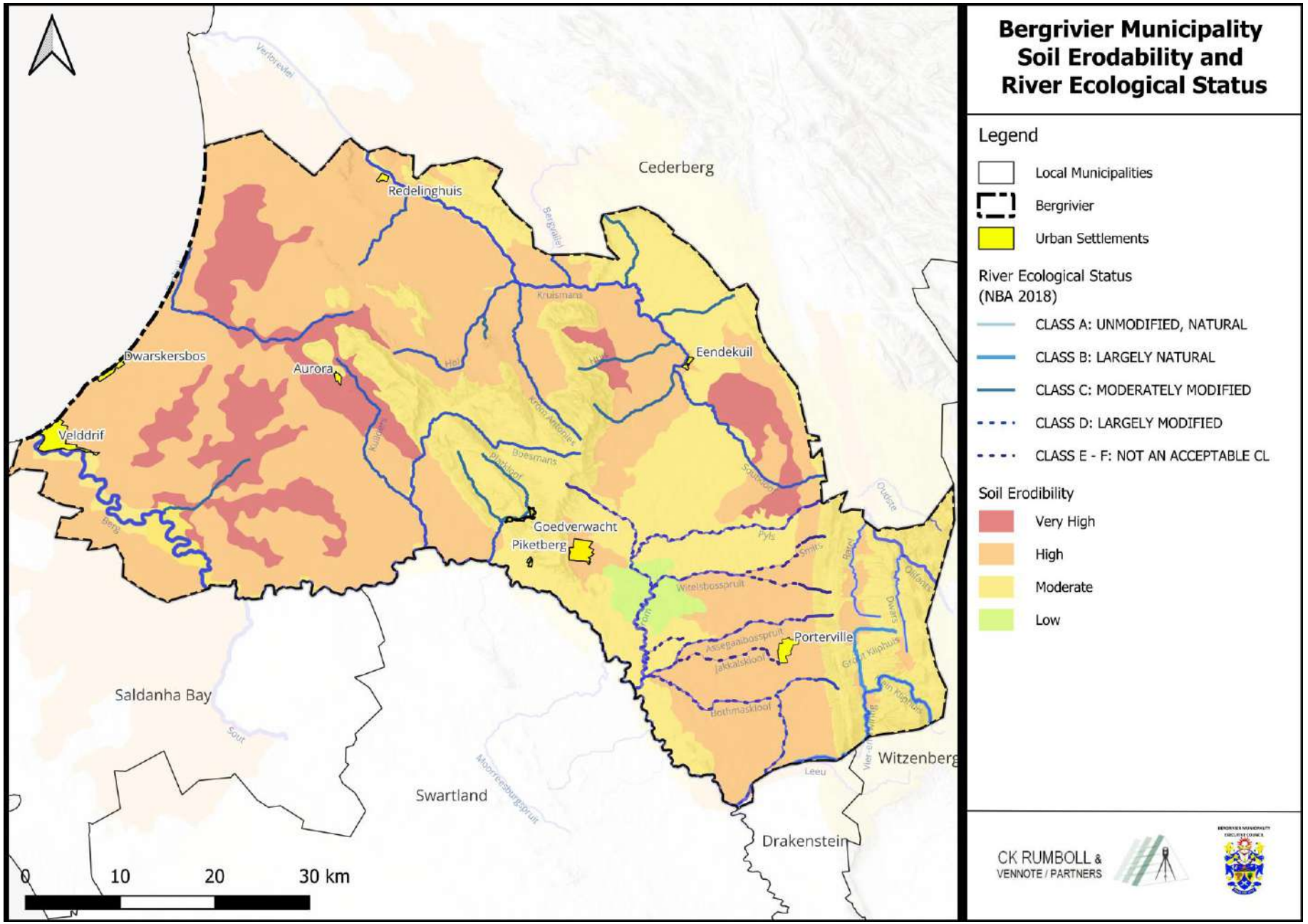
Hydrology:	Surface (Rivers and Estuaries), Groundwater and the Ocean. Surface and underground water and the ocean constitute the natural resource. Bergrivier Municipality is home to several rivers and boreholes as its water sources. (see Map 13) The Department of Water Affairs delineated Water or Catchment Management Areas. The quaternary water catchment areas in the Bergrivier Municipality are the Olifants/Doorn Water Management Area (Eendekuil and Redelinghuis) represented by the Sandveld Area and the Berg River Water Management Area (Dwarskersbos, Velddrif, Aurora, Wittewater, Goedverwacht, Piketberg and Porterville): The Berg River Catchment or Water Management Area covers approximately 9000 km² and is divided into 12 smaller catchments, ranging in size from 125 to 2 000 km² from their headwaters. The catchments within Bergrivier Municipality, located within 200 km of the headwaters, in the Franschhoek Mountains, are found in the drier western parts of the Catchment and typically feature low-density drainage channels with sandy deposits as their foundation. The Berg River flows northwards for 285 km, ultimately draining into St Helena Bay on the west coast of South Africa. Most of the catchment area is relatively flat, except for the uppermost regions. The Verlorenvlei sub-catchment includes the Kruismans, a surface water tributary and the Krom Antonies, a groundwater tributary. The hydrogeology of the sub-catchment includes Malmesbury shale formations (MG; Klipheuwel, Moorreesberg, Porterville, Piketberg), Table Mountain Group formations (Peninsula, Piekenierskloof) and Quaternary sediments. The pie-charts illustrate the Verlorenvlei reserve flow contributions of Kruismans, Bergvallei, Krom Antonies and Hol as well as flow component separation into surface runoff, interflow, primary aquifer flow and secondary aquifer flow (RG2). The sandy coastline and estuarine environment in the Bergrivier Municipality is subject to dynamic coastal processes of erosion and deposition. Primary rivers in the Bergrivier municipal area: Berg (tributaries: Boesmans, Kuilders and Platkloof at Goedverwacht) and Verlorenvlei (upper) (tributaries: Krom Antonies, Hol and Kruismans), Papkuils (feeding into Rocherpan), and Vier-en-Twintig (at the southern border with Drakenstein). Minor rivers are Bergvallei (across the border of Cederberg and Bergrivier Municipalities) and Pyls, Smits, Witelsbosspruit and Krom (across the eastern wheatfield plain) and the Olifants (tributaries: Dwars and Ratel rivers). The South African National Biodiversity Institute (SANBI), classifies the status of primary rivers, the Berg, Papkuils, and Verlorenvlei Rivers that supply the Water Management Area, as critically endangered. These surface water sources include significant wetlands, marshes, swamps, and estuaries of which the Berg, Verloren and Papkuils (Rocherpan) are protected. These waterlogged areas host unique plant and animal communities, acting as important habitats for a variety of species. Wetlands also play crucial roles in water filtration, flood control, and nutrient cycling, contributing to overall ecosystem health. The rivers in the southeastern region of Bergrivier Municipality have been significantly altered beyond an acceptable level. In contrast, the rivers and tributaries in the Winterhoek Wilderness area remain natural or mostly untouched by human modification. Dams. The Misverstand and Porterville Dams are artificial water bodies regulating domestic and agricultural water supply and offer recreational opportunities. Groundwater resources form an integral part of the hydrological system in the municipal area. Aquifers or underground water-bearing formations store and supply groundwater of which the Krom Antonies is the most significant supplying the Verlorenvlei River. Wells and boreholes are utilised for domestic, agricultural (livestock), and industrial purposes. The Berg and Verlorenvlei rivers serve as the primary irrigation water source for the municipal area. The water in both rivers and smaller rivers contain a considerable number of dissolved salts that leached out of the surrounding soils by the winter rain. Despite the salt content, the water can still be used for irrigation due to the depth of the sandy soils. In summer a consistent flow in the tidal lower Berg River is maintained by adding water from the Wemmershoek and Voëlvlei dam schemes. Precipitation is influenced by regional climate patterns. Precipitation in the form of rainfall and fog contributes to the water supply particularly along the Atlantic, while evaporation and transpiration cause water losses. Refer to Map 13 for Bergrivier Municipality Land Capability and Hydrology





(European Geosciences Union, 2019)

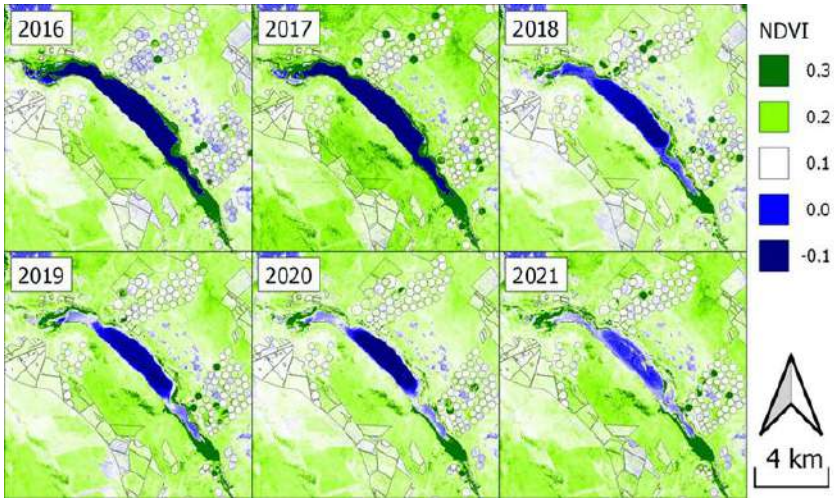
Map 16: Bergrivier Municipality Soil Erodibility and River Ecological Status



Vegetation:	Bergrivier Municipality is located within one of the richest biodiversity areas of South Africa and forms part of the Cape Floral Region biome and includes: Marshes, Salt Pans, Freshwater Wetlands, Seashore Vegetations, Vernal Pools, Sandstone Fynbos, Quartzite Fynbos, Sand, Dune Strandveld, Flats Strandveld, Shale Band vegetation and Renosterveld. The vegetation types range from fynbos and renosterveld to coastal shrubs, grasslands, and forests. Refer to Map 19 for Bergrivier Municipality's Vegetation Bio-Regions and Status. Fynbos consists of small, evergreen shrubs, such as proteas, ericas, and restios, adapted to the Mediterranean climate of the area, but requires conservation efforts due to its vulnerability to habitat loss and invasive species. Renosterveld is a threatened vegetation type that is present in the Bergrivier Municipal area. Due to agricultural expansion and urban development, very little of the remnants of this veld type are left, making its conservation and protection crucial for maintaining biodiversity. Coastal shrubs, such as the coastal sagebrush and beach grasses, are commonly found in the coastal areas. Grasslands are open areas covered by grasses for grazing animals and are important for livestock farming. Many grassland ecosystems have been converted to agricultural or urban land uses, leading to the loss of their biodiversity and ecological functions. In some parts of the municipality, forests or woodland areas may exist, featuring a mix of indigenous tree species. <u>Fauna:</u> The Berg Estuary RAMSAR site is particularly rich in fauna. About 127 species of waterbird have been recorded since 1975 and communities of fish such as white steenbras and white stumpnose are partially or fully dependent on it for breeding. Despite its value, the Berg River Estuary lacks an official national conservation status. Birds: • Cape cormorant (*Phalacrocorax capensis*) (Globally threatened); • Caspian tern (*Hydroprogne caspia*) (regionally threatened); • 31 Waterbird species (including White Pelican, Greater Flamingo, Lesser Flamingo, Caspian Tern & Chestnut-banded Plover). Fish: • White steenbras (*Lithognathus lithognathus*); • White stumpnose (*Rhabdosargus globiceps*); • Haarder (*southern mullet Liza richardsoni*); • Gilchrist's round herring or estuarine round-herring (*Gilchristella aestuaria*).
Biodiversity:	Biodiversity in the Bergrivier Municipality is characterised by the wide array of plant and animal species (including mammals, birds, reptiles, amphibians, insects, and invertebrates), as well as the genetic diversity and ecological interactions present within the region. The municipality falls within the Cape Floristic Region, which is recognised as the richest non-tropical biodiversity hotspot globally. The biodiversity within the Bergrivier Municipality provides essential ecosystem services that benefit human well-being. Refer to Map 18 for the Bergrivier Conservation and Stewardship Sites Biodiversity provides essential ecosystem services that benefit human well-being. These services include air and water purification, pollination, soil fertility, climate regulation, and the provision of food and raw materials. Conservation and protection of biodiversity and habitats are important for maintaining these ecosystem services and ensuring the long-term sustainability of the region. These habitats include: Mountain ecosystems at Winterhoek Wilderness Area: 1. **Groot Winterhoek Wilderness Area:** Located northeast of Porterville, the Groot Winterhoek Wilderness Area features indigenous forests with a variety of tree species, including yellowwoods, stinkwoods, and Cape Beech. This Mountain ecosystem also features Winterhoek Sandstone Fynbos. Rocherpan Nature Reserve coastal wetlands: 2. **Rocherpan Nature Reserve:** Located north of Dwarskersbos, Rocherpan Nature Reserve spans 930 hectares and features a coastal wetland and a permanent saltwater pan and surrounding reed beds. It is home to endangered Saldanha Flats Strandveld, Cape Seashore Vegetation and Cape Inland Salt Pans all creating a crucial birdlife habitat. Formal Protected Areas: 3. Other nature reserves include the **Danielshoogte** and **Banghoek Private Nature Reserves**.

4. **Upper Verlorenvlei and Krom Antonies Aquifer** (Verlorenvlei sub-catchment area). The 9 000-hectare Moutonshoek Protected Environment (MPE) and the 12 000-hectare Verlorenvlei Conservancy bring together landowners around the Verlorenvlei estuary committed to improving the environmental management of this critical site. The MPE comprises an area of integrated land use, where agricultural production and biodiversity conservation coexist side by side. MPE protects the Krom Antonies River and its catchment, which acts as the main tributary of the Verlorenvlei wetland system.

The Verlorenvlei Estuary is listed as an Important Bird and Biodiversity Area (IBA), Key Biodiversity Area (KBA) and a Ramsar site. The future of the Verlorenvlei Estuary and its biodiversity is dependent on the health of this upper water catchment. Low and negative Normalised Difference Vegetation Index (NDVI) values (approximately 0 and lower) are indicative of wetland saturation and visible surface water bodies, and are shown below in shades of blue (darker blue can be interpreted as deeper water). Verlorenvlei water levels declined noticeably in 2018, despite the wetter than normal conditions in that year as reflected by the NDVI classification of Verlorenvlei and its immediate surrounds for the summer season from 2016 – 2021 (Umvuto, 2021, Verlorenvlei Hydrological Impact Review).



The Moutonshoek valley also provides a safe haven for a variety of species, including the endangered and endemic Diascia caitliniae flower and the endangered Verlorenvlei redfin fish (Pseudobarbus verloreni), both of which occur nowhere else in the world. The site is also important for the vulnerable Cape leopard (Panthera pardus) and threatened bird species such as the endangered blue crane (Anthropoides paradiseus), African marsh harrier (Circus ranivorus) and black harrier (Circus maurus). It forms part of the Sandveld Corridor within the Greater Cederberg Biodiversity Corridor; a landscape initiative designed to connect protected areas and ensure sound environmental management.

5. Portion 6 of Farm Dwarskersbos, No 109 situated in the Bergrivier Municipal area. Biodiversity Agreement between CapeNature and landowner Dwarskersbos Boerdery Trust (Mr Theunis Smit).

6. The Moutonshoek Protected Environment (MPE) is South Africa's newest privately protected area, lying in the mountains of the Moutonshoek valley near Piketberg which is an important catchment for the Verlorenvlei on the West Coast.

7. Coastal seashore and dune Strandveld.

The lowlands towards the coast:

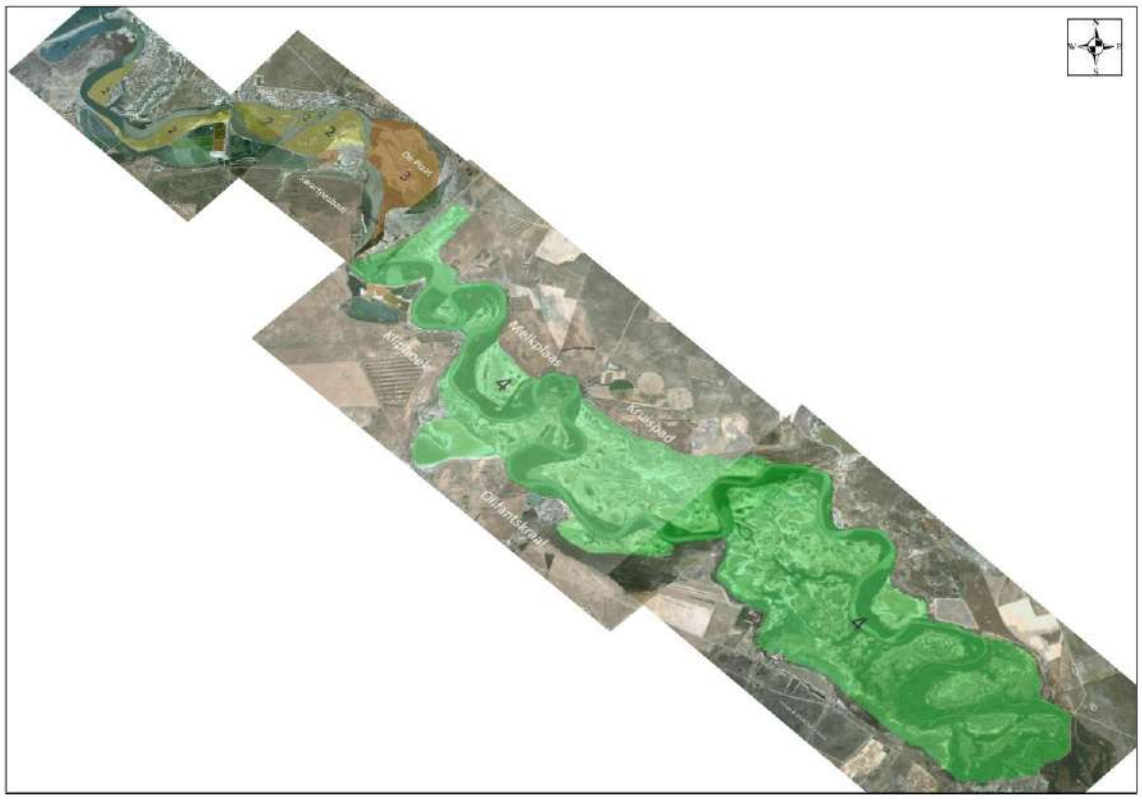
8. The lowlands towards the coast are designated as Critical Biodiversity Areas in the 2017 Western Cape Biodiversity Spatial Plan (WC BSP) as high levels of landscape transformation resulted in loss of most of the lowlands biodiversity.

Estuarine, wetland and salt pan habitats:

9. The Berg Estuary, acknowledged as an Important Bird Area, sustains a diverse array of birds, fish, invertebrates, and distinctive estuarine vegetation within its estuarine, wetland, and salt pan habitats. The estuary is ranked as the third-highest conservation importance in South Africa, and was declared as a RAMSAR conservation site on 1 February 2022 under the Convention on Wetlands of International Importance. This estuarine system is formed by the convergence of the Berg River with the Atlantic Ocean. Due to its ecological significance, the Groot Berg River Environmental Management Plan, 2021 (Cape Nature) aids protection of important estuary habitats and biota. Hence recreational activities (particularly boating) are controlled and formal conservation areas are proclaimed. A zonation plan, illustrated in Map 17 below, addresses numerous conflicting needs and divides the Berg River into zones. These zones along the Estuary are governed by:
   a) the By-law relating to the Berg River Estuary Usage Zones and

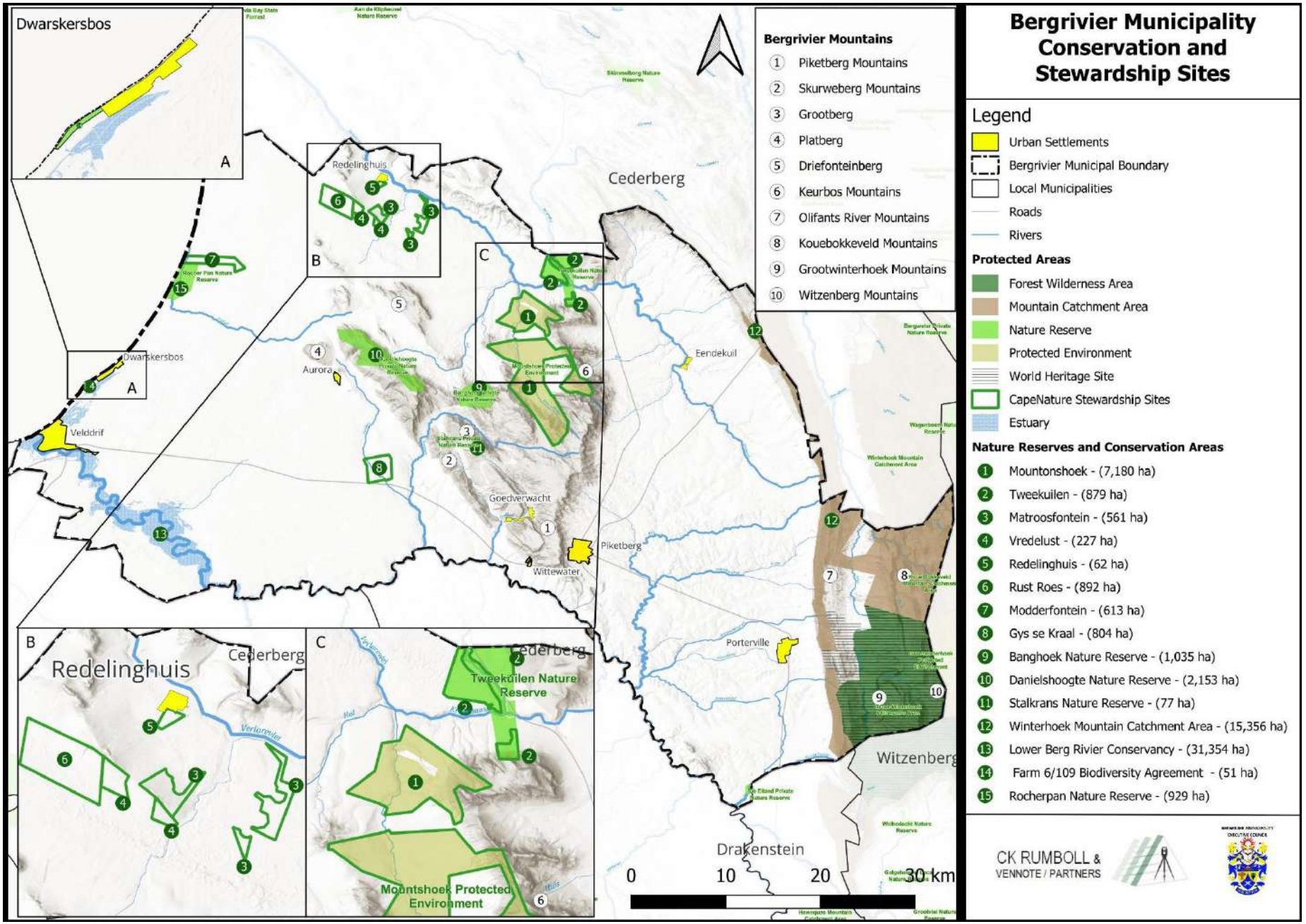
   b) the Berg Rivier Estuary Boating Guide.

Map 17: Groot Berg Rivier Estuary Zonation Map

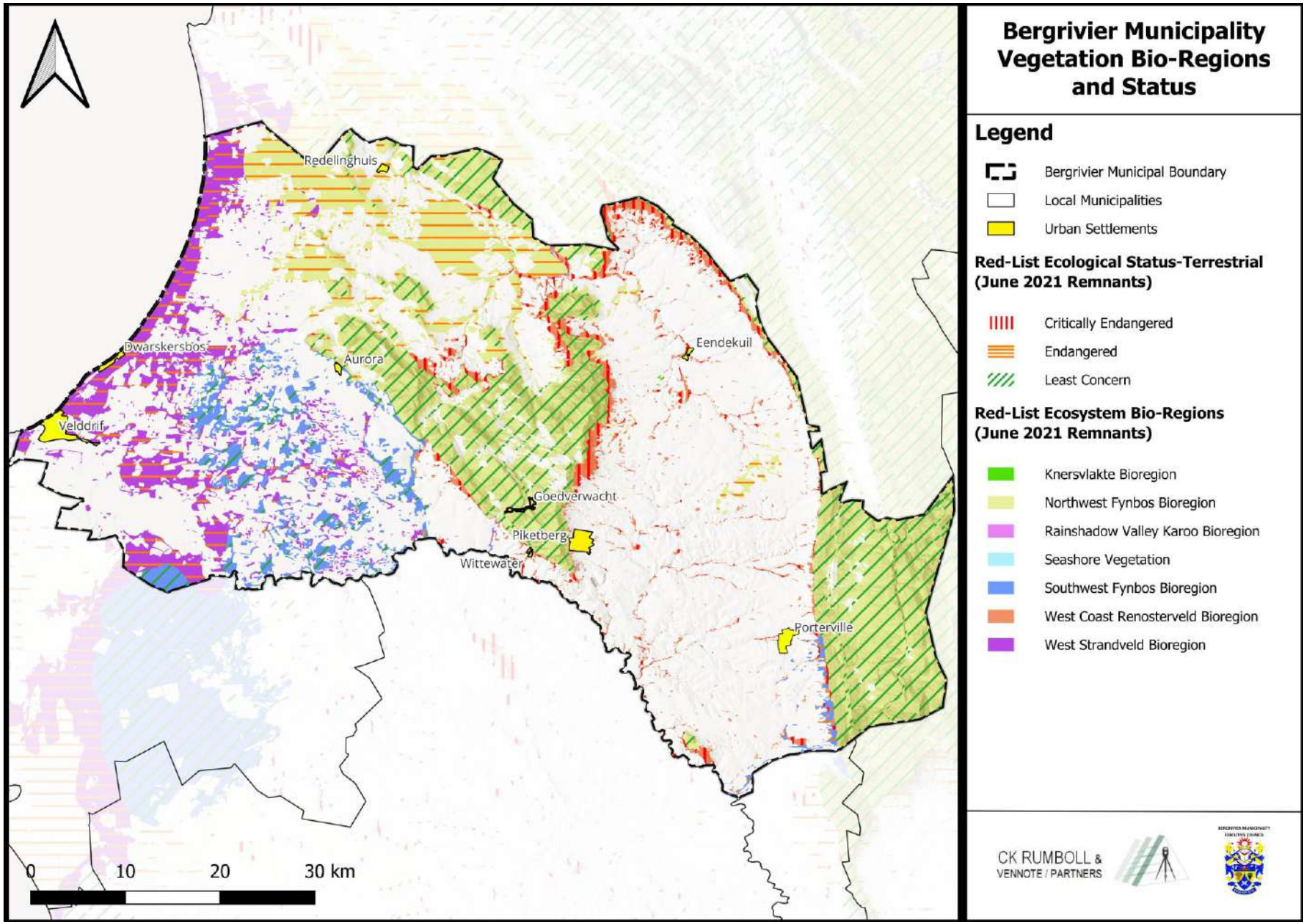


Other conservation initiatives such as the Cederberg Conservation and Biodiversity Corridor and the West Coast Biosphere help to mitigate threats.

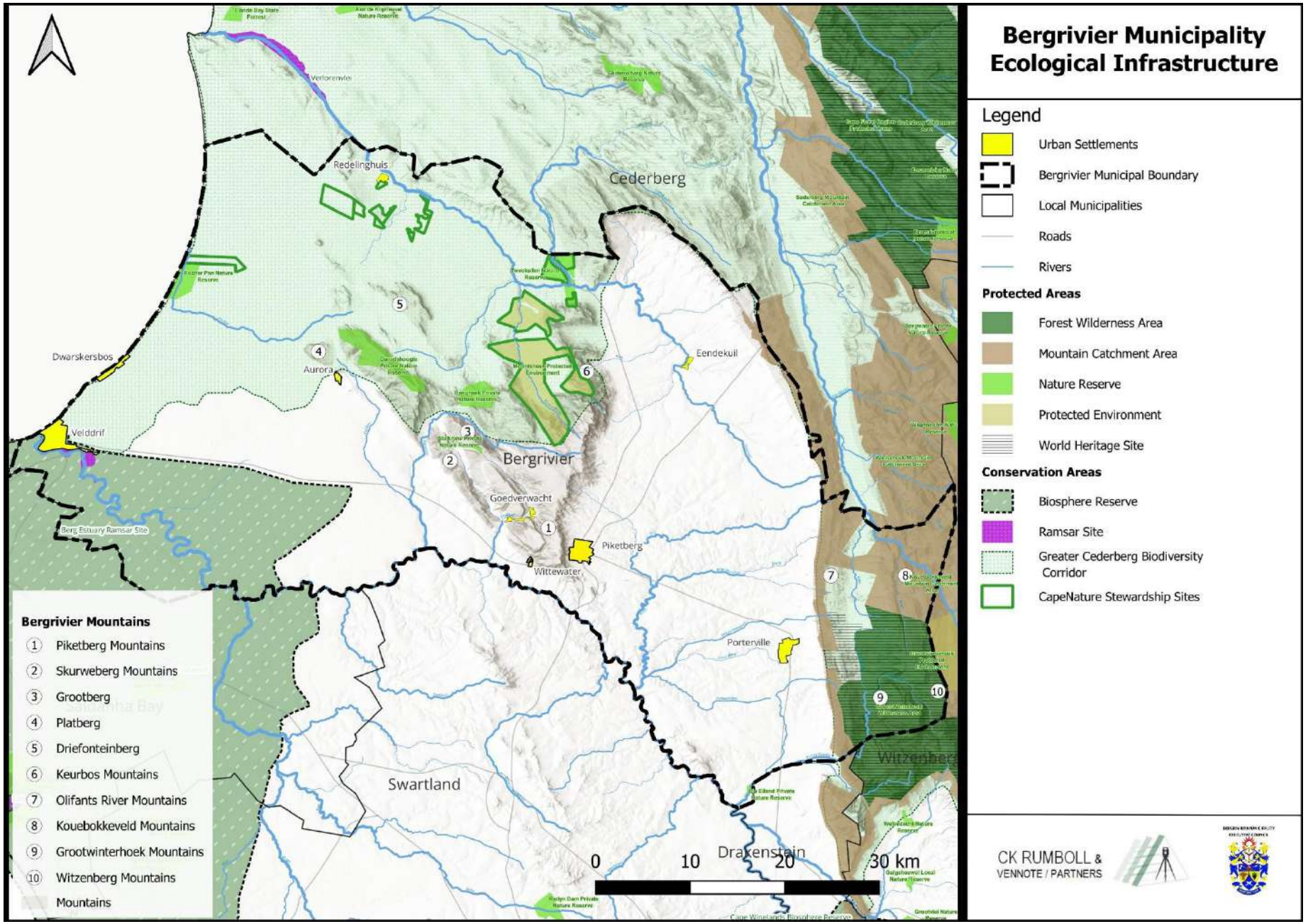
Map 18: Bergrivier Conservation and Stewardship Sites



Map 19: Bergrivier Municipality Vegetation Bio-Regions and Status

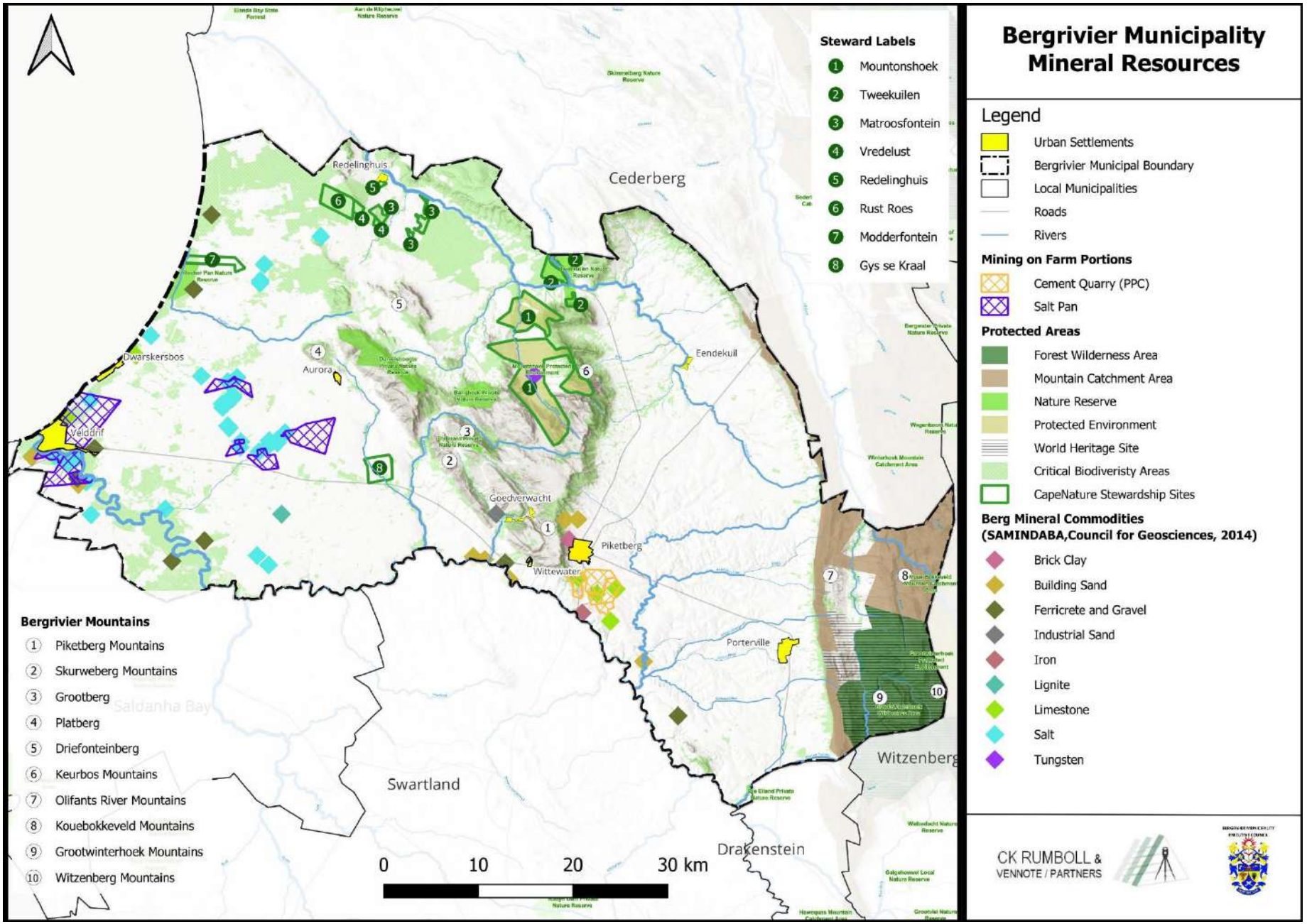


Map 20: Bergrivier Municipality Ecological Infrastructure



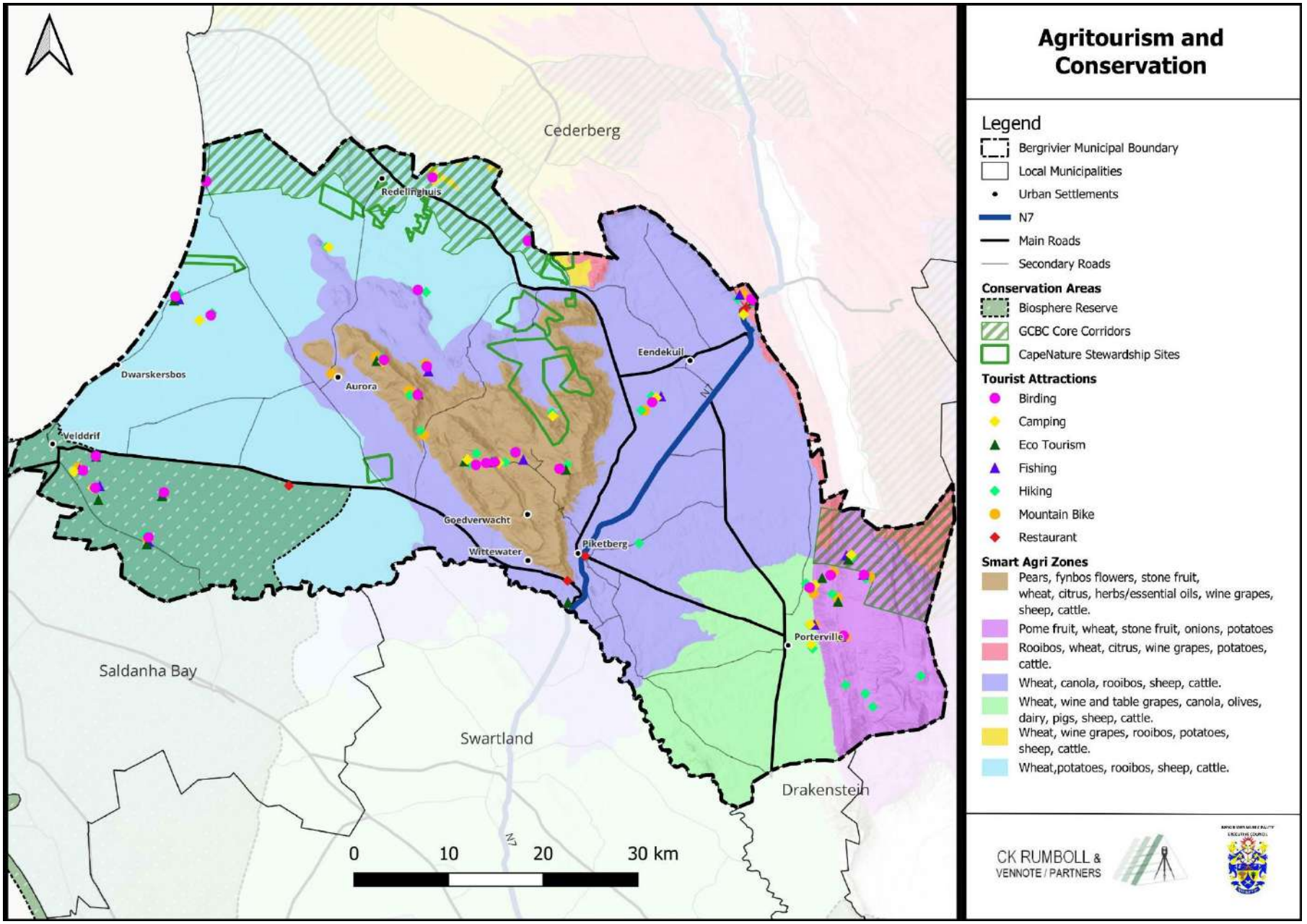
Mining:	Mining plays a significant role in Bergrivier Municipality's economy and provides employment opportunities. Mineral occurrences and mining activities include limestone, slaked lime, shell deposits, construction materials, salt production, tungsten, molybdenum, lignite, industrial sand, and more. These minerals and resources are extracted for various purposes such as cement manufacturing, construction, and industrial applications. Bergrivier Municipality's mineral resources can be found illustrated in Map 21. There are several mineral deposits, mines and mineral processing operations, including: - De Hoek Mine and PPC Cement Manufacturing Plant (operational); - Dwarskersbos Shell Deposits; - Small Borrow Pits/Quarries; - Salt Production at Velddrif (operational) and north of Laaiplek (operational) and Dwarskersbos; - Moutonshoek Valley; - Sand Mining in the Sandveld; - Lignite Reserves near Aurora; - Industrial Sand (hill-wash sand), previously mined approximately 11 km northwest of Piketberg. The best quality sand, and most generally used in the building industry, is hill wash and colluvial sand. Hill wash and colluvial sand has been moved downslope under the influence of gravity and by surface wash. These processes occur during major storms which cause saturation of the soil followed by surface runoff.

Map 21: Bergrivier Municipality Mineral Resources



Agriculture:	% Arable land: A total of 96 120 ha (30%) is cultivated either as dry land (full field or strip cultivation) or irrigated. A variety of crops such as citrus, pome and stone fruits, grapes, wheat, barley, oats, potatoes, and vegetables are cultivated. Livestock farming includes cattle, sheep, and goats for meat and dairy production. Areas with higher potential for grain production are found south of Porterville and Piketberg, as well as in the Klipfontein-Driefontein-Redelinghuis area. The Piketberg-Porterville valley, along with the Aurora area and upper Verlorenvlei area, have lower potential due to climatic risks and lower and unreliable rainfall. The coastal strip has poor agricultural potential. Agri-processing and agriculture are Bergrivier Municipality's major economic activities and employer. Substantial volumes of cultivated produce are dried as dried fruit and rooibos tea. Agriculture, Foresting & Fishing contributes 23,2% to the Bergrivier Municipality GDPR along with 50.4% to employment. Since 2019, agriculture has shed jobs and the number of commercial farming entities decreased. Small-scale farming or subsistence farming is limited.
Tourism:	The agricultural landscape together with the magnificent scenery including the coastline, estuaries and mountain ranges, form the basis of its vibrant tourism industry. (Refer to Map 22) In 2007, Western Cape had the highest income from agritourism of R45.7 million which is 25% of the total of R181.5 million in the country (WC Department of Agriculture, 2018). Agritourism serves as an economic diversification strategy and a vehicle to promote rural development including preserving local culture, maintaining biodiversity and other environmental assets and growing the agricultural industry. Bergrivier Municipality has its own international Cape Camino walking trail whilst Velddrif, Dwarskersbos and Aurora serving as holiday and weekend destinations.

Map 22: Bergrivier Municipality Agritourism and Conservation



	Biophysical Directives
Geology & Soils:	• Protect areas with high land capability, on the eastern plain between Olifantsrivier / Grootwinter / Witsenberg and Piketberg ranges as well as along the Berg and Verlorenvlei rivers, on the eastern foothills of Piketberg mountain, Op-die-Berg and the Groot Winterhoek Wilderness area. • Require mitigation for areas highly susceptible to erosion, with or without development, be contemplated (rural areas, as along the Papkuils River and settlements).
Climate: Rainfall & Wind:	• Control and maintain water quality in catchment areas. Require mitigation, with or without development, be contemplated to secure water quality. • Provide guidelines for the development of alternative energy facilities. • Balance food security and energy generation. • Promote alternative energy options: Wind, Sun, Hydrology (including Hydrogen generation).
Topography:	• Protect landscape character (landscape heritage). • Protect and maintain Ecological Infrastructure: Mountains and mountain ranges: Piket, Skurwe, Groot, Plat, Driefontein, Keurbos, Olifants, Kouebokkeveld, Groot Winterhoek and Witzenberge.
Hydrology:	• Protect and maintain Ecological Infrastructure: Water Management Areas (Government Water Control Area) and Rivers within WMA: Berg (Boesmans, Kuilders and Platkloof at Goedverwacht) and upper-Verlorenvlei (Krom Antonies, Hol and Kruismans), Papkuils (feeding into Rocherpan), Bergvallei (across the border of Cederberg and Bergrivier Municipalities), Vier-en-Twintig (at the border with Drakenstein), Pyls, Smits, Witelsbosspruit and Krom Rivers across the eastern grainfields plain and the Dwars and Ratel, feeding into the Olifants River. • Control areas that are susceptible to alien invasion. • For Berg, Upper Olifants and Upper Verlorenvlei Rivers: o Enhance river corridors (rural and urban) ecologically and socially. o Facilitate impact of irrigation on salinity of tidal river mouths/ estuaries. o Preserve fresh water sources and water quality (ground and surface water). • Rivers and tributaries act as a spine for a continuous open space network within settlements, which connect to the rural surroundings, for example Platkloof river in Goedverwacht, a tributary through Wittewater, tributaries through Piketberg feeding into the Pyls river, tributaries through Eendekuil feeding into the Kruismans river, and tributaries through Porterville feeding into the Jakkalskloof river. • Protect Atlantic Ocean and Preserve Marine and Coastal environments and resources. • Protect natural landscapes and ecological infrastructure, delineate development lines around marshes or water sponges or floodplains and coastline.
Biodiversity:	• Confirm SPCs and support and strengthen the biodiversity and conservation status of the area. • Expand and maintain protected and threatened ecosystems areas, not limited to, but particularly around mountains. • Promote conservation corridors to enhance natural resources and formal and proposed areas. • Promote a system of corridors to counter climate change. • Facilitate competing uses within biophysical environments e.g. renewable energy, agriculture, mining and conservation. • Promote the offset strategy to compensate for the loss of Critical Biodiversity Areas (CBAs) resulting from the development of the Industrial Development Zone in the Saldanha Bay municipal area by preserving vegetation within the Bergrivier municipal area.
Mining:	• Mitigate between mining and conservation considering short term mines e.g. sand mines whilst capitalising on long term mines (30 years) (e.g. PPC cement).
Agriculture:	• Secure arable land requirements for food security. (±96 120 ha arable land). • Protect both extensive and intensive agricultural cultivation (irrigation or not) and different types of cultivation (orchards, strip, full field, etc.) as part of the rural landscape. • Mitigate agricultural practice trends and resultant impacts e.g. netting. • Promote Mitigation programmes such as Smart Agri.
Agritourism:	• Promote Agritourism to enhance agriculture and conservation (economic diversification).

Demography

The table below outlines the population growth trends for the next 5 and 20 years, derived from the Mid-Year Population Estimates (MYPE), 2022.

Group (%)	Age	2022	2023	2027	2028	2032	2033	2037	2042
Children (%)	**0-14**	25,5	25,4	25,3	25,1	24,7	24,7	24,8	24,8
Youth (%)	**15-24**	14,6	14,3	13,1	12,9	12,4	12,2	11,4	11,4
Working age (%)	**25-59**	50,6	51,0	52,2	52,4	53,0	53,2	53,8	53,8
Aged (%)	**60+**	9,3	9,2	9,5	9,6	9,9	9,9	10,1	10,1
All	**Total**	75 484	76 735	82 100	83 528	88 616	89 923	96 945	105 277
Households		19 616	20 079	21 981	22 448	23 631	21 980	25 852	26 994
Household size		3,8	3,8	3,7	3,7	3.75	4,1	3,75	3,9
Annual Growth Rate		1.6 % (2022-2026)			1.7%			1.4%	1.8%

The total population in 2022 stood at 75 484 people and 19 616 households. Over the next 20 years, it is projected to increase to approximately 105 277 people in the Bergrivier municipal area, an increase of around 30 000 compared to the 2022 figure. Likewise, the number of households (average 4 persons per household) is estimated to grow to 26 994, which is approximately 10 000 more compared to the 2022 figure. By the conclusion of the current MSDF cycle, the number of households, from 2023 onwards, is expected to increase by 2 113 accompanied by a population increase of 8 244 people.

The annual average population growth rate, decreased from 1.6% in 2022 to 1.4% per annum projected in 2037.

Household size decreases from 3.9 in 2023 to 3.7 in 2028 and returns to 3.9 in 2042.

The migration rate according to the 2016 Community Survey reflects that 91% of the population was born in the Western Cape, 3% originated from the Eastern Cape, 2% from Northern Cape, 1% from Gauteng and Free State and 1% from the Southern African Development Community.

In 2023, two thirds (69%) of the Bergrivier Municipality's population were between 15 and 64 years of age, a cohort that represents the economically active population (StatsSA 2011).

Age	0-14	15-64	65+	Total
2023	19 517	52 807	4 411	76 735
% of Total	25.4%	68.8%	5.8%	100%

Bergrivier Municipality's population comprises a quarter of population being children (scholars), nearly an eighth (13%) being youth (students), slightly more than half being of working age and leaving the remaining eight percent of the people being the elderly. Whilst the Bergrivier Municipality's population increases over the 20-year period, as a percentage of the total population, the working age population (>1%) increases whilst children, youth and aged decrease (<1%). The dependency ratio fluctuates by 1% around 45%. This implies that there are at least two individuals of working age for each dependent.

In 2023 the male to female ratio was nearly equal: 52 females: 48.0 males. In 2022, 39% of household heads were female and it is projected that females being heads of households will increase to 44% by 2031 (MYPE, 2022). Only twenty (20) heads of households were younger than 18 years and are child headed households, compared to the West Coast (189) and Western Cape (4 877). In households led by children, all household heads are female. Ninety four percent (94%) of children aged 14 years and younger have both biological parents (StatsSA, 2016).

The majority (76%) of the population in Bergrivier is Coloured, followed by Whites (19%) and Black Africans (4%).

Table: Race Distribution, Bergrivier Municipality. [discrepancy equals people unclassified]

	Black African		Coloured		Indian/Asian		White		Total
	N	%	N	%	N	%	N	%	+ other
2016	2 699	4	51 280	76	0	0	12 820	19	67 474
2011	6 809	11	43 947	71	0	0	10 522	17	61 897

The average population density in the Municipality is projected to increase from around 17.1 people per km² in 2022 to 22 people per km² in 2037.

Urban Rural Population & Settlement Classification	Settlements in the Bergrivier municipal area classified according to their populations: - Piketberg and Velddrif/Laaiplek (population between 10 000 – 15 000) and Porterville (population between 5 000 – 10 000) as villages (population between 5 000 – 25 000), - Eendekuil, Goedverwacht and Wittewater (population between 1 000 – 5 000) and Dwarskersbos, De Lust, Aurora and Redelinghuis (population ≤1 000) as remote villages (population ≤5 000). **Town** | **Aurora** | **Dwarskersbos** | **Eendekuil** | **Goedverwacht** | **Piketberg** **Population, 2023** | 748 | 869 | 1 983 | 2 563 | 16 076 **Porterville** | **Redelinghuis** | **Velddrif** | **Wittewater** 9 135 | 756 | 14 272 | 1099 Over the next 20 years the classification of none of the settlements will change and Piketberg, Velddrif/ Laaiplek and Porterville will stay a village (5 000 – 25 000) whilst Piketberg will still serve as regional service centre. Nearly forty percent (39%) of the population resides in rural areas. Refer to Map 24 for an illustration of Bergrivier Municipality's Settlement Hierarchy and Service Centres.
Health	In 2021/22, Bergrivier municipal area had the following Health Facilities: - 3 public primary healthcare clinics (PHC), - 5 satellite clinics and 3 mobile clinics, - 2 district hospitals, - 10 ART clinics/treatment sites and 8 TB treatment clinics (IDP 2022-2027). Bergrivier Municipality has one and a half thousand (1 418) registered patients receiving antiretroviral treatment (ART), representing 10.7 per cent of the patients receiving ART in the West Coast District. The total registered patients receiving ART increased by 41 between 2019/20 and 2020/21 whilst new ART patients decreased from 170 in 2019/20 to 146 in 2020/21. Child Health Care: The immunization rate in the Bergrivier municipal area decreased marginally, from 65% in 2020/21 to 60.8 % in 2021/22. The proportion of malnourished children under five years, worsened from 0.5 (per 100 000 people) in 2020/21 to 0.7. The low-birth-weight indicator (less than 2 500g) presented a slight improvement, from 15.1% in 2020/21 to 14.9% in 2021/22. The neonatal mortality rate (per 1 000 live births) registered a more significant improvement, from 14.3 in 2020/21 to 6.5 in 2021/22. Female Health: Maternal health appears stable with zero deaths per 100 000 live births recorded in 2021/22 (maternal mortality rate of zero), same as the previous year. For the period 2020/21 to 2021/22, the delivery rate of women under 20 years increased from 16.0 to 19.0%, maintaining the highest rate in the West Coast District. The termination of pregnancy rate remained unchanged at 0.3%.
Safety	Provision of Emergency services i.e. fire stations and police stations in all Bergrivier settlements complies with the norms: There is 1 fire station in Piketberg and 1 police station in Piketberg, Laaiplek, Porterville, Eendekuil and Redelinghuis. There are also other emergency services offered including Fire and Rescue and Protection Services. Criminal cases were on the increase between 2020/2021 and 2021/2022: Murder from 11 to 17; Sexual Offences totaled 64; Drug-related crimes cases increased from 757 to 805; Driving under the influence cases remained the same at 128. Residential burglaries decreased from 324 to 215. *Bergrivier Municipality has partnered with the Western Cape Government in implementing the Regional Socio-Economic Programme (RSEP). The programme supports the delivery of urban upgrading projects to benefit poorer neighbourhoods and communities. A total of R7.6m in grant funding was allocated to Bergrivier Municipality, while the municipality co-funded an additional R2.1m for projects. Projects included:* *Piketberg:* - *An 'active box', being a three-storey, multifunctional community building.* - *Extension of Calendula Street linking to the central business district.* - *An outdoor gym.* *Porterville:* - *A walkway linking Monte Bertha to Porterville CBD, with related ablution facilities and informal trading stalls.* *Velddrif:* - *A walkway between Laaiplek's CBD and Noordhoek, with lighting and CCTV cameras.*

Education

A quarter, 25,4%, of the Bergrivier population is younger than 15 years, representing pre-school and school-going age. There are, according to the Western Cape Education Department, 2023, 25 schools serving 9 802 learners (Western Cape Government):

Type	Number Of Schools	Public/Private	Enrolment 2023
Combined School	3	Public	1727
Intermediate School	4	Public	2 774
Primary School	14	Public	3537
Secondary School	1	Public	1 627
Combined School	1	Independent	74
Primary School	1	Independent	12
Primary School	1	Independent	51
Total	25		9802

To ensure access to education, some of the fee-paying schools became no-fee schools. No-fee schools represent 65% of schools in the area. The number of schools with libraries decreasing from 12 in 2018 to 10 in 2019, and then to 8 in 2020.

Early childhood development services include home visits, playgrounds, toy libraries and centres. Over twenty (23) educational institutions are registered. Registered ECD preschools accommodate 7 or more children aged 0 – 6 years. Facilities having 6 children and fewer register as play-schools and are excluded. Where no enrollment figures were available, an average of 30 children were allocated per facility, arising at the estimated 2023 enrollment figure of ± 871 (±14%) out of a likely 6 108 children.

Settlement	**Aurora**	**Dwarskersbos**	**Eendekuil**	**Goedverwacht**	**Piketberg**	Sub-total
No. of children, 2023	±30		±30	±30	±236	±326
ECD services, 2023	1	0	1	1	7	10
Settlement	**Porterville**	**Redelinghuis**	**Velddrif**	**Wittewater**	**Rural**	Sub-total
No. of children, 2023	±281	±30	204	±30	?	±545
ECD services, 2023	8	1	3	1	?	13

Slightly more than ninety per cent (91,4%) of children between 5 -17 years of age attended school in 2016. The provincial rate for children in this cohort attending school is higher (93%). There are 493 children between age 15 and 17 joining in the labour force.

The matric pass rate dropped sharply from 85.7 % (2018) to 77.6 % (2019) and remained unchanged in 2020 at 77.6% which was the lowest rate in the West Coast District.

An overview of the educational and employment level of the population aged 20 years and older (as per StatsSA 2016 and SEP 2021), follows: *Figures derived from 2016 educational level ratios.

	No or incomplete primary school	Completed primary or incomplete secondary schooling	Complete secondary schooling or a tertiary qualification	Total
Educational level (Percentage, 2016)	20.2%	42.4%	37.5%	100%
*Population (20 years and older), 2023	10 364	21 761	19 245	51 337
Formal Employment Category	Unskilled	Semi-skilled	Skilled	
Number of jobs per category, 2020	11 962 (55.2%)	6 571 (30.3%)	3 155 (14.5%)	21 688

The overall picture in skills development in Bergrivier Municipality is discouraging as 62.6% of the population is considered "low-skilled".
Refer to Map 23 for an illustration of Bergrivier Municipality's Socio-Economic Profile.

Economy

Bergrivier Municipality's economy was valued at R4.810 billion. Major Contributors to Bergrivier Municipality's economy (GDPR) in 2020 (SEP, 2022):

Sector	Broad Sector	Contribution	Percentage
Agriculture, Fishing & Forestry	Primary	R1.39 billion	28,9%
Manufacturing	Secondary	R0.88 billion	18,4%
Finance, insurance, real estate & business	Tertiary	R0.66 million	13,8%
Wholesale and retail trade, catering and accommodation	Tertiary	R0.58 billion	12,1%
General Government	Tertiary	R0.47 billion	9,8%

For the period 2016 – 2020, the economy of Bergrivier Municipality realised an average annual growth rate of 0.3%. The tertiary sector increased at an annual rate of 0.2%. Financial sector contributed 13.8% and the Trade sector contributed 12.1% and were the key tertiary sector growth drivers. The Agricultural sector, the largest contributor to GDPR in Bergrivier Municipality, increased by 2.1% annually during the period of review. The growth marked the recovery from the effect Covid 19 restrictions had on economic activity.

Agri-Industrial and industrial development (manufacturing) is no longer only driven by local export agriculture but by insecurity within the sector and inaccessibility of infrastructure in South Africa. Access to infrastructure such as ports and airports resulted in intensification of agriculture and agri-industry in Bergrivier Municipality. Though manufacturing has high economic value, it is energy and water dependent. Bergrivier Municipality has limited access to water and needs to fast track reliable alternative energy generation.

Sectors that are high contributors and highly competitive are Manufacturing, Finance, Insurance, Real Estate, Wholesale and Retail Trade whilst sectors that are high contributors but less competitive are Agriculture, Fishing and Forestry, Community, Social and personal services and Transport, Storage and Communication.

Sectors in the Bergrivier Municipality that are both highest contributors to the economy and to employment are: Agriculture, Wholesale & retail trade, catering and accommodation, Manufacturing, Finance, insurance, real estate and business services and Agriculture. The high contributing sectors to both the economy and employment in the Bergrivier Municipality, similar to the Western Cape, include Finance, insurance, real estate & business services, Wholesale & retail trade, catering & accommodation and Manufacturing.

Economic vs Employment Sector Contributors:

Rank	**1**	**2**	**3**	**4**	**5**
Employment	Agriculture	Trade & Accom	Community & Social	Manufacturing	Finance & Real Estate
Economy	Agriculture	Manufacturing	Finance & Real Estate	Trade & Accom	Government

Bergrivier municipal area's unemployment rate of 5.4 % in 2020 was the lowest in the West Coast District.

Nearly half (48,9%) of the population are in the low-income category and the remaining nearly half (44,9%) in the middle-income group, leaving only 6,1% of the population in the high-income category (Community Survey, 2016).

Economic Sector Employment contributors in 2019, and in order of highest job contributors respectively, were:

Sector	Broad Sector	Jobs	Percentage
Agriculture, forestry and fishing	Primary	13 714	49.9%
Wholesale and retail trade, catering and accommodation	Tertiary	3 644	13.3%
Community, social & personal services	Tertiary	3 489	12.7%
Manufacturing	Secondary	2 261	8.2%
Finance, insurance, real estate and business services	Tertiary	1 883	6.9%

Ninety one percent (91%) of employment opportunities are generated by five out of ten sectors whilst three sectors contribute more than three quarters (75,9%) of the employment opportunities. Two of these sectors, Wholesale & retail, catering & accommodation and Finance, insurance, real estate & business services, add high value to products and services and contribute significantly to employment opportunities. Manufacturing also adds value but is a smaller contributor to employment.

A total of 26 904 workers of which 22 096 (82.0%) were in the formal sector and 4 835 (18.0%) in the informal sector were estimated to have been employed in 2021. Fifty-six (56%) of the workforce (20 – 64) was employed in 2021.

In 2020 most of the formally employed were low-skilled (54,7%) and semi-skilled (29.2%). The demand for semi-skilled employees had increased insignificantly.

Unemployment rates in 2020 were 7.7% (incl. people looking for work and not finding employment, excluding people that want to work but do not actively seek employment) in the Bergrivier Municipality; 16% in the West Coast District and 18,9% in the Western Cape. (SEP, 2022).

Figure 4: Bergrivier Municipality: Skills Levels vs Income

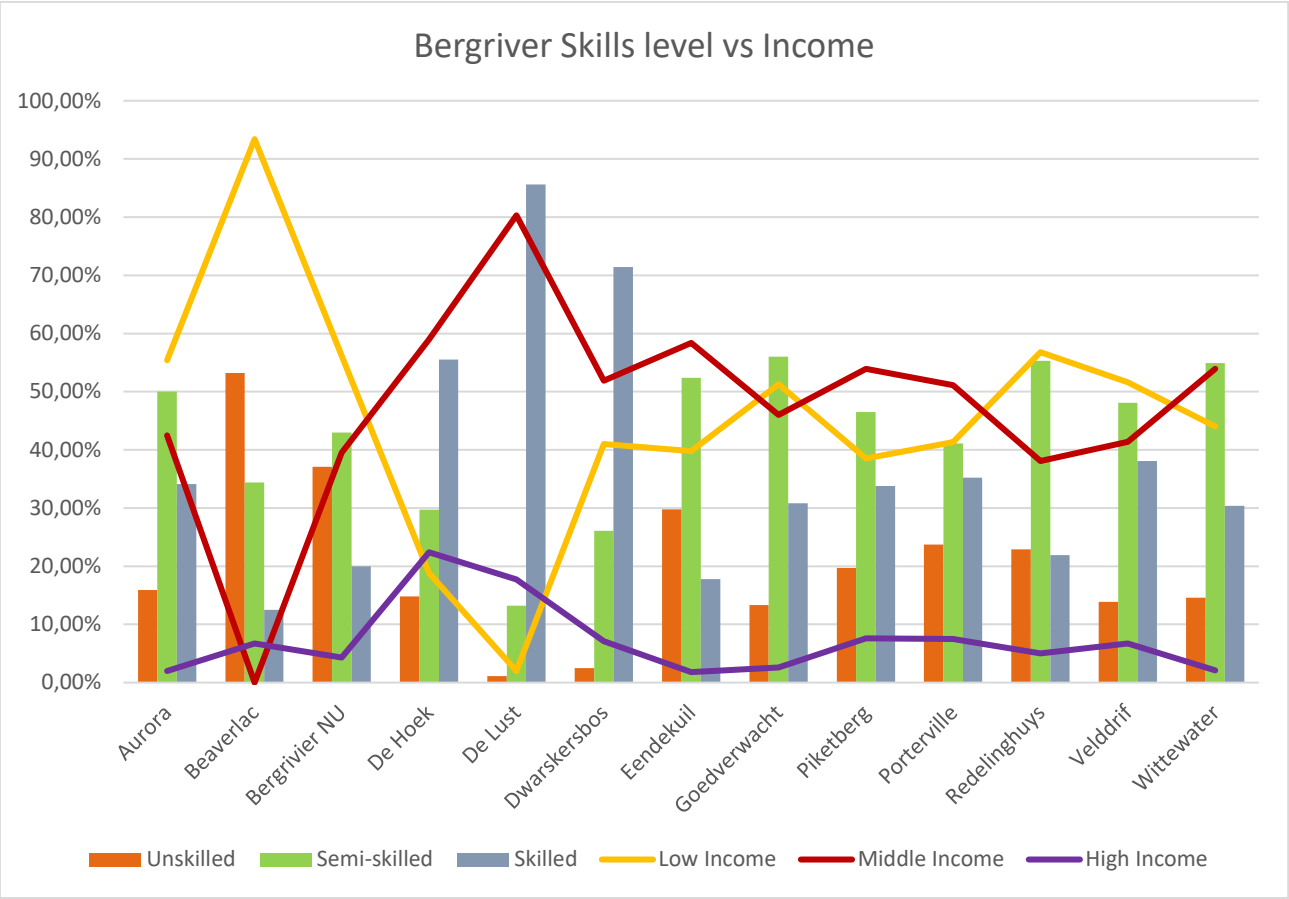
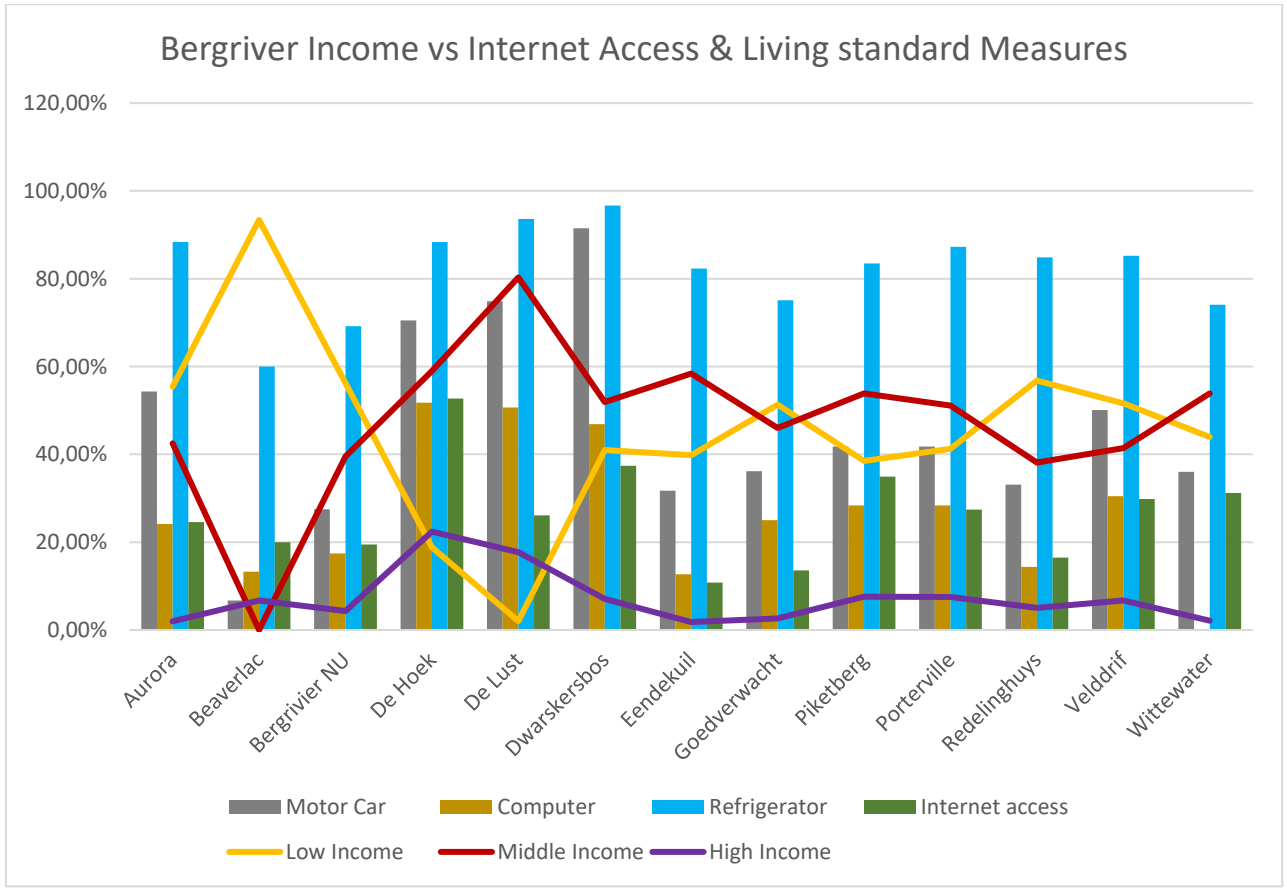
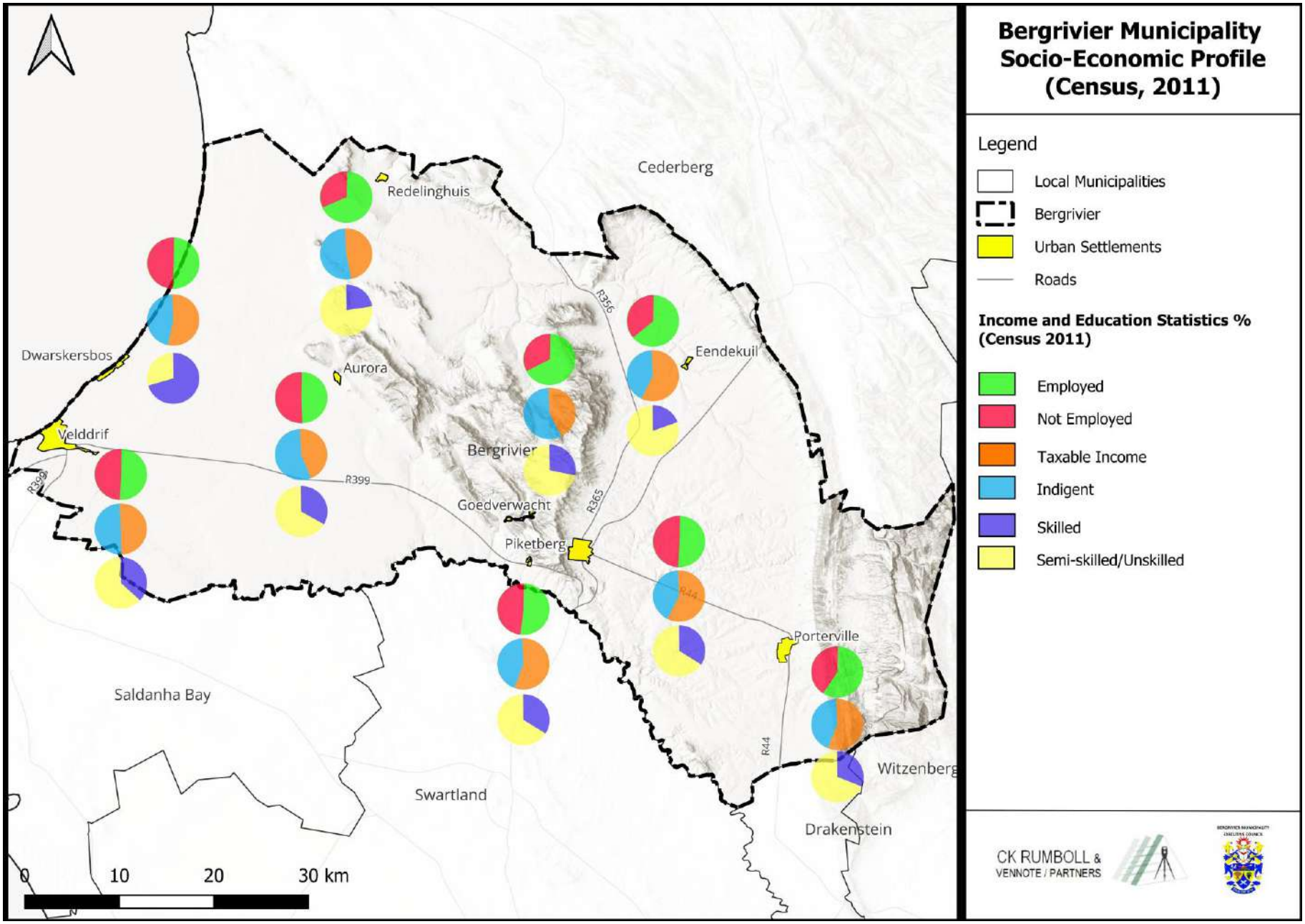


Figure 5: Bergrivier Municipality: Living Standard Measures



Map 23: Bergrivier Municipality Socio-Economic Profile



Western Cape (2022) and Bergrivier Municipality (2020) economic (GDP) contributors: Competitiveness vs Production

Western Cape

Competitiveness	Low Output (WC GDP contributions 2022)	High Output (WC GDP contributions 2022)
High	High competitiveness, low output. Competitors. Construction: 3.5%. Agriculture, Fishing & Forestry: 4.2%.	High competitiveness, high output. Performers. Finance, insurance, real estate & business: 32% Manufacturing (including agri-processing): 14% Wholesale, Retail, 14% incl. Catering & accommodation.
Low	Low competitiveness, low output. Weak sectors. Electricity & Water: 1.8%. Community, social, personal services: 11%. Mining & Quarrying: <0.1%.	Low competitiveness, high output. Internal focus. General Government 10%. Transport, Communication & Storage: 9%.

Bergrivier Municipality

Competitiveness	Low Output (GDP contribution 2020)	High Output (GDP contribution 2020)
High	High competitiveness, low output Competitors Construction: 2,5% or R0.1 billion Mining & Quarrying: 0.7% or R0.03 billion.	High competitiveness, high output Performers. Manufacturing (including agri-processing): 18.4% or R0.88 billion, secondary sector. Finance, insurance, real estate & business: 13.8% or R0,66 million. Wholesale, Retail: 12.1% or R0.58 billion, tertiary sector.
Low	Low competitiveness, low output. Weak sectors. General Government: 9.8% or R0.47 billion, tertiary sector. Community, social, personal services: 8.9% or R0.4 billion. Electricity & Water: 1.3% or R0.06 billion.	Low competitiveness, high output. Internal focus. Agriculture, Fishing & Forestry: 28.9% or R1.39 billion, primary sector. Transport, Storage and communication: 3.6% or R0.2 billion, tertiary sector.

Western Cape (2022) and Bergrivier Municipality economic sector performance profile:
Value Added relative to Employment:

Western Cape

Value Added	Low Employment	High Employment
High	High value, low employment. Transport & Communication (4.2%). Construction (6%). Electricity & Water (0.3%).	High value, high employment. Wholesale & Retail (21%). Manufacturing (12%). Finance, Insurance, real estate & business (22%).
Low	Low value, low employment. Mining & Quarrying (0.2%). Private households (4,8%). Agriculture, Fishing & Forestry (8%).	Low value, high employment. General Government (22%). Community, social & Personal Services.

Bergrivier Municipality

Value Added	Low Employment	High Employment
High	High value, low employment. Manufacturing (8,2%). Transport & Communication (1,5%) Construction (2,5%). Mining & Quarrying (0,1%). General government (4,8%).	High value, high employment. Wholesale & Retail (13,3%). Finance, Insurance, real estate & business (6,9%)
Low	Low value, low employment. Electricity & Water (0.2%).	Low value, high employment. Agriculture, Fishing & Forestry (49,9%). Community, social & Personal services (12,7%).

Property Market patterns, growth pressures & Land Reform	The demand for urban properties increased due to the popularity of the unique and tranquil lifestyle and its proximity to Cape Town. The property market trends for the period 2020 to 2023 for each settlement follow:

Settlement	Ave Sales Price: 2020-2023	Trend since 2020 to 2023	Reasons
Aurora	R0.37 million	An increase in prices (32%), between 2020 and 2022, followed by a decrease of 4% resulted in market stability.	Buyers interested in larger plots of land or historic properties. Limited number of properties have led to a decrease in demand.
Piketberg	R0.53 million	Average sales price increased by 9.67% since 2020 reflecting steady growth. Demand for residential properties, particularly family homes and smaller plots steadily increasing.	An attractive option for investors and first-time homebuyers in the west coast as an alternative location to towns such as Moorreesburg and Citrusdal.
Porterville	R0.84 million	Property prices steadily increased (8.25%) until 2021, as demand for residential properties increased. Since 2022, average sales prices have seen a decline of 10.81%.	The steady decrease in prices has shifted the property market in favour of buyers as the settlement's popularity has increased.
Velddrif/ Laaiplek	R0.3 – R1.2 million	Average price has increased by 15.4% since 2020 particularly in Velddrif and by 13% in Laaiplek since 2022.	Proximity to the coast and Berg River estuary attracts buyers looking for waterfront properties and recreational opportunities. A strong demand for both permanent residences and holiday homes exists.
Redelinghuis	R0.3 million	Property prices have remained steady, reflecting the niche market and limited supply of available properties.	Property market is relatively small, with a limited number of properties changing hands.

Annual Sale and Listing Trends (Property24, 2023)

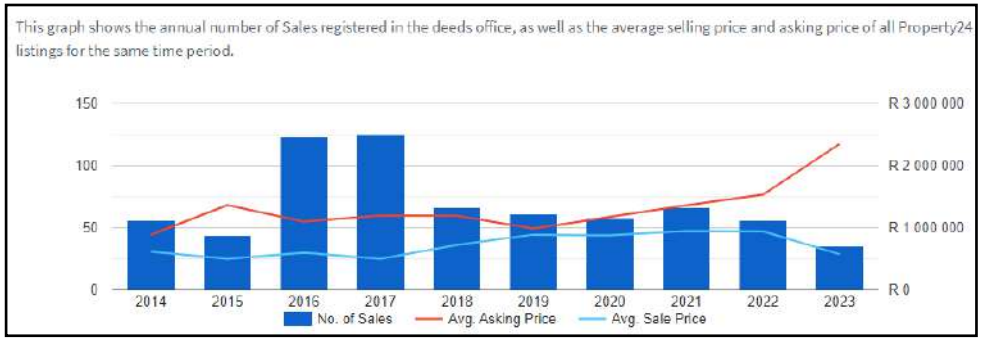
Piketberg:

Velddrif:

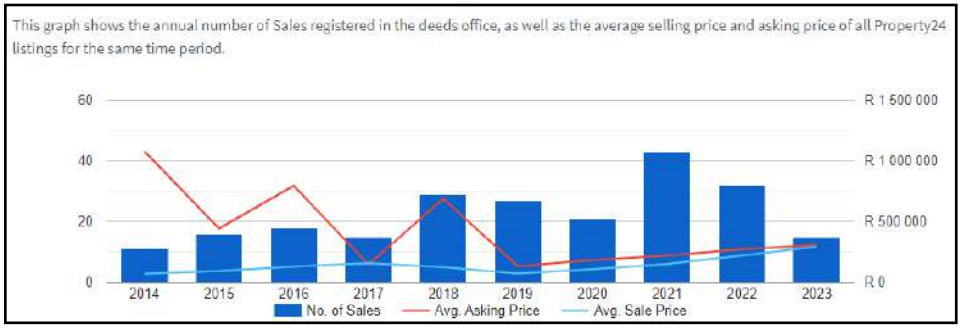
Aurora:

Laaiplek:

Porterville:



Redelinghuis:



	Socio-Economic Directives
Demography	• Despite population growth all settlements will keep their hierarchical category during the MSDF 5-year: Villages (5 000 – 25 000) and remote villages (<.5000). • The total population (75 484 people and 19 616 households in 2022) increased by approximately ±30 0000 people and to 26 994 households (±10 000 more than in 2022) of 4 (3,9) persons per household. Whilst the Bergrivier Municipality's population increased as a percentage of the total population, the cohorts working age population increased by 3%, youth by 1% and the aged (by slightly more than 1%) whilst the cohort children decreased by nearly 1%. • In 2023, the majority (67%) of the Bergrivier Municipality's population was between 15 and 64 years of age, a cohort that represents the labour force. A quarter of Bergrivier Municipality's population comprises of children (scholars) and (13%) youth (students). Whilst over the 20-year period the Bergrivier Municipality's population increases, as a percentage of the total population, the working age population (>1%) increases whilst the children, youth and aged decreases (<1%). • Provide for social amenities and economic spaces required by growth trends in child -, working - and elderly populations (for example more schools, skills centres and amenities): o A quarter (25%) of the Bergrivier Municipality's population is younger than 15 years, representing pre-school and school-going age whilst there is an undersupply of Grade R classes. 13% are youth (15 – 24 years of age). There is a need for skills training centres. o Porterville requires a primary school. • Plan and design living spaces (settlement and rural) driven by proximity and demanded (required) by family trends (female heads of households) and provide for such living space at social housing sites. Provision of amenities at settlement and regional level should be driven by proximity. Accommodate family trends in social housing precincts in Piketberg and Velddrif.
Urban Rural Population & Settlement Classification	• Capitalise on settlement classification based on population size and future population resulting in hierarchy changes. (CSIR classification: Cities (population of 350 001+), Large towns/ regional service centre (population between 100 000 and 350 000), Medium towns/ regional service centre (population between 60 000 and 100 000), Small towns/ Regional service centres (population between 25 000 and 60 000), Villages (population between 5 000 and 25 000) and Remote village/ Hamlets (population ≤5 000). • Promote investment and infrastructure development particularly for settlements like Piketberg and Velddrif that are likely to experience a change in hierarchy soon after the 20-year cycle.
Health	• Provision of all Health and Emergency services i.e. clinics and satellite in settlements and remote villages to comply with the CSIR norms for mobile clinics: 1 multifunctional mobile per 5 000 persons or 1 250 dwellings. • Lobby provision for different health trends such as HIV/ AIDs, female health, child health and mental health, driven by proximity of existing facilities and agglomeration of future facilities. • Demand for health care as a result of climate change is likely to increase due to water quality, stress because of change in domestic patterns and heat exhaustion. Use existing facilities but extend operational time and introduce an additional daily shift. • Spatially provide for amenities or programmes to assist with decreasing delivery rate of women under 20 years of age, malnutrition rate for children, low birth weight of children. • Provide structured neighbourhood spaces (0.5 ha per 1 000 people or per 250 households) to promote youth development and family programmes. • Encourage and provide spatially for food gardens and small-scale farming and related programmes.
Safety	• Provide spatially for safety and for disaster infrastructure gaps informed by demarcated target reach according to norms of fire and police stations and any other emergency and safety services. Identify gaps. • Provide community safety programmes at hotspots and within their spheres of influence.

Education	• A quarter of Bergrivier Municipality's children were aged 0–14 years (25,4%) in 2023, representing pre-school and school-going age. • Spatially provide for all educational facilities in settlements and remote villages according to CSIR norms and in particular for: 1 primary school or grade R per 1 000 learners (1.9 ha/ 1 000 or less, 0.9 ha sportsfield included); 1 secondary school per 2 500 learners and creches are variable (0.02 ha / 100 children). • Provide educational and social learning spaces indoors and outdoors to address learning and learner trends: enrolment, retention, matric pass rate. • Provide for after school education and training and further education and training facilities. Drive for increase in: o Learner enrolment by 2% (currently 46%). o Average learner retention by 10% and in the long term a drop-out rate of less than 2%. o Matric pass rate by 5%. o Population aged 20 years and older matching the skills demand in the workplace: ▪ No, or incomplete primary school education vs low skilled jobs. ▪ primary or incomplete secondary schooling and semi-skilled vs semi-skilled jobs. ▪ complete secondary schooling or a tertiary qualification vs jobs requiring skilled labour. • Provide spatially for outdoor training and education. • Provide spatially for access to google scholar.
Economy	• Enhance Economic Sector Employment Contributors: o Spatially provide for formal and informal industry and business, and particularly in Piketberg, Porterville, Velddrif and Eendekuil. o Promoting business agglomeration and establish a catalytic environment where road infrastructure allows, either at settlement or at intersections. o Prepare focus area plans to facilitate and mitigate contrasting uses and in particular Conservation and Settlement Making (Velddrif and Redelinghuis), Mining (Overall) and Agriculture (Overall), within the biophysical environment as well as Transport, Sport and Agricultural Uses. • Promote the agricultural sector defining the character of Bergrivier Municipality, the breadbasket of the Western Cape. • Spatially encourage sectors that are high contributors in the Western Cape but lack in Bergrivier municipal area to establish in the Bergrivier Municipality: o Economic sectors to be specifically promoted within settlement and rural spaces to absorb social and employment trends: Communication, Catering and Accommodation (as part of wholesale and retail), Transport Storage and Communication, Energy (renewable). o On-site training and skills centres promoting specific economic sectors. • Provide for agglomeration of existing well-performing sectors to strengthen these sectors. • As half of the working age population work, provide for the balance that are economically non-active to become economically active and promote home occupation and small business. • Provide for social support where required by the economically active population with no income. • Provide overall for income generation spaces to decrease the unemployment rate in the Bergrivier Municipality.

<table>
<tr><td></td><td>Built</td></tr>
<tr><td>Hierarchy and Role of Settlements</td><td>Piketberg functions as a sub-regional node within the broader West Coast area and provides primary agricultural services to the surrounding farms and towns. It is the main settlement of the Bergrivier Municipality and is seen to have medium growth potential.

Velddrif/Laaiplek, which includes Port Owen and Noordhoek, is classified as a coastal town characterised by an economic landscape that recently changed from processing fish to agricultural products and to a more service-based tourism town.

Porterville is a settlement at the foot of the Olifants River Mountains. It is considered a central and established settlement with a solid base in the agricultural sector with distinct administrative functions situated in a mixed farming region.

Eendekuil functions as a lower-order agricultural centre.

Dwarskersbos is a linear coastal town approximately 10 kilometres north of Velddrif.

Redelinghuis is situated in the picturesque Verlorenvlei valley, halfway en-route to the coast from Piketberg.

Aurora is a rural settlement located in the Sandveld region - renowned for potato production.</td></tr>
<tr><td>Settlement Densities</td><td>As per previous SDFs
<table>
<tr><th>Settlement</th><th>Gross du/ha</th><th>Net du/ha</th><th>Settlement</th><th>Gross du/ha</th><th>Net du/ha</th></tr>
<tr><td>Velddrif/ Laaiplek</td><td>5.1</td><td>10.5</td><td>Eendekuil</td><td>4.8</td><td>18</td></tr>
<tr><td>Dwarskersbos</td><td>5.8</td><td>13.1</td><td>Piketberg</td><td>5.9</td><td>13, 8</td></tr>
<tr><td>Redelinghuis</td><td>4.3</td><td>10.8</td><td>Porterville</td><td>5.6</td><td>14.3</td></tr>
<tr><td>Aurora</td><td>4</td><td>7.1</td><td>Provincial norm</td><td></td><td>25</td></tr>
</table></td></tr>
<tr><td>Transportation</td><td><u>Road and Rail Network:</u>
The main road system in the Bergrivier Municipality consists of a National Road (the N7, running in a north to south direction), and Provincial roads (R44, R27, R399, R365, R366 and MR527) linking the various towns.

The movement of freight within and through the municipal area largely occurs along the N7, with major origin and destination points being the Greater Cape Metro, the Northern Cape and Namibia.

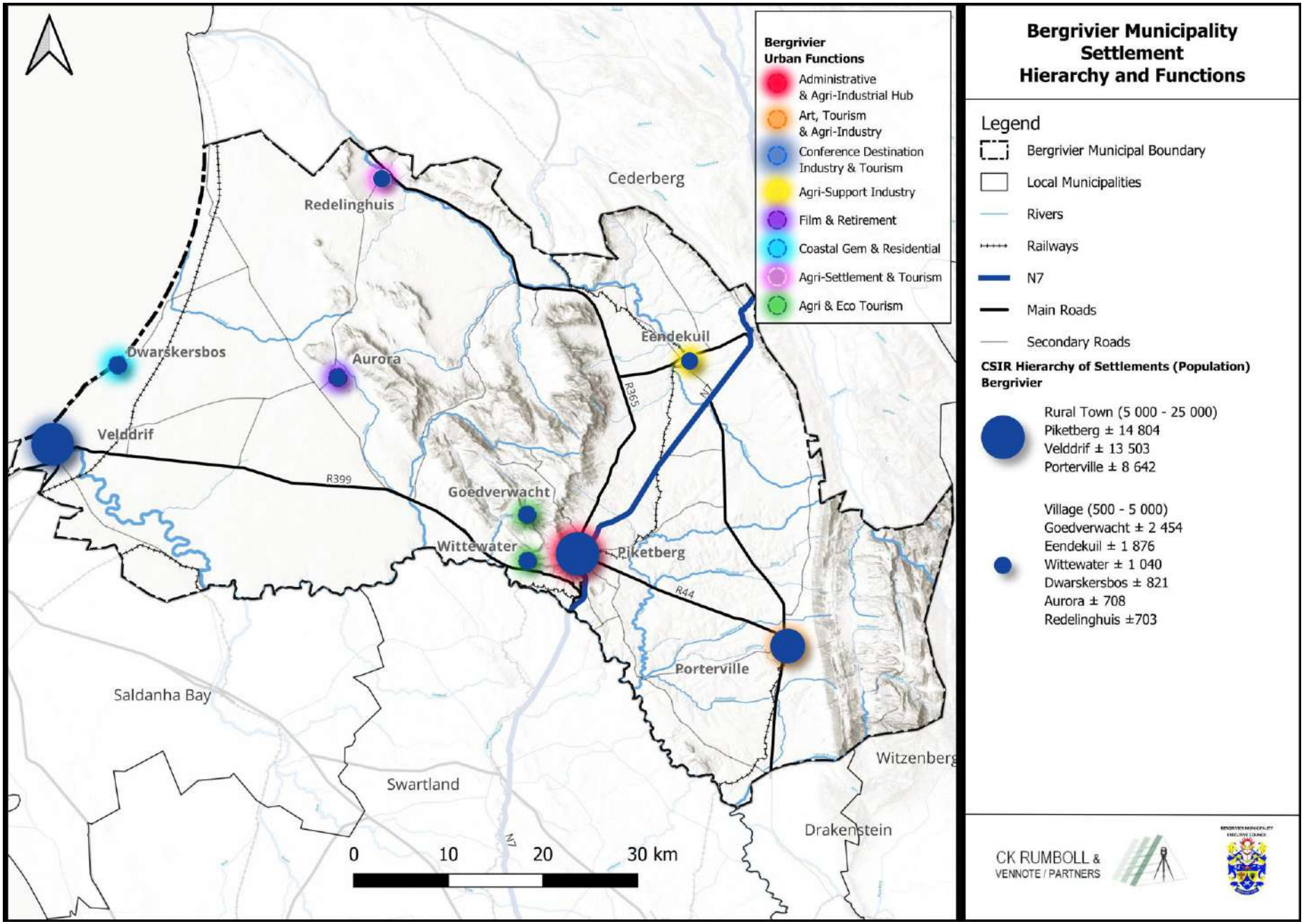
Municipal roads required or upgrades required include:
<table>
<tr><th>Priority</th><th>Project</th><th>Priority Ten Year Plan</th><th>Length</th><th>Cost (Millions)</th></tr>
<tr><td>1</td><td>Velddrif, Church Lane</td><td>Upgrade Church Lane</td><td>2300m</td><td>R 16.1</td></tr>
<tr><td>2</td><td>Velddrif, Main Road</td><td>Upgrade Voortrekker Road</td><td>6600m</td><td>R 46.2</td></tr>
<tr><td>3</td><td>Piketberg, Main Road</td><td>Upgrade Long Street</td><td>2000m</td><td>R 14</td></tr>
<tr><td>4</td><td>Porterville, Main Road</td><td>Upgrade Voortrekker Street</td><td>1500m</td><td>R 10.5</td></tr>
<tr><td>5</td><td>Piketberg Industrial Area</td><td>New Industrial area road</td><td>2100m</td><td>R 14.7</td></tr>
</table>
A freight railway line (Transnet Freight Rail, TFR) runs from Bellville via Kalbaskraal to Bitterfontein in the north. There are several stations within the Bergrivier municipal area that form part of the TFR network i.e. De Hoek, Piketberg, Burgers, Pools, Eendekuil, Droeryskloof and Het Kruis. Interviews with stakeholders suggest that rail freight has declined, and that road freight has increased steadily over a period of time.

<u>Ports and Maritime Transport:</u>
Velddrif has a small port at Laaiplek, which is mostly used for fishing and recreational purposes.

<u>Air Transport:</u>
There are no commercial airports within the municipal area.

<u>Public Transport:</u>
Minibus taxis are the dominant mode of public transport in the Bergrivier municipal area, primarily due to the flexibility of the minibus taxi industry to adapt to the various passenger demands in each town. The highest demand for taxis is on Friday afternoons and Saturday mornings, especially at the end of the month. 26 public transport routes have been identified in the Bergrivier municipal area. Most of the identified routes provide public transport needs mainly for agricultural / farm workers to access local settlement centres from surrounding farms within the municipal area.</td></tr>
</table>

Map 24: Bergrivier Municipality Settlement Hierarchy and Service Centres



Waste

Bergrivier Municipality has no licensed waste disposal sites.

All the domestic waste in the towns is collected on a weekly basis with all the towns also provided with recycling bins located at easily accessible points for paper, plastic and glass. Bergrivier Municipality removes urban household waste of 100% of households at least once a week.

According to the Integrated Waste Management Plan (IWMP, 2019), ±10 300 tons of waste was generated in 2018. The settlements generated the following tonnage in 2018:

Priority	Ten Year Plan & Project	Facility	Additional Capacity	Total Capacity	Unit	Cost Estimates (Millions)	Population (2018)	Tons/ annum (2018)
1	Dwarskersbos	Collected	30	30	M³	R 4	739	194
2	Redelinghuis	Collected	30	30	M³	R 4		
3	Eendekuil	Collected	30	30	M³	R 4	1 690	412
4	Redelinghuis WDF		Closure and rehabilitation of landfill site: WL0029/18			R 4	636	139
5	Aurora WDF	Drop-off	Closure and rehabilitation of landfill site: WL0027/18			R 7	636	143
6	Porterville WDF incl Voorberg Correctional Services, Beaverlac, Great Winterhoek Forest Reserve	Drop-off	Closure and rehabilitation of landfill site: WL0028/18 General Reference no.: 19/2/5/4/F1/1			R 35	8 732	2 287
7	Piketberg WDF incl. De Hoek Mine	Transfer	Closure and rehabilitation of landfill site: WL0026/18			R 38	13 700	3 555
-	Velddrif WDF incl Laaiplek, Port Owen, Admiral Island	Transfer					12 168	2 825
-	Goedverwacht, private	Collected					2 188	507
-	Wittewater, private	Collected					941	226
	Total 2018						41 431	10 289
	Estimated 2023							11 048
	Estimated 2027						47 082	11 693

Drop-offs to be constructed in the following towns: Redelinghuis, Dwarskersbos and Eendekuil.

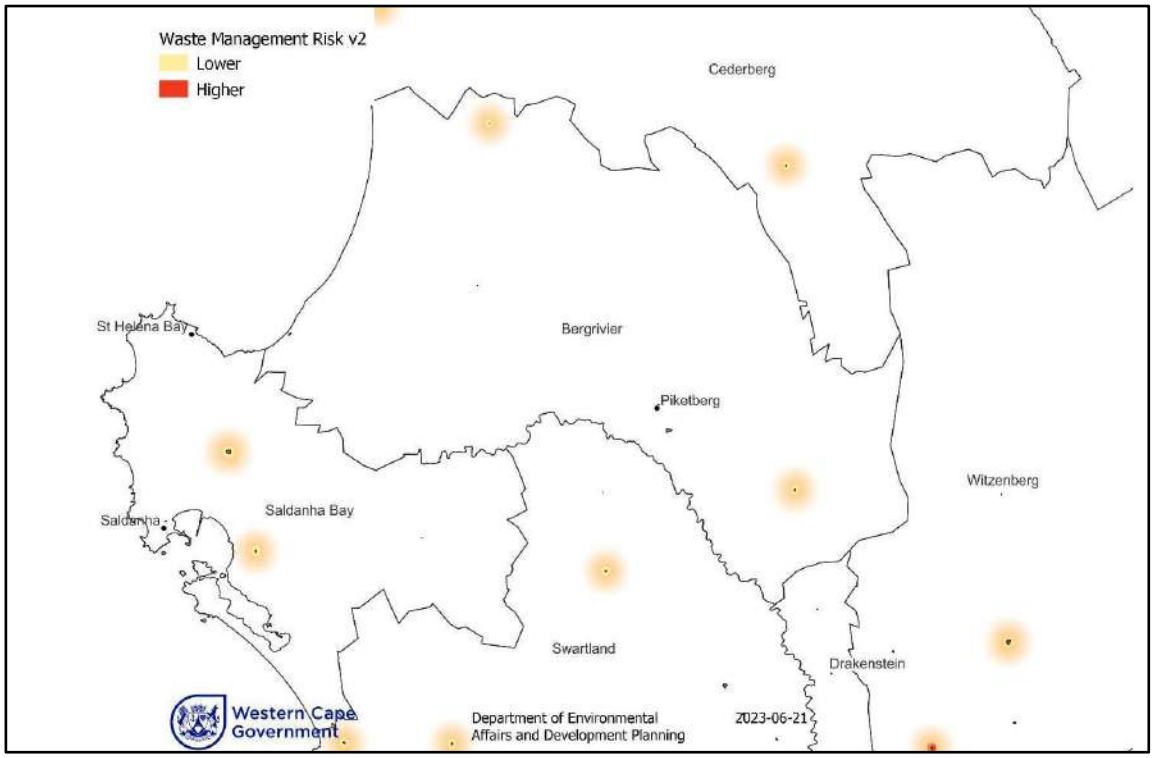
All landfill sites are closed for dumping of household and business refuse. Only clean building rubble and garden refuse are accepted which are then used for covering and composting material on landfill sites. All households have access to refuse removal services in Bergrivier Municipality. Refuse is taken to refuse transfer stations at Piketberg, Velddrif and Porterville from where it is transported to licensed landfill sites at Malmesbury and Vredenburg in accordance with agreements concluded with the Swartland Municipality and Saldanha Bay Municipality.

On average 11% by mass of the waste generated (excluding green material and building rubble) is recycled to lower transport costs and lower dumping costs. Material Recovery Facilities (MRFs) were established in Velddrif and Piketberg and weigh bridges installed. All waste and recyclables are weighed as required by the National Environmental Management Waste Act, 2008 (Act 59 of 2008), to which the Municipality adheres, one of a few municipalities that was able to do so. To minimise organic waste, compost makers (plastic drums) are made available to municipal residents to make their own compost at home (in partnership with Heist-op-den-berg, Belgium). Composting bins for separation of organics at source are supplied. Complementing facilities are a recycling facility at Piketberg and waste offices and compost storing areas in Piketberg, Velddrif and Porterville.

Future waste generation is calculated on 11 693 tons by 2027 given 47 082 people.

Map 25 below illustrates the Waste Management Risk in Bergrivier Municipality

Map 25: Waste Management Risk in Bergrivier Municipality



Sewerage

Sanitation: upgrading of sewerage system for better quality of service; 100% of households serviced by municipality have access to sanitation. 78% households, serviced by the municipality, have access to flush toilets connected to a sewerage system or network. 22% have access to flush toilets connected to a septic tank.

The sewerage volumes in 2014 are tabulated below:

(Water Demand, 2014) Potential, assuming all stands occupied.

Sewerage system:	Septic tanks	Water borne	Water use (kl/d)	NRW est. (kl/d)	AADD (kl/d)	Actual, for all occupied erven (kl/d)	Potential present PDDWF, @ full occupation of all erven (kl/d)
Eendekuil	65%	35%	469	52	521	105	204
Piketberg	0%	100%	2 078	519	2 597	1309	1 980
Porterville	100%	100%	2 321	410	2 731	736	911
Velddrif	40%	60%	3 959	990	4 949	170	1 933
Redelinghuis	100%	0%				based on % of actual AADD	based on theoretical AADD
Aurora	100%	0%					
Dwarskersbos	30%	70%					
Sewerage system						WWTP Drainage Area (Present and future potential PDDWF's)	
						2319	5 028

Although no cost has been provided, the master plan implementation will increase the total sewer system capacity of the towns within Bergrivier Municipality from its present Peak Daily Dry Weather Flow (PDDWF) of ± 7 370 kℓ/d to the future PDDWF of ± 10 000 kℓ/d (SWP, 2014).

Electricity

For 96.4% of households, electricity is the main energy resource used for lighting as per 2022 Socio-Economic Profile of Bergrivier Municipality. The Municipality is responsible for the distribution of electricity in all urban areas except for Goedverwacht, Wittewater and De Hoek, which are private towns. The Municipality only distributes electricity to a small portion of Eendekuil where low-cost houses are situated (162 households). ESKOM distributes electricity to the areas not serviced by the Municipality. Map 26 illustrates Bergrivier Municipality's Infrastructure and Electrical Network

Future NMD for each Point of Supply					Electrical Distribution Network Plan, 2015 to 2025
High Growth			Realistic Growth		
Point of Supply	2011	2025	2011	2025	
Velddrif*	7 438 kVA	12 000 kVA	7 438 kVA	10 000 kVA	R 8m
Piketberg	5 891 kVA	8 300 kVA	5 891 kVA	7 300 kVA	R 11m
Porterville	4 094 kVA	5 000 kVA	4 094 kVA	4 500 kVA	R 3.2m
*NOTE: Overhead Line is 10MVA. At high growth, capacity will be reached in 2028. Realistic growth, capacity not reach before 2035.				Total	R 22.2m

The IDP 2022-2027 estimated the cost of upgrading electrical infrastructure in the municipal supply area at ±R22.5 million.

Water

Water Resources in Bergrivier Municipality are:

- The Berg River, the main water source for irrigation purposes.
- Mountain streams which feed into retention dams.
- Boreholes for livestock and domestic use.
- Water Schemes and Reservoirs.

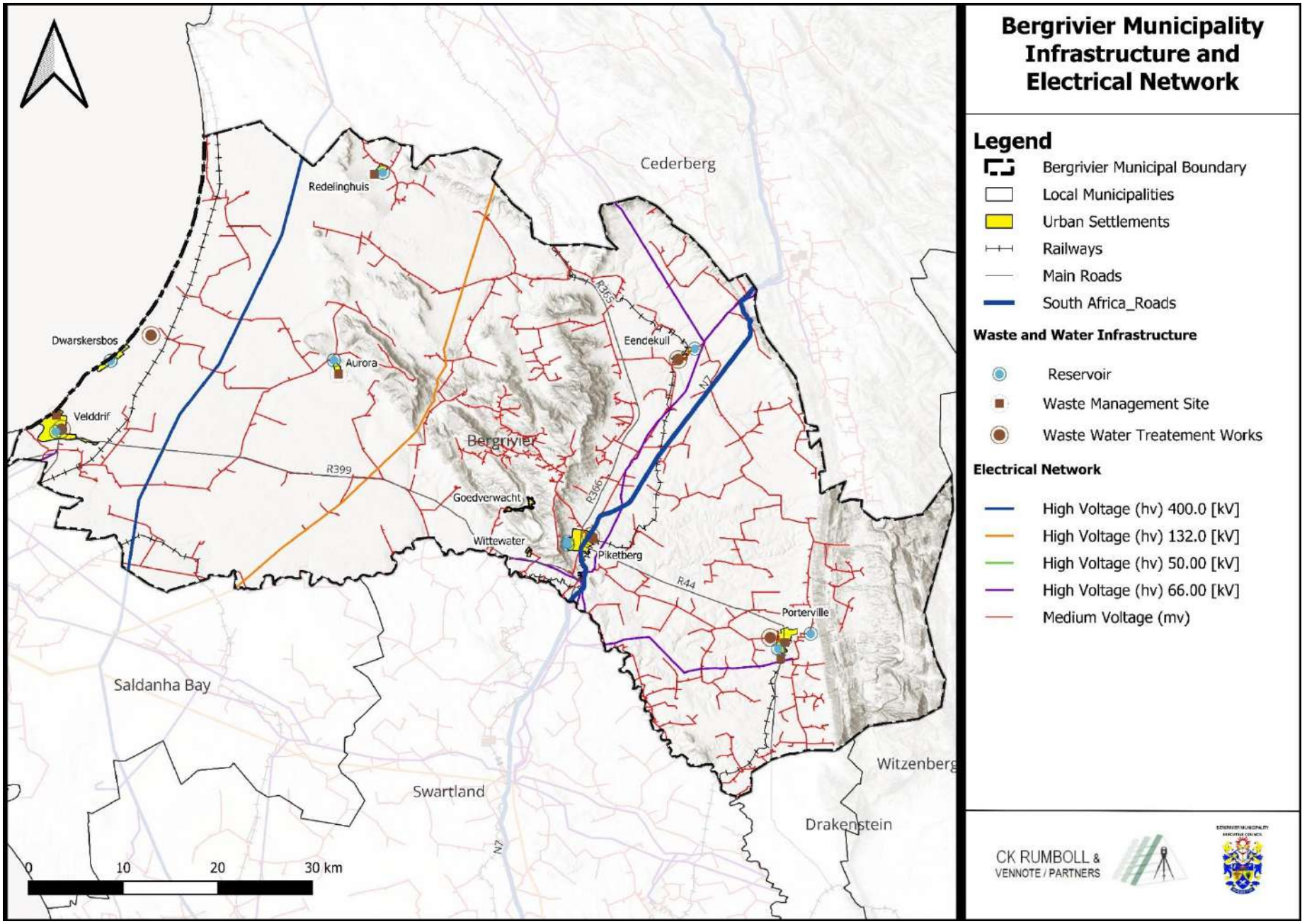
Bulk Water Infrastructure				**AADD (kℓ/d)**			
Reservoir	**Type**	**Capacity (kℓ)**	**Total**	2024	Future development	**Total**	
Aurora	Reservoirs	300kℓ; 250kℓ	550kℓ	102	204	306	
Dwarskersbos	Reservoirs	450kℓ; 450kℓ	1 128kℓ		318	318	
	Pressure Tower	228kℓ					
Eendekuil	Reservoirs	400kℓ	400kℓ	150	283	433	
Goedverwacht	Reservoirs	150kℓ (R1A); 136kℓ (R1B), 204kℓ (R2), 136kℓ (R3)	626kℓ		201	201	
Piketberg	Reservoirs	3 300kℓ; 2 400kℓ; 4000kℓ	9 700kℓ	1 574	1 704	3 278	
Porterville Monte Bertha	Reservoirs	3 250kℓ; 500kℓ; 235kℓ	3 985kℓ	994	1 295	2 289	
Porterville							
Redelinghuis Combined	Reservoirs	190kℓ; 250kℓ	440kℓ	102	84	186	
Velddrif	Reservoirs	2 000kℓ; 3 000kℓ; 5 000kℓ	10 000kℓ	2 856	3 118	5 974	
	Pressure Towers	250kℓ (Pt1); 250kℓ (Pt2)	500kℓ				
Wittewater	Reservoirs	50kℓ (R1); 50kℓ (R2); 50kℓ (R3); 350kℓ (R4)	500kℓ		67	67	
Total				5 778	7 274	13 052	

An additional AADD of 11 006 kℓ/d capacity is required. Although no cost has been provided, the master plan implementation will increase the municipal system capacity from its present Annual Average Daily Demand (AADD) of 7 700 kℓ/d to the future AADD of 17 800 kℓ/d (WMP, 2014).

	Effective management and use of water as a scarce natural resource requires an overarching approach to water demand and the provision of adequate bulk water infrastructure in Bergrivier to adequately plan for the impact of future droughts and climate change conditions (See WCCCRS, 2023). The importance of investigating alternative water resources and the sustainable use of water to be able to absorb long periods of droughts in this water scarce municipality, especially its coastal towns, cannot be over-stressed. There should also be realism in planning these alternative water projects and accurate financial calculations must be done, including the running cost and maintenance thereof.
Cemeteries	Each settlement has one or more cemeteries as per the table below. There is a need for cemetery expansion or additional cemeteries across the municipal area. There is a need for cemeteries to be expanded and particularly in Eendekuil, Piketberg and Porterville. Keep in mind that a 500m buffer has to be adhered to in accordance with health legislation. The location & capacity of cemeteries are described in the following table. ***Table 2: Cemeteries***

Settlement	Number	Location of Cemeteries
Aurora	1	1. Hoof street cemetery
Dwarskersbos	1	1. Private cemetery
Eendekuil	2	1. Northern cemetery, along R365 at agriculutral hall 2. Eastern cemetery (Maas Street)
Goedverwacht	2	1. Central cemetery 2. Historic cemetery
Piketberg	4	1. Sarel Cilliers Street cemetery including historic cemetery 2. North cemetery (Riemvasmaak), Asblom street 3. East Cemetery (along railway line / across N7) 4. Die Trek Street Jewish cemetery (and park)
Porterville	2	1. Jakkalkloof Steet cemetery 2. Cemetery along the R44 and between railway line and airfield
Redelinghuis	2	1. Kerk street cemetery, located east 2. Engelbrecht Street cemetery, located west
Velddrif	3	1. Smith Cemetery next to Smith Sportsfield, Iris Avenue 2. Noordhoek Cemetery, at Noordhoek Primary School 3. Velddrif Central Cemetery (NG Kerk Begrafplaas)
Wittewater	1	1. Part of larger farm, east off entry road from R399.

Map 26: Bergrivier Municipality Infrastructure and Electrical Network



Amenities:	See matrix to follow for a comprehensive overview. In general amenities comply with the norms. Porterville requires a primary school. Overall, there is a need for Grade R classes and skills training facilities in Piketberg and Velddrif. An open auditorium is required in Porterville and Velddrif. Soft surface sportsfields (cricket) are required in Porterville, Eendekuil, Redelinghuis and Aurora and golf training in Porterville. Educare facilities, after school care or learning laboratories and libraries should be encouraged. Cemetery capacity is required in most settlements. Ongoing maintenance is required and where applicable a fencing programme should be implemented. Both Goedverwacht and Wittewater have libraries.

Table 3: Social Amenities required in settlements within the Bergrivier municipal area

			Existing amenities & 2023 population							Required Amenities as per 2037 population						
	Village: 5 000 -25 000		16076	14272	9135	1983	868	748	743	20272	17997	11519	2501	1094	944	937
Life Balance	Nk = not known, Req = require, NR = not required	**Norm**	**Piketberg**	**Velddrif**	**Porterville**	**Eendekuil**	**Dwarskersbos**	**Aurora**	**Redelinghuis**	**Piketberg**	**Velddrif**	**Porterville**	**Eendekuil**	**Dwarskersbos**	**Aurora**	**Redelinghuis**
Health & Emergency Services	District Hospital (L1) (DH), Specialised (S)	NR	1DH	VreB	1DH	Pik	VreB	Pik/ VreB	Pik	0	0	0	0	0	0	0
	Primary Health Clinic or Satellite (S) or Mobile (M)	1/5 000 - 7 000	1S	1S	0	0	0	0	0	0	Up	0	S	0	S	S
	Fire Station, Municipal (M) or District (DM), Fire Bakkie (B)	Firebakkie (B)	1, B	B	B	B	B	B	B	0	1	0	0	0	0	0
	Police Station	Variable	1	1	1	1	Vel	Vel	1	0	0	0	0	0	S	0
Education	Further Education and Training	NR	0	0	0	0	0	0	0	S	VreB	0	0	0	0	0
	Secondary School	1/12500	2	2	1	0	0	1	0	0	0	0	0	0	0	0
	Primary School	7 000	2	2	1	1	1	1	1	0	0	1	0	0	0	0
	ABET (A) /Skills Training (S)	Variable	0	0	0	0	0	0	0				S	0		S
	Special Education	nC	0	0	0	0	0	0	0	Inc	Inc	Inc	Inc	Inc	Inc	Inc
	Grade R Class at Primary School	1/1000	1	2	2	1	1	1	1	15	12	8	1	0	0	0
	Crèche / Early Childhood Development	1/2 400 - 3 000:	7	3	8	1	0	1	1	4	3	5	1	0	1	1
Recreation Facilities	Local/Neighbourhood Park (includes play equipment for children)	1 000	5	2	2	1	0	1	1	1	1	0	1	1	0	0
	Urban Gym (RSEP)	NR	2	1	0	0	0	0	0	0	1	1	0	0	0	0
	Grassed Surface (2 football fields equivalent) with or without seats	1/15000	2	1	1	1	0	1	1	0	0	0	0	0	0	0
	Athletics/Cricket Stadium (grassed field/ athletics track stand 3000/ seats)	Cricket field	2	1	1 com	0	0	0	0	0	0	1	1	0	1	1
	Combi-court surface (x2; x4) / Level surface playing field	x2: 15 000; x1: 3000	2	1	2	0	0	1	0	0	0	0	0	0	0	0
	Community Pool (25m to 33m)	1/10000	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Cultural	Library, Local (L), Satellite (S), Special categories i.e. disabled (MS)	1/5 000 - 20 000	2, S	2	2, S	1	1	1	0	0	0	0	0	0	0	0
	Museum - medium/small	Variable	1	1	1	0	0	0	0	0	0	0	0	0	0	0
	Performing Arts Centre	NR	0	0	0	0	0	0	0	0	1Aud	1Aud	0	0	0	0

Human Settlement and Tenure

Waiting list, backlog and projects implemented:

The greatest need for housing exists in Piketberg (backlog of 2 307), Porterville, and Velddrif.

GAP housing is needed in Piketberg, Velddrif, Porterville, Redelinghuis, Goedverwacht, Eendekuil, Aurora and Wittewater. Simultaneously, Piketberg, as well as Velddrif and Porterville, are prioritised to provide GAP housing.

A comparison of the current verified housing backlog (demand) per typology as per the Bergrivier Municipality waiting lists for May 2023 with the 2018-2028 pipeline (supply) is tabulated below:

May 2023	Housing Backlog:				Pipeline	Back Yarders	Implemented by 2023
Waiting List	RDP R0 – R3500	Subsidised R3 501 – R22 000	GAP R 22 001+	Total	2018 - 2028		
Aurora	76	12	0	88	67	15	
Eendekuil	218	55	0	273	229	58	45
Goedverwacht	15	10	1	26	23	n.a.	
Piketberg	1760	554	4	2318	1977	602	177
Porterville	1022	289	13	1324	1117	321	171
Redelinghuis	187	67	0	254	249	53	
Velddrif	893	185	6	1084	1314	787	
Wittewater	10	2	0	12	13	n.a.	
Totals	4 184	1 174	24	5 379		1 872	393

There is one UISP project in Velddrif.

Land Requirements:

The gross extend of land required by those households on the waiting list is tabulated below:

Waiting List Gross Land Requirements	Subsidised (R0 – R3500) @ 180m²	Back Yarders @ 180m²	Taxable Medium (R 3 501 – R22 000) @ 450m²	Taxable High (R 22 001+) @ 450m²	Total
Aurora	1,78	0,35	0,70	0,00	2,83
Eendekuil	5,10	1,36	3,22	0,00	9,68
Goedverwacht	0,35	0,00	0,59	0,06	0,99
Piketberg	41,18	14,09	32,41	0,23	87,91
Porterville	23,91	7,51	16,91	0,76	49,09
Redelinghuis	4,38	1,24	3,92	0,00	9,54
Velddrif	20,90	18,42	10,82	0,35	50,49
Wittewater	0,23	0,00	0,12	0,00	0,35
Totals	97,84	42,96	68,68	1,40	210,88

Heritage

Several noteworthy and protected buildings are situated in Piketberg.

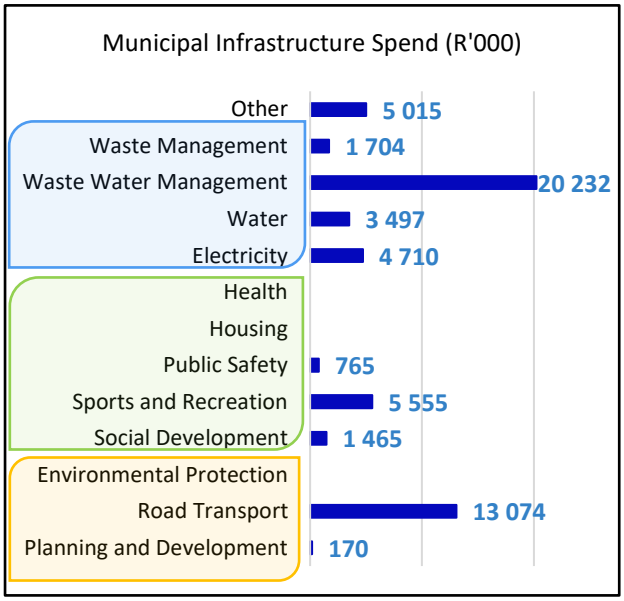
The Goedverwacht and Wittewater settlements also have considerable historical, architectural, aesthetic and social value. Notably some buildings, the historic graveyard and some trees in Goedverwacht and the rows of Sandveld Langhuise in Wittewater. Redelinghuis on the Verlorenvlei River is known as the Potato Capital of the Sandveld. The Langhuis is regarded as a unique representation of a distinctive vernacular architectural style developed from the first permanent buildings erected in the late 1800s.

It is also the area where Rooibos grows in its natural state. Aurora has high heritage value in terms of its distinct settlement qualities and surviving historic fabric as well as its association with early astronomical research (the nearby Arc of Meridian beacon, Maclear's Beacon, is a Provincial Heritage Site).

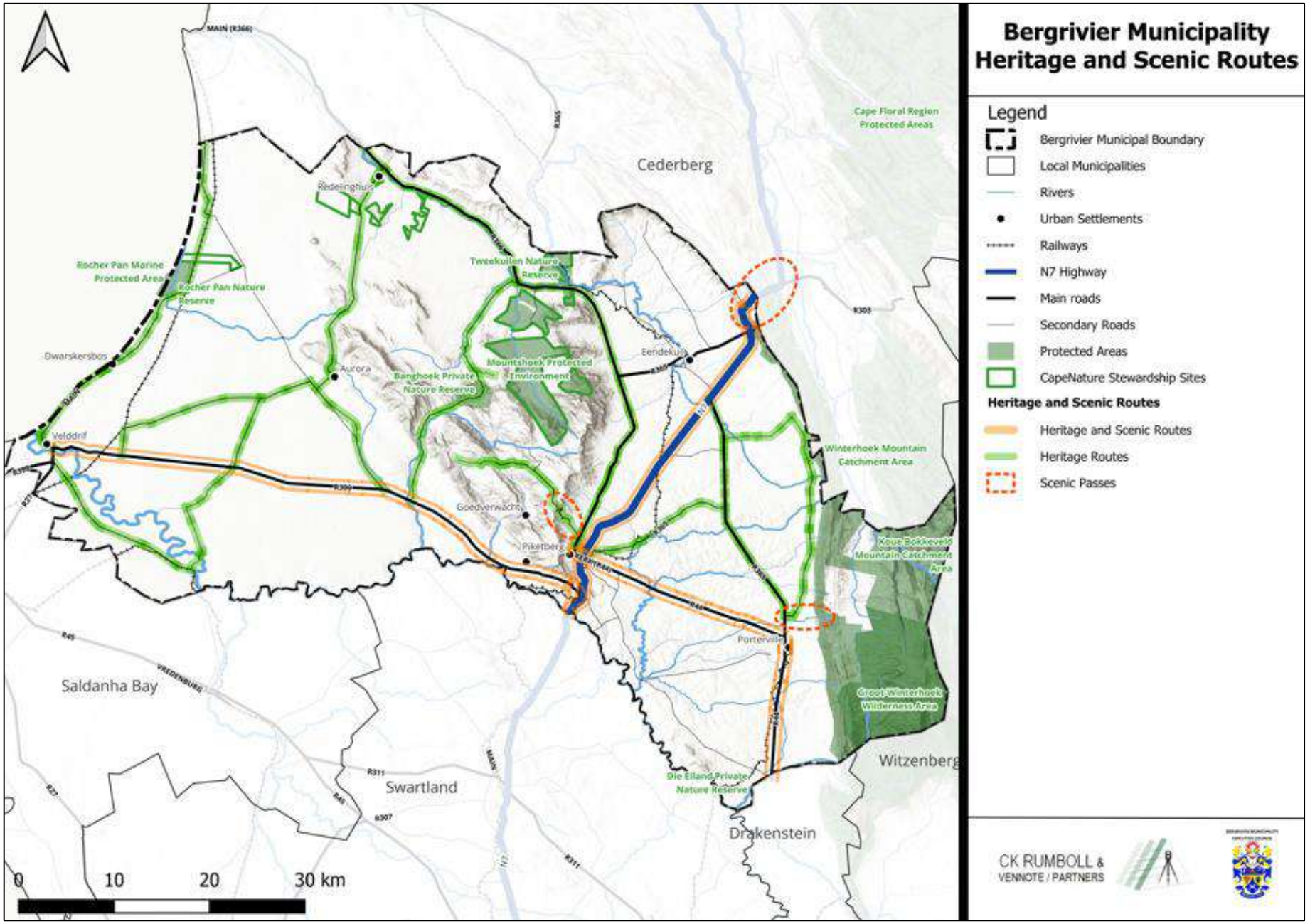
In the rural areas there are some historic farmyards of which Kersefontein, the summer and hunting farm of Simon van der Stel is one example.

The National Heritage Resources Act, Act 25 of 1999 (NHRA), supports the integration of heritage management and planning functions. According to the provisions of Sections 30 (5) and 31 of this Act, it is the responsibility of the local authority to compile a heritage inventory in its areas of jurisdiction inclusive of heritage resources, landscapes and prominent natural features, which form an important part of the cultural resources and give Bergrivier Municipality its sense of place and forms the basis of tourism.

Map 27 illustrates Heritage and Scenic Routes in the Bergrivier Municipal Area.

Municipal Expenditure and Investment	Bergrivier Municipality received a total Western Cape Government Infrastructure Budget (WCG) allocation of R76.4 million. Bergrivier Municipality allocated a total of R56.187 million. Spending on Social Infrastructure and development: In 2021/22 Bergrivier Municipality received R76.4 million from the (WCG) infrastructure budget towards social infrastructure: Transport and public works received R73 million, Human Settlements R1.4 million and Health R2 million. Bergrivier Municipality complemented social infrastructure expenditure with a R7.785 million (18.2 per cent) allocation from their capital budget. Social services received R1.465 million (2.6%), sport & recreation R5.555 million (9.9%) and public safety R0.765 million (1.4%). Bergrivier Municipality complemented economic infrastructure spending with R13.244 million including R13.074 million towards road transport and R0.17 million towards planning and development. Spending on Economic Infrastructure: Economic infrastructure promotes economic activity. Spending on economic enabling infrastructure aids economic growth and development enabling higher Per Capita incomes. The WCG 2020/21 allocation included Transport and Public Works Provincial (Road transport infrastructure): R73 million (95.5%). The Municipality contributed R13.074 million (23.3% of capital expenditure) towards road transport.  Spending on Trading Services: The Municipality's infrastructure budget of R30.143 million (53.5%) is allocated towards the provision of basic services (access to water, electricity, sanitation and refuse removal). The bulk of the spending on trading services has been allocated towards water management R3.497 million (11.6%), Electricity R4.710 million (15.6%) and wastewater management R20.232 million (67%) and waste management R1.704 million (5.7%). Municipal income and expenditure: Total revenue is set at an increase of R56,197,433 to R527,673,933 for the 2023/24 financial year when compared to the 2022/2023 3rd adjustments budget. Total operating expenditure for the 2023/2024 financial year has been appropriated at R540,375,275 and translates into a budgeted surplus of R37,169,267 after capital contributions. Impact of growth and housing on municipal resources: - The current rates base can no longer support the cost of services, especially considering the ageing infrastructure and the cost necessary to upgrade and refurbish service delivery infrastructure vehicles and equipment, - The rates base faces similar challenges with regard to water supply and electricity, since demand growth outstrips supply, - Growth in housing, results in growth in waste generation, which puts further strain on solid waste removal services, - It is of utmost importance to factor these costs into the true cost of services to continue delivering high quality services to all communities, - All role-players would need to collectively contribute to ensure not only the financial sustainability of the municipality, but also the economic progression of its citizenry. Arrears for rates and services - It is doubtful whether inroads will be made in the collection of arrears debt over the short term as the current economic circumstances are not supportive of the debt collection efforts. No additional cash flow from arrears debt is anticipated over the short term.

Map 27: Bergrivier Municipality Heritage and Scenic Routes



	Built Directives
Hierarchy and Role of Settlements	• Focus areas emerge from the hierarchy and role (connectivity) of settlements. • Piketberg, Eendekuil, De Hoek, Wittewater, Goedverwacht and Redelinghuis (Administrative and regional service centres for agri-value chain and processing): • An intensive agriculture corridor including Verlorenvlei, Moutonshoek, Piket Bo Berg and the Eastern Foothills knits these settlements together to provide supportive infrastructure for the agriculture value chain and its intensification. Residential, rural and agritourism roles will be enhanced in Goedverwacht, Piketberg and Redelinghuis, whilst agri-industry and agri– services roles will be advanced in Piketberg and Eendekuil. • Velddrif and Dwarskersbos (Innovation and growth cluster): • The integration of these settlements with the Saldanha Industrial Development Zone (IDZ) and Cape Town will bolster their roles as coastal holiday or residential towns. Alternative green energy production, freight services, conference facilities, and tourism should be prioritised. Conservation efforts along the coast should be intensified while ensuring continued access to the ocean for aquatic sports and recreational activities. Additionally, support for the transportation industry and the enhancement of supportive infrastructure along freight routes R27 and R399 should be promoted. • Porterville (Arts and sports hub): • As there is strong good quality water, magnificent dawns and dusks, an active agri- industry and an operational railway connection to the Riebeeck Valley, there is an opportunity to promote arts, sport and conservation whilst agri-industry and its value chain can be enhanced. • From a Growth Potential perspective, Piketberg, Velddrif and Porterville have a medium growth potential as does Aurora and Eendekuil. Spatial provision for economic and industrial development should be made including space for innovation and provision for training.
Roads & Transportation modes	• Road Network and connectivity: o Capitalise on opportunities of high speed north south connectors such as N7 and R27 and inland connectors, R399 from the R44 and N7, to the coast. Create: N7 and R27 intersections and links inland and to other high-speed roads (N1 and N2) which should enhance Bergrivier Municipality's role within the agri-value chain of the West Coast District. o Public Transport modes, service frequency and routes limit mobility as most people travel on foot. Provide for non-motorized transport: well-maintained routes, shelter and transport of purchased goods. Enhance transport facilities used by private providers such as taxi ranks and bus stops. Encourage services to transport purchased goods within settlements and provide dedicated parking for such vehicles in close proximity to shops. o Link lower order settlements to higher order settlements with NMT routes (Dwarskersbos and Velddrif, De Hoek and Piketberg). o Lobby to keep intact operating rail for tourism purposes travelling between Riebeek Valley and Porterville. • Public Transport infrastructure: o Ensure dedicated parking for taxis in central business area on Saturday mornings and end of month when there is the highest demand for these services. Upgrade and establish taxi ranks in Piketberg, Porterville and Velddrif. Promote bus shelters. o Maintain commercial bus service stops at Winkelshoek to enhance these routes' accessibility to Bergrivier municipal commuters. o Provide routes and more frequent trips outside municipal area. o Facilitate services that support shopping around grocery and related shops in Piketberg and Porterville. o Establish regional and district transport nodes at Piketberg, Porterville and Velddrif. o The current capacity of the road transport network and the proposed networks as per the Master Plan accommodates the current population. Assess capacity to accommodate growth and densification.
Storm Water	• Road and Storm Water Infrastructure upgrades are required in all settlements but dirt road surfaces should be maintained as to not change the rural character of these settlement: Aurora, Redelinghuis and in the old part of Velddrif. • Reuse of storm water to irrigate parks.

Waste	• Waste for households and businesses: Provide recycling igloo spaces/ waste separation and collection spaces in settlements. • Bulk: Provide for recycle space at the transfer stations in Velddrif and Piketberg. • Provide garden waste to private composting plants and building rubble to infill projects. • Provide spatially for agri-processing and Industrial waste on site, close to site and establish waste re-use plants.
Sewerage	• Provide for oxidation dam upgrades in Velddrif as a priority. • Re-use wastewater at municipal level.
Electricity	• Households and businesses: Encourage green building technology and power generation. • Bulk: Establish Municipal and private renewable energy plants.
Water	• Households: Assure provision according to norms: 25 litres of water per person per day, with water not to be carried for distances longer than 200 m from the source to the home (UISP projects). • Bulk: Promote alternative water generation (desalination and recycling). Grey water from wastewater treatment plants used for irrigation purposes on open spaces and agriculture.
Human Settlement and Tenure	• Calculated land requirements (need), demand (waiting list) and provision (pipeline) are mapped. Pipeline provision should indicate proximity to amenities, business and work. • Promote different housing typologies in all settlements.
Amenities	• Provision of amenities in Bergrivier Municipality complies partially with compulsory and discretionary norms. Plan for provision where norms are not met.
Heritage	• Compile a heritage inventory of all heritage resources within the Bergrivier Municipality according to S30(5) of the NHRA. • Promote the preservation of single and concentrations of worthy buildings and trees found in Piketberg, Aurora, Porterville and Velddrif. • Promote zones to protect historic buildings, to relax parking bay requirements and to promote pedestrian traffic. These zones can develop as destinations (see also precinct plans for Porterville, Piketberg and Velddrif). • Preserve the following West Coast Heritage Themes: o West Coast paleontological fossil record. o Pre-colonial archaeology and early inhabitants of the area, early pastoralist sites. o Early colonial history and settlements: agriculture in well-watered fertile valleys and foothills, late C17th early C18th. o Early contact/ contestation between settlers and with indigenous peoples: displacement of San and Khoekhoe. o Cultivation and agricultural production: history of farming and associated secondary industries. o Slavery and labour: Farmyard and agricultural production to mid C19th; sites of slavery. o Religion: C19th Church towns. o Routes and Transport: mountain passes, Piekenierskloof; early cattle and wagon routes, outspans; Railway development in C19th, associated stations and development. o Military History: VOC outposts, southern-most point of Anglo-Boer War action, WW2 installations. o Regional Architecture: Cape Dutch, Georgian, Victorian, Cape Revival, Art Deco and 'Sandveld' farmyard (early C19th). o Outstanding Scenic Beauty and landscapes. • Promote heritage through recreation and tourism: destination places, themes and routes; wild flowers, olives, wine; and places of cultural and/ or scientific interest.
Municipal Expenditure and Investment	• Use municipal multi-year capital budgets to source sufficient funds to address infrastructure needs including early childhood development centres (and Grade R), non-motorised transport routes and public transport infrastructure and skills development (and educational) facilities. • Secure sufficient funds for maintenance of basic tradable services. • Enable economic activity based on access to water, electricity, sanitation and refuse removal. • Secure funds for social infrastructure and sports facilities and neighbourhood open spaces (soft surfaces fields). • Secure funds for economic infrastructure and services. • Pursue alternative revenue sources from resources such as renewable energy. • Recommended future spending should focus on early childhood development and youth hubs.

2.2 Municipal, Provincial & Regional MSDF and Sector Plan Analysis and Directives

2.2.1 Sector Plan, WCPSDF, WCDMSDF and Greater Saldanha EMF Spatial Analysis and Directives

The West Coast District includes Cederberg, Matzikama, Saldanha and Swartland.

The WCDMSDF, 2023 sets objectives to achieve: a) equal access to opportunities, protection and benefits, b) restrict ecological footprint, c) growth aligned with infrastructure provision and d) safe high-quality living environments. (Coordinate the effective use of resources (financial, human & natural).

The strategic location of the Saldanha Bay harbour in the district and its potential to be a key catalyst for development and economic growth in the district.
In terms of Built environment:
Settlement pattern mainly determined by coastline and Saldanha Bay Harbour, and the N7 road. Saldanha Bay – Vredenburg area is the nucleus of development and activity in the district. Malmesbury along the N7 is a major town for the region. Piketberg is a service centre. All other settlements are seen as small towns. Movement along the N7 is of vital importance for development.
Infrastructure:
Water resources in the district are under pressure and new water sources need to be identified and established.
Transport:
Transport can be considered as being potentially the most significant and important indicator that will determine the success of existing and future development in the West Coast District.
Landmarks:
The West Coast District has a number of significant landmarks: Atlantic Ocean and Saldanha Bay Harbour to the west and the Olifants and Cederberg Mountains to the east and the Olifants, Berg and Verlorenvlei rivers.
Proposal for sustainable water supply includes:
Other alternatives, which require further assessment, may include rainwater harvesting and ground water extraction. Promote water-wise measures by means of a dedicated campaign. Improving water quality of the Berg and Olifants Rivers as per Sustainable Water Management Plan (DEADP, 2018). Coordinate the effective use of resources (financial, human & natural).
Urban densities:
Are to be increased to 25 du/ha before allowing expansion to urban edges. Land development incentives are given as a possible means of encouraging densification in desired locations. Urban densification should take cognisance of ecological and heritage concerns.

Regional Directives derived from the Greater Saldanha Environmental Management Framework follow:
Water:
The West Coast is known as a water scarce area, with rainfall averaging 300 mm per year. Probably the most important water resource in the area is the Berg River. Groundwater plays a lesser but still significant role as a water supply source. The Berg River catchment is a significant source of water on a regional level. The Berg River is an important source for the irrigation of crops. The West Coast is a water scarce region, with limited surface water resources. The main sources are the Berg River and groundwater from the Langebaan Road Aquifer System. Desalination is seen as an option for water supply but the consequence of environmental impacts in the local context is limited.
Aquatic ecosystems:
Berg River Water Management Area is of vital conservation importance. The Berg River Estuary plays a vital role in providing habitat, shelter and breeding areas for a range of fish species. This is especially important for the fish industry in the area.
Climate change:
Projections and possible impacts have various repercussions for planning within the Greater Saldanha area.

Natural characteristics:
The natural characteristics of the area are seen as an important asset, particularly for the tourism industry. Protected areas such as the WCNP, Langebaan Lagoon and the Berg River Estuary provide natural areas that serve as important tourist destinations.
Cultural history:
In the social context, cultural history contributes to sense of place for local communities.

Directives for and from the Local Economic Development Strategy were derived from the competitive advantages and disadvantages listed below (IDP) 2022-2027:

LED Strategy	
Advantages	Disadvantages
General	
• Agriculture. • Tourism which also contributes to retirement. • N7 feet and wheels are a major advantage that should be utilised to benefit the local economy. • R27 (end of West Coast Road) feet and wheels (Velddrif) are of major advantage. • Local retail is growing fast. • Bergrivier Municipality has a developmental mindset.	• Limited marketing of attractions. • Provincial roads are in an inadequate condition. • Variation in the quality of school education. • Limited skills and training, including business skills training. • Limited activities for the youth. • Racism persists in many areas which implies a lack of social cohesion. • Gatekeeping in private and public sector stifles/wastes opportunities for growth. • Limited affordable business property. • Limited investment in town beautification. • Limited rental housing. • Slow internet connectivity and weak cell phone reception in some areas. • Difficulty accessing DTI grants which is stifling business opportunities.
Agricultural Sector	
• Good quality crops of table grapes, wheat, rooibos, berries, fruits. • Well-established business for export markets (fruit farmers and cooling facilities). • Farmers are well-organized and up-to-date. • Well–developed agri-processing ventures exist. • New opportunities exist in rooibos cultivation and processing. • Space and water available to expand high-value crops (grapes & berries). • Agritourism creates new opportunities and funding streams.	• High import tax on agriculture equipment and machinery. • Trend of reduction in farmer numbers due to economies of scale. • Agri-processing does not create room for small & emerging players. • Over spraying of pesticides may have a negative environmental impact and economic consequences.
Inland Tourism	
• Numerous natural resources and attractions creating things to do – 22 waterfalls, Beaverlac, mountain biking, hiking, 4x4s. • Beautiful landscapes and vistas which change over the seasons. • Roads allow for access to the top of mountains. • World-class paragliding – multi-site venue. • Safe and affordable quality of life for retirement community – access to hospitals. • Potential for wedding tourism. • Multiple heritage sites. • Experience of country life only 1.5 hours from Cape Town with agri-processing (breweries, wineries, farmers markets). • Ecotourism – Berg Estuary, Verlorenvlei, Rocherpan. • Bo-Berg farm experience.	• Room for improved strategy around marketing the tourism sector. • Very little cross-marketing and sharing of things to do. • Anchor attractions need upgrading and better facilities for the public. • Signage is inadequate and delayed by red tape – treasures stay hidden. • Society still divided by race. • Unnecessary petty rivalry in tourism and amongst businesses. • Short-term thinking about tourism, e.g. cycling routes crossing private property. • More public information. • Not yet targeting mountain biking market. • Need stronger focus on preserving what we have.

Coastal tourism	
• Authentic fishing village experience. • Safe and affordable quality of life. • Good for retirement, with hospital proximity. • Variety of birds and opportunities for photography. • Good, safe beach at Dwarskersbos. • Numerous heritage assets. • Wedding tourism potential. • Niche sailing market. • Housing rental opportunities: holiday houses for IDZ staff.	• Room for improved strategy around marketing the tourism sector – very little cross-marketing and sharing of things to do. • Anchor attractions need upgrading and better public facilities. • Limited signage – treasures hidden from passers-by. • Poor customer service in retail and service sector. • Poor attitude towards tourism by some community members. • Limited skills to unlock value in the area.

Bergrivier Disaster Management Plan (2016) – Climate Change

The Disaster Management Act is a legal instrument that provides coherent and transparent information that aims to minimise and prevent disasters through risk assessment and mitigation strategies. The Disaster Management Plan (DMP) gives priority to development measures that reduce the vulnerability of disaster-prone areas, communities, agriculture and infrastructure. It also promotes disaster management training and community awareness to reduce the vulnerability of communities at risk.

Development Priorities include:

i. Disaster Management Plan: The municipality is currently in the process of revising the risk assessment of the municipality. The Disaster Management Plan will be revised during the 2023/24 financial year.

ii. Community and Rural Safety Plan: Implementation of the Community and Rural Safety Plan initiatives is ongoing.

iii. Fire –By-law: The Municipality's Fire By-law will be revised during the 2022/23 financial year.

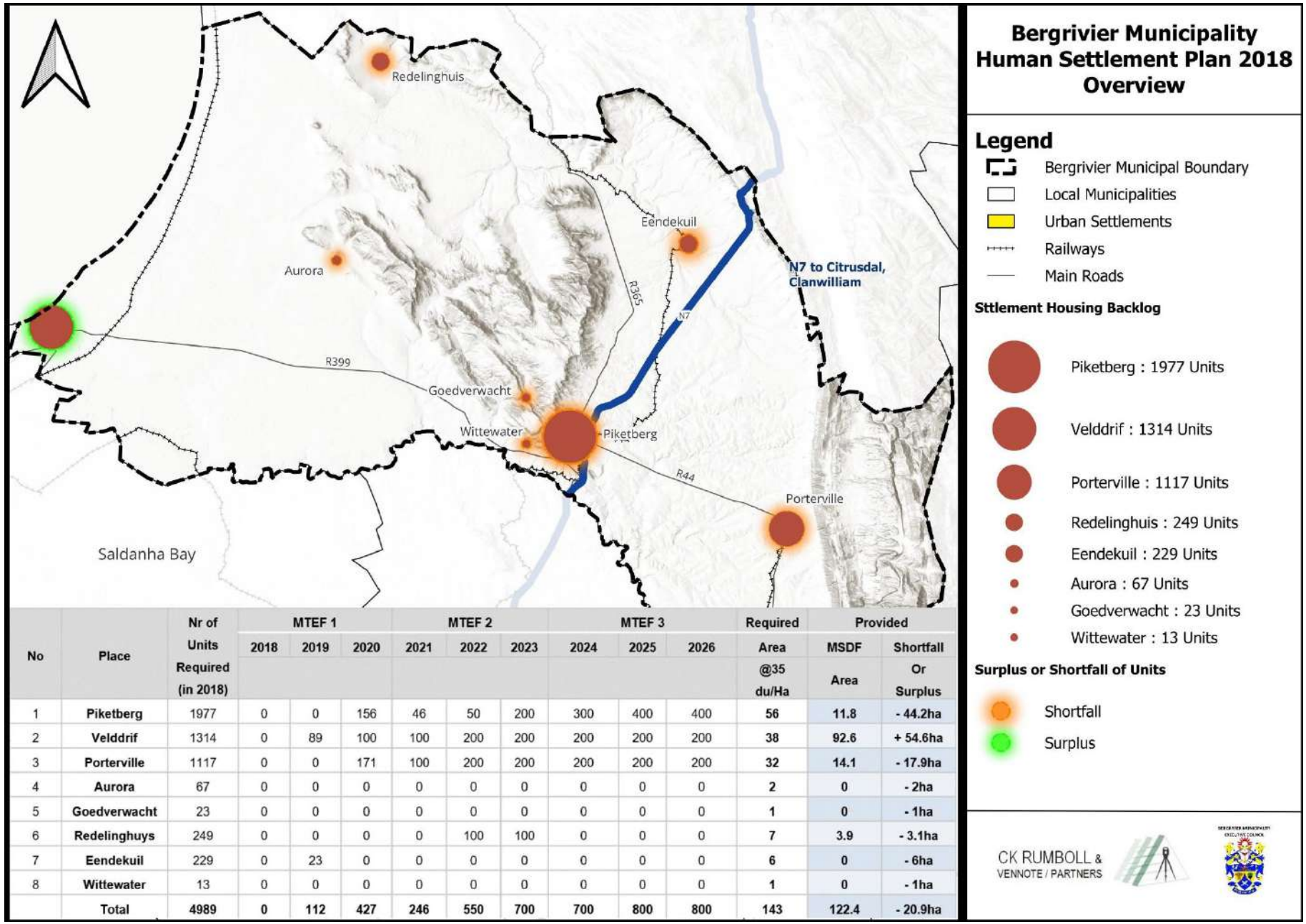
Bergrivier Human Settlement Plan, 2018

Minimum plot sizes of 120 m² (at 40 units per ha) for BNG units, 120 to 195m² for GAP units and 500m² for high income is proposed.

Based on the hierarchical role and function of the various towns, Piketberg, Porterville and Velddrif were identified as settlements for further growth in terms of housing, and social and economic investment. As for the remaining settlements, growth should be limited. The focus for housing development should be on Piketberg, Porterville and Velddrif.

The map and table below provide an overview of the state of housing provision planned within the Bergrivier Municipality.

Map 28: Bergrivier Municipality Human Settlement Plan 2018 Overview



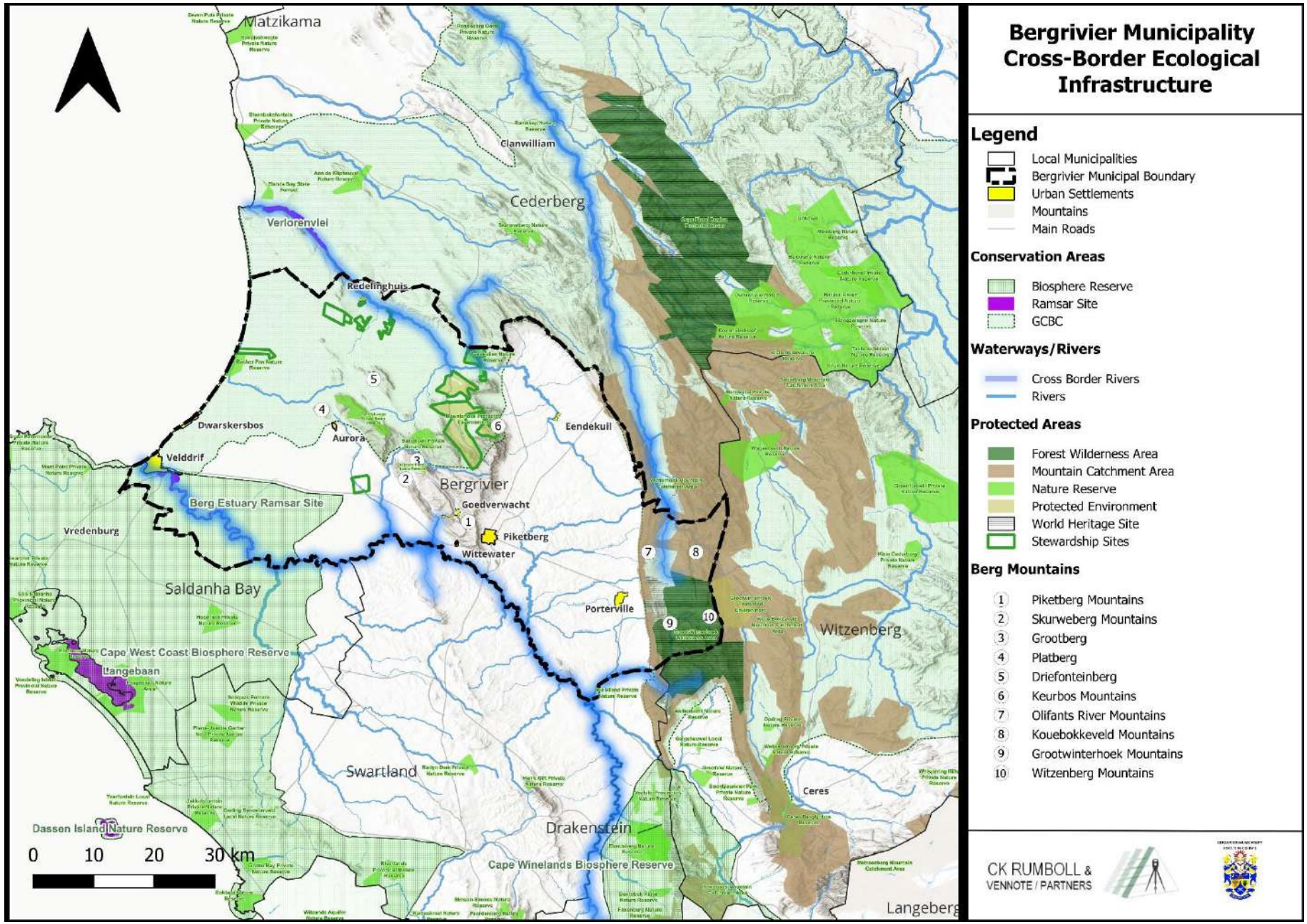
No	Place	Nr of Units Required (in 2018)	MTEF 1			MTEF 2			MTEF 3			Required	Provided	
			2018	2019	2020	2021	2022	2023	2024	2025	2026	Area @35 du/Ha	MSDF Area	Shortfall Or Surplus
1	Piketberg	1977	0	0	156	46	50	200	300	400	400	56	11.8	- 44.2ha
2	Velddrif	1314	0	89	100	100	200	200	200	200	200	38	92.6	+ 54.6ha
3	Porterville	1117	0	0	171	100	200	200	200	200	200	32	14.1	- 17.9ha
4	Aurora	67	0	0	0	0	0	0	0	0	0	2	0	- 2ha
5	Goedverwacht	23	0	0	0	0	0	0	0	0	0	1	0	- 1ha
6	Redelinghuys	249	0	0	0	0	100	100	0	0	0	7	3.9	- 3.1ha
7	Eendekuil	229	0	23	0	0	0	0	0	0	0	6	0	- 6ha
8	Wittewater	13	0	0	0	0	0	0	0	0	0	1	0	- 1ha
	Total	4989	0	112	427	246	550	700	700	800	800	143	122.4	- 20.9ha

2.3 Spatial Analysis and Neighbouring Municipal Resources

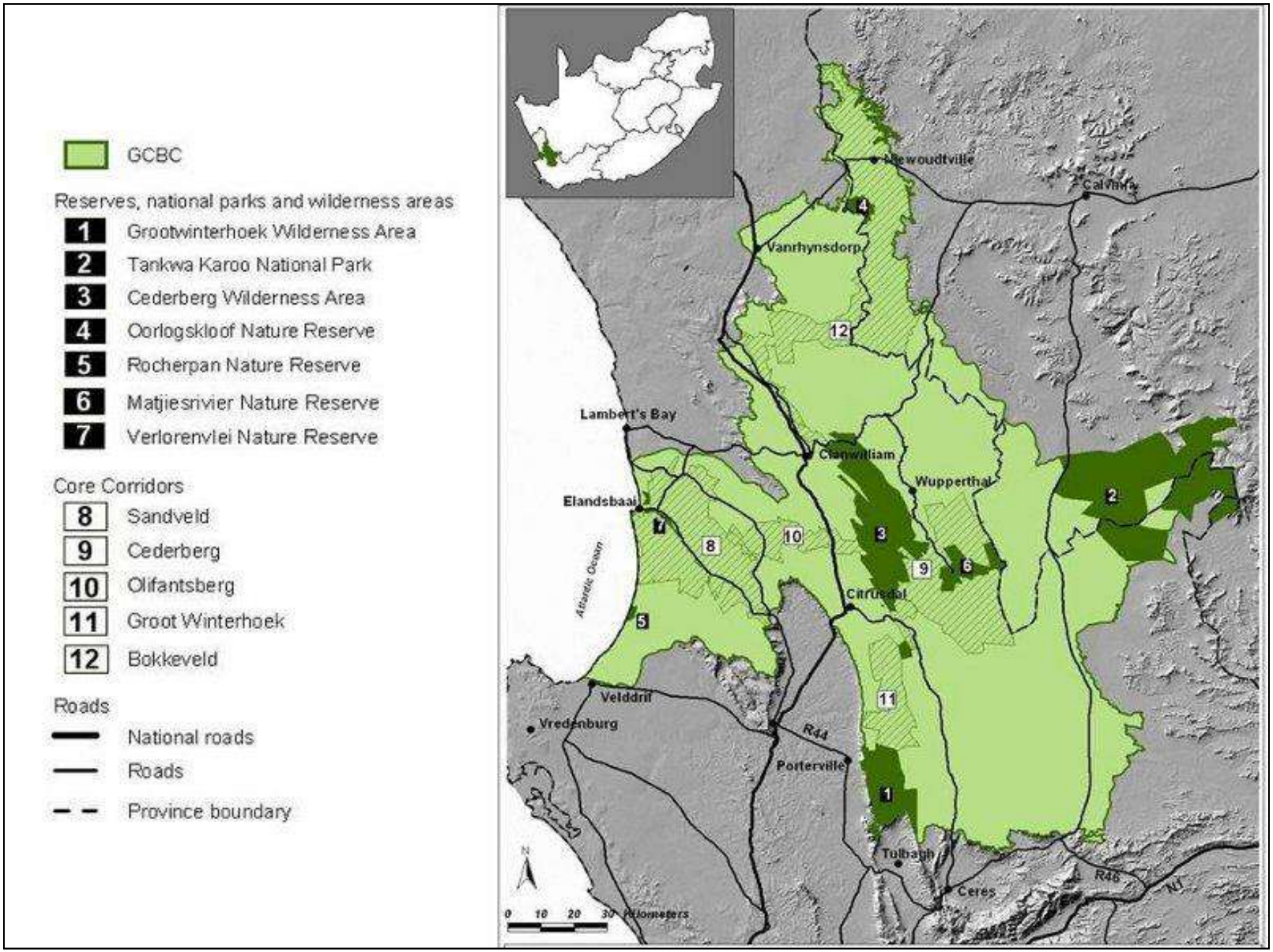
Five local municipalities abut Bergrivier Municipality, namely the Cederberg, Witzenberg, Drakenstein, Swartland, and Saldanha Bay Local Municipality. The table below outlines the cross-border resources for Bergrivier Municipality and abutting municipalities.

Municipality	Cederberg	Witzenberg	Drakenstein	Swartland	Saldanha Bay
Shared boundary	Entire northern boundary	Eastern boundary	Short section of southern boundary	Southern Boundary	Section of south western- boundary
Mountain Ranges Extend conservation corridors along the boundaries. Protect lower slopes and minimise visual and ecological intrusion.	- North and northeastern boundary: Olifants River Mountains.	- Northeast: Witzenberg and Groot Winterhoek Mountains.	- Southeast: Olifants River Mountains.	None	None
Rivers Enhance biodiversity conservation and wilderness tourism opportunities. Provide for local recreation needs.	- Verlorenvlei - Berg - Ratel - Olifants	- Leeu - Olifants	- Kleinberg	- Sandbergspruit - Matjies - Berg	- Soutkloof - Sout
Conservation & Proclaimed conservation areas Maintain conservation status of mutual Nature Reserves. Promote extension of reserves into a continuous biodiversity corridor through stewardship conservancies on private farms. Protect indigenous and listed alien woodlots and mature trees.	- Regional CBA Network/Climate Change Corridors. - Verlorenvlei RAMSAR site. - Winterhoek Mountain Catchment Area. - Beaverlac Nature Reserve.	- Groot Winterhoek Wilderness Area and Nature Reserve - Kouebokkeveld Mountain Catchment Area.	- Groot Winterhoek Nature Reserve.	- Regional CBA Network/Climate Change.	- Cape West Coast Biosphere Reserve. - Berg River Estuary RAMSAR site. - Regional CBA Network/Climate Change.

Map 29: Bergrivier Municipality Cross-Border Ecological Infrastructure

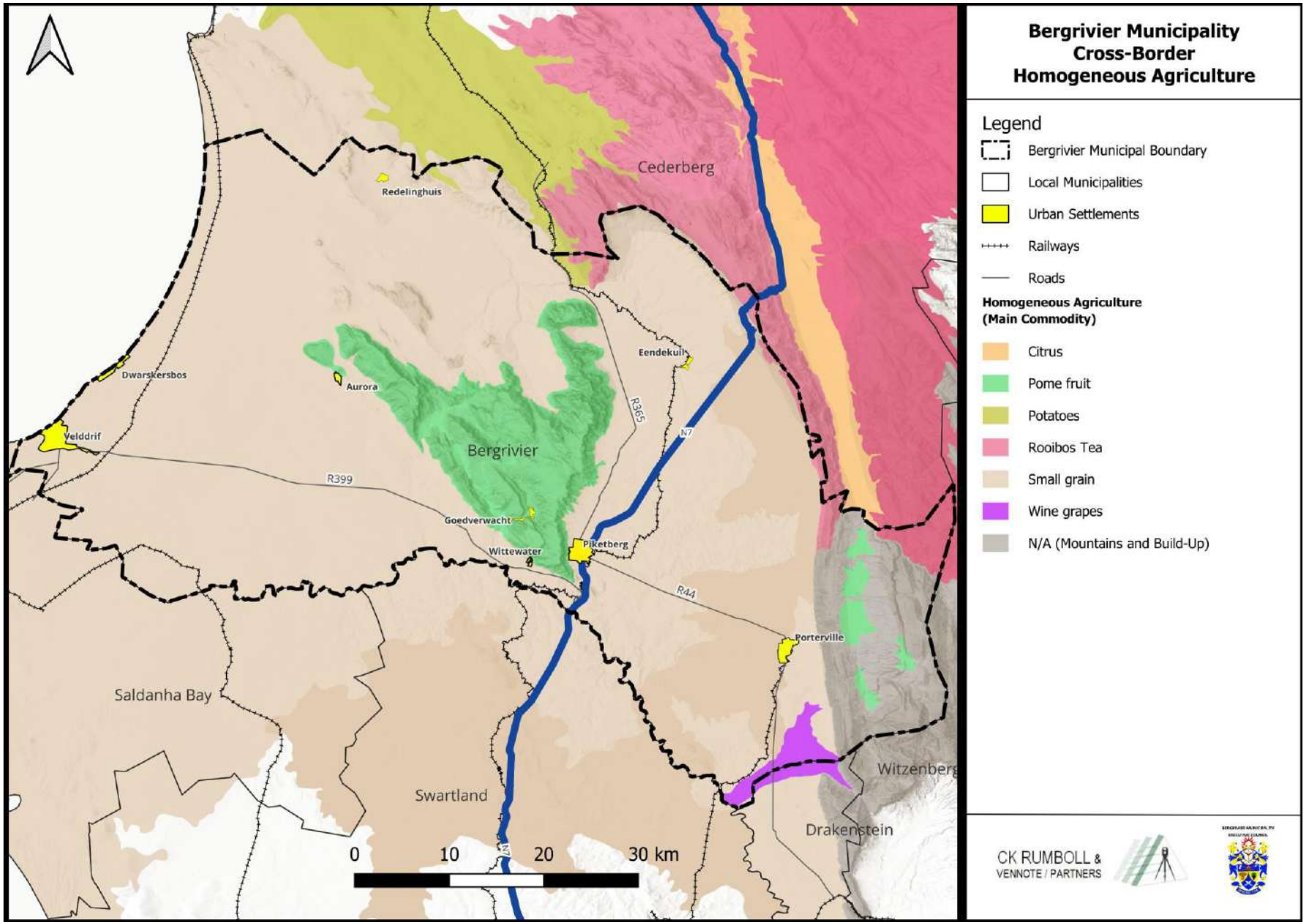


Map 30: West Coast Biosphere and Greater Cederberg Conservation & Biodiversity Corridor.

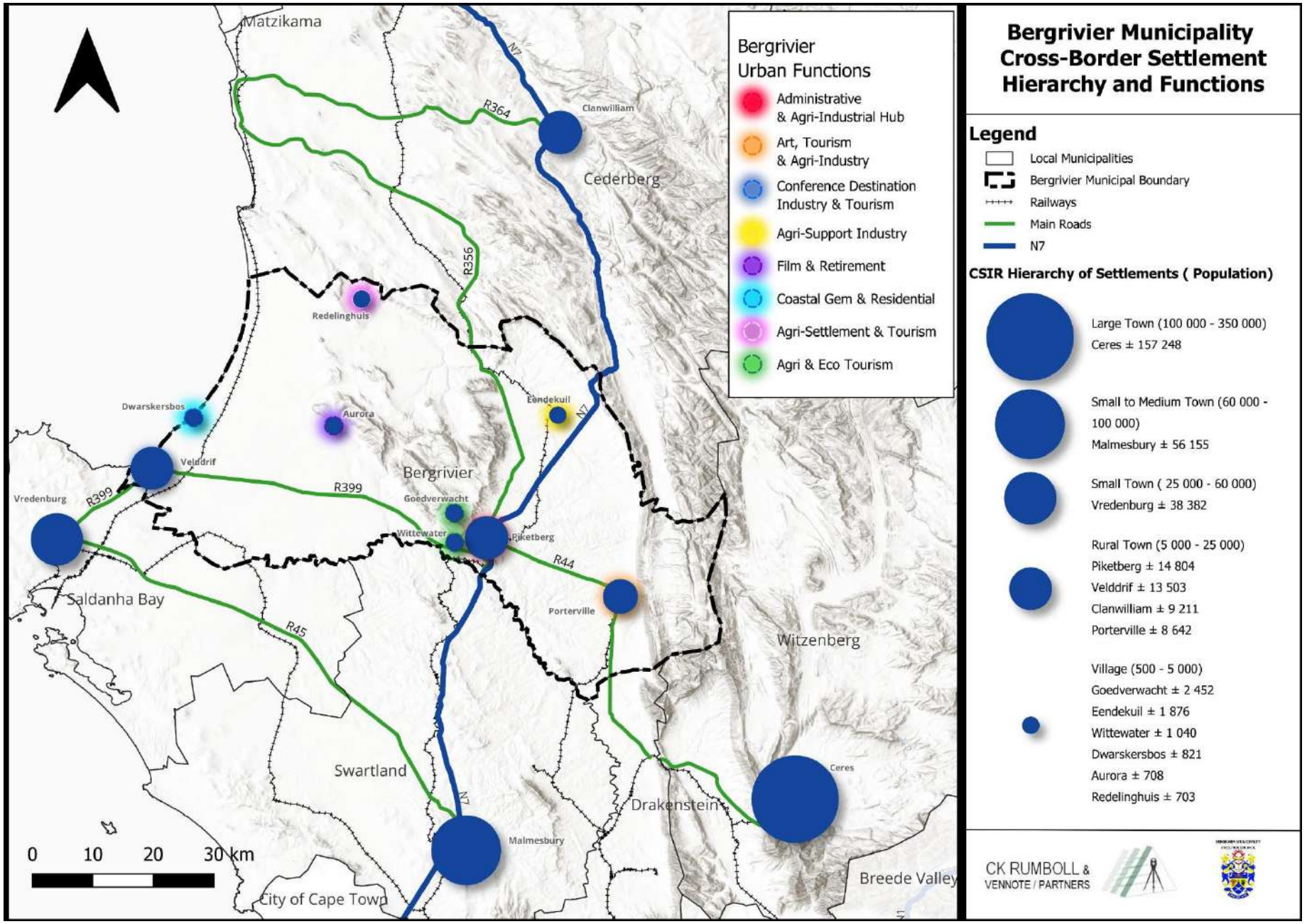


Cross Border Analysis Continued	**Cederberg**	**Witzenberg**	**Drakenstein**	**Swartland**	**Saldanha Bay**
Transport Network Direct development in rural areas to urban settlements with opportunity to grow economy e.g. tourism in Velddrif (Estuary) Aurora, Goedverwacht, Wittewater, Piketberg and Porterville (Mountain Reserves) Promote tourism routes e.g. R62.	- R366 linking with Elands Bay. - R365 linking with Leipoldville. - R393 linking with Citrusdal. Impact of increasing heavy vehicle haulage on route along the coast past Dwarskersbos and through Velddrif.	Impact of influx/migration into Ceres and Tulbagh areas (R44/R46 link).	Link to Saron and Gouda (R44) and implications of proximity of Porterville as a service centre.	- N7 corridor. - R399 linking with Moorreesburg.	- R27 linking with the R45. - R399 linking with Vredenburg, Saldanha and IDZ.
Agriculture Protect river systems and catchments. Protect conservation of natural vegetation.	- Intensive farming of citrus and extensive farming of Rooibos tea.	- Intensive fruit and berry farming.	- Mixed and intensive grape and wine farming.	- Small grain farming.	- Mixed and small grain farming.
Settlement status	Clanwilliam is a village (between 5 000 and 25 000) with a population of ± 9 489 people.	Ceres is a large town (between 100 000 and 350 000) with a population of ± 157 248 people.	Paarl is a large town (between 100 000 to 350 000) and a has a population of ± 247 840 people.	Malmesbury is a small town (between 25 000 and 60 000) with a population of ± 56 155 people.	Vredenburg is a small town (between 25 000 and 60 000) with a population of ± 38 382 people.

Map 31: Bergrivier Municipality Cross-Border Homogeneous Agriculture



Map 32: Bergrivier Municipality Cross-Border Settlement Hierarchy and Service Centre



CHAPTER 3: Land Demand, Supply and Settlement Development Guidelines

SPLUMA requires that the future demand and need for housing and related social and infrastructure services be considered and addressed as part of the SDF to allow for effective and sustainable planning in settlements.

For each urban area the **need (required) and demand for land** within the short term (5 years) and long term (15-20 years) timeframes have to be considered in the spatial proposals. The need for housing equals the population projections as 5-year intervals over the 20-year period. The demand for housing equals the municipal waiting list with the pipeline as the list of priorities.

3.1 Household Growth Projections

The projected need was established using the Midyear Population Estimates, 2022, and projecting the household (hh) growth of Bergrivier Municipality as per the table below.

Table 4: Bergrivier Municipality Household Growth per 5-year cycle (MYPE 2022)[6]

Settlement	**2022 Pop**	**2027 Pop**	Add Pop	**Add HH 2027**	**2032 Pop**	**Add Pop**	**Add HH 2032**	**2037 Pop**	**Add Pop**	**Add HH 2037**	**2042 Pop**	Add Pop	**Add HH 2042**	20 year Add Pop	**20 Year Add HH**
Aurora	705	767	62	**16**	827	61	**16**	905	78	**21**	983	78	**21**	278	**75**
Dwarskersbos	817	889	72	**19**	959	71	**19**	1 049	90	**24**	1 140	90	**24**	322	**87**
Eendekuil	1 866	2 029	164	**43**	2 190	161	**44**	2 396	206	**56**	2 602	206	**56**	736	**198**
Goedverwacht	2 413	2 625	212	**55**	2 833	208	**56**	3 100	266	**72**	3 366	266	**72**	953	**256**
Piketberg	14 725	16 016	1 291	**338**	17 287	1 271	**344**	18 912	1 625	**439**	20 537	1 625	**439**	5 812	**1 560**
De Hoek	402	438	35	**9**	472	35	**9**	517	44	**12**	561	44	**12**	159	**43**
Porterville	8 606	9 360	754	**197**	10 103	743	**201**	11 053	950	**257**	12 003	950	**257**	3 397	**912**
Beaverlac	72	78	6	**2**	84	6	**2**	92	8	**2**	100	8	**2**	28	**8**
De Lust	834	907	73	**19**	979	72	**19**	1 071	92	**25**	1 163	92	**25**	329	**88**
Redelinghuis	700	761	61	**16**	822	60	**16**	899	77	**21**	976	77	**21**	276	**74**
Velddrif	13 435	14 613	1 177	**308**	15 772	1 160	**313**	17 255	1 482	**401**	18 738	1 483	**401**	5 303	**1 423**
Wittewater	1 034	1 125	91	**24**	1 214	89	**24**	1 328	114	**31**	1 442	114	**31**	408	**110**
Rural	29 874	32 492	2 618	**685**	35 071	2 579	**697**	38 368	3 296	**891**	41 665	3 297	**891**	11 791	**3 164**
Total	75 484	82 100	6 616	**1 732**	88 616	6 516	**1 761**	96 945	8 329	**2 251**	105 277	8 331	**2 252**	29 792	**7 996**

The projections reveal that over the 20-year period, the households in the Bergrivier Municipality, will increase by nearly eight thousand (7 996 or 40.5%) households compared to the 19 760 households in 2022.

The projected household growth and income, split into subsidized and taxable, was used to calculate the additional land that needs to be provided for in this SDF cycle. Households that are fully subsidized are those that earn R3 800 and less per month. Households that are partially subsidized can pay municipal tax and are referred to as taxable. Erven of 120 to 195m² for GAP units and 500m² for high income were used as the norm to calculate the netto (net) land requirements. The below table indicates the 5-year household projections per category (Subsidized) or (Other including GAP, FLISP, Affordable and non-subsidized) and netto land requirements, including the total land required for amenities.

[6] Calculated with a total average of a 4-person household

Table 5: 5-year household projections per taxable category and netto land requirements

Additional Households & Land (ha)			2027				2032				2037				2042				Additional 20 Year Total				
Settlement	Waiting list	Net Land Required (ha)	Households		Net Land (ha)		Households		Net Land (ha)		Households		Net Land (ha)		Households		Net Land (ha)		Households		Net Land (ha)		Total add. net land per settlement incl Wlist
			Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	
Aurora	88	**1,5**	9	14	0,14	0,62	9	14	0,15	0,63	12	18	0,19	0,80	12	18	0,19	0,80	41	63	0,66	2,86	**5,02**
Dwarskersbos	0	**0**	8	11	0,12	0,50	8	11	0,13	0,51	10	14	0,16	0,65	10	14	0,16	0,65	35	51	0,57	2,30	**2,87**
Eendekuil	273	**4,9**	17	26	0,27	1,16	17	26	0,28	1,18	22	33	0,35	1,51	22	34	0,35	1,51	79	119	1,26	5,35	**11,51**
Goedverwacht	26	**0,5**	28	27	0,45	1,21	29	27	0,46	1,23	37	35	0,59	1,57	37	35	0,59	1,57	131	124	2,10	5,59	**8,19**
Piketberg	2318	**42,2**	130	208	2,08	9,35	132	211	2,12	9,51	169	270	2,71	12,15	169	270	2,71	12,16	601	959	9,61	43,17	**94,98**
De Hoek			2	8	0,03	0,34	2	8	0,03	0,34	2	10	0,04	0,44	2	10	0,04	0,44	8	35	0,13	1,56	**1,69**
Porterville	1324	**24,2**	82	116	1,30	5,21	83	118	1,33	5,29	106	150	1,70	6,77	106	150	1,70	6,77	376	534	6,02	24,04	**54,26**
Beaverlac			2	0	0,02	0,00	2	0	0,03	0,00	2	0	0,03	0,01	2	0	0,03	0,01	7	0	0,11	0,02	**0,13**
De Lust			0	19	0,01	0,84	0	19	0,01	0,86	0	24	0,01	1,10	0	24	0,01	1,10	2	87	0,03	3,90	**3,92**
Redelinghuis	254	**4,7**	9	7	0,15	0,31	9	7	0,15	0,32	12	9	0,19	0,40	12	9	0,19	0,40	42	32	0,67	1,44	**6,81**
Velddrif	1084	**19,2**	159	148	2,54	6,67	162	151	2,59	6,78	207	193	3,31	8,67	207	193	3,31	8,67	734	685	11,75	30,80	**61,75**
Wittewater	12	**0,2**	10	13	0,17	0,60	11	14	0,17	0,61	14	17	0,22	0,78	14	17	0,22	0,78	48	61	0,77	2,76	**3,73**
Rural	0	**0**	385	300	6,16	13,51	392	305	6,27	13,74	501	390	8,01	17,56	501	390	8,01	17,56	1778	1386	28,45	62,37	**90,83**
Total	5 379	**97,3**	841	896	13,32	39,70	855	911	13,69	40,37	1082	1147	17,49	51,61	1082	1147	17,50	51,62	3860	4101	62,00	183,30	**345,70**

Key: Sub - households that are fully subsidised earning R3 800 and less per month; Tax – households that are partially subsidised and can pay municipal tax.

3.2 Housing Demand

The projected demand was established as 5 379 opportunities as per municipal waiting lists in June 2023. The biggest demand for subsidised (RDP/Indigent) as well as GAP and social housing exists in Piketberg, Porterville and Velddrif.

Table 6: Waiting list entries per income group (Municipality, July 2023)

Settlement	R0 - R3 500 RDP/ Subsidised /Indigent	R3 501- R22 000 GAP	>R22 000 Affordable	TOTAL
Aurora	76	12	0	88
Eendekuil	218	55	0	273
Goedverwacht	15	10	1	26
Piketberg	**1 760**	**554**	**4**	**2 318**
Porterville	**1 022**	**289**	**13**	**1 324**
Redelinghuis	187	67	0	254
Velddrif	**893**	**185**	**6**	**1 084**
Wittewater	10	2	0	12
Other	0	0	0	0
TOTAL	**4 181**	**1 174**	**24**	**5 379**

The need is for 1 174 GAP and 24 Affordable housing opportunities as per the waiting list (July 2023) with the highest need in Piketberg and Porterville.

There is a substantial demand for holiday and medium and higher income housing and housing for retirees in the coastal towns of Velddrif, Dwarskersbos as well as in Aurora. These are popular destinations for weekends and holidays. There is also a high demand for agricultural worker housing in Redelinghuis and Eendekuil.

Provision should be made for female-headed households which constituted a third (31.5% or 16 275 households) of the total households in 2011.

Sixty-one per cent (60,9%) of households in 2016 in the Bergrivier Municipality own their dwellings, whilst a fifth (20%) rented theirs from private individuals. In addition, Bergrivier Municipality has a total of 1 872 backyard dwellers (2023). Formal dwellings have increased from 79.4% in 2021 to 81.2% in 2022. (SEP 2021 and 2022).

The table below indicates the Bergrivier Municipality waiting list as well as the total land required.

Table 7: Bergrivier Municipality housing waiting list and netto land requirements

Town/Settlement	RDP (0-R3500)	@160 m² equals ha	R3501-R22000	@250 m², equals ha	>R22000	450m²	TOTAL	Total ha Required	Provided SDF2018
Aurora	76	1,1	12	0,3	0	0,0	88	1,5	29,7
Eendekuil	218	3,5	55	1,4	0	0,0	273	4,9	9,1
Goedverwacht	15	0,2	10	0,3	1	0,0	26	0,5	-
Piketberg	1760	28,2	554	13,9	4	0,2	2318	42,2	93,4
Porterville	1022	16,4	289	7,2	13	0,6	1324	24,2	267,2
Redelinghuis	187	3.0	67	1,7	0	0,0	254	4,7	16,8
Velddrif	893	14,3	185	4,6	6	0,3	1084	19,2	132,2
Wittewater	10	0,2	2	0,1	0	0,0	12	0,2	-
Other	0	0,0	0	0,0	0	0,0	0	0,0	-
TOTAL	**4181**	**66,9 ha**	**1174**	**29,4 ha**	**24**	**1,1 ha**	**5379**	**97,3 ha**	**548,4**

3.3 Bulk Infrastructure Capacity

The availability of bulk infrastructure and services contributes to the economy and future development in settlements within Bergrivier Municipality.

The need for water treatment works (WTWs) infrastructure is very high in Eendekuil, whilst upgrading of WTWs is required in Velddrif, Aurora, and Dwarskersbos.

The need for wastewater treatment works (WWTWs) is very high in Velddrif, while upgrading of WWTWs is needed in Piketberg, Dwarskersbos and Eendekuil with an entirely new sewer system required in both Redelinghuis and Aurora.

The need for increased electrical capacity is high in Velddrif and Dwarskersbos while upgrades are required in Porterville and Piketberg. Promotion and establishment of green/renewable projects for Bergrivier Municipality are encouraged in all settlements.

Improved storage for potable water is required in Piketberg, Eendekuil, and Dwarskersbos while upgrading of existing storage infrastructure is required in Porterville.

Table 8: Bergrivier Municipality Infrastructure Status Quo Summary

Settlement	Water Source	WTW	Water Storage	WWTW	Electricity
Aurora	2028 – 2033	2028 – 2033	>2033	Septic Tanks	>2033
Dwarskersbos	2028 – 2033	2028 – 2033	< 2028	< 2028	< 2028
Eendekuil	2028 – 2033	< 2028	< 2028	2028 – 2033	>2033
Goedverwacht	Private	Private	Private	Private	Eskom
Piketberg	2028 – 2033	2028 – 2033	< 2028	2028 – 2033	2028 - 2033
Porterville	>2033	>2033	2028 – 2033	>2033	2028 – 2033
Redelinghuis	>2033	>2033	>2033	Septic Tanks	>2033
Velddrif	2028 – 2033	2028 – 2033	>2033	2028 – 2033 & <2028	<2028
Wittewater	Private	Private	Private	Private	Eskom

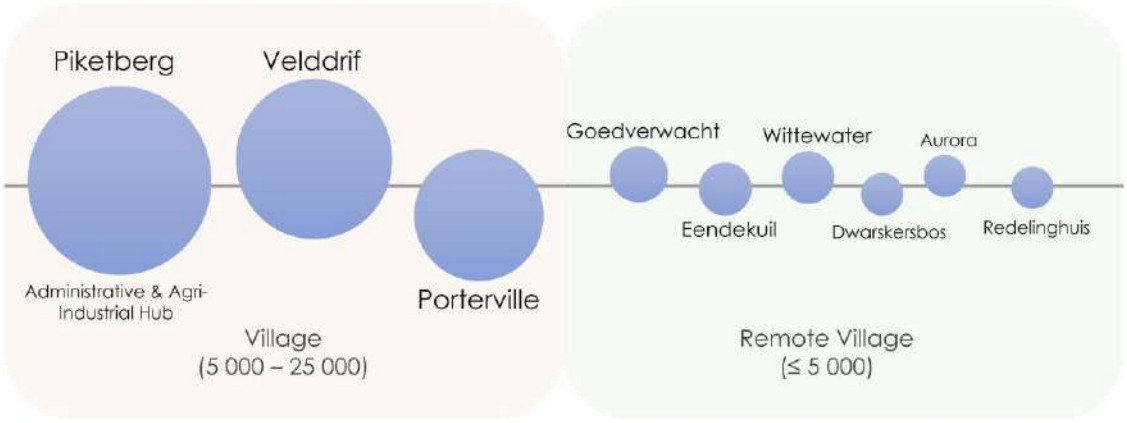
The provision of bulk services as per Master Plans considered the housing backlog and housing need projections. The following threats, strengths and weaknesses related to infrastructure were identified.

Opportunities	Threats
▪ Catalytic projects enabling the provision of infrastructure.	▪ Expensive potable water. ▪ Loadshedding.
Strengths	**Weaknesses**
▪ Infrastructure/ Roads R399, R365, R366 and N7.	▪ Upgrading of infrastructure - future development. ▪ Housing backlog. ▪ Low levels of income & dependency on Municipal support.

3.4 Settlement Function

The extent of land required is informed by considerations such as settlement function or economic basis.

The classifications of settlements in Bergrivier Municipality according to their populations range from Piketberg, being a sub-regional service centre and Piketberg, Velddrif and Porterville being villages and all the remaining settlements being a remote village.



The Western Cape Growth Potential Study (2014) determined the settlement and socio-economic status of settlements in the Western Cape outside of the Cape Town metropolitan area along with their growth potential and investment directives. The study identifies the growth potential of the Bergrivier municipal area as Medium (46) in relation to the Western Cape. At a settlement level Porterville has a high growth potential whilst Velddrif, Piketberg, Dwarskersbos and Eendekuil have a medium growth potential. Aurora and Redelinghuis have low growth potential.

Index	Piketberg	Porterville	Velddrif	Aurora	Eendekuil	Redelinghuis
Human Capital	Low	High	Medium	High	Medium	Low
Economic	Medium	Medium	Medium	Medium	High	Medium
Physical	Medium	Medium	High	High	Medium	Low
Infrastructure	Medium	Medium	Medium	Medium	Medium	Low
Institutional	Medium	Medium	High	High	High	High
Composite Growth Potential	Medium	Medium	Medium	Medium	Medium	Medium

The Study considered five indices which among others include:

- ***Human Capital Index***: level of education, income and employment.
- ***Economic Index****:* average per capita income, change in economic diversity, Gross Value Added and number of businesses per person.
- ***Physical Index***: rainfall, presence of groundwater, grazing capacity and growth in area cultivated.
- ***Infrastructure Index***: access to municipal services and transport.
- ***Institutional Index****:* the innovative potential of a settlement (Western Cape Province, 2014).

Though the composite growth potential is Medium, the socio-economic needs are Medium in Piketberg and Porterville, Low in Velddrif and Very Low in Aurora, Dwarskersbos, Eendekuil and Redelinghuis.

Socio-economic needs include Household services, Education level, Housing need & Economic characteristics						
Growth Potential		Very Low	Low	Medium	High	Very high
	Very low					
	Low	Aurora, Redelinghuis				
	Medium	Dwarskersbos, Eendekuil	Velddrif	Piketberg		
	High			Porterville		
	Very High					

As the majority (65%) of the Bergrivier Municipality's population in 2023 is between 15 and 60 years of age (labour force) with a quarter (25.4%) being children aged 0 – 14 years, Smart City outcomes should be promoted in Piketberg, Porterville and Velddrif.

3.5 Land Required

The economic basis of settlements, and hence settlement status, was used to generate overall development proposals (opportunity generation). The extent of land required for amenities and Industrial and Business zoned land are tabulated below:

Table 9: Land requirement according to household growth

Land (ha) requirement according to household growth																
	Land Required	2027			2032			2037			2042			20 Year Total		
Main Town	**Res**	**Total**	**Bus**	**Ind**	**Total**	**Bus**	**Ind**	**Total**	**Bus**	**Ind**	**Total**	**Bus**	**Ind**	**Total**	**Bus**	**Ind**
Aurora	1,5	0,76	0,05	0,27	0,77	0,05	0,27	0,99	0,07	0,35	0,99	0,07	0,35	5,02	0,35	1,76
Eendekuil	4,9	1,43	0,10	0,50	1,46	0,10	0,51	1,86	0,13	0,65	1,86	0,13	0,65	11,51	0,81	4,03
Goedverwacht	0,5	1,67	0,12	0,58	1,69	0,12	0,59	2,16	0,15	0,76	2,17	0,15	0,76	8,19	0,57	2,87
Piketberg	42,2	11,43	0,80	4,00	11,62	0,81	4,07	14,86	1,04	5,20	14,86	1,04	5,20	94,98	6,65	33,24
Porterville	24,2	6,51	0,46	2,28	6,62	0,46	2,32	8,46	0,59	2,96	8,47	0,59	2,96	54,26	3,80	18,99
Redelinghuis	4,7	0,46	0,03	0,16	0,47	0,03	0,16	0,59	0,04	0,21	0,59	0,04	0,21	6,81	0,48	2,38
Velddrif	19,2	9,22	0,65	3,23	9,37	0,66	3,28	11,98	0,84	4,19	11,98	0,84	4,19	61,75	4,32	21,61
Wittewater	0,2	0,76	0,05	0,27	0,78	0,05	0,27	0,99	0,07	0,35	0,99	0,07	0,35	3,73	0,26	1,31
Total Urban	97,4	32,24	2,26	11,28	32,79	2,30	11,48	41,91	2,93	14,67	41,92	2,93	14,67	246,25	17,24	86,19
Rural		19,67	1,38	6,89	20,00	1,40	7,00	25,57	1,79	8,95	25,58	1,79	8,95	90,83	6,36	31,79
Total, whole municipal area		51,91	3,63	18,17	52,79	3,70	18,48	67,48	4,72	23,62	67,49	4,72	23,62	337,08	23,60	117,98

Key: Res – Residential; Bus – Business; Ind – Industrial.

Table 10: Land requirement for amenities

			Required Amenities as per 2037 population							
	Village: 5 000 -25 000		20 272	17 997	11 519	2 501	1 094	944	937	
Life Balance	**Facility**	**Norm**	**Piketberg**	**Velddrif**	**Porterville**	**Eendekuil**	**Dwarskersbos**	**Aurora**	**Redelinghuis**	**Sum (Ha)**
Health & Emergency Services	Primary Health Clinic or Satellite (S) or Mobile (M)	1/5 000 - 7 000	0	0,2	0	0,2	0	0,2	0,2	0,8
	Police Station	Variable	0	0	0	0	0	0,1	0	0,1
Education	Further Education and Training	NR	2,6	2,6	0	0	0	0	0	5,2
	Primary School	7 000	0	0	1,8	0	0	0	0	1,8
	ABET (A) / Skills Training (S)	Variable				2,6	0	2,6	0	5,2
	Grade R Class at Primary School	1/1000	1,2	0,96	0,64	0,1	0	0	0	2,88
	Crèche / Early Childhood Development	1/2 400 - 3 000:	0,32	0,24	0,4	0,1	0	0,1	0,1	1,2
Recreation Facilities	Local/Neighbourhood Park (includes play equipment for children)	1 000	0,5	0,5	0	0,5	0,5	0	0	2
	Urban Gym (RSEP)	Not Required	0	0,35	0,35	0	0	0	0	0,7
	Athletics/Cricket Stadium (grassed field/ athletics track stand 3000/ seats)	Cricket field	0	0	1,2	1,2	0	1,2	1,2	4,8
	Performing Arts Centre	Not Required	0	0,06	0,06		0	0	0	0,12
Civic	Home Affairs (Medium or Small Office)	Variable	0,05	0	0	0	0	0	0	0,05
	Thusong Centre	1/ Mun	0,2	0,2	0,2	0	0	0	0	0,6
	Labour Office	Variable	0,05	0	0	0	0	0	0	0,05
	Municipal Offices	1/ Mun	0	0	0	0	0	0	0	0
	Solid Waste Disposal site (LF), Transfer site (WT), Recycling depot (RD), recycling igloos (RI)	nC	0	1	0	0	0	0	0	1
Cultural	Home for Aged (HA), Retirement Village (RV)	Variable	1,2	0	0	0	0	0	0	1,2
	ICT Access Point (Library)	10 000+	0,02	0,02	0,02	0	0	0	0	0,14
	Cemetery - (Medium = M)	0,88ha/ 5 000; 4,4ha/ 25 000	0,25	0,25	3,4	0,5	0	0,25	0,25	4,9

3.6 Land Supplied

The land supplied is dealt with in Chapters 5, Settlement proposals and 7, Capital Expenditure Framework.

At a municipal and regional level, the following is recommended to improve the walkability and accessibility of settlements in the Bergrivier Municipality to proximate social amenities:

a) Integrate recreation facilities into the open space network within settlements and between settlements.
b) Land use parameters for social amenities should be customised and include the relaxation of parking parameters where more than half of the users are walking to reach such an amenity.
c) Land use parameters for businesses in historical core areas should be relaxed to encourage walking.
d) Land use parameters for business, industry and service industry include storage.

CHAPTER 4: Issues, Vision and Goals

This chapter provides an overview of Strengths, Weaknesses, Opportunities and Threats. It spells out the Spatial Vision for the Bergrivier Municipality and sets Goals to achieve its desirable spatial form.

4.1 The Bergrivier Municipality Priorities

As per the Bergrivier IDP, 2022-2027, the priorities are:

- Sound Financial Management;
- Expenditure/ Supply Chain Management / Assets;
- Financial sustainability (Income / Debtors / Credit Control / Enquiries);
- Budget / Reporting / Financial Statements;
- Systems / Property Valuation and Rates (IDP 2023 pg. 203).

4.2 Strengths, Weaknesses, Opportunities and Threats

The following table provides a SWOT analysis of the biophysical, social & economic and built environments (as per the Status Quo report). The relevant municipal departments and ward councilors participated in the SWOT analysis.

OPPORTUNITIES	THREATS
• Access value chains: – IDZ, Saldanha: R27 & R399 links to Saldanha Bay. – Access to Cape Town: N7 provides easy access to ports (air and sea), linking Namibia and Southern Africa. • Access to information driving future economic development. • Governance and regulation (SPLUMA): SPLUMA: Municipality governs development and investment to enable economic growth. • World economy. • World nature conservation initiatives. • Alternative and green energy. • Tourism (Cape Camino, Paragliding World Championships, Fauna and Flora: Rare Birdlife).	• Economic Globalization: Mechanisation and technology require fewer but skilled labour. • Climate change: Causes changes to precipitation, seasons, micro-climates and habitat stability, these changes impact negatively on the region, economy, natural resources and social sector. • Exporting scarce resources. • Urbanization: Increase in population. Influx of seasonal workers requiring housing. Migration from cities to towns specifically Dwarskersbos and Velddrif). • A high percentage of households are dependent on state subsidised housing: challenge to create compact liveable urban environments, efficient resource and finance utilization and to sustain service delivery. • Expensive Potable Water: Coastal Towns: To counter insufficient water sources, desalination was introduced. Maintenance of desalination plant is expensive and energy requirements are high, inhibiting operation. • Unsustainable use of groundwater for irrigation (intensive agriculture: potato and fruit farming). • Insufficient & unreliable electricity provision. • Poverty and Unemployment.

STRENGTHS	WEAKNESSES
• Settlements: Growth towns/ Service Centres (Piketberg - regional, Eendekuil, & Redelinghuis– agricultural, agri-settlement & agri-processing, Velddrif – tourism, alternative energy and freight). • Water Sources: Berg River, Misverstand Dam. Natural Resources generating tourism: • Mountains: Piketberg & Winterhoek Mountain ranges. • Diversity in agriculture: Unique produce i.e. Rooibos tea. • International Sport and Recreation: (Cape Camino, Paragliding World Championships, Fauna and Flora: Rare Birdlife). • Natural coastal belt (West Coast). Economy: • Infrastructure: Roads (N7, R399, R27, R44 R366, R365). • Highest contributors: – To Employment – Agriculture, Trade and accommodation and Community, social and personal services. – To GDP - Agriculture, Manufacturing and Finance, insurance, real estate & business services. • Precinct Plans (Piketberg, Porterville, Velddrif &, Velddrif Heritage Precinct Plan).	• Maintenance of infrastructure and provision for future development including state subsidised housing. • Zoned land and Shelter: • Require ±150ha over the next 5 years and ±346ha over the next 20 years (till 2042). • Housing backlog in 2023: 5 379 households. • Need for industrial land within settlements. Need for agri-industrial land within and outside settlements. • Low levels of income/ Poverty. • 1 920 indigent households (in 2021) and increased dependency on municipal support and resources. • Gini Coefficient (income inequality): 0.60 (income generated is mainly received by less than half of the households in the Bergrivier Municipality. • Dependency ratio: 45% or 1:0.8 (number of working age population (aged 15 to 64) to dependants (aged zero to 14 and over 65)) (SEP, 2022). • Human Development Index: 0.55, lower than WC: 0.74 (SEP, 2022). Dependency on subsidies. • School dropouts and matric pass rate of 79,6% (SEP, 2022).

4.3 Conceptual Proposal

From the SWOT analysis of the Bergrivier Municipality it can be concluded that the N7 is a powerful North South connector as is the R399 to the Saldanha Bay IDZ. Both connectors present a variety of economic opportunities within the conservation worthy agricultural and natural landscape, intersecting Piketberg as administrative capital and pivoting around Velddrif as economic growth point supportive to the Saldanha IDZ.

Within settlements, the following transitions are important:

From	To
Built Environment	
Fragmented communities destroying the unique character and quality of life in settlements and rural settlements representing: ▪ Unsympathetic architecture and structure. ▪ Wide roads and excessive black tar surfaces. ▪ Conflict between pedestrians and motorcars. ▪ Commercial ribbon development and an overload of billboards. ▪ Security gates, telephone poles, masts and satellite dishes. ▪ Loss of continuous open spaces. ▪ Minimal landscaping (being reinforced by day zero and by solar installations when trees are removed). ▪ Absence of Non-Motorised Transport (NMT) and inadequate street furniture and pedestrian walkway provision.	Rejuvenated and growing settlements to be liveable and diverse and enabling the population to be economically mobile: ▪ Promote complementing architecture and prohibit removal of trees of 20 years+. ▪ Soften main roads in settlements and calm traffic. ▪ Promote pedestrian and cycling pathways (NMT). ▪ Develop a code for where and how to display billboards, guard natural gateways and prohibit signage and advertisements along water side of developments. ▪ Promote underground instead of above ground service reticulation including communication networks. ▪ Protect the agricultural and conservation landscape. ▪ Promote open spaces as part of an OS network. ▪ Encourage landscaping and tree lanes and require each land unit being created to plant two trees. ▪ Prepare for climate change. ▪ Allow topography to inform development.
Settlement urban edges were delineated for 5- and 20-year horizons whilst low densities prevailed.	Intensify land uses within settlement edges in accordance with IZS.
Density norms were determined for each town. A densification rate was determined, and infill development encouraged in order for settlements to achieve 50- year density parameters.	Promote rejuvenation of settlements whilst keeping precinct character and promote infill development, increased floor factor and potential subdivisions or re-development. Implemented precinct plans.
A vacant land audit to identified developable land within the urban areas is required.	Enhance economic mobility and sustainable settlements. NMT and adequate and well-maintained walkways provided
Socio Economic	
Although there are excellent primary and secondary schools, only half of the population is semi-skilled or skilled.	Ensure there are accessible opportunities for educational progression, for example FET college, skills schools and university satellites. Promote crèches and preschools and provide for safe multi-disciplinary schools.
Quality health care is requested by the community.	Deliver supportive and high-quality community health care across the municipal area
Despite low skills level, the workforce is stable.	Provide for skills training. Promote entrepreneurial spaces and skills.
Biophysical Environment	
Extensive and intensive agriculture removes most natural vegetation.	Protect agricultural land and include conservation
Landscapes determine the status of assets and include Agricultural landscape, Wilderness, Waterways and connectors, Cultural-historical landscape, Connector routes and Corridors, Social foci and Community facilities and activities.	Enhance landscapes and utilise assets as tourist destinations. Support expansion of conservation initiatives

4.4 Spatial Vision and Strategy

The **vision** of Bergrivier Municipality is:

"Bergrivier: a prosperous community where all want to live, work, learn and play in a dignified manner." Or in Afrikaans "Bergrivier: 'n vooruitstrewende gemeenskap waar almal wil leef, werk, leer en speel op 'n menswaardige manier".

The **mission** of Bergrivier Municipality is:

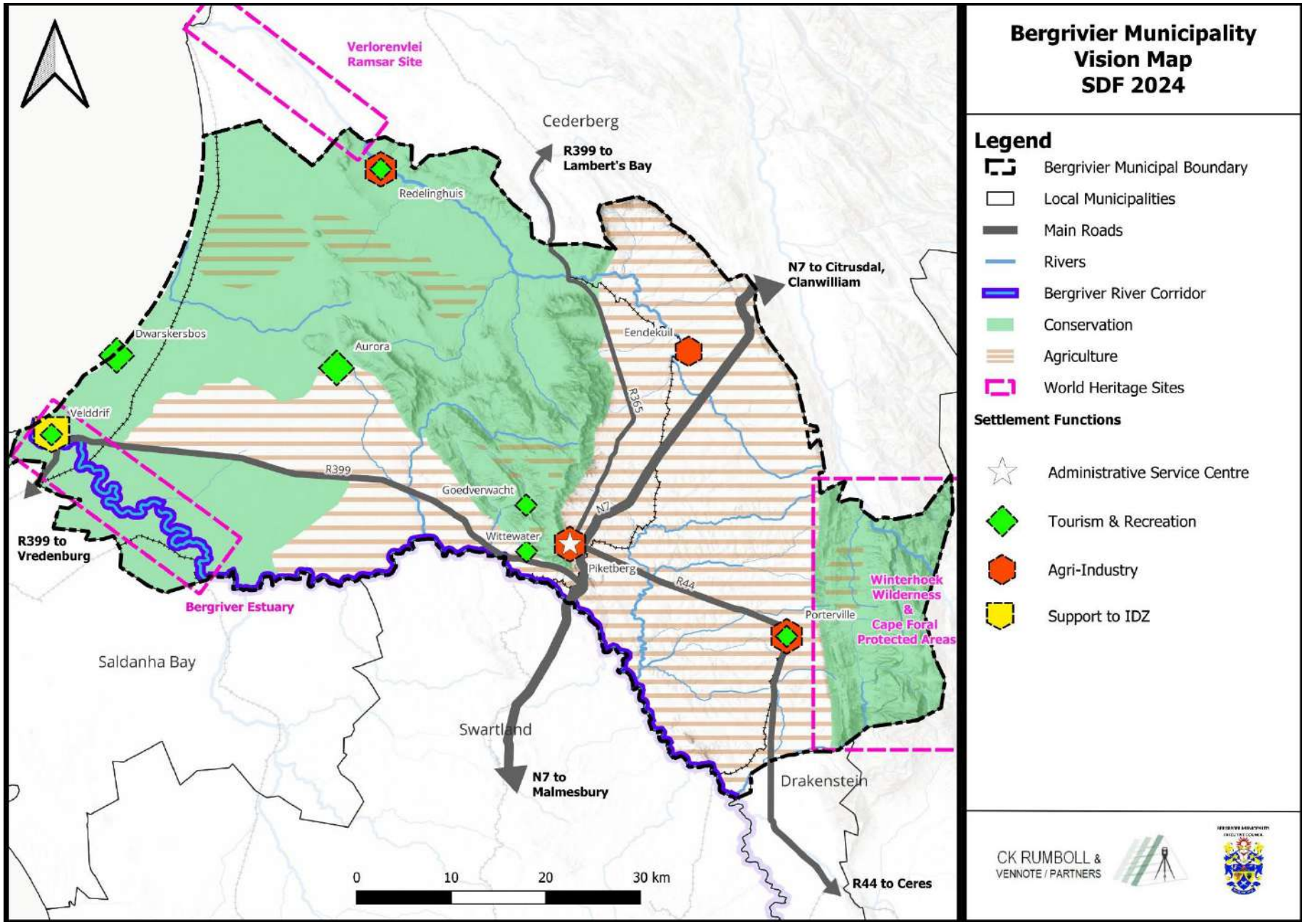
"Commitment to sustainable development and the delivery of services that are responsive to the developmental needs of all communities in Bergrivier Municipality." (IDP)

Core Values

The core values of Bergrivier Municipality are:

- We are all part of Bergrivier Municipality;
- We strive to render good service to ensure that all people can live together in a dignified manner;
- We are unashamedly pro-poor;
- We are ethical;
- We believe in good relationships;
- We believe in close innovative partnerships;
- We believe in social and economic development of the area;
- We are disciplined;
- We care about our work and our colleagues; and
- We serve with pride. (IDP)

Map 33: Bergrivier Municipality Vision Map



4.5 Spatial Objectives

The spatial objectives of the SDF will be informed by the IDP's strategic objectives and the vision of Bergrivier Municipality:

IDP Strategic Goal and Objectives	MSDF Strategic Objectives & Strategies
Strengthen financial sustainability: - To budget strategically - Entrench the Long-Term Financial Plan in the planning, implementation and management of the organisation - Diversify revenue and ensure value for money services - Ensure sustainable financial risk and asset management - Diversify by sourcing grant funding to support projects, programmes and initiatives of Council - Ensure transparency in financial management by ensuring that all financial records are accurate, reliable and timely	*Objective 5: Protect ecological and agricultural integrity.* 1.1 Protect food & water security & apply bioregional classification. 1.2 Grow conservation potential and formalise conservation of CBAs and apply river management. 1.3 Protect and preserve sensitive habitats and enhance Ecosystem services.
	Objective 4: Protect and grow place identity (sense of place) and cultural integrity. 2.1 Protect heritage resources, scenic resources & place identity. 2.2 Grow cultural potential. 2.3 Grow economy (landscape & conservation, tourism & new markets and economic sectors) & stimulate sector diversification.
Ensure good Governance - Create an efficient, effective, economic and accountable administration. - Provide a transparent and corruption free municipality. - Provide accountable leadership supported by professional and skilled administration. - Communicate effectively with the public - Apply a customer centred approach to everything.	*Objective 3: Sustain material, physical and social well-being.* 3.1 Protect safety and security. 3.2 Protect fundamental community resources (air, water & energy). 3.3 Provide (change) social infrastructure and services (as per norm) to facilitate smart growth. 3.4 Manage risk & disaster (man-made and natural).
Sustainable service delivery: - Develop and provide bulk infrastructure within climate change risks. - Maintain existing bulk infrastructure and services. - Develop, manage and regulate the built environment. - Source alternative sources of energy in the context of national electricity provision. - Conserve and manage the natural environment and mitigate the impacts of climate change.	*Objective 2: Proximate, convenient and equal access.* 4.1 Provide (change) sustainable infrastructure and services (smart growth). 4.2 Provide for zoned land for residential and industrial development and education. 5.1 Protect economic vibrancy.
Facilitate an enabling environment for a diversified economy and growth to alleviate poverty. - Improve the regulatory environment for ease of doing business. - Promote tourism. - Alleviate poverty through job creation in municipal driven projects and programmes. - Ensure all policies and systems in Bergrivier Municipality support poverty alleviation. - Attract investment through catalytic infrastructure.	*Objective 2: Proximate, convenient and equal access.* 5.1 Protect economic vibrancy. 5.2 Provide (change) sustainable infrastructure and services (smart growth). 5.3 Provide zoned land for residential and industrial development and education.
Attract investment through catalytic infrastructure. - Promote healthy lifestyles through the provision of sport, recreation and other facilities and opportunities. - Promote continued partnerships for youth development. - Promote a safe environment for all who live in Bergrivier Municipal Area. - Develop a Master Plan for "Smart Cities" in Bergrivier Municipal Area.	*Objective 1: Grow (& unlock) economic sectors and prosperity.* 6.1 Grow economy & stimulate sector diversification & product development. 6.2 Strengthen mobility and economic links (investor confidence). 6.3 Develop product and trade advantages (export value chain & agri-industry corridors) and competitive advantage.

CHAPTER 5: Settlement Proposals

A compact urban form supports spatial sustainability, one of the cross-cutting planning principles as advocated in SPLUMA and LUPA. Both the general directives and specific settlement proposal that follow in this chapter, enhance the five SPLUMA and LUPA principles to achieve a compact urban form:

5.1 General Settlement Directives

General proposals for all Bergrivier settlements arranged according to the spatial objectives to achieve the vision of both the MSDF and Bergrivier Municipality, are outlined below. All directives promote either protection, change or development.

Objective 1: Grow economic prosperity and economic sectors		
No	**Proposals**	**Directive**
	Water	
1	Encourage reduced household use whilst managing increased future water demand driven by population growth.	Protect
2	Encourage rainwater harvesting and greywater recycling.	Protect
3	Investigate and secure alternative water resources.	Develop
	Sewerage and Sanitation	
4	Provide treatment plant capacity for future demand.	Develop
5	Replace septic tanks as the opportunity arises.	Change
6	Promote waste to energy generation projects.	Change
	Roads and Stormwater	
7	Maintain road and storm water infrastructure.	Change
8	Re-use stormwater.	Change
9	Upgrade storm water systems.	Change
	Waste	
10	Promote measures in accordance with the Bergrivier Municipality Integrated Waste Management By-law of 2021 to reduce and separate recyclable waste, garden waste, and building rubble from domestic waste delivered to waste facilities, while diverting organic waste from municipal waste disposal facilities with annual targets: 50% diversion by 2022, and 100% diversion by 2027.	Change
11	Encourage the repair and refurbishing of electrical goods to divert fit-for-use material from going to waste, and encourage composting as part of the Organic Waste Diversion Strategy (2020) at the home and settlement level.	Develop
12	Allocate resources to ensure compliance with the conditions of licenses, permits, and audit report findings regarding waste management practices and facilities.	Develop
13	Rehabilitate and close decommissioned landfill and waste sites while securing funding for rehabilitation and waste diversion, including composting facilities. Additionally, make land available for the separation and sorting of recyclable materials, ensuring accessibility for small-scale recyclers.	Change
14	Implement waste awareness programmes and campaigns directed at schools, youth, families and the wider community.	Change
15	Promote collaboration between the implementation of River Management Plans and Integrated Waste Management Strategy to prevent pollution.	Change
	Bulk Electricity, Alternative Energy and Reticulation	
16	Provide and manage adequate street lighting.	Develop
17	Support the use of alternative energy sources e.g. solar and wind and the development and installation of alternative energy facilities at domestic and municipal level.	Develop
18	Develop directives to accommodate Electric Charging Stations and preferably locate charging stations at filling stations.	Develop
19	Provide for waste to energy facilities in industrial and agricultural areas.	Develop

All Services: Reticulation infrastructure, WWTW, WTW, reservoirs, substations, overhead powerlines, stormwater networks, roads (tar and gravel), fibre networks.		
20	Continuously secure budgets and maintain, replace and upgrade all services and reduce losses.	Change
21	Plan, budget and provide capacity for future medium and long term demands (over the next 20 years) considering population growth and densification.	Develop
22	Secure appropriately located and adequate land for bulk infrastructure expansion, avoid conservation worthy areas.	Develop
23	Ensure basic services to all households including the indigent.	Develop
24	Promote & support sustainable use of resources – e.g. water harvesting and alternative energy generation.	Develop
25	Promote passive building design to minimise energy, solid waste and water demand and promote use of solar water heaters, PV panels, grey water recycling and waste separation at source.	Change
26	Use non-renewable resources in a responsible and frugal manner not exceeding predetermined limits.	Change
27	Plan for adequate solar exposure of buildings. Orientate roof pitches of buildings in such a way that roof solar panels maximise continuous direct access to the sun.	Change
28	Encourage the use of local materials to enhance insulation in the construction of new buildings.	Change
29	Support installation and replacement of communication infrastructure in all settlements	Develop
Safety and Risk Management		
30	Mitigate potential impacts of climate change (as per municipal Climate Change Strategy & Framework).	Change
31	Promote effective management of Air Quality and prevent air pollution.	Protect
32	Implement Department of Water and Sanitation's River Maintenance Programme and plans.	Develop
33	All mitigation and management actions to protect natural resources, must be implemented according to the standards, permit requirements and environmental management plans as applicable.	Change
Commercial & Industrial		
34	Intensify and enhance the Central Business District (CBD) and promote mixed-use.	Protect
35	Intensify development along main activity routes and promote business, small business and mixed-use (a combination of commercial, residential and low impact service industries) to achieve social and functional integration.	Change
36	Develop higher residential density in and around CBD ("cupcake" principle) and along activity streets.	Develop
37	Locate most frequented activities in the most central / accessible localities, e.g. industrial and commercial.	Develop
38	Develop guidelines for commercial facades, advertising signs and information signs to align and enhance local character and historical settings.	Develop
39	Developing nodes to concentrate the business therein and, where growth is required, nodes should be directed to grow along corridors towards each other. Node and corridor development to prioritise the implementation of the needed infrastructure, in a strategic and orderly manner.	Develop
40	Delineate corridors to concentrate activities along and to promote development on both sides of activity streets.	Change
41	Ensure viability and permit markets at highly accessible locations of the movement network and urban structure. These locations could be modal interchanges and intersections.	Develop
42	Promote access (penetration) and encourage intensification of economic activity by orientating the short side of blocks to major streets, wherever possible.	Develop
43	Improve access to and ownership of commercial and industrial land.	Change
44	Promote the use of well-located properties to be commercially used.	Change
45	Encourage infill development, intensification and renewal along activity streets.	Change
Residential		
46	Improve visual character of higher density residential, and in particular subsidised developments, through planting of trees along streets & developing functional, enclosed (where required) open space areas.	Change
47	Support densification through subdivision and infill development.	Develop
48	Include GAP housing schemes as part of subsidised projects so as to cross-subsidize the provision of services.	Change
49	Promote mixed-uses as a key component for achieving improved levels of settlement liveability.	Change
50	Support the development of home occupation/professional services in residential areas.	Develop
51	Encourage provision of a multiple range of affordable entry level housing, catering for various markets and enhancing job creation through mixed and compatible land uses.	Develop
52	Identify Integration Zones in settlements.	Develop
53	Grant residents freehold tenure, i.e. title deeds, immediately after informal areas are serviced so that private temporary shelter upgrading can commence at once.	Change
54	Arrange housing, for the various income groups, according to the socio-economic gradient principle, with the higher end of the market closest to the main thoroughfare.	Develop
55	Provide for safe pedestrian NMT routes between residential areas.	Change
56	Use all well-located vacant land to promote liveability.	Change
57	Promote intensification of land uses and amenities (corridors, nodes and linkages) between settlement precincts and less formal areas.	Change

58	Densification targets for all Bergrivier settlements, mindful of transport infrastructure, biodiversity, heritage resources, open spaces, floodlines, services capacity and existing densities are outlined in the table below:	Change

Gross Densities	2012	'12 Net	2027	2032	Gross Densities	2012	'12	2027	2032
Aurora	4	7.1	6	8	Porterville	5.6	14.3	7	9
Dwarskersbos	5.8	13.1	9	11	Redelinghuis	4.3	10.8	6	8
Eendekuil	4.8	18	8	10	Velddrif/ Laaiplek	5.1	10.5	7	9
Piketberg	5.9	13.8	8	10					

Objective 2: Proximate, convenient and equal access		
No	**Proposals**	**Directive**
	See Annexure 1 for directives by the Department of Infrastructure (DOI) Transport Infrastructure Branch.	
	Roads and Side Walks	
59	Improve accessibility of NMT routes for disabled.	Change
60	Create a clear and connected movement system integrating existing amenities and new residential developments.	Develop
61	Facilitate development opportunities for local entrepreneurs along activity streets.	Develop
62	Provide supporting infrastructure (street furniture and ITC hubs) to improve mobility of residents and tourists.	Develop
63	Sensitively and naturally landscape gateways to announce settlement entrances. Encourage tree lanes and landscaping along activity streets.	Change
	Activity Streets and corridors	
64	Support, concentrate, and promote higher-order development and mixed-uses along activity corridors, fostering intensification and densification.	Change
	NMT Routes	
65	Provide safe NMT routes throughout settlements and along activity streets, improving connectivity in settlements:	Develop
	- Separate cycling lanes from pedestrian and vehicle lanes.	
	- Implement traffic calming measures to create a more pedestrian-friendly environment.	
	- Protect cycling and pedestrian lanes from unauthorized use by motorised vehicles.	
	- Improve surveillance.	
	- Ensure routes are circular and connect different precincts.	
66	Provide for cycle routes along activity corridors.	Develop
67	Develop and promote multi-mode and multi-use routes.	Develop
	Rail	
68	Promote the use of rail as alternative transport for freight (agriculture and mining).	Develop
69	Support the renewal and upgrading of existing railway stations and siding buildings including grain silos and water storage facilities.	Change
	Mobility	
70	Provide for and improve mobility and walkability and:	Develop
	- Promote pedestrian streets, public transport, one-way streets, non-motorised transport.	
	- Promote connectivity between precincts and to and from areas adjacent to CBD and activity streets and corridors.	
	- Provide for a taxi rank and bus stop in CBD.	
	- Create appropriate road cross-section widths that can provide for vehicle traffic, parking, pedestrian movement, cycling and landscaping.	
	- Protect mobility function of routes and where applicable obtain DOI: Transport Infrastructure Branch approval and develop Arterial Management Plans.	
	- Locate activities (residential, transport, work, recreation, etc.) within walking distance (1000m/1km), (see spatial proposal maps illustrating a 1km radius from schools).	
71	Accommodate a variety of uses along activity streets and corridors.	Change
72	Concentrate higher-order social amenities, mixed-use development, and intensive activities along major public transport routes and activity streets, with the majority of public buildings situated along these corridors.	Change
	- Locate buildings closer, rather than further, from the streets to increase pedestrian activity, a sense of enclosure and surveillance.	
	- Secure appropriate maintenance and renewal budgets for mobility infrastructure.	

Objective 3: Sustain material, physical and social well-being		
No	**Proposals**	**Directive**
	Social Infrastructure	
73	Maintain all social infrastructure, with the emphasis on sport, education and health facilities to create safe living environments.	Protect
74	Promote & support adequate primary health & education facilities: crèches, secondary/tertiary facilities.	Develop
75	Align provision of social infrastructure to provision norms.	Change
76	Promote multi-functional recreational areas (e.g. children's playparks, day camping and picnic facilities).	Change
77	Locate community amenities (library and museum) in a central area.	Develop
78	Allow for adequate expansion of cemeteries.	Develop
79	Promote and provide for ICT and telecommunications infrastructure.	Develop
80	Support establishment of crèches and other education facilities in residential areas.	Develop
81	Promote social infrastructure and job opportunities within walking distance, while identifying areas for future social infrastructure with easy access to communities.	Develop
82	Promote the utilisation of social amenities and schools for multiple purposes during their operation. Re-purpose buildings once they are no longer in use.	Develop
	Amenities /Community Facilities	
83	Strengthen community spaces and encourage settlement squares.	Change
84	Position social services and infrastructure centrally to be shared by residents across the entire income gradient.	Change
85	Establish a multi-purpose community facility linked to skills training centres.	Develop
86	Capitalize on economic assets and use the "within walking distance" principle to regenerate, revitalise and restructure settlements.	Change
87	Provide vulnerable and disadvantaged residents access to integrated and economically viable tourism spaces to conduct business (arts and crafts, cultural and heritage, local guides and local food).	Develop
88	Promote urban rural linkages and use "soft" land uses such as outdoor sport and recreation routes including hiking and mountain biking, bird watching, wildflower viewing, horse trails, fishing and water sport.	Develop
89	Promote community gardens and create partnerships for food security.	Develop
90	Cluster together a hierarchy of three levels of business and community facilities to ensure that higher-order facilities will be enjoyed by the most people:	Change
	- Tertiary: Hospitals, courts, multi-purpose centres, regional or metropolitan transport interchanges, museums and indoor sports complexes;	
	- Secondary: High schools, day care centres, hospitals, libraries, sports and community halls and sportsfields;	
	- Primary: Primary schools, crèches, clinics, bus and mini-bus taxi stops.	

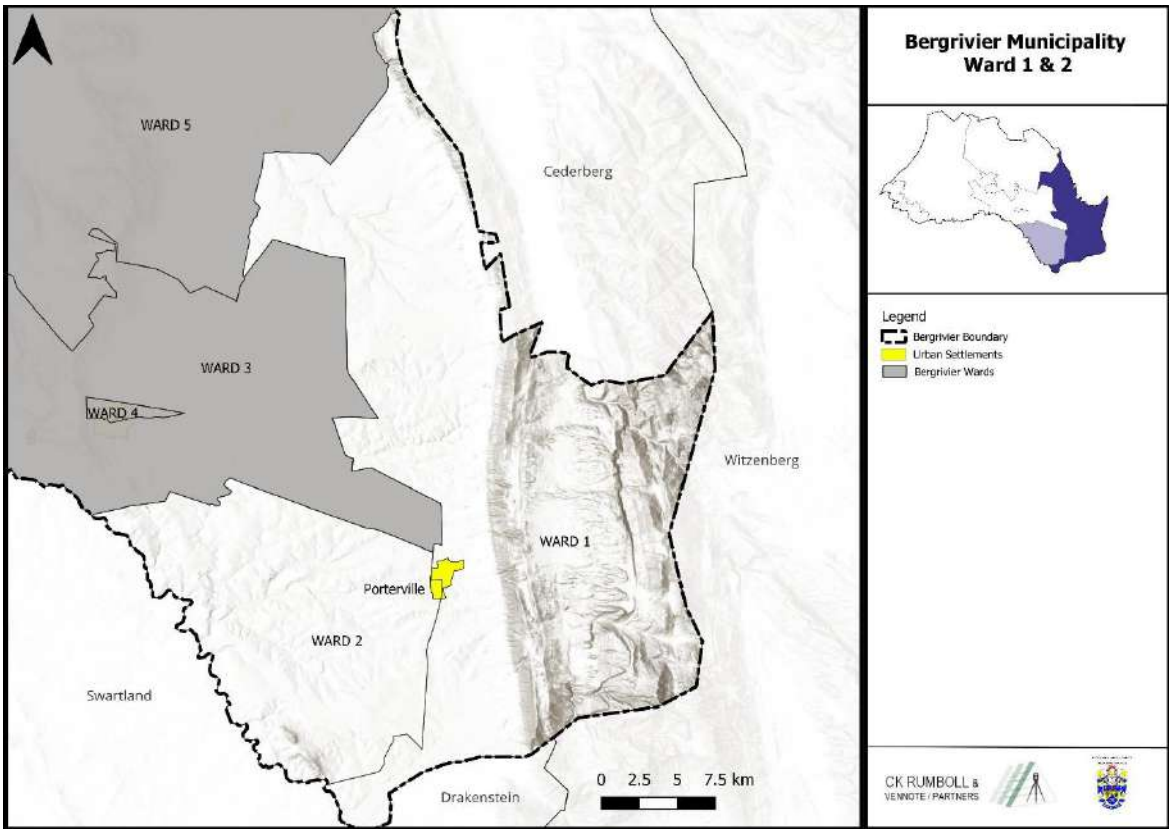
Objective 4: Protect and grow place identity and cultural integrity		
No	**Proposals**	**Directive**
	Heritage and Tourism	
91	Ensure that signage, and colors used on commercial buildings or sites align with the rural agricultural character. Mandate sensitive signage placement along the roadside, on buildings, and in sensitive core areas.	Change
92	Control alterations and demolition of buildings older than 60 years and promote sensitive development around and of heritage buildings.	Protect
93	Protect historic settlement character whilst sensitive densification by means of infill development and willingness of owners to subdivide is supported.	Protect
94	Maintain historic core areas and precincts and support development or rejuvenation of precincts with a fresh or new sense of place with appropriate transition buffers between the old and new.	Protect
95	Promote heritage assets as tourism attractions in order to protect their significance.	Protect
96	Promote heritage trails informed by appropriate and sensitive information boards.	Change
97	Enhance the Cultural Heritage Route and include art, sport and food experiences in the settlements of Aurora, Redelinghuis, Wittewater, Goedverwacht and Piketberg.	Protect
98	Promote landscape features of settlement surroundings as part of tourist attractions.	Protect
99	Beautify settlement accesses by planting lanes or clusters of trees, incorporating landscaping, and preserving natural features. Additionally, furnish streets and enhance the landscape of settlement centres and heritage destinations.	Change
100	Use heritage buildings as amenities promoting sport e.g. skateboarding.	Change
101	Protect the traditional grid layout pattern (urban structure).	Protect

5.2 Development Proposals and Urban Edge Expansions

Settlement proposals include proposed urban expansions where required. Proposals follow implementation timeframes. 5-year urban edge proposals represent development likely to take place in the current MSDF cycle, 20-year proposals represent long term development and Future Urban Expansion represents speculative development and likely settlement growth directions.

5.3 Wards 1 & 2: Porterville

Porterville is located in Wards 1 and 2, the most eastern wards of Bergrivier Municipality. Porterville nestles at the foot of the Olifants River Mountains and has a solid mixed agricultural base. It is home to magnificent sunsets, paragliding and the arts.



5.3.1 Porterville Status Quo

Porterville has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Hot and dry summers with powerful thermals ideal for paragliding. • Climatic conditions attractive to tourists both in summer and winter: hot and dry summers and rainy, moderate winters. • Beautiful sunsets and late light beneficial for film industry. • Highly productive agricultural land surrounding the settlement. • World Heritage nature reserve in Winterhoek mountains. • Jakkalskloof River and two more tributaries provide for links with the agricultural and rural surroundings. • Railway infrastructure. • Dams, golf course and sports infrastructure.	• *Very rare Uniflora Disa and disa colony are threatened.* • *Partially channeled water course occasionally runs dry.* • *Pollution of water courses that are tributaries to the Berg River.*

Socio-Economic:

Strengths	Weaknesses
• Agriculture is a primary economic driver. • Recreation and tourism are other strong economic drivers. • Established public and private tourism facilities. • Good social infrastructure such as churches, schools, libraries, a clinic, police station and sporting facilities. • Good road connection with surrounding settlements and between interior and economic hubs (north and south).	• *Economy largely dependent on agriculture.* • *Limited range of tourist infrastructure and facilities for growing tourist numbers and encourage longer stays.* • *Lack of trees, pedestrian-oriented public space and safe NMT routes and crossings in commercial core to accommodate people doing business on peak business days and in day-to-day business.*

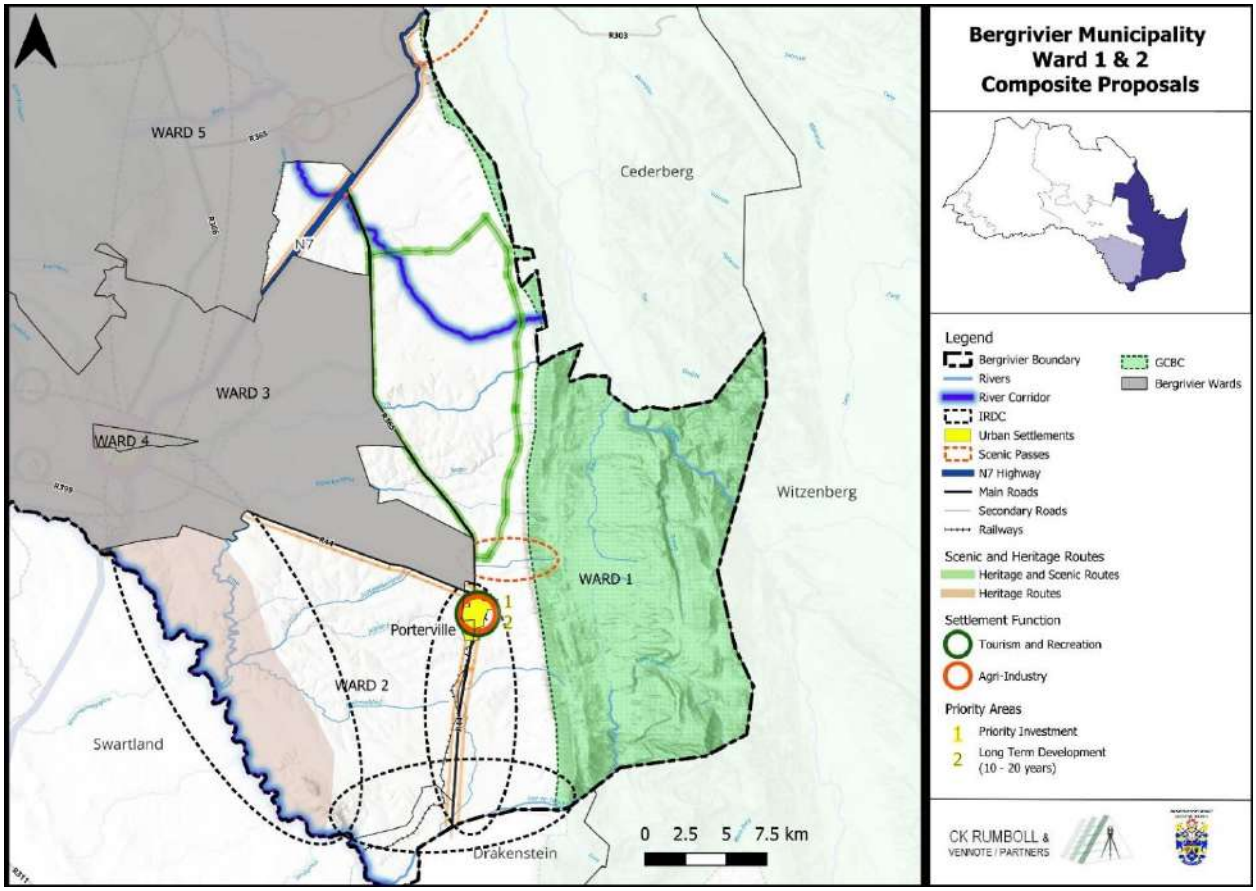
Built Environment:

Strengths	Weaknesses

• Adequate parking provision in the CBD.
• Old social core of precinct (Church, market square, museum, library and village common).
• Upgrading of services infrastructure are required in the long term:
  ○ WTW: Upgrade needed after 2033.
  ○ Water Storage: Upgrade needed between 2028 – 2033.
  ○ WWTW: Upgrade needed after 2033.
  ○ Electricity: Upgrade needed between 2028 – 2033.
	• Few historical buildings in CBD as much of historic fabric have been lost.
	• *Lack of physical and economic integration between Porterville and Monte Bertha.*
	• *Lack of modes of public transport.*
	• *Poor road condition of R44 between Porterville and Piketberg and congestion at bag silos.*
	• *Heavy traffic over weekends and holidays cause Voortrekker Street to be unsafe for pedestrians.*
	• *Lack of Porterville as destination amidst unique destinations surrounding Porterville.*
	• *Lack of informal trading spaces, provision of adequate secure storage for market vendors.*
	• Lack visual permeability and engagement with pedestrian space in CBD due to stepped back buildings.
	• Inactive, unsafe and unserviced market square.

From these strengths and weaknesses, the composite proposals for Wards 1 and 2 are illustrated below:

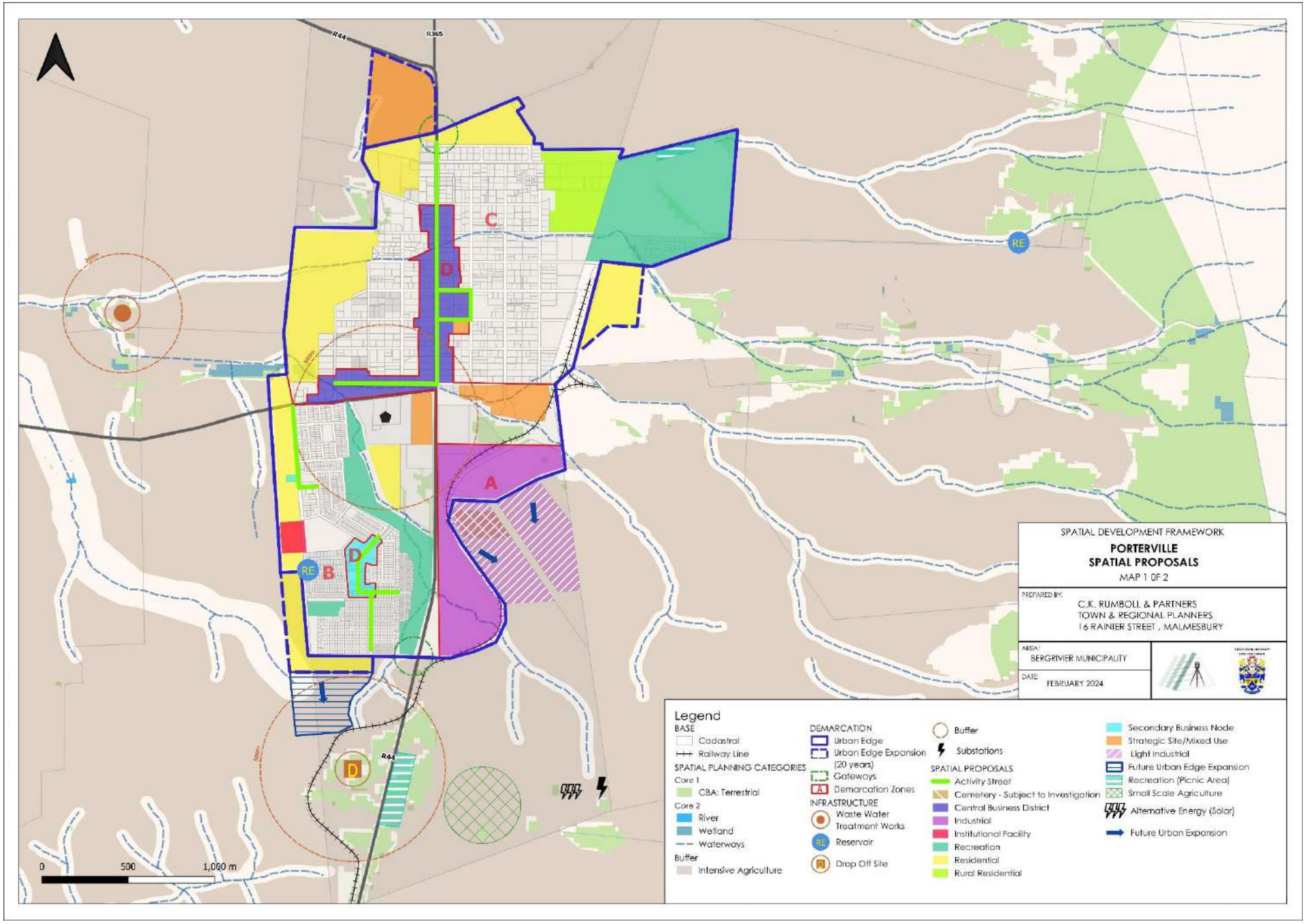
Map 34: Ward 1 & 2 Composite Proposals



5.3.2 Development Zones and Proposals for Porterville

Development Zones are described in the table and delineated in the Porterville SDF proposal map.

PORTERVILLE LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Secondary Education	Place of Instruction	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A is earmarked for industrial use with the possibility of future expansion.				X	X	X	X	X	X		X	X	X	X
B	Zone B contains a high-density residential area with supportive amenities. Provides an opportunity for residential expansion and mixed-use developments at identified nodes.		X	X	X	X	X	X 3,4	X 1,3, 4	X	X	X	X	X 2,3	X
C	Zone C is a medium to low density residential area with supporting amenities. Opportunities for residential development along the periphery of the zone.	X	X	X 1	X	X	X		X1	X	X	X	X	X 2	X
D	Zone D has been identified as the town's CBD and allows for future business expansion. Strengthen the area as the business core of the town and allow for various mixed uses within the identified mixed-use precincts.	X	X	X	X	X	X	X	X	X	X	X	X	X 2	X
(1) Along activity streets/corridors (2) Service trades (3) At identified Mixed Use Precincts (4) At existing/identified business nodes		**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architects, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.													


R44
R365
C
D
A
B
RE
D
D
R44
SPATIAL DEVELOPMENT FRAMEWORK
PORTERVILLE
SPATIAL PROPOSALS
MAP 1 OF 2
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE
FEBRUARY 2024
Legend
BASE
Cadastral
Railway Line
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
River
Wetland
Waterways
Buffer
Intensive Agriculture
DEMARCATION
Urban Edge
Urban Edge Expansion (20 years)
Gateways
Demarcation Zones
INFRASTRUCTURE
Waste Water Treatment Works
Reservoir
Drop Off Site
Buffer
Substations
SPATIAL PROPOSALS
Activity Street
Cemetery - Subject to Investigation
Central Business District
Industrial
Institutional Facility
Recreation
Residential
Rural Residential
Secondary Business Node
Strategic Site/Mixed Use
Light Industrial
Future Urban Edge Expansion
Recreation (Picnic Area)
Small Scale Agriculture
Alternative Energy (Solar)
Future Urban Expansion
0
500
1,000 m

5.3.3 Porterville Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water and Reticulation	
1	Upgrade reservoirs between 2028 – 2033.	Develop
2	Upgrade of WTW after 2033.	Develop
	Sewerage and Reticulation	
3	Upgrade of WWTW after 2033.	Develop
	Waste	
4	Rehabilitate and close landfill site (Closure Licence ref no. 19/2/5/4/F1/1/WL0028/18).	Change
	Bulk Electricity and Reticulation	
5	Upgrade bulk electricity 2028 – 2033.	Change
SPACE, BUILT		
	Residential	
6	Provide different housing types to accommodate a wider market and support densification. - High density areas at PORT5 and PORT18; - Medium to low-density areas at PORT2; - Infill development at PORT9; (Currently being implemented ±4.6 ha) - Rural Residential Development at PORT3.	Develop
7	Provide for GAP housing at PORT1 and PORT5.	Develop
8	Promote mixed-use development with residential uses and associated amenities at PORT25.	Develop
9	Consider longer term residential development at PORT26 and PORT30.	Develop
	Commercial & Industrial	
10	Protect and intensify CBD along main road from Park to Basson Street at PORT7.	Protect
11	Establish secondary business node at PORT11 & PORT23. (Intensification and diversification)	Change
12	Support and promote agri-processing industries to allow value added products close to the source: • Develop a light agri-industrial node around BKB Silos. • Support the expansion of Industry and agri-industry at PORT14.	Change & Develop
13	Support extension of agri-processing industry value chain and promote agritourism and Porterville as a destination: • Support tourism accommodation and related uses across the settlement. • Support implementation of Porterville CBD Precinct Plan. • Develop the railway station buildings at the Silos as a tourism destination.	Change & Develop
14	Consider future expansion at PORT28 and PORT29 for light industrial development.	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Main Roads	
15	Implement Porterville CBD Precinct plan: - Protect and enhance existing heritage assets and resources along Voortrekker Street. - Establish an activity spine that connects Porterville North and Monte Bertha. - Support the development of a range of nodes, attractions and destinations along the activity spine. - Improve the Voortrekker Street commercial corridor by connecting the precinct's destinations with a high-quality, people-oriented public realm inclusive of: o ICT and banking facilities; o Pedestrian crossing between U Save and Spar.	Develop
	Roads	
16	Address congestion on R44 at grain silos and develop a precinct plan and local transport plan. The precinct and local transport plan should address traffic and pedestrian circulation, promote of NMT and shared transport and include the northern settlement entrance, the area around the grain silos and road link to Dasklip pass whilst celebrating the outstanding views and protecting the tree lined entrance.	Change

Pedestrian and cycle routes		
17	Provide for and build safe NMT routes: - Between residential areas and the demarcated precinct plan area. - Along Voortrekker (from Basson Street south wards) and Jakkalskloof Road (Spruitjies Park to hospital), DJ Pearce Avenue and Swart Street. - In south eastern industrial precinct. - Along R44 and industrial area.	Develop
Activity Streets & Corridors		
18	Promote the following streets and street portions as activity streets: - A portion of Voortrekker Street (R44) from the corner of Coetzee Street to the corner of Waterkant Street. - A portion of Church Street between Voortrekker and Piet Retief Streets. - A portion of Piet Retief Street from the corner of Church Street to the corner of Mark Street. - A portion of Mark Street from the corner of Vleis Street toward Voortrekker Street (R44) up to Piet Retief Street. - A portion of Long Street from the corner of Hoog Street to Perdo Street. - A portion of Disa Street from the corner of Hoog Street to the corner of Eland Street. - Vleis Street. - Reservoir Street. - DJ Pearce Avenue.	Change
Intensification		
19	Develop commercial activities along roads parallel to and along Voortrekker Street.	Develop

Objective 3: Sustain material, physical and social well-being

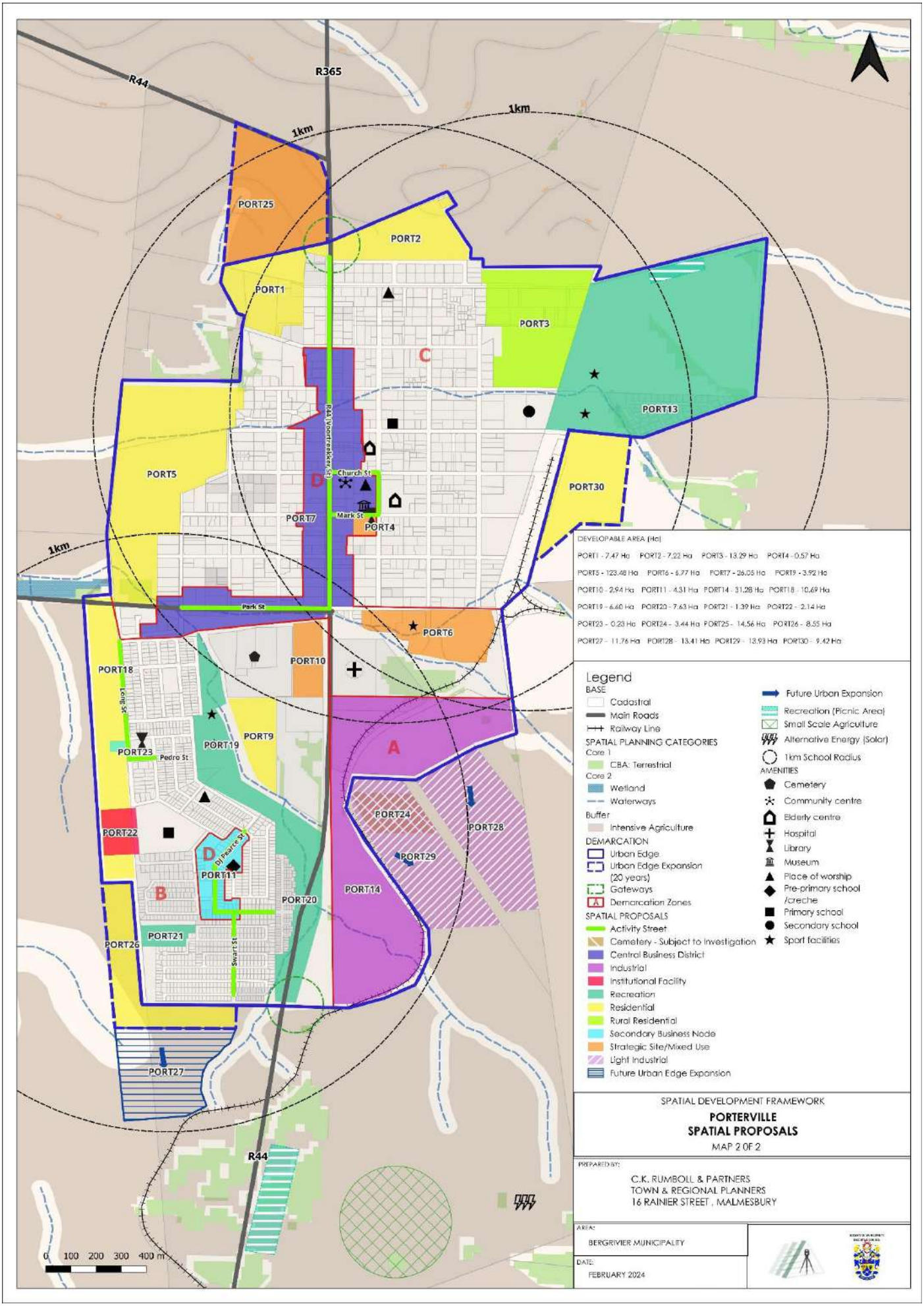
PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
Social Infrastructure, Community facilities & Services		
20	Formalise the open space between Park Street and Monte Bertha as a park.	Change
21	Develop a Market Plain (public square) to promote the arts and for occasional trading purposes at PORT4.	Change
22	Promote Mixed-Use Development predominantly supporting mobility and community uses at PORT10.	Develop
23	Promote the establishment of a sports destination and Sport Academy including but not limited to PORT6, PORT13, PORT19, PORT20 and PORT21. This to be either a single or multiple precinct destination where sports facilities located across the settlement could serve as preparation fields or form part of the destination. Provide for, but not limited to, a cricket field and a golf driving range.	Develop
24	Provide for a new school at PORT22 or the upgrading of existing one (including grades 12 and an English Medium school).	Develop
25	Strengthen and promote Mixed-Use development at PORT6 and PORT10.	Develop
26	Extend cemetery at PORT24 subject to investigation.	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
Heritage & Tourism		
27	Establish a dedicated Arts Train Service which connects Riebeek Valley and Porterville (Similar to the Elgin Railway Tourism Train).	Develop
28	Promote Porterville as the West Coast Arts Capital.	Develop
29	Protect the residential function as agri-settlement whilst promoting its tourism function: Support residences to double-up to provide short term accommodation for national and international visitors.	Protect

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
Public & Private Open Space		
30	Protect and maintain avenue of trees at northern gateway.	Protect
31	Formalise open space corridors to allow for movement between habitat areas along Jakkalskloof River and tributaries and natural areas in and around Porterville and linkages to the Winterhoek Mountains. - Link open space system to Spruitjies Park.	Change
32	Enhance recreational area around dam at PORT13.	Change
33	Create recreational areas both within Monte Berta at PORT20 and to the south of MB, situated across the landfill site.	Develop


R44
R365
1km
1km
1km
PORT25
PORT2
PORT1
PORT3
PORT13
PORT5
PORT30
PORT7
PORT4
PORT6
PORT10
PORT18
PORT19
PORT9
PORT23
PORT22
PORT11
PORT20
PORT21
PORT26
PORT24
PORT28
PORT29
PORT14
PORT27
A
B
C
D
Church St
Mark St
Park St
Pedro St
Swart St
R44 (Voortrekker St)
DEVELOPABLE AREA (Ha)
PORT1 - 7.47 Ha PORT2 - 7.22 Ha PORT3 - 13.29 Ha PORT4 - 0.57 Ha
PORT5 - 123.48 Ha PORT6 - 6.77 Ha PORT7 - 26.05 Ha PORT9 - 3.92 Ha
PORT10 - 2.94 Ha PORT11 - 4.31 Ha PORT14 - 31.28 Ha PORT18 - 10.69 Ha
PORT19 - 6.60 Ha PORT20 - 7.63 Ha PORT21 - 1.39 Ha PORT22 - 2.14 Ha
PORT23 - 0.23 Ha PORT24 - 3.44 Ha PORT25 - 14.56 Ha PORT26 - 8.55 Ha
PORT27 - 11.76 Ha PORT28 - 13.41 Ha PORT29 - 13.93 Ha PORT30 - 9.42 Ha
Legend
BASE
Cadastral
Main Roads
Railway Line
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
Wetland
Waterways
Buffer
Intensive Agriculture
DEMARCATION
Urban Edge
Urban Edge Expansion (20 years)
Gateways
Demarcation Zones
SPATIAL PROPOSALS
Activity Street
Cemetery - Subject to Investigation
Central Business District
Industrial
Institutional Facility
Recreation
Residential
Rural Residential
Secondary Business Node
Strategic Site/Mixed Use
Light Industrial
Future Urban Edge Expansion
Future Urban Expansion
Recreation (Picnic Area)
Small Scale Agriculture
Alternative Energy (Solar)
1km School Radius
AMENITIES
Cemetery
Community centre
Elderly centre
Hospital
Library
Museum
Place of worship
Pre-primary school /creche
Primary school
Secondary school
Sport facilities
0 100 200 300 400 m
SPATIAL DEVELOPMENT FRAMEWORK
PORTERVILLE
SPATIAL PROPOSALS
MAP 2 OF 2
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024

5.3.4 Porterville Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water and Reticulation	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including three (3) fountains in Olifants River Mountains, east of settlement, three (3) reservoirs (3985 kℓ), and pipes to the water purification works. Surplus water is pumped into the Porterville dam (north-east of settlement). Water supply is split and 23/48's is allocated to the settlement (municipality) and 25/48's to farms (agriculture).	Protect
	Waste	
2	Protect and maintain waste drop off and removal to regional landfill sites.	Protect

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Main Roads	
3	Capitalise and strengthen R44 as main movement network and link to Piketberg (N7), Wellington (N1) and Worcester (N1).	Protect
	Roads	
4	Enhance links to agricultural surroundings and keep connection via R365 to Dasklip Pass (Farms on Winterhoek Mountains) and R44 to surrounding wheat fields (north) and mixed farming (south).	Protect

Objective 3: Sustain material, physical and social well-being

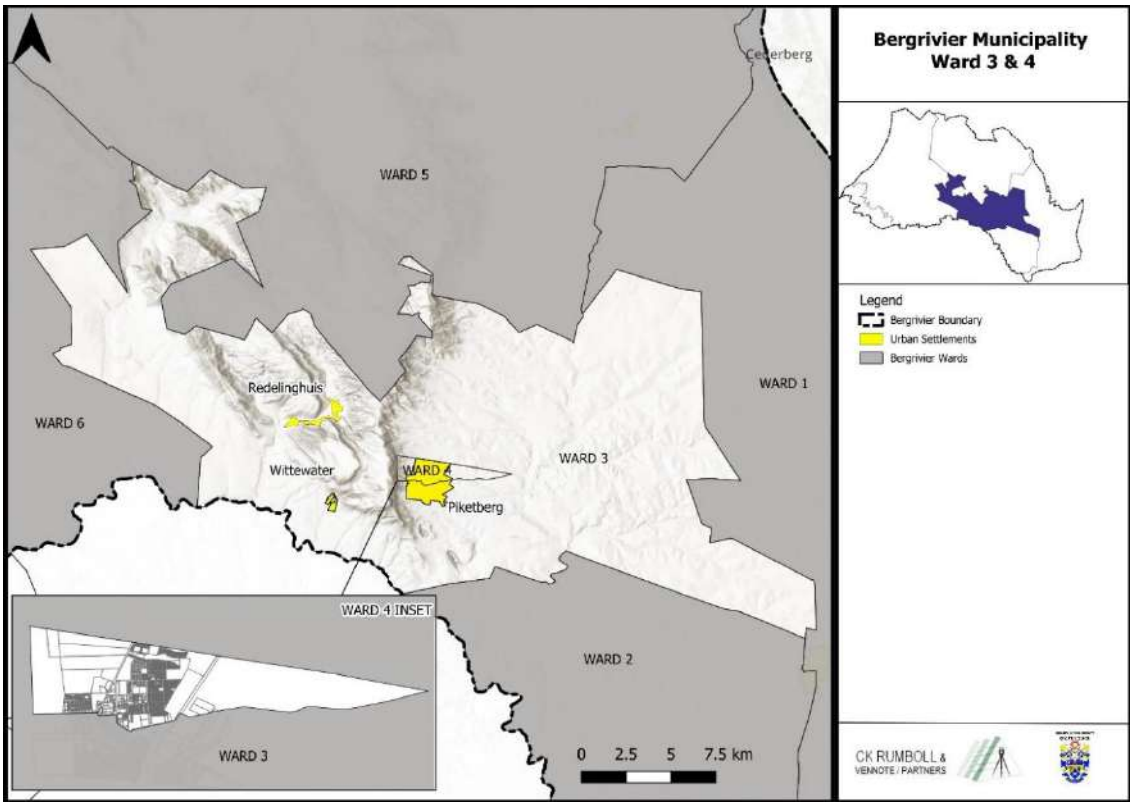
PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Social Infrastructure, Community Facilities & Services	
5	Provide for ICT networks and user sites.	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
6	Protect unique agricultural character amidst the wheat fields of the region.	Protect
7	Protect scenic vistas onto wheat fields and Winterhoek Mountains as per, but not limited to, Porterville CBD precinct plan.	Protect

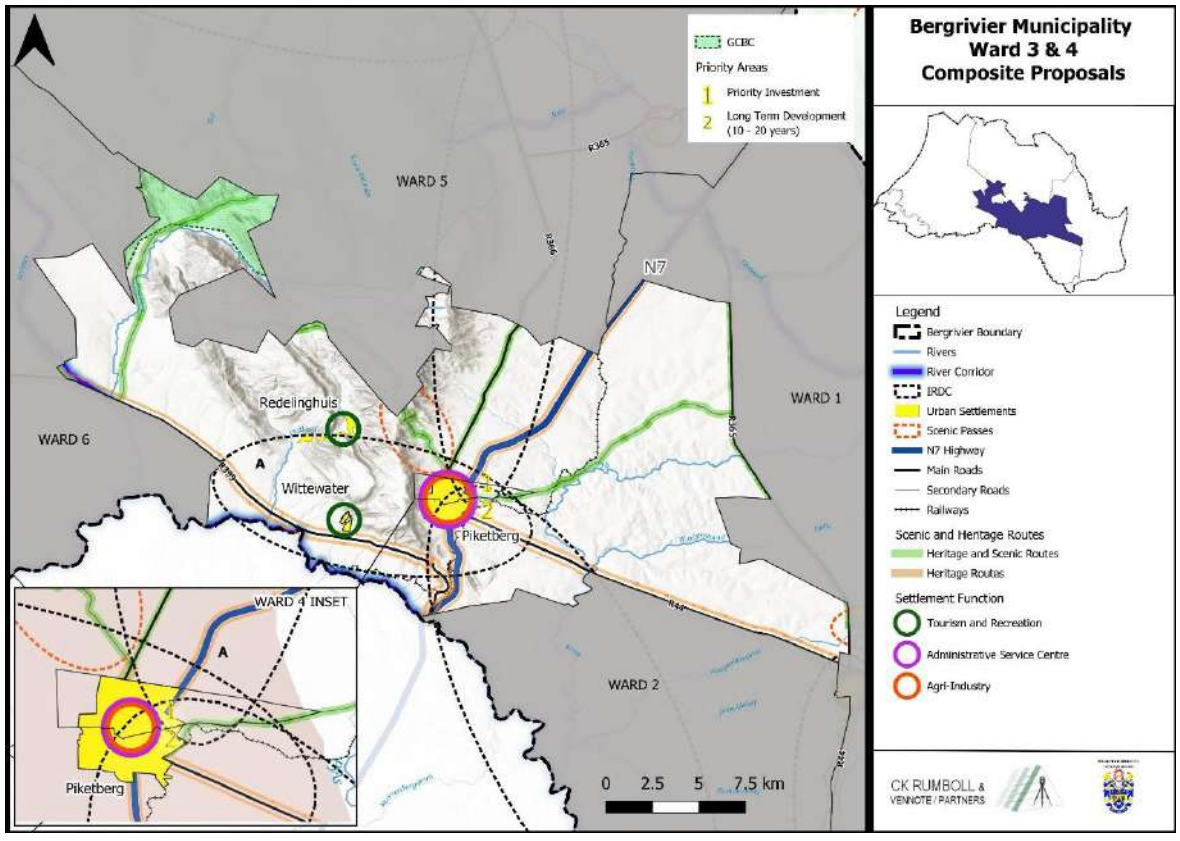
5.4 Ward 3: Wittewater, Goedverwacht and Ward 3 & 4: Piketberg

Wittewater and Goedverwacht are located in Ward 3 and Piketberg in Wards 3 and 4:



From the strengths and weaknesses of Wittewater, Goedverwacht and Piketberg, the composite proposals for Wards 3 and 4 are illustrated below:

Map 35: Ward 3 & 4 Composite Proposals



5.4.1 Wittewater

Wittewater is a remote rural village located against the backdrop of the southern lower slopes of the Piketberg Mountains, just off the R399.

5.4.1.1 Wittewater Status Quo

Wittewater has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Location at the southern foot of the Piketberg Mountains. • Tributaries from the Watervalkloof and Jobskloof crossing through the village. • Opportunities to practice small or commercial scale agricultural for example vegetable cultivation along the river and rearing pigs on farm of 676ha extent.	• Limited small-scale farming.

Socio-Economic:

Strengths	Weaknesses
• Opportunities to practice small or commercial scale agricultural activities. • Primary School and library afford children access to education.	• No individual ownership of land. • Private governance by Moravian Church. • 676ha farm owned by Moravian Church.

Built Environment:

Strengths	Weaknesses
• Small village with strong rural character. • Row of historic houses at the start of Jobskloof. • Central bus stop and pick up point.	• No township established (private, not municipal governance and service delivery). • Inadequate domestic service provision.

5.4.1.2 Wittewater Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Stormwater	
1	Formalise, develop and upgrade stormwater network as part of the internal gravel road network.	Develop
	All Services	
2	Proclaim a settlement area (as per Genadendal Accord) in order for Bergrivier Municipality to deliver services and for individuals to obtain ownership.	Change

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Pedestrian/Cycle Routes	
3	Provide a formal pedestrian route and cycle route: - Through the old village, including row of historic houses at start of Jobskloof as part of a heritage and tourism route. - From Wittewater to the main road (R399) to improve mobility: Improve and widen shoulders along main road and develop a formal pedestrian route.	Develop

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Transport	
4	Enhance transport infrastructure, including the formalised bus stop and facilitate improved provision of public transport between Wittewater and Piketberg.	Change

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Tourism	
5	Protect and maintain the tourist facility at the community hall	Protect
6	Enhance the start of and maintain the Western Cape camino walking trail via Wittewater. Promote the employment of locals as trail guides.	Change
7	Support small-scale tourist opportunities and establish a camping site.	Develop
8	Support establishment of tourism accommodation in historic row houses.	Develop

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Natural conservation	
9	Maintain open space network and natural vegetation corridor along the tributaries of the Jobskloof and Watervalkloof.	Protect
	Public & Private Open Spaces	
10	Support the development of an active open space area behind the north of the bus stop next to the river.	Develop

5.4.1.3 Wittewater Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including boreholes at Broodkraal, four (4) reservoirs (500 kℓ) and water pipes reticulating the water.	Protect
2	Protect water quality and preserve water by managing catchment area of Jobskloof and Watervalkloof rivers and their tributaries.	Protect
3	Provide for a WTW location to treat water supply to improve water quality.	Develop
	Sewerage and Sanitation	
4	Mandate the installation of conservancy tanks when new houses are built.	Develop
5	Provide for a WWTW location and promote bulk treatment of sewerage and reticulation for existing and future demands.	Develop
6	Protect water sources in the absence of a WWTW and monitor and replace septic tanks as opportunities arise.	Protect
	Waste	
7	Enhance weekly waste removal and transportation to transfer station at Piketberg.	Change
	Bulk Electricity and Reticulation	
8	Protect and maintain bulk electrical supply and reticulation infrastructure supplied by Eskom (with the local Overseers Board responsible for the collection of fees from residents).	Protect

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
9	Maintain gravel access road connecting to R399, and internal gravel roads to keep rural character.	Protect
10	Improve mobility of local community to access economic opportunities in neighbouring settlements.	Change

Objective 3: Sustain material, physical and social well-being

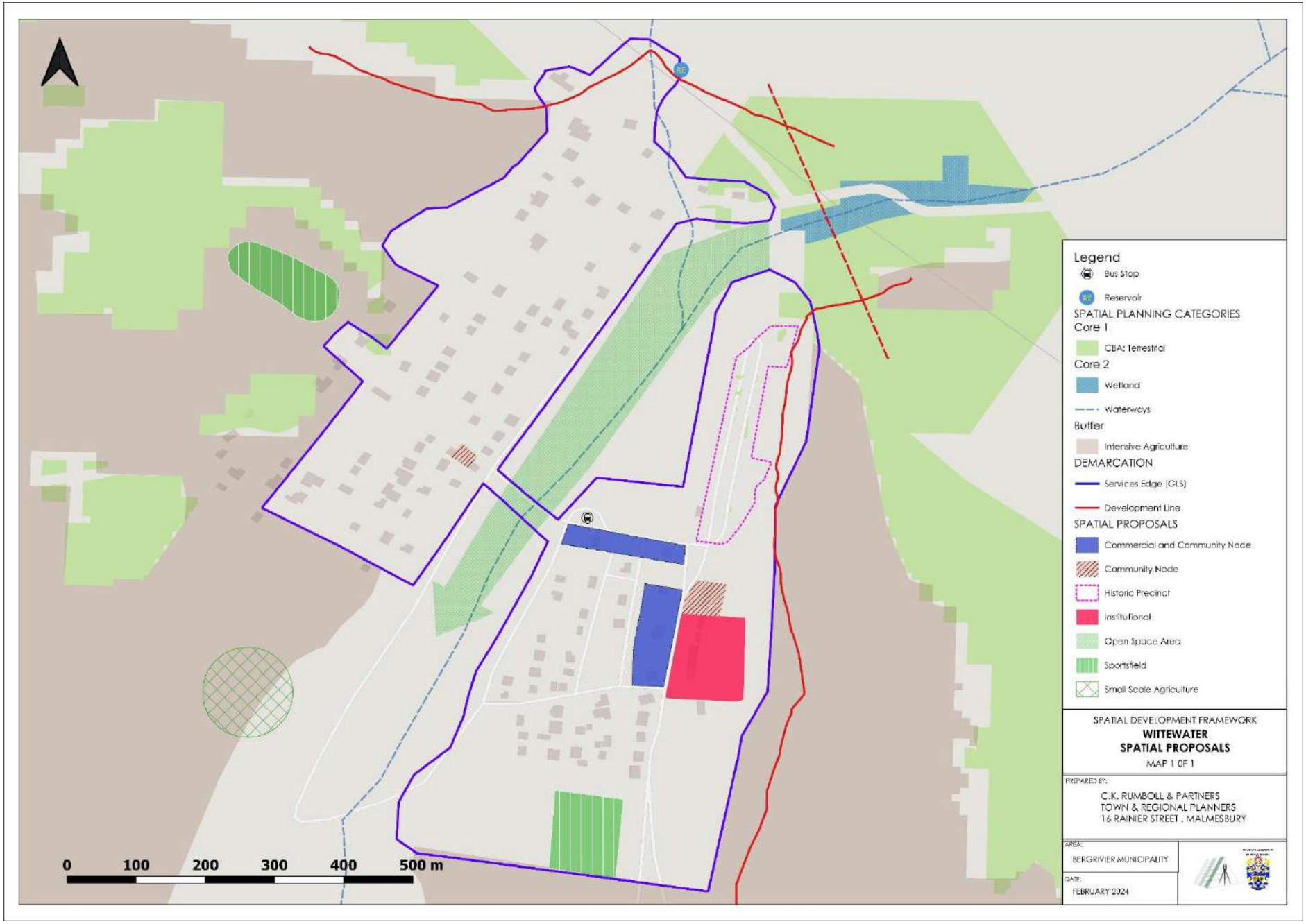
PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Education	
11	Support the Primary School and enhance its role within the agricultural community.	Protect
12	Support the development of facilities for early childhood development.	Develop
13	Maintain community facilities and support development of a multi-purpose community centre.	Develop
14	Support development of a new sportsfield.	Develop
	Small-Scale Agriculture	
15	Contain livestock farming at a safe distance from the river (limit land use conflict and health risks).	Protect

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Tourism	
16	Protect heritage and tourism assets from wildlife that cause destruction.	Change

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Natural conservation	
17	Keep development within rural character of settlement.	Protect
18	Promote tree lanes along activity street and ensure lanes link to the open space areas and routes.	Develop


Legend
Bus Stop
Reservoir
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
Wetland
Waterways
Buffer
Intensive Agriculture
DEMARCATION
Services Edge (GLS)
Development Line
SPATIAL PROPOSALS
Commercial and Community Node
Community Node
Historic Precinct
Institutional
Open Space Area
Sportsfield
Small Scale Agriculture
SPATIAL DEVELOPMENT FRAMEWORK
WITTEWATER
SPATIAL PROPOSALS
MAP 1 OF 1
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
0
100
200
300
400
500 m

5.4.2 Goedverwacht

Goedverwacht, established as a Moravian Mission Station in 1889, is nestled amongst the Piketberg Mountains along the Riet River. The mission station was established on farms Goedverwacht 146, Wolfkloof 141 and Ezelsfontein 147, owned by the Moravian Church and provides opportunity to practice small or commercial scale agricultural activities. Small-scale agriculture includes vegetable cultivation, and particularly "soetpatat" along the river, and rearing small livestock. As the village is under private governance, services provided by Bergrivier Municipality are limited. Limited social and commercial services are available.

5.4.2.1 Goedverwacht Status Quo

Goedverwacht has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Location at the feet of the Piketberg and Skurweberg Mountains. • Platkloof Tributary flowing through the village. • Fertile agricultural land alongside rivers, utilising flood irrigation methods, supporting small-scale agricultural cultivation and small stock.	• Limited small-scale farming. • Water quality of Platkloof tributary.

Socio-Economic:

Strengths	Weaknesses
• Opportunities to practice small or commercial scale agricultural activities on farm 676ha in extent. • Primary School and library afford children access to education.	• No individual ownership of land. • Private governance by Moravian Church. • 676ha farm owned by Moravian Church.

Built Environment:

Strengths	Weaknesses
• Small village with strong rural character. • Row of historic houses at the start of Jobskloof. • Central bus stop and pick up point.	• No township established (private, not municipal governance and service delivery). • Inadequate domestic service provision. • Growing village causes water quality to decrease.

5.4.2.2 Goedverwacht Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Stormwater	
1	Formalise, develop and upgrade stormwater network as part of the internal gravel road network.	Develop
	All Services	
2	Proclaim a settlement area (as per Genadendal Accord) in order for Bergrivier Municipality to deliver services and individuals to obtain ownership.	Change

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Pedestrian/Cycle Routes	
3	Provide a formal pedestrian route and cycle route: - Through the old village as part of a heritage and tourism route. - From Wittewater to the main road (R399) to improve mobility: Improve and widen shoulders along main road and develop a formal pedestrian route.	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Tourism	
4	Support the development of a small-scale holiday resort on the northern periphery of the village to provide economic opportunities and job creation.	Change
5	Support the development of ecotourism and recreation infrastructure and - Encourage the establishment of bird and wildlife hides; - Encourage the establishment of an education centre/ facility; - Maintain natural corridors; - Support development of hiking and mountain bike trails.	Change
6	Develop commercial facilities along Church Street promoting tourism for example Art & Craft and homemade produce.	Develop

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Natural conservation	
7	Delineate, maintain and enhance agricultural opportunities to farm vegetables (part of village heritage and culture).	Protect
8	Maintain an open space network and natural vegetation corridor along the river and: - Avoid intrusive development and uses. - Remove alien vegetation in & along the banks of the river.	Protect
	Public & Private Open Spaces	
9	Protect and maintain sportsfield and former Snoek and Patat festival site to accommodate regular village events.	Change

5.4.2.3 Goedverwacht Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including, four (4) reservoirs (626 kℓ) and water pipes reticulating the water. Piped potable water is available to all the houses in Goedverwacht.	Protect
2	Protect Platkloof river and its immediate catchment area to preserve water and protect water quality.	Protect
3	Maintain water reticulation network to enhance water provision to houses against steeper slopes.	Change
4	Provide for a WTW location to treat water supply to improve water quality.	Change
	Waste	
5	Enhance weekly waste removal and transportation to transfer station at Piketberg. (a Moravian Church appointed contractor).	Protect
	Sewerage and Sanitation	
6	Protect water sources in the absence of a WWTW and monitor and replace septic tanks as opportunities arise.	Protect
7	Mandate the installation of conservancy tanks when new houses are built.	Change
8	Provide for a WWTW location and promote bulk treatment of sewerage and reticulation for current and future demands.	Develop
	Bulk Electricity and Reticulation	
9	Protect and maintain Eskom's bulk electrical supply and reticulation infrastructure (Local Overseers Board collects fees from residents).	Protect
SPACE, BUILT		
	Residential	
10	Advocate for residents to obtain ownership (of erven) and access to cultivation opportunities (leases), as individual ownership is supported by the Genadendal Accord, signed by the Moravian Church.	Change
11	Contain growth of the village below the development line.	Protect
	Commercial	
12	Support commercial development limited to a rural neighbourhood node and supportive to tourism.	Develop
13	Support development of mixed and commercial uses at community node (top of Hoof Street).	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
14	Maintain access road connecting to R399, and internal gravel roads to keep rural character.	Protect
15	Improve mobility of local community to access economic opportunities in neighbouring settlements.	Change
16	Improve the design of internal gravel roads to accommodate stormwater runoff.	Change
	Pedestrian/Cycle Routes	
17	Provide for safe pedestrian routes along Hoof Street.	Change

Objective 3: Sustain material, physical and social well-being

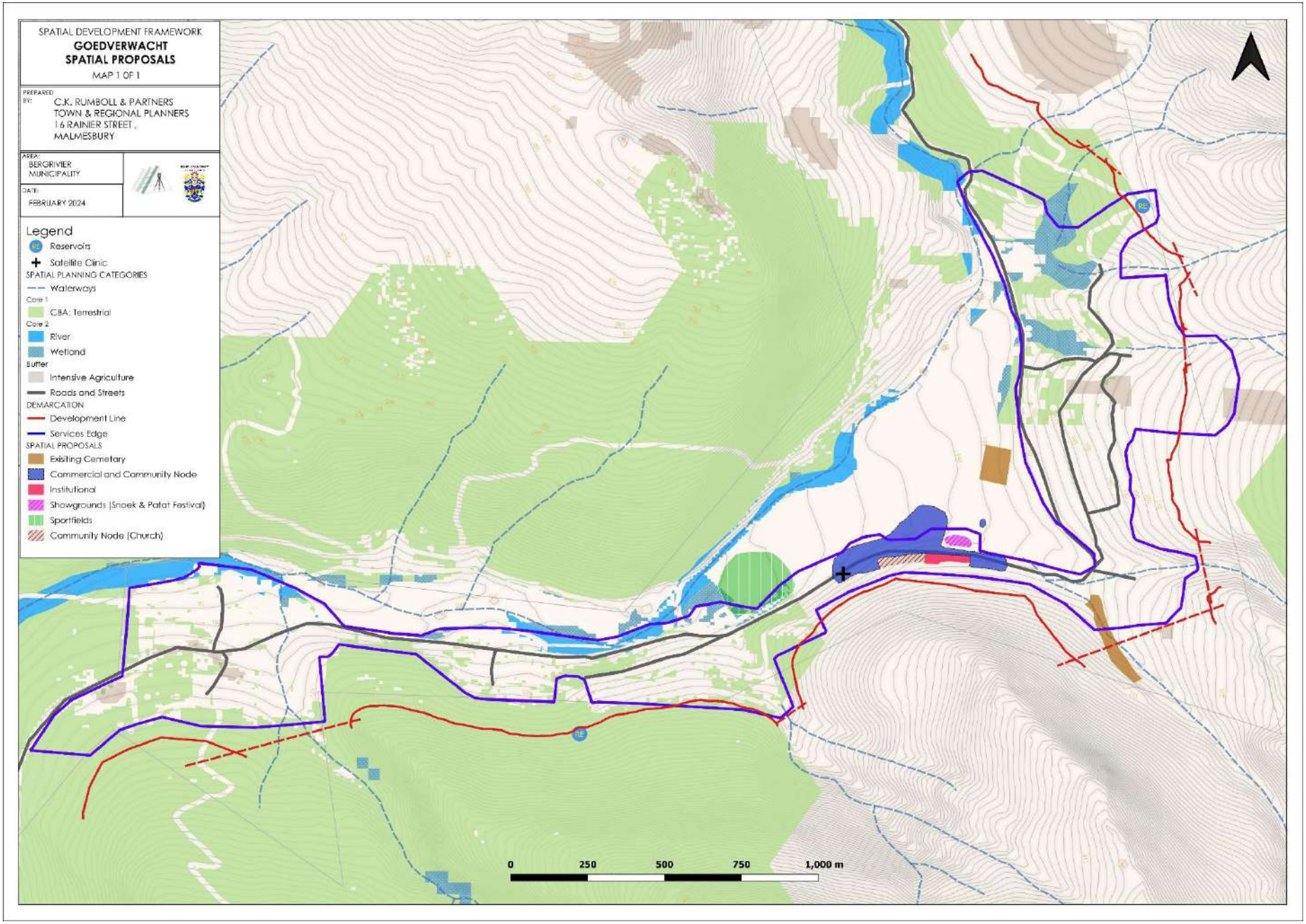
PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Social Infrastructure & Services	
18	Support the Primary School to promote agriculture.	Protect
19	Support development of facilities for early childhood development.	Change
20	Support the development of a multipurpose skills development centre for all ages providing, but not limited, for arts and crafts and home-made produce.	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Tourism	
21	Protect and promote the annual Snoek and Patat Fees.	Protect
22	Improve visual quality of the town and plant trees to support rural character.	Change
23	Identify specific projects that can form part of applications for funding by the registered Goedverwacht Tourism Development Forum.	Change

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Natural conservation	
24	Support the 32-meter setback lines for development along riverbanks.	Protect
25	Ensure the protection of the Platkloof plain and its water quality by limiting intensive livestock farming and promoting community gardens along the riverbanks. Livelihoods depend on farming, and the river serves as the drinking water source. Limit livestock farming to the river area to mitigate land use conflicts and health risks, while also identifying alternative locations outside the village for farming.	Protect
26	Ensure internal development considers the character established by the surroundings and rural landscape.	Develop
29	Support the removal of alien vegetation along the banks of rivers.	Protect
	Public & Private Open Spaces	
27	Strengthen the public areas around the central sportsfield and in the village centre (at Church and School).	Protect
28	Support the maintenance and further development of existing hiking trails on the Goedverwacht farm as an extension of the open space network in the village and as part of the tourism infrastructure in the settlement to support job creation (local community to provide guides).	Change


SPATIAL DEVELOPMENT FRAMEWORK
GOEDVERWACHT
SPATIAL PROPOSALS
MAP 1 OF 1
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET,
MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
Legend
Reservoirs
Satellite Clinic
SPATIAL PLANNING CATEGORIES
Waterways
Core 1
CBA: Terrestrial
Core 2
River
Wetland
Buffer
Intensive Agriculture
Roads and Streets
DEMARCATION
Development Line
Services Edge
SPATIAL PROPOSALS
Existing Cemetary
Commercial and Community Node
Institutional
Showgrounds (Snoek & Patat Festival)
Sportfields
Community Node (Church)
0
250
500
750
1,000 m

5.4.3 Piketberg

Piketberg is located in Wards 3 and 4, and serves as a sub-regional hub within the wider West Coast region. Piketberg plays a vital role in delivering essential agricultural services to neighboring farms and towns. As the principal town within the Bergrivier Municipality, Piketberg is identified as having moderate growth prospects.

5.4.3.1 Piketberg Status Quo

Piketberg has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses

• Unique topography created a settlement on a steep hill with outstanding views over the wheat fields and onto the Olifants River and Groot Winterhoek Mountains.
• Geology of Piketberg Mountains includes a lime deposit on south eastern foot of the mountain.
• Rich complex botany and part of the Cape Floristic Region.
• Piketberg mountain has high ecological significance to small grain growing plain east of the mountains and areas of intensive cultivation around the mountain.
• Area surrounding Piketberg is conducive for:
  ○ Intensive cultivation, as is Piket Bo Berg.
  ○ Small grain cultivation.
• Multiple small tributaries traverse the town.
	• *High number of endemic plants species is not officially conserved.*
	• *Remaining Renosterveld areas are threatened by agricultural activities.*
	• *Critically Endangered habitats along mountain foothills are under threat from settlement encroachment.*
	• *Tributaries are at risk of pollution.*
	• *Natural habitat along tributaries is threatened by future development.*

Socio-Economic:

Strengths	Weaknesses
• Service and commercial centre for the surrounding agricultural area. • Administrative seat of Bergrivier Municipality, with strong public sector activities. • Provided trading spaces to encourage informal trading in central business zones. • On route to Saldanha Bay IDZ. • Piketberg located along primary tourism route. • Slow and peaceful lifestyle.	• *Retail business areas, in southern parts of town, are under pressure, due to shift in core business area towards Lang Street.* • *Reliance of business activities on surrounding rural areas, creates limits for higher order businesses.* • *High levels of poverty.* • *Skill limitations of local labour force.* • *Declining agricultural employment opportunities.* • *Impact of alcohol and substance abuse.* • *Lack of funding, capacity and training.* • *Lack of modes of transportation between West Coast areas & Saldanha Bay IDZ.* • *Lack of coherent tourism strategy.*

Built Environment:

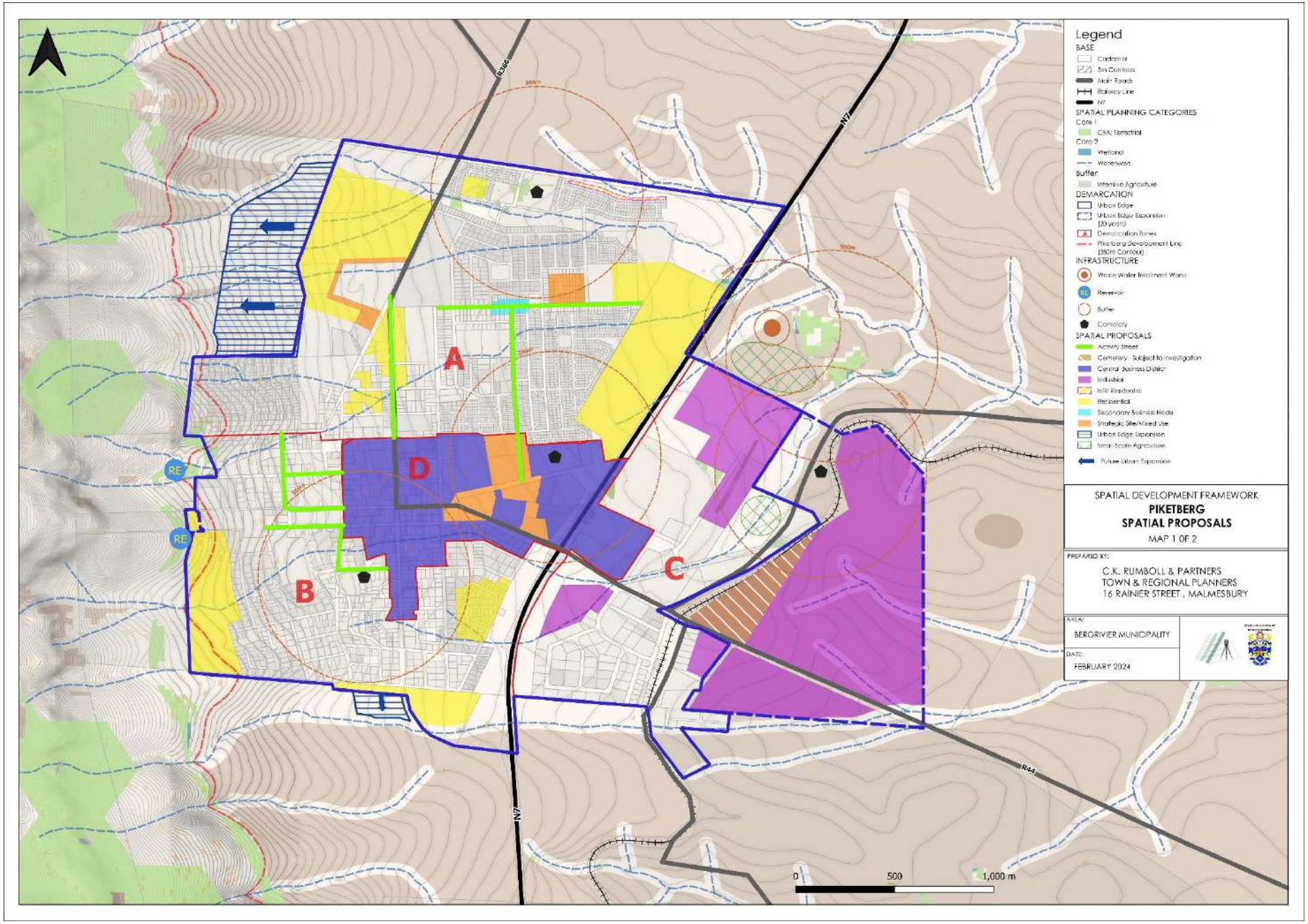
Strengths	Weaknesses
• Original church as focal point surrounded by restored historic cottages related to the church and town centre. • Several noteworthy historic buildings and sites. • Reasonable growth foreseen due to town's location,	• *Underutilization of heritage resources.* • *Sense of place under threat due to inappropriate developments and lack of conservation.* • *N7 is barrier between industrial employment opportunities and town.*

supportive to regional role and status. Topography and transport infrastructure limits growth to north south extension of settlement. • N7 provides good connection to Cape Town and to north of South Africa and Namibia. • Upgrading of services infrastructure is required in the long term: o WTW: Upgrade needed between 2028 – 2033. o WWTW: Upgrade needed between 2028 – 2033. o Electricity: Upgrade needed between 2028 – 2033.	• *Lack of public transport hub and parking area.* • *Upgrading of services infrastructure and storm water is required.* • *Water Storage: Upgrade needed before 2028.*

5.4.3.2 Development Zones and Proposals for Piketberg

Development Zones are described in the table and delineated in the Piketberg SDF proposal map.

PIKETBERG LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Secondary Education	Place of Instruction	Professional Uses	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A is a high to medium density residential area with supporting amenities. The area mainly provides opportunities for residential development. Allow for various mixed uses within the identified mixed-use precinct.	X	X	X 1,3 4	X	X	X	X 3,4	X 1,3	X	X	X	X		X
B	Zone B is a low to medium density residential area with supporting amenities and a secondary business node. The area provides opportunities for infill mixed density residential uses and other supporting social facilities.	X	X	X1	X	X	X		X1	X	X	X	X		X
C	Zone C is an industrial precinct and allows for limited industrial expansion.				X	X	X	X	X	X		X	X	X	X
D	Zone D has been identified as the town's CBD and allows for future business expansion. Strengthen the area as the business core of the town and allow for various mixed uses within the identified mixed-use precinct.	X	X	X	X	X	X	X	X	X	X	X	X	X 2	X
(1) Along activity streets/corridors (2) Service trades (3) At identified Mixed Use Precincts (4) At existing/identified business nodes		**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architects, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.													


Legend
BASE
Cadastral
5m Contours
Main Roads
Railway Line
N7
SPATIAL PLANNING CATEGORIES
Core 1
CBA Terrestrial
Core 2
Wetland
Waterways
Buffer
Intensive Agriculture
DEMARCATION
Urban Edge
Urban Edge Expansion (20 years)
Demarcation Zones
Piketberg Development Line (250m Contour)
INFRASTRUCTURE
Waste Water Treatment Works
Reservoir
Buffer
Cemetery
SPATIAL PROPOSALS
Activity Street
Cemetery - Subject to Investigation
Central Business District
Industrial
Infill Residential
Residential
Secondary Business Node
Strategic Site/Mixed Use
Urban Edge Expansion
Small Scale Agriculture
Future Urban Expansion
SPATIAL DEVELOPMENT FRAMEWORK
PIKETBERG
SPATIAL PROPOSALS
MAP 1 OF 2
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
A
B
C
D
RE
RE
R366
N7
N7
R44
0
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1,000 m

5.4.3.3 Piketberg Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Upgrade reservoirs by 2028 (IDP).	Change
2	Upgrade of WTW between 2028 - 2033 (IDP).	Change
	Sewerage and Sanitation	
3	Upgrading of WWTW and reticulation needed between 2028 – 2033 (IDP).	Change
	Roads and Stormwater	
4	Upgrade stormwater system in Main Road (IDP).	Develop
	Waste	
5	Provide for a garden and building rubble waste site at the transfer station.	Protect
6	Rehabilitate and close landfill site (Closure Licence ref no. 19/2/5/4/F1/1/WL0026/18).	Protect
	Electricity	
7	Upgrade bulk electrical infrastructure between 2028 – 2033 (IDP).	Change
	All services	
8	Provide for ICT networks and user sites.	Develop
SPACE, BUILT		
	Commercial	
9	Implement and expand the RSEP Programme within the Integration Zone along Church Street.	Change
10	Support business nodes with related transport infrastructure and services e.g. taxi/bus stops, farm trucks and parking in CBD at taxi rank and behind SPAR, and ablution at PIK19.	Change
11	Intensify Central Business District (CBD) at PIK19 and promote small business development, informal trading and mixed-use opportunities aligned with the character of the town.	Change
12	Establish a secondary commercial node along Watsonia Street (well-located properties).	Change
13	Enhance secondary business node at PIK26.	Develop
	Residential	
14	Promote High Density development at PIK4. (± 3.98 ha currently being implemented).	Develop
15	Promote Medium to Low-density at PIK1.	Develop
16	Promote Infill Development at PIK2, PIK3, PIK5, PIK6, PIK8, PIK10, PIK11, PIK14 & PIK15.	Develop
17	Promote Mixed-Use Development with residential as dominant uses at PIK18.	Develop
	Industrial	
18	Promote Mixed-Use Development with light industry and business uses at PIK25.	Develop
19	- Provide adequate land for industrial development and service industries, including variety e.g. manufacturing, processing, warehousing, etc. at: PIK9, PIK12, PIK17 & PIK19; - Offer investment incentives (lower rates/ fees for services and taxes); - Promote skills development facilities amidst industries.	Develop
20	Consider longer term light industrial development at PIK21 and PIK24	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
21	Landscape the industrial interface with N7.	Change
22	Create a defined and articulated 'gateway' entrance into /out of Piketberg and plant tree lanes, landscape trees and create aesthetically pleasing edges to the: - N7 (southern and northern entrance). - R399 (southern entrance). - R365 (northern entrance). - R44 (eastern entrance).	Develop
23	Safeguard the N7 circle by providing visible interactive signage to slow down traffic for NMT crossings.	Develop
	Roads as per Piketberg Gateway and Integration Zone Precinct Plan	
24	Close the section of Sarel Cilliers Street at the intersection of Kloof and Loop Streets in front of the Rhino Park sports complex.	Develop
25	Extend Watsonia Street to intersect with Long Street.	Develop
26	Upgrade Long Street.	Develop

27	Reduce road carriageway in CBD to 2 lanes (i.e. 1 lane in each direction, except for the section of road in front of the shopping centres, which will remain 4 lanes).	Develop
28	Convert the obsolete road lanes and parking bays into a combination of pedestrian sidewalks and parking.	Develop
29	Implement public realm upgrades, including widening and paving sidewalks.	Develop
30	Create a new street along the western edge of the hospital.	Develop
31	Promote planting tree lanes and greening streets and provide seating, lighting and shading.	Develop
32	Facilitate pedestrian crossings on N7 as part of upgrade.	Develop
	Activity Streets & Corridors	
33	Maintain and upgrade internal road network and street lighting.	Protect
34	Promote the following streets and street portions as activity streets - A portion of Watsonia Street from corner of Loop Street toward Freesia Street. - A portion of Calendula Street from the corner of Watsonia Street toward Sarel Cilliers Street. - A portion of Lang Street (R366) from the Corner of Voortrekker Street to Pepper Street. - Hoog Street. - A portion of Church Street from the corner of Hoog Street to Voortrekker Street. - A portion of Kloof Street from the corner of Hoog Street to Voortrekker Street. - A portion of Hoof Street from the corner of Simon van der Stel Street to Voortrekker Street. - A portion of Voortrekker Street from the corner of Hoof Street to Die Trek Street. - Die Trek Street from Voortrekker Street to Long Street.	Change
35	Provide for safe NMTs routes between residential areas.	Develop
36	Introduce roundabouts along Voortrekker Street.	Develop
	Rail	
37	Upgrade train station at industrial area – Piketberg/ Cape Town route.	Change

Objective 3: Sustain material, physical and social well-being

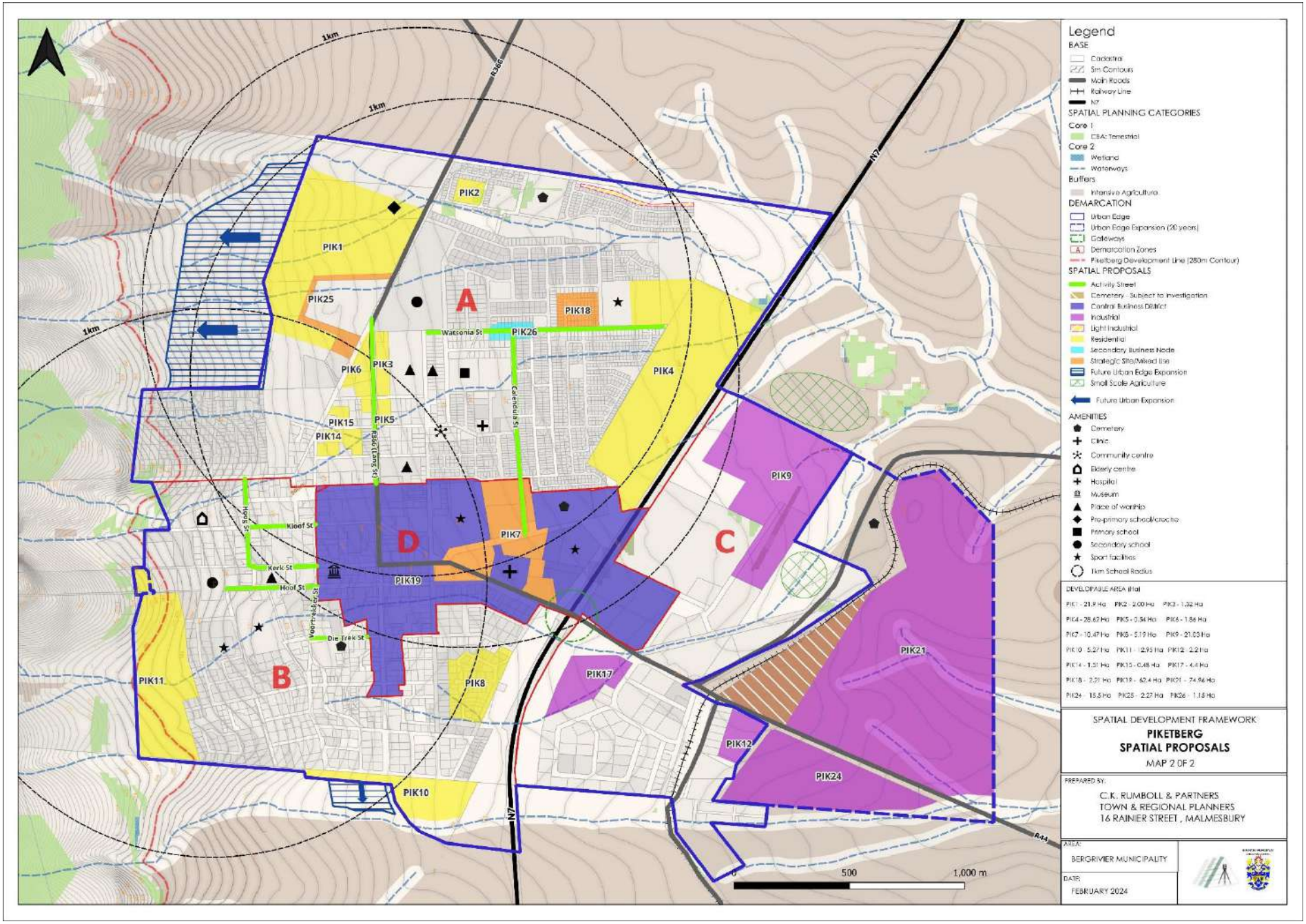
PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Community facilities	
38	Maintain and refurbish Pietie Fredericks Youth Centre (SDF 2019-2024).	Protect
39	Promote Mixed-Use Development with predominantly community uses at PIK17	Change
40	Provide for a new school to accommodate overcrowding in Steynville Primary and Secondary School	Change
41	Upgrade existing sport facilities.	Change
42	Encourage social uses including schools, hospitals, preschools and guest houses, supportive of residential uses, in eastern neighbourhood precinct at PIK4.	Develop
43	Develop a skills centre (School of Skills) at PIK7 (and if needed PIK19).	Develop
44	Develop a sports academy at PIK7 (and if needed PIK19).	Develop
45	Develop a youth café at PIK7 (and if needed RIK19).	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
46	Delineate non-formal heritage zones and develop aesthetic guidelines for development in these areas.	Protect
47	Protect CBD located along portions of Lang and Hoof Streets whilst allowing for mixed use development.	Protect

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Public & Private Open Space	
48	Protect historic spring as a public open space (Fontein and Waterkant Streets) (could accommodate dog park).	Protect
	Nature and Conservation	
49	Create a multi-use Open Space network maintaining relevant setbacks and flood lines to provide for walking, jogging, cycling, biking and horse riding and outdoor gym.	Develop
50	Require tree planting to become part of (planning and budgeting) subsidised residential development.	Change


Legend
BASE
Cadastral
5m Contours
Main Roads
Railway Line
N7
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
Wetland
Waterways
Buffers
Intensive Agriculture
DEMARCATION
Urban Edge
Urban Edge Expansion (20 years)
Gateways
Demarcation Zones
Piketberg Development Line (280m Contour)
SPATIAL PROPOSALS
Activity Street
Cemetery - Subject to Investigation
Central Business District
Industrial
Light Industrial
Residential
Secondary Business Node
Strategic Site/Mixed Use
Future Urban Edge Expansion
Small Scale Agriculture
Future Urban Expansion
AMENITIES
Cemetery
Clinic
Community centre
Elderly centre
Hospital
Museum
Place of worship
Pre-primary school/creche
Primary school
Secondary school
Sport facilities
1km School Radius
DEVELOPABLE AREA (Ha)
PIK1 - 21.9 Ha PIK2 - 2.00 Ha PIK3 - 1.32 Ha
PIK4 - 28.62 Ha PIK5 - 0.54 Ha PIK6 - 1.86 Ha
PIK7 - 10.47 Ha PIK8 - 5.19 Ha PIK9 - 21.03 Ha
PIK10 - 5.27 Ha PIK11 - 12.95 Ha PIK12 - 2.2 Ha
PIK14 - 1.31 Ha PIK15 - 0.48 Ha PIK17 - 4.4 Ha
PIK18 - 2.21 Ha PIK19 - 62.4 Ha PIK21 - 74.96 Ha
PIK24 - 15.5 Ha PIK25 - 2.27 Ha PIK26 - 1.15 Ha
SPATIAL DEVELOPMENT FRAMEWORK
PIKETBERG
SPATIAL PROPOSALS
MAP 2 OF 2
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
1km
R366
N7
PIK1
PIK2
PIK3
PIK4
PIK5
PIK6
PIK7
PIK8
PIK9
PIK10
PIK11
PIK12
PIK14
PIK15
PIK17
PIK18
PIK19
PIK21
PIK24
PIK25
PIK26
A
B
C
D
Watsonia St
Kloof St
Kerk St
Hoof St
Die Trek St
Voortrekker St
Piketberg Long St
Calendula St
Hoys St
0
500
1,000 m

5.4.3.4 Piketberg Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including the fountain on Farm Magdelena and water extracted from the Berg River, two (2) reservoirs (5 700kℓ), water pipes to the water purification works and water reticulation network.	**Protect**
	Sewerage and Sanitation	
2	Maintain and manage WWTW and waterborne sewerage system in north-eastern precinct.	**Protect**
	Waste	
3	Maintain and manage waste transfer site in north-eastern precinct from where waste is transported to Highland Landfill site outside Malmesbury.	**Protect**
	Electricity and Reticulation	
4	Maintain and manage bulk electrical supply and reticulation infrastructure including substation at De Hoek and distribution network.	**Protect**
SPACE, BUILT		
	Commercial	
5	Capitalize on role as regional service centre and associated administrative, commercial and industrial functions and services to attract growth.	**Protect**
6	Capitalize on Piketberg's proximity to Cape Town markets and location on major routes to Saldanha IDZ and the north.	**Protect**
7	Capitalize on Piketberg's medium development potential and support diversification of town's economic base.	**Protect**
8	Support Piketberg and its economic catchment areas in its role as part of the Farmer Production Support Unit (FPSU).	**Protect**
9	Promote agri-processing and related industries and value-adding close to the source whilst limiting the production footprint.	**Change**
10	Renew and enhance the visual appeal of Piketberg's central area to be more visitor-friendly and vibrant (PPP).	**Change**
11	Encourage mixed-uses that include a residential component.	**Change**
	Residential	
12	Promote different densities and typologies for different markets: various delivery mechanisms and designs.	**Develop**
13	Promote and provide for housing for retirees.	**Develop**
14	Provide land for GAP housing development and first-time home buyers.	**Develop**

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
15	Strengthen north-south corridor along the N7 which provides access to Cape Town, Northern Cape and Namibia.	**Protect**
	Rail	
16	Protect rail connection: Cape Town to Bitterfontein.	**Protect**

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Community facilities	
17	Encourage sharing of sport facilities amongst schools and the community.	**Change**
18	Address the need for higher education and for education for children with special needs.	**Change**

Objective 4: Protect and grow place identity and cultural integrity

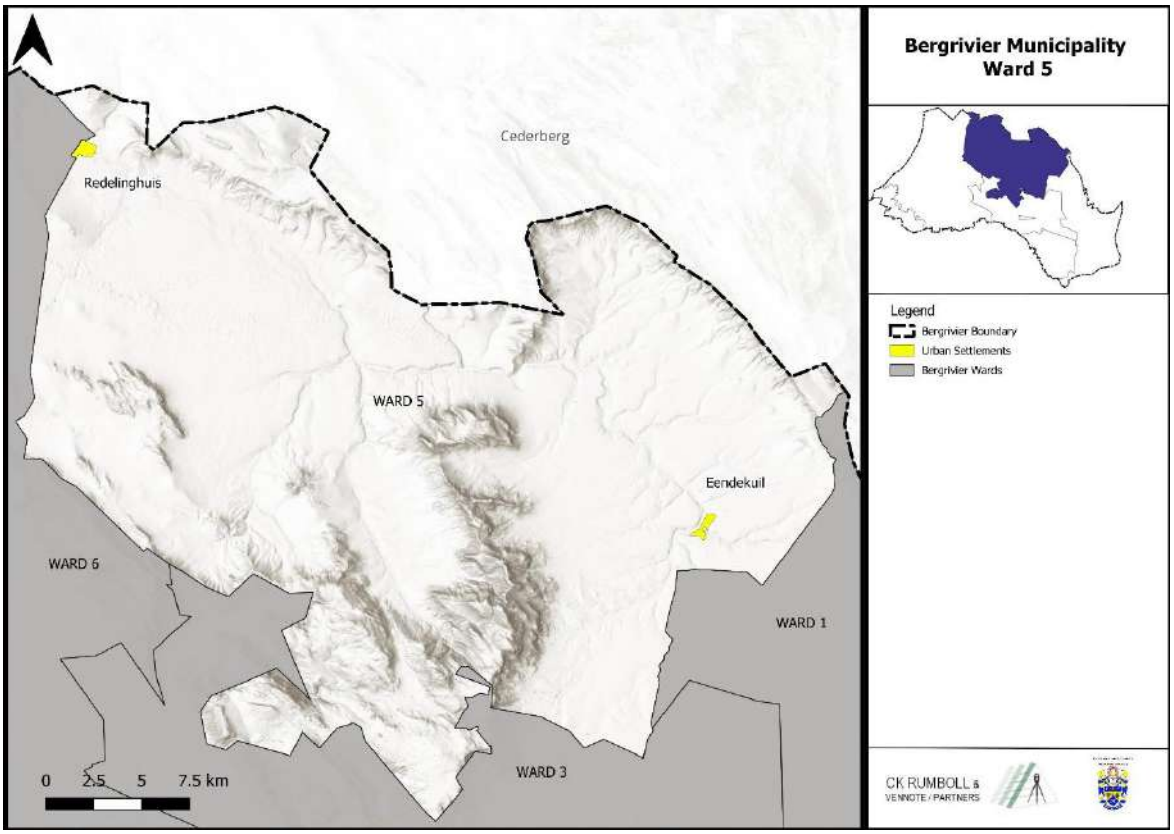
SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
19	Protect scenic beauty along the N7 national route to the Northern Cape and Namibia and its links (R399, R366 & Main Road) to the R27 (West Coast Road), R44.	**Protect**
20	Support the development of affordable and upmarket accommodation opportunities.	**Change**

Objective 5: Protect ecological and agricultural integrity

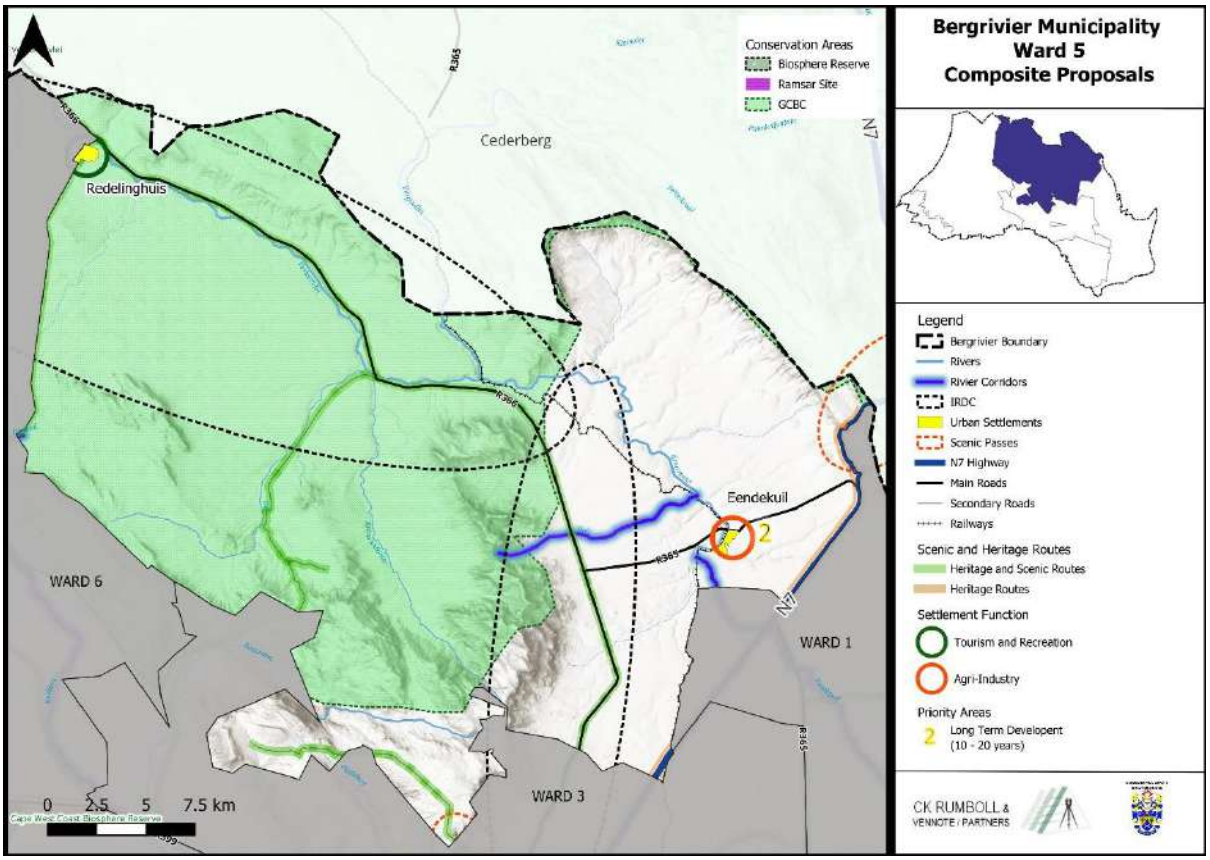
SPACE, NATURAL		
No	**Proposals**	**Type**
	Nature and Conservation	
21	Promote and create public playgrounds in neighbourhoods	**Develop**
22	Create recreational areas and facilities (picnic areas, chairs and tables along water course and at tree clusters) for residents.	
23	Develop neighbourhood community gardens to support food security.	**Develop**

5.5 Ward 5: Eendekuil and Redelinghuis

Ward 5, the north eastern ward of Bergrivier borders the Cederberg and is home to Eendekuil and Redelinghuis and the composite proposals for this ward, is illustrated below:



Map 36: Ward 5 Composite Proposals



5.5.1 Eendekuil

Situated 30 km north of Piketberg, Eendekuil functions as a lower-order agricultural centre and agri-residential settlement providing social infrastructure for both the settlement and surrounding agricultural areas. Agri-processing and value adding are key local economic drivers.

5.5.1.1 Eendekuil Status Quo

Eendekuil has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Defined by the location on the banks of Kruismans River. • Fertile agricultural soil and small grain growing area surrounding settlement's south and eastern edges.	• *Pockets of substantially transformed soils in the settlement's immediate surroundings.* • *Banks of the tributary and Kruismans River system are depleted of almost all original vegetation.*

Socio-Economic:

Strengths	Weaknesses
• Plays significant role in agri-industry: o Citrus pack shed; o Cape Dry Rooibos tea factory; o Storage for grain. • Agri-industry is the main source of employment.	• *Historic role and prominence given by railway route and station declined.* • *Decline of factories and agri-industry results in residents having to find employment further afield.*

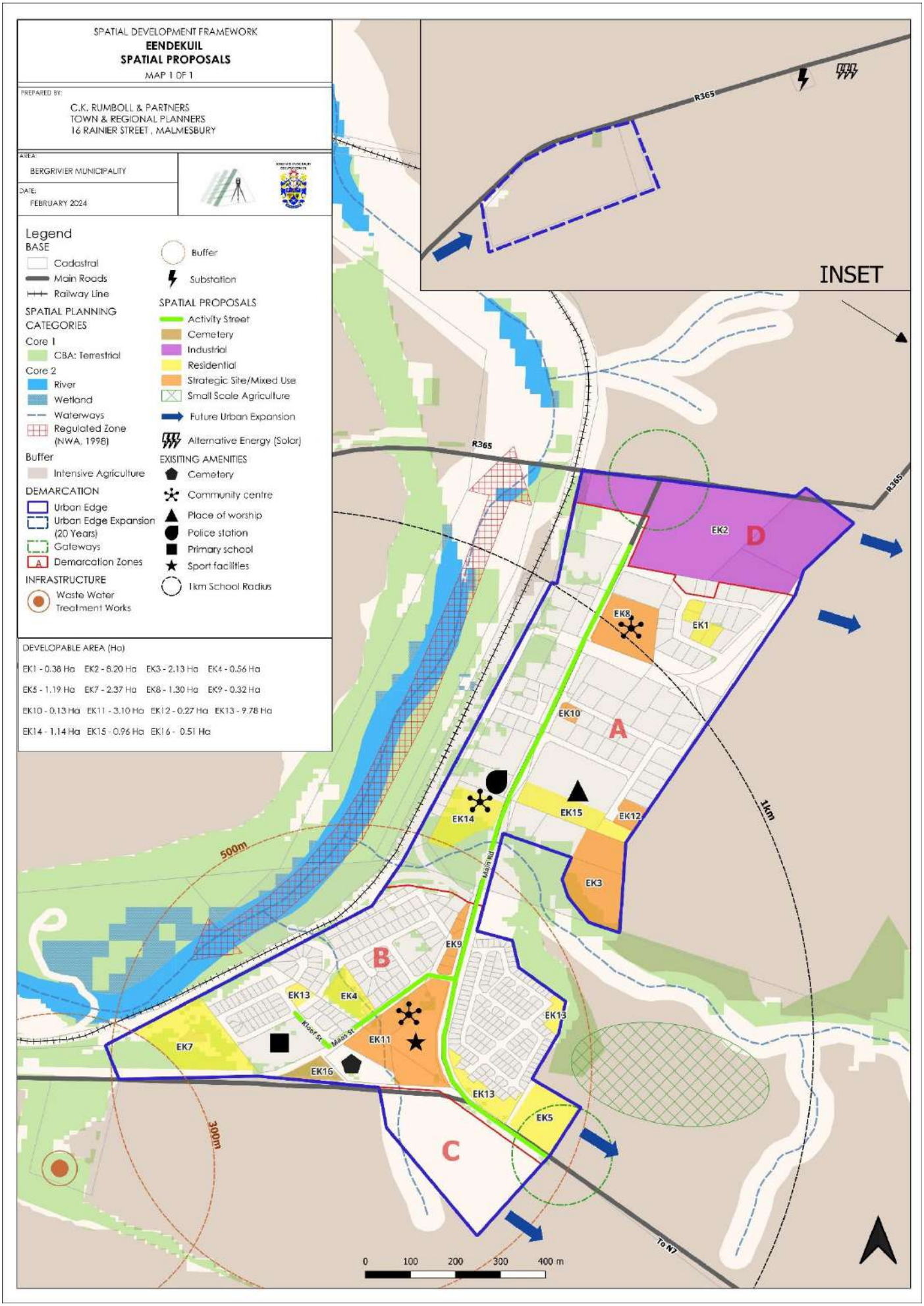
Built Environment:

Strengths	Weaknesses
• Essential social facilities (Church, library, clinic, sports facilities) are at resident's disposal. • Private passenger transport services between Eendekuil and Citrusdal. • Dutch Reformed Church as landmark. • Upgrading of some services infrastructures are required over the long term. o WWTW: Upgrade needed between 2028 – 2033. o Electricity: Upgrade needed after 2033.	• *Limited service delivery.* • *Little sense of place.* • *Upgrading of some services infrastructures are required immediately.* o *WTW: Upgrade needed before 2028.* o *Water Storage: Upgrade needed before 2028.*

5.5.1.2 Development Zones and Proposals for Eendekuil

Development Zones are described in the table and delineated in the Eendekuil SDF proposal map.

EENDEKUIL LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Secondary Instruction	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial/Service Trade & Industries	Institution
A	Zone A is a low density residential area with supporting amenities. Zone A provides for limited residential development as well as mixed use development. Areas identified for small-scale agriculture/community garden.	X	X	X 1,3	X	X	X	X3	X 1,3	X	X	X	X	X 2,3	X
B	Zone B is a medium density residential area with supporting amenities. This Zone provides opportunities for residential development as well as mixed use development.	X	X	X 1,3	X	X	X	X3	X 1,3	X	X	X	X	X 2,3	X
C	Zone C represents The Cape Rooibos Agricultural Industry site.													X	
D	Zone D, has been identified as an industrial precinct with the possibility of future expansion.				X	X	X	X	X	X		X	X	X	X
(1) Along activity streets and at nodes. (2) Only service trades. (3) At identified Mixed Use Precincts.		**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architects, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.													


SPATIAL DEVELOPMENT FRAMEWORK
EENDEKUIL
SPATIAL PROPOSALS
MAP 1 OF 1
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
Legend
BASE
Cadastral
Main Roads
Railway Line
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
River
Wetland
Waterways
Regulated Zone (NWA, 1998)
Buffer
Intensive Agriculture
DEMARCATION
Urban Edge
Urban Edge Expansion (20 Years)
Gateways
Demarcation Zones
INFRASTRUCTURE
Waste Water Treatment Works
Buffer
Substation
SPATIAL PROPOSALS
Activity Street
Cemetery
Industrial
Residential
Strategic Site/Mixed Use
Small Scale Agriculture
Future Urban Expansion
Alternative Energy (Solar)
EXISITING AMENITIES
Cemetery
Community centre
Place of worship
Police station
Primary school
Sport facilities
1km School Radius
DEVELOPABLE AREA (Ha)
EK1 - 0.38 Ha EK2 - 8.20 Ha EK3 - 2.13 Ha EK4 - 0.56 Ha
EK5 - 1.19 Ha EK7 - 2.37 Ha EK8 - 1.30 Ha EK9 - 0.32 Ha
EK10 - 0.13 Ha EK11 - 3.10 Ha EK12 - 0.27 Ha EK13 - 9.78 Ha
EK14 - 1.14 Ha EK15 - 0.96 Ha EK16 - 0.51 Ha
INSET
R365
A
B
C
D
EK1
EK2
EK3
EK4
EK5
EK7
EK8
EK9
EK10
EK11
EK12
EK13
EK14
EK15
EK16
500m
300m
1km
Main Rd
Kloof St
Main St
To N7
0 100 200 300 400 m

5.5.1.3 Eendekuil Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water and Reticulation	
1	Upgrade reservoirs before 2028 (IDP).	Change
2	Upgrade WTW before 2028 (IDP).	Develop
	Sewerage and Sanitation	
3	Upgrading of WWTW needed between 2028 – 2033 (IDP).	Change
SPACE, BUILT		
	Residential	
4	Promote medium density residential development at EK5.	Develop
5	Promote residential infill development at EK1, EK4, EK13 and EK15 (± 9 779m^2 currently being implemented at EK13).	Develop
6	Promote medium to low density residential development at EK7 and EK14.	Develop
7	Support mixed-use development at EK3, EK8, EK9, EK10, EK11 and EK12.	Develop
8	Promote mixed-use development with residential as dominant use in precincts at EK3 and EK12: Different typologies should be considered including associated amenities.	Develop
9	Promote mixed-use development with residential and business as dominant uses at EK9.	Develop
	Commercial	
10	Enhance Main Road and encourage intensification and densification.	Change
11	Provide for a local produce market directly above EK14: A dedicated space where local producers (farmers, small-scale agriculture within settlement) can sell produce.	Develop
12	Promote mixed-use development including a secondary business node and amenities at EK11.	Develop
	Industrial	
13	Provide for and promote a range of agri-processing, agri-related industries and services (value adding at source) (from home-industry to industrial).	Develop
14	Expand and intensify the industrial area at EK2.	Change
	Small-Scale Agriculture	
15	Promote small-scale agriculture on the periphery, east of zone B. Simultaneously promote security of tenure e.g. notarial ties to residential erven within the settlement.	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
16	De-proclaim Main Road section between the north and south entrances of settlement.	Change
	Pedestrian and Bicycle Routes	
17	Establish a pedestrian and NMT route along Main Road to enhance mobility.	Develop
18	Establish two pedestrian crossings between the western and eastern precincts: One north and another south.	Develop
	Activity Streets & Corridors	
19	Promote the following streets and street portions as activity streets: - Main Road; - A portion of Maas Street from the corner of Main Road to Kloof Street; - A portion of Kloof Street from the corner of Skool Street to the corner of Maas Street.	Change

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Social Infrastructure & Services	
20	Develop the watercourse as a central space with both active and passive recreational opportunities such as walking, play areas, performance areas and sites for picnics. Where infrastructure for e.g. play areas and performance areas are established, keep the infrastructure natural e.g. wood (SDF 2019-2024).	Develop
21	Promote mixed-use development to enhance institutional uses at EK8.	Develop
22	Provide for and establish a multi-site, multi-purpose community facility linked to skills training (Develop a Youth and Skills Centre) at EK8, EK11 and EK14.	Develop
23	Enhance rehabilitation facility at EK8.	Develop
24	Expand existing cemetery located south of the settlement at EK16.	Develop

Objective 4: *Protect and grow place identity and cultural integrity*

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage	
25	Develop the railway station as a tourist and agri-events destination.	Change

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Nature and Conservation	
26	Protect and maintain the Kruismans River and tributary from pollution, spillages of effluent and over-utilisation (as per National Water Act, 1998).	Protect
27	Link tree lanes along streets to open space network.	Develop
	Gateways	
28	Create soft gateways on Main Road and plant tree lanes.	Develop

5.5.1.4 Eendekuil Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water and Reticulation	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including three (3) fountains, one (1) reservoir (455 kℓ), water pipes to the water purification works.	Protect
	Sewerage and Sanitation	
2	Protect and maintain WWTW and waterborne system.	Protect
	Bulk Electricity and Reticulation:	
3	Protect and maintain bulk electrical supply and reticulation infrastructure in new subsidised extension, north of R365 (Main Road). Protect and maintain Eskom provision for the remainder of the settlement.	Protect
4	Upgrading of bulk electrical infrastructure needed after 2033 (IDP).	Change
SPACE, BUILT		
	Residential	
5	Promote mixed-use development, different residential densities, agri-industry and related uses, business, institutions (rehabilitation), community facilities and amenities with open space corridors.	Develop
6	Promote an agri-settlement character: a rural village supporting agricultural activities.	Develop
7	Within residential development proposals, provide housing for retirees and the elderly.	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
8	Maintain main access roads: - Northern access via N7 connecting to the R365. - Southern access via Main Road.	Protect
9	Protect the surrounding rural character of the settlement along the roads that links to the rural surroundings.	Protect
	Activity Streets & Corridors	
10	Promote the planting of tree lanes along streets.	Protect

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Social Infrastructure & Services	
11	Support equestrian activities e.g. Gymkhana and endurance horse rides.	Protect
12	Support establishment of crèches and education facilities in residential areas.	Change
13	Support and encourage social and institutional facilities for health, rehabilitation and recovery.	Change

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage	
14	Promote agri-industry related infrastructure and signage aligned with agri-settlement character.	Change
15	Expand and support agritourism and agri-events.	Change
16	Enhance settlement capacity and use of social/ public facilities and at agricultural community centre (north east of settlement) to offer agricultural related events (not only marathons, mountain bike races or gymkhana, but soap making, juice extraction, oil extraction).	Change

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Public & Private Open Spaces	
17	Link open space network, recreational areas and cemetery to establish a continuous open space system.	Protect
18	Plant trees clusters along riverbank to promote recreational spaces.	Develop

5.5.2 Redelinghuis

Redelinghuis is situated in the picturesque Verlorenvlei Valley located halfway to the coast from Piketberg. Redelinghuis supports the surrounding agricultural areas.

5.5.2.1 Redelinghuis Status Quo

Redelinghuis has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Rooibos growing in its natural state. • Irrigation circles to cultivate potatoes, or fodder. • Situated on southern banks of upper reaches of Verlorenvlei River. • RAMSAR site with abundant birdlife, fynbos and flowers. • Surrounded in the south by Nature Reserve south of settlement, aiding the protection of Endangered Hopefield Sand fynbos.	• *Unprotected threatened habitats around town.* • *Pressure on groundwater.* • *Endangered habitats and CBAs of the Voelvlei River impacted by intensive agricultural cultivation.* • *Recent urban development encroaches on important CBA area.*

Socio-Economic:

Strengths	Weaknesses
• Provide supporting social infrastructure and amenities for town and surrounding areas including: ○ Police station, library, satellite health clinic and primary schools.	• *Poor rural areas surrounding settlement.*

Built Environment:

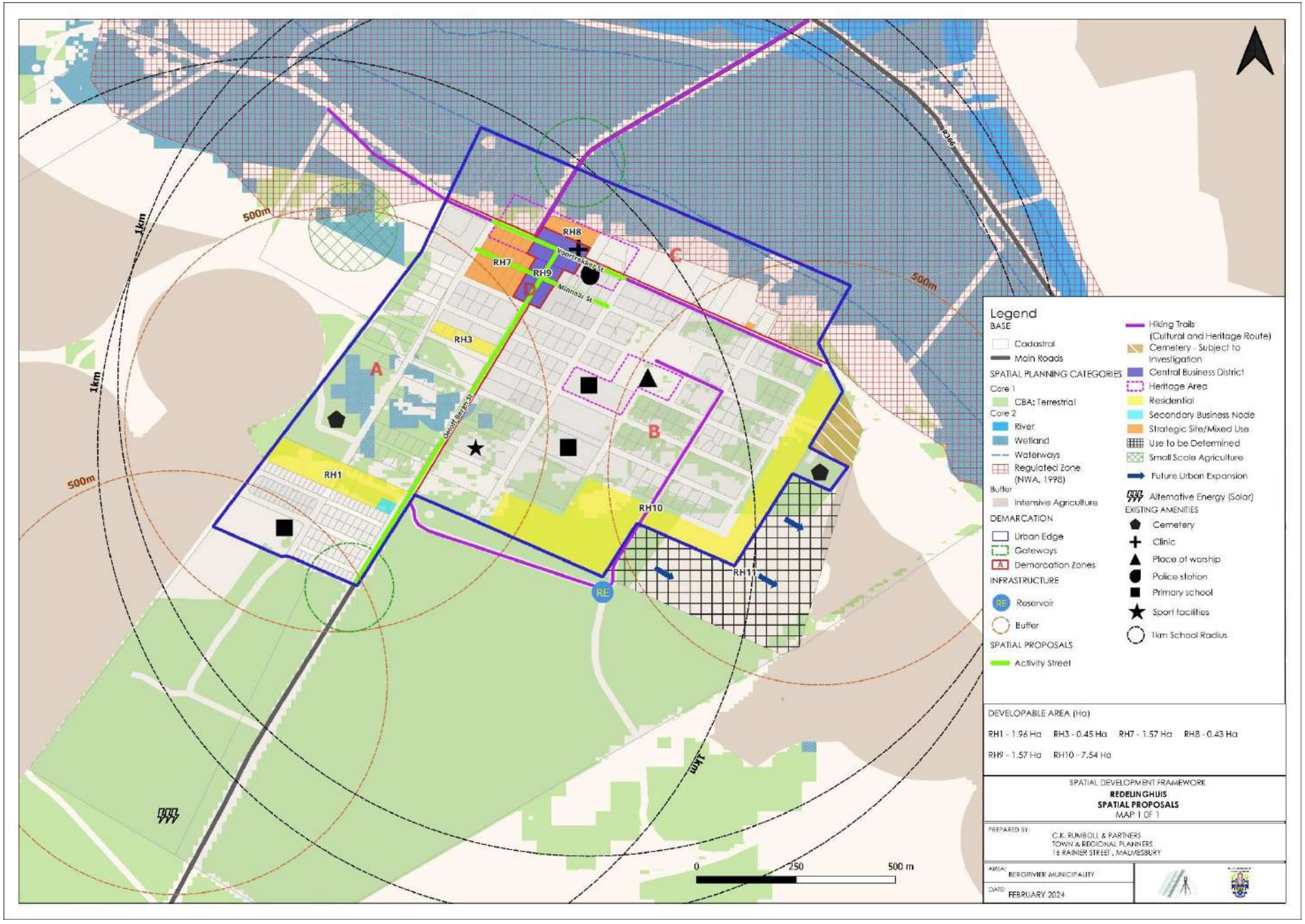
Strengths	Weaknesses

• Grid layout comprising of lower density single residential erven, water erven along Verlorenvlei and gravel roads.
• Permeability with links to Redelinghuis Nature Reserve and agricultural area.
• Architecture includes Victorian, cape vernacular and subsidised housing.
• Upgrading of some services infrastructures is required over the long term:
  ○ WTW: Upgrade needed after 2033.
  ○ Water Storage: Upgrade needed after 2033.
  ○ WWTW: Septic Tank.
  ○ Electricity: Upgrade needed after 2033.
	• *Using of septic tanks. Lack of WWTW and sewer reticulation system.*
	• *Immediate upgrading of some services infrastructure required:*
	  ○ WWTW, replacing septic tanks.

5.5.2.2 Development Zones and Proposals for Redelinghuis

Development Zones are described in the table and delineated in the Redelinghuis SDF proposal map.

	REDELINGHUIS LAND USE ZONES	Low Density Residential	Medium Density Residential	High Density Residential	Secondary Education	Place of Instruction	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial/Service Trade & Industries	Institution
A	Zone A is a medium to high density residential area with supportive amenities. Provides for infill opportunities for residential development as well as mixed use development. Area identified for small-scale agriculture/community gardens.	X	X	X 1,3.4	X	X	X	X 3	X 1,3	X	X	X	X	X 2,3	X
B	Zone B is a low density residential area with supporting institutional services. Areas identified for small-scale agriculture/community gardens.	X	X	X1	X	X	X		X 1	X	X	X	X		X
C	Zone C has a low density residential character and provides for limited mixed use development.	X	X		X	X	X	X 3	X 1,3	X	X	X	X		X
D	Zone D has been identified as the towns CBD and allows for future business expansion. Strengthen area as business core of the town and allow for various mixed uses.	X	X	X	X	X	X	X	X	X	X	X	X	X 2	X
	(1) Along activity streets/corridors (2) Only service trade (3) At identified Mixed Use Precincts (4) At existing/identified business nodes	**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architects, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.														


Legend
BASE
Cadastral
Main Roads
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
River
Wetland
Waterways
Regulated Zone (NWA, 1998)
Buffer
Intensive Agriculture
DEMARCATION
Urban Edge
Gateways
Demarcation Zones
INFRASTRUCTURE
Reservoir
Buffer
SPATIAL PROPOSALS
Activity Street
Hiking Trails (Cultural and Heritage Route)
Cemetery - Subject to Investigation
Central Business District
Heritage Area
Residential
Secondary Business Node
Strategic Site/Mixed Use
Use to be Determined
Small Scale Agriculture
Future Urban Expansion
Alternative Energy (Solar)
EXISTING AMENITIES
Cemetery
Clinic
Place of worship
Police station
Primary school
Sport facilities
1km School Radius
DEVELOPABLE AREA (Ha)
RH1 - 1.96 Ha RH3 - 0.45 Ha RH7 - 1.57 Ha RH8 - 0.43 Ha
RH9 - 1.57 Ha RH10 - 7.54 Ha
SPATIAL DEVELOPMENT FRAMEWORK
REDELINGHUIS
SPATIAL PROPOSALS
MAP 1 OF 1
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET, MALMESBURY
AREA: BERGRIVIER MUNICIPALITY
DATE: FEBRUARY 2024
RH1
RH3
RH7
RH8
RH9
RH10
RH11
RE
A
B
C
D
500m
1km
0
250
500 m

5.5.2.3 Redelinghuis Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Repair leaking reservoir.	Change
2	Upgrade of WTW needed after 2033.	Change
	Waste	
3	Rehabilitate and close landfill site (Closure License ref no. 19/2/5/4/F1/1/WL0029/18).	Protect
	Electricity	
4	Upgrade bulk electricity infrastructure after 2033 (IDP).	Change
	Safety and Risk Management Services	
5	Implement river maintenance programme by the Department of Water and Sanitation.	Change
SPACE, BUILT		
	Residential	
6	Promote single residential as dominant development type at RH1 and RH3.	Change
7	Support residential development at RH10.	Develop
	Commercial	
8	Enhance the CBD at RH9.	Change
9	Provide street furniture particularly seating along activity streets in the CBD (A portion of Voortrekker Street).	Change
10	Develop neighbourhood business node in residential area at RH1.	Develop
11	Promote mixed-use at RH7 and RH8.	Develop
	Industrial	
12	Support the expansion and intensification of the industrial area at RH7.	Change

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Activity Streets & Corridors	
13	Promote the following streets and street portions as activity streets: - A portion of Voortrekker Street from the corner of Engelbrecht Street to School Street. - A portion of Minnaar Street from the corner of Engelbrecht Street to School Street. - A portion of Oeloff Bergh Street from the corner of Voortrekker Street to School Street.	Change

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Social Infrastructure & Services	
14	Create an open space and provide play park equipment at RH1 and encourage the establishment of a play park at the church (private land).	Develop
15	Establish an agri and conservation skills development centre close to the sportsfields (Linked to multi-purpose community centre and services).	Develop
16	Promote small-scale agriculture on the periphery (north west) and secure tenure e.g. notarial ties to residential erven within the settlement.	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
17	Establish two informal heritage zones and a Heritage and Eco Overlay Zone. The latter stretch from Voortrekker Street up to the Verlorenvlei.	Protect

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Nature & Conservation	
18	Promote interactive development interfaces along the Verlorenvlei River and open space corridor.	Change
19	Develop & strengthen public areas to support pedestrian movement and economic activity.	Change
20	Link open space network and recreational areas.	Change
21	Protect reserves (formal protection) and natural veld (classified as CBAs) and establish links between these sites.	Develop
	Public & Private Open Space	
22	Formalise walking/hiking trails in and around Redelinghuis Nature Reserve and along the Verlorenvlei.	Change
23	Develop multi-purpose sportsground precinct.	Develop
	Gateways	
24	Establish a formal approach to village centre at the Voortrekker Street intersection (settlement side) for example a low farmyard wall and some landscaping. Keep the northern gateway natural, and formalise the southern gateway along Oeloff Bergh Street in a similar way to the village centre.	Develop

5.5.2.4 Redelinghuis Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including (3) fountains, two (2) reservoirs (440 kℓ) located south of settlement, water pipes to the water purification works and reticulation network. Capacity of purification works located at the reservoirs, is adequate for current use and can accommodate future development.	Protect
	Sewerage and Sanitation	
2	Protect water sources in the absence of a WWTW and monitor and replace soakaways as opportunities arise.	Protect
3	Mandate the installation of conservancy tanks when new houses are built	Change
	Waste	
4	Enhance weekly waste removal and transportation to Piketberg transfer station.	Protect
	Electricity	
5	Protect and maintain bulk electrical supply (by Eskom) and reticulation infrastructure.	Protect
	Safety and Risk Management Services	
6	Maintain fire breaks where settlement is surrounded by natural vegetation.	Protect
7	Protect reed beds and natural vegetation of the Verlorenvlei and implement river maintenance programme by the Department of Water and Sanitation.	Change
SPACE, BUILT		
	Residential	
8	Promote the rural settlement character, yet encourage intensification and renewal along activity streets	Protect
	Commercial	
9	Promote a regular local market at RH9 in support of urban and small-scale agriculture.	Change

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
10	Protect the surrounding rural character of the settlement along all roads that links to the rural surroundings: - Gravel road to Aurora. - R366 tarred by-pass road along the Verlorenvlei connecting to Piketberg.	Protect
11	Maintain and retain gravel roads within Redelinghuis to keep rural character.	Protect
12	Protect natural gateway (Reed beds at bridge) between R365 and the settlement.	Protect

Objective 4: Protect and grow place identity and cultural integrity

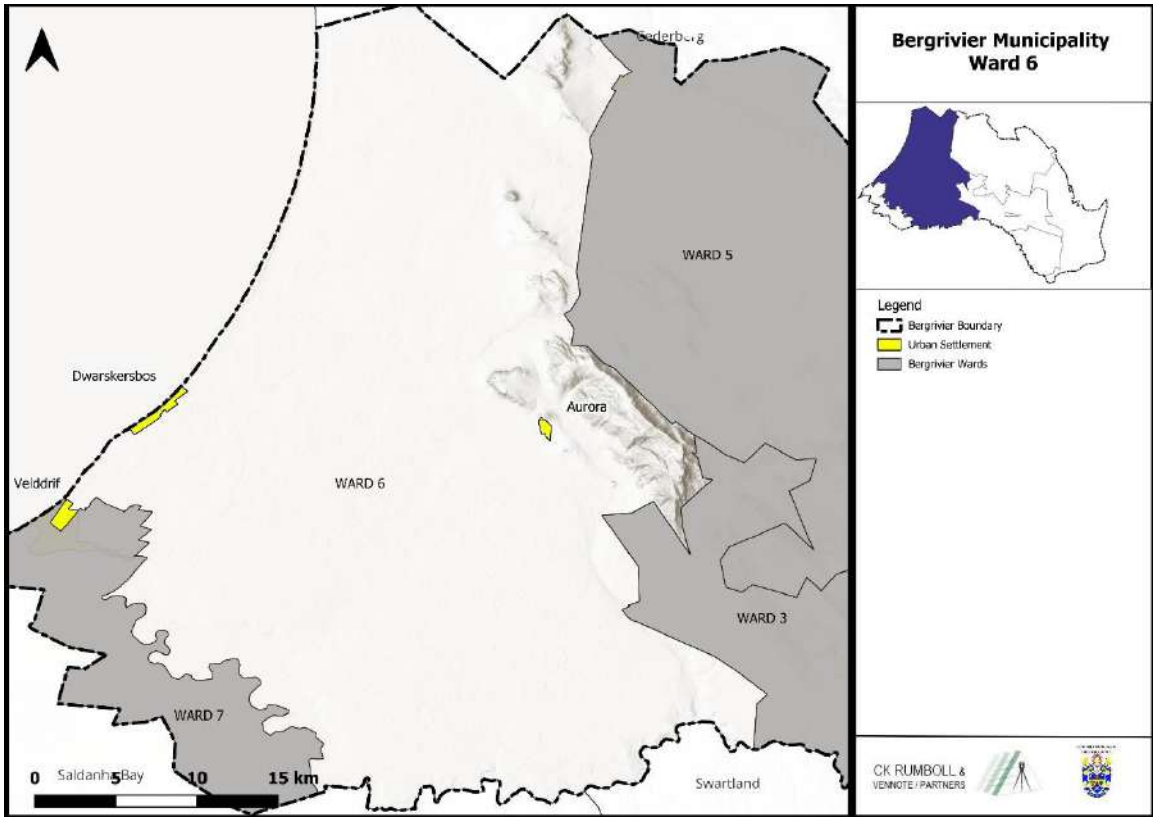
SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
13	Protect the grid layout comprising of lower density single residential erven, water erven along Verlorenvlei, gravel roads and link with Redelinghuis Nature Reserve and agricultural area.	Protect
	Tourism	
14	Enhance settlement capacity to offer recreational and sport events (marathons, mountain bike races).	Change
15	Promote eco, conservation and agritourism and events in Redelinghuis.	Develop
16	Promote tourism and tourism related infrastructure and signage.	Develop

Objective 5: Protect ecological and agricultural integrity

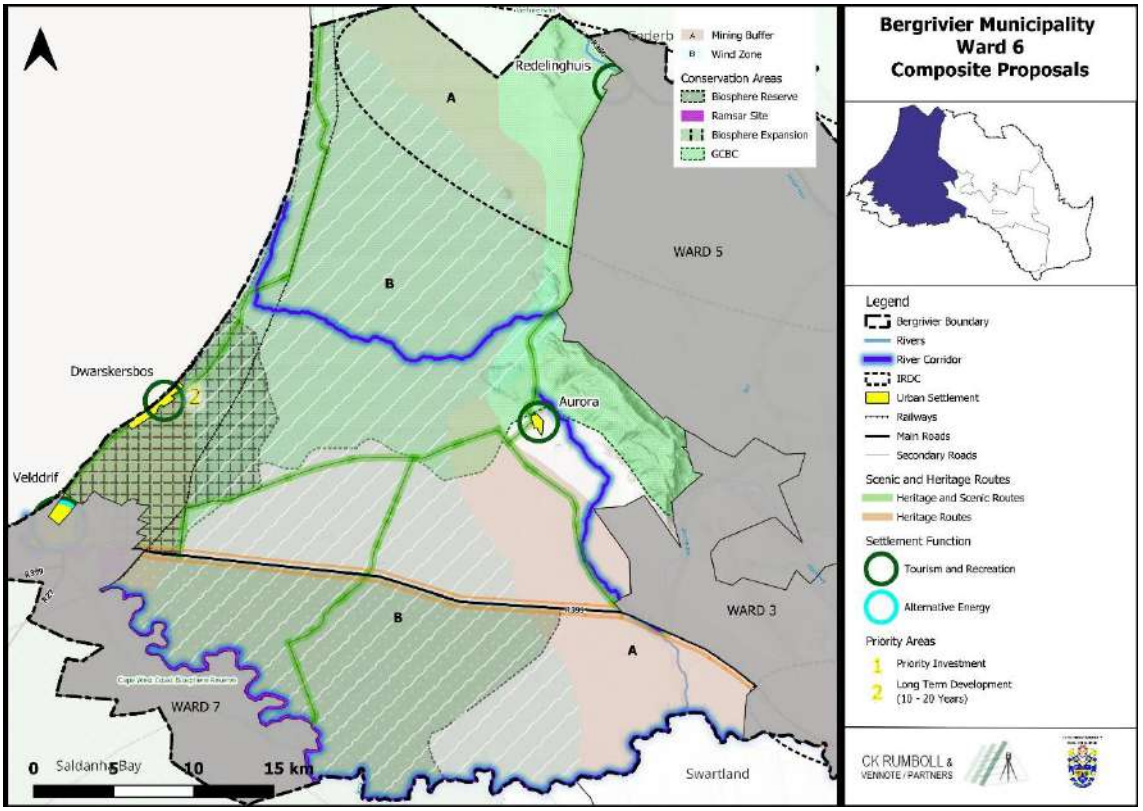
SPACE, NATURAL		
No	**Proposals**	**Type**
	Nature & Conservation	
17	Protect and maintain the Verlorenvlei River and tributary from pollution, spillages of effluent and over-utilisation (as per National Water Act, 1998).	Protect
18	Protect mature trees and tree clusters (including Eucalyptus) 20 years and older.	Protect
19	Enhance the implementation of a conservation management plan to preserve the declared RAMSAR sites.	Change
20	Expand Redelinghuis Nature Reserve.	Change

5.6 Ward 6: Aurora and Dwarskersbos

Ward 6 is home to the Sandveld plain and has the West Coast, Berg River and Piketberg and Skurweberg mountain ranges as borders. Its location and the composite proposals for this ward, is illustrated below:



Map 37: Ward 6 Composite Proposals



5.6.1 Aurora

Aurora is a rural Sandveld settlement providing residence to those who work from home, weekend visitors, retirees and agricultural/farm workers from the surrounding areas. It also serves as a film site.

5.6.1.1 Aurora Status Quo

Aurora has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Location at the foot of the Platberg mountains. • Remnants of lowland Hopefield Sand fynbos. • Close proximity to extensive Piketberg Sandstone Fynbos vegetation. • Popular destination for flower watching during the flower season in Spring. • Mixed farming, with a combination of small stock, strip cultivation for grain production and centre pivot irrigation for potato cultivation.	• *Groundwater use not sustainable.*

Socio-Economic:

Strengths	Weaknesses
• Suitable to promote adventure and eco and conservation tourism. • Lifestyle rural settlement.	• *Lack of basic services such as medical services.* • *Lack of employment opportunities.*

Built Environment:

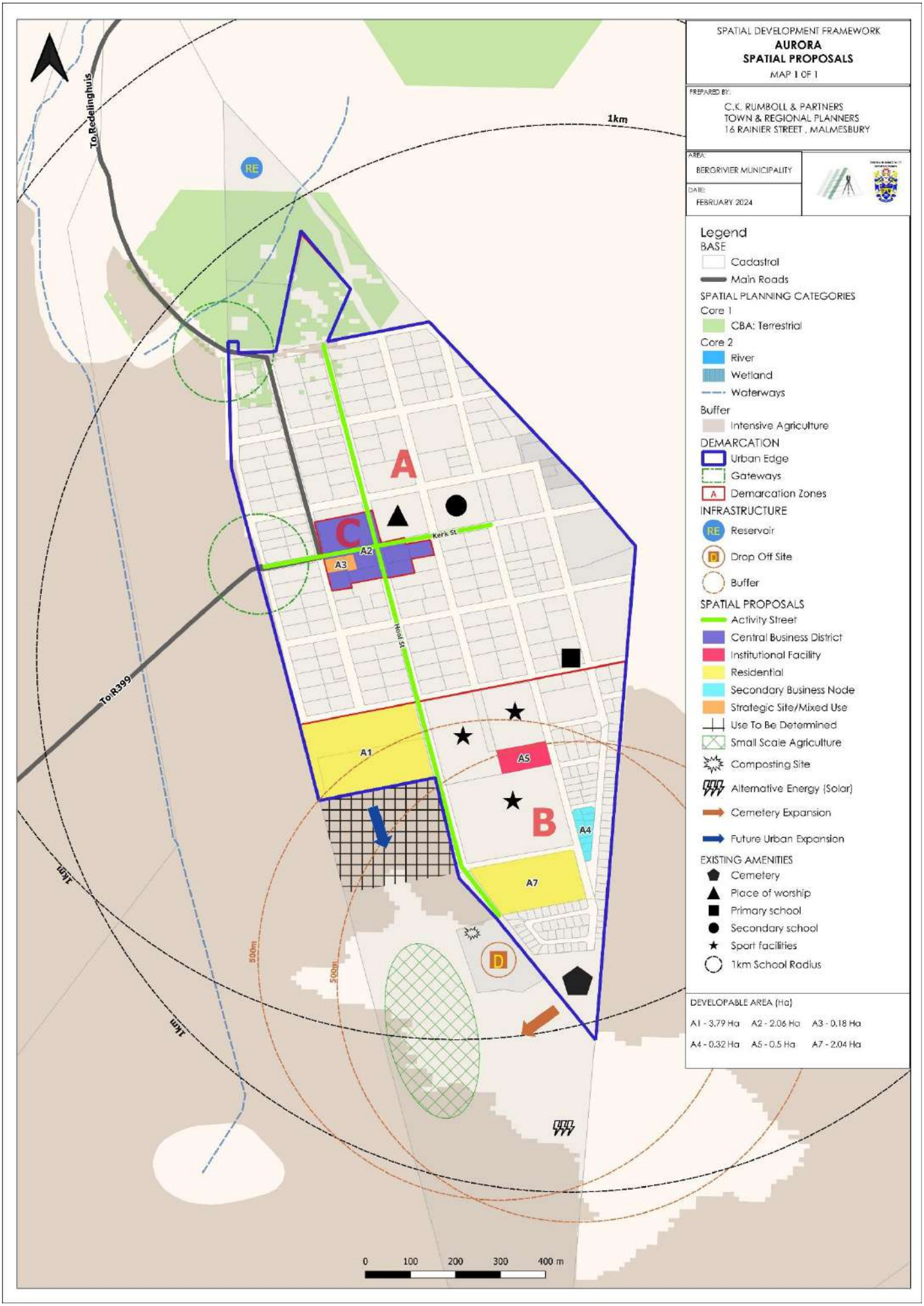
Strengths	Weaknesses

• High heritage value as historic fabric was and is well preserved.
• Arc of Meridian beacon is a Provincial Heritage Site.
• Upgrading of services infrastructure are required over the long term:
  ○ WTW: Upgrade needed between 2028 – 2033.
  ○ Water Storage: Upgrade needed after 2033.
  ○ Electricity: Upgrade needed after 2033.
	• *Town is fairly isolated, general lack of basic services, various vacant erven.*
	• *No immediate need to provide for additional housing development in Aurora.*
	• *Upgrading of services infrastructure is required.*
	• *Lack of WWTW and sewer reticulation system and replacement of septic tanks.*

5.6.1.2 Development Zones and Proposals for Aurora

Development Zones are described in the table and delineated in the Aurora SDF proposal map.

AURORA LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Secondary Education	Place of Instruction	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial/Service Trade & Industries	Institution
A	Zone A is a low-density residential area with supporting amenities. Areas identified for small-scale agriculture/community gardens and a mixed-use precinct.	X	X	X 1	X	X	X	X 2,3	X 1,2	X	X	X	X		X
B	Zone B is a low to medium density residential area with areas allowing expansion. Strengthen secondary business nodes.	X	X	X 1	X	X	X	X 2	X 1,2	X	X	X	X		X
C	Zone D has been identified as the towns CBD and allows for future business expansion. Strengthen area as business core of the town and allow for various mixed uses.	X	X	X	X	X	X	X	X	X	X	X	X	X 2	X
(1) Along activity streets/corridors (2) At existing/identified business nodes (3) At identified Mixed Use Precincts		**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architects, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.													


SPATIAL DEVELOPMENT FRAMEWORK
AURORA
SPATIAL PROPOSALS
MAP 1 OF 1
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
Legend
BASE
Cadastral
Main Roads
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
River
Wetland
Waterways
Buffer
Intensive Agriculture
DEMARCATION
Urban Edge
Gateways
Demarcation Zones
INFRASTRUCTURE
Reservoir
Drop Off Site
Buffer
SPATIAL PROPOSALS
Activity Street
Central Business District
Institutional Facility
Residential
Secondary Business Node
Strategic Site/Mixed Use
Use To Be Determined
Small Scale Agriculture
Composting Site
Alternative Energy (Solar)
Cemetery Expansion
Future Urban Expansion
EXISTING AMENITIES
Cemetery
Place of worship
Primary school
Secondary school
Sport facilities
1km School Radius
DEVELOPABLE AREA (Ha)
A1 - 3.79 Ha
A2 - 2.06 Ha
A3 - 0.18 Ha
A4 - 0.32 Ha
A5 - 0.5 Ha
A7 - 2.04 Ha
To Redelinghuis
To R399
1km
RE
A
B
C
A1
A2
A3
A4
A5
A7
D
Kerk St
Hoof St
500m
0
100
200
300
400 m

5.6.1.3 Aurora Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Upgrade reservoirs after 2033.	Change
2	Upgrade WTW between 2028 – 2033.	Change
	Waste	
3	Provide for a garden and building rubble waste site at the drop-off site.	Change
4	Rehabilitate and close landfill site (Closure Licence ref no. 19/2/5/4/F1/1/WL0027/18).	Change
	Safety and Risk Management Services	
5	Provide for the establishment of a satellite police station.	Develop
SPACE, BUILT		
	Residential	
6	Provide for agricultural worker housing within settlement in collaboration with farm enterprises.	Develop
7	Provide opportunity for future residential expansion on Farm RE/208.	Develop
8	Promote residential development at A7 and A1.	Develop
9	Promote mixed-used development at A3.	Develop
	Commercial	
10	Conduct an occasional local and small-scale agricultural market at A2.	Develop
11	Intensify activities around showgrounds at A4 and A7.	Develop
12	Enhance CBD at A2.	Change
13	Upgrade the central settlement plain and plant trees and provide public seating.	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Activity Streets & Corridors	
14	Promote the following streets and street portions as activity streets: - Hoof Street. - A portion of Church Street from the corner of Buitengracht Street to the corner of Hoof Street.	Change

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Social Infrastructure & Services	
15	Provide skills development in agritourism to enhance economic opportunities.	Develop
16	Provide playpark equipment at central settlement plain in Zone C and maintain playpark equipment in Zone B.	Develop
17	Provide for a high school at A5 (and if needed an area slightly larger than the site).	Develop

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
18	Keep commercial buildings, services, signage and colours aligned with the residential rural character (develop a guideline).	Protect

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Public & Private Open Spaces	
19	Encourage and develop walking and mountain bike trails around settlement (on private land).	Develop
	Gateways	
20	Plant a tree lane to develop a natural gateway.	Develop
	Agriculture	
21	Provide for small-scale agriculture outside urban edge.	Develop

5.6.1.4 Aurora Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including five (5) boreholes, two (2) reservoirs (400kℓ) and water pipes connecting to water purification works.	Protect
	Sewerage and Sanitation	
2	Protect water sources in the absence of a WWTW and monitor and replace septic tanks as opportunities arise.	Protect
	Roads and Stormwater	
3	Keep and maintain gravel roads and storm water infrastructure to protect rural character.	Protect
	Waste	
4	Protect and maintain drop off and the transport of waste to Velddrif transfer site (regional licensed landfill sites - Vredenburg).	Protect
	Electricity and reticulation	
5	Protect and maintain the Eskom bulk electrical supply and reticulation infrastructure.	Protect
SPACE, BUILT		
	Residential	
6	Protect urban form with lower density residential erven in the central and northern section of town and higher density residential uses on the south eastern section of the town.	Protect
	Commercial	
7	Encourage commercial intensification along activity streets.	Protect
8	Keep Sandveld character in business node located along main road of this low-density residential settlement.	Protect

Objective 4: Protect and grow place identity and cultural integrity

SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage & Tourism	
9	Protect surrounding landscape and delineate a development line along the foot of Platberg.	Protect
10	Protect traditional grid pattern surrounding the church and central settlement plain, grid street blocks and gravel roads and links to Sandveld agricultural area.	Protect
11	Promote the use of the settlement as film setting.	Change

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Natural conservation	
12	Protect link between the settlement and Platberg.	Protect
13	Maintain and protect the water course on northern periphery of settlement.	Change
14	Promote community gardens as part of youth programs in school at the SSA site.	Protect

5.6.2 Dwarskersbos

Dwarskersbos is a linear coastal settlement approximately 10 kilometres north of Velddrif and referred to as the "jewel of the West Coast". Its pristine and unspoiled beaches and overwhelmingly residential character make it a popular holiday and work-from-home destination.

5.6.2.1 Dwarskersbos Status Quo

Dwarskersbos has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Natural dunes covered with vegetation creates an attraction. • Clean long beach known for angling, water sports and swimming. • Dolphin watching is a popular attraction for many visitors. • Rocherspan Nature Reserve in close proximity, home to rare avian species, including aquatic and endangered varieties.	• *Highly dynamic coastal processes of erosion and deposition along coastline.* • *Coastal development pressure continues, with approved development on Open Zone 3 land.*

Socio-Economic:

Strengths	Weaknesses
• Experienced highest growth rate in Bergrivier between 2011-2016. • A coastal holiday village. • Large influx of people over the holiday periods that supports the local economy including Velddrif/ Laaiplek.	• *Fluctuating population numbers cause pressure on limited civil and electrical services.* • *Limited economic opportunities in Dwarskersbos.*

Built Environment:

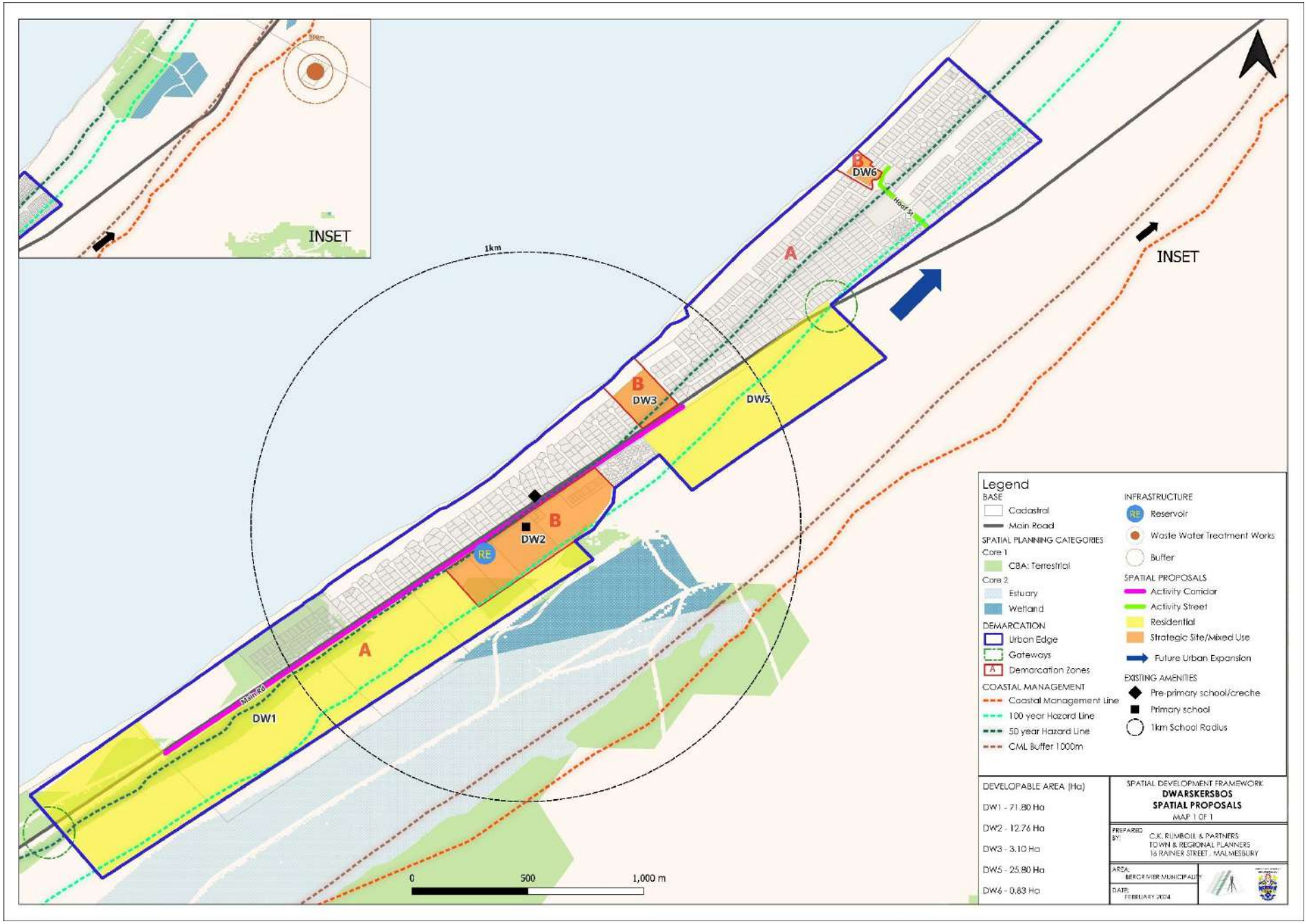
Strengths	Weaknesses

• Large areas earmarked for future development.
• Main road of Dwarskersbos serves primarily as a transport thoroughfare.
• Upgrading of some services infrastructure is required in the longer term:
  ○ WTW: Upgrade needed between 2028 – 2033.
	• *Main road lacks pedestrian facilities and safe walkways, especially during holiday seasons.*
	• *Trucks transiting from Elands Bay to Saldanha are a hazard to locals and tourists.*
	• *Not all erven are serviced by a waterborne sewer system.*
	• *Upgrading of some service infrastructure is required in the short term:*
	  ○ *Water Storage: Upgrade needed before 2028.*
	  ○ *WWTW: Upgrade needed before 2028.*
	  ○ *Electricity: Upgrade needed before 2028.*

5.6.2.2 Development Zones and Proposals for Dwarskersbos

Development Zones are described in the table and delineated in the Dwarkersbos SDF proposal map.

DWARSKERSBOS LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Secondary Education	Place of Instruction	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A is a low to medium residential area with limited supporting amenities. Opportunity for new residential development.	X	X	X1	X	X	X		X1	X	X	X	X		X
B	Zone B represents a mixed-use development area. Allows for diversification of uses.	X	X	X	X	X	X	X	X	X	X	X	X	X 2	X
(1) Along activity streets/corridors (2) Only service trades		**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. Schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architects, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.													


INSET
1km
B
DW6
Hoof St
A
INSET
B
DW3
DW5
B
DW2
RE
A
Main Rd
DW1
0
500
1,000 m
Legend
BASE
Cadastral
Main Road
SPATIAL PLANNING CATEGORIES
Core 1
CBA: Terrestrial
Core 2
Estuary
Wetland
DEMARCATION
Urban Edge
Gateways
Demarcation Zones
COASTAL MANAGEMENT
Coastal Management Line
100 year Hazard Line
50 year Hazard Line
CML Buffer 1000m
INFRASTRUCTURE
Reservoir
Waste Water Treatment Works
Buffer
SPATIAL PROPOSALS
Activity Corridor
Activity Street
Residential
Strategic Site/Mixed Use
Future Urban Expansion
EXISTING AMENITIES
Pre-primary school/creche
Primary school
1km School Radius
DEVELOPABLE AREA (Ha)
DW1 - 71.80 Ha
DW2 - 12.76 Ha
DW3 - 3.10 Ha
DW5 - 25.80 Ha
DW6 - 0.83 Ha
SPATIAL DEVELOPMENT FRAMEWORK
DWARSKERSBOS
SPATIAL PROPOSALS
MAP 1 OF 1
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINER STREET, MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024

5.6.2.3 Dwarskersbos Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Upgrade reservoirs before 2028.	Change
2	Upgrade WTW between 2028 – 2033.	Change
	Sewerage and Sanitation	
3	Upgrade WWTW before 2028.	Protect
	Electricity	
4	Upgrade needed before 2028.	Change
SPACE, BUILT		
	Residential	
5	Promote residential development at DW1 and DW2.	Change
6	Promote mixed-use developments at DW2, DW3 and DW6, supporting the surrounding residential uses.	Change
7	Develop retirement facilities including an old age home at DW1 or DW5.	Develop
8	Protect settlement function as a coastal holiday village which provides mainly residential uses (low density in the south west and high density to the north east) for locals and provide retirees and short-term accommodation for national and international visitors.	Protect
	Commercial	
9	Contain central business node at DW2.	Protect

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Activity streets	
10	Promote the following streets and street portions as activity streets: - Activity Street: Rocherpan Street, Hoof Street; - Activity Corridor: Main Road.	Change
	Pedestrian / cycle routes	
11	Formalise multi-purpose and multi-use route between the settlement footprint and the coastal dune to enhance mobility, safe pedestrian and NMT movement, and access to the beach.	Develop
12	Provide a pedestrian crossing at mixed-use and business node at DW2.	Develop

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Community facilities	
13	Make provision for a school site at DW1 or DW5.	Develop
14	Provide for facilities to be used during the holiday season for community and holiday uses and alternative uses out of season.	Develop

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Nature & Conservation	
15	Adhere to coastal management line on vacant erven.	Protect
16	Encourage the development of educational and recreational routes on private farmland around the settlement (on farm Dwarskersbos and Bookram) and ensure linkages to surrounding nature reserves and the settlement: Including hiking and mountain bike trails, bird/nature hides and education centres/ facilities.	Develop
17	Identify archaeological sites and develop management plan to protect the sites.	Develop

5.6.2.4 Dwarskersbos Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including water supplied by the WCDM via a pipeline, two (2) reservoirs (660 kℓ) and the water reticulation network.	Protect
	Sewerage and Sanitation	
2	Protect and maintain WWTW.	Protect
	Waste	
3	Maintain weekly waste removal services and transport of waste to Velddrif transfer station.	Protect
SPACE, BUILT		
	Commercial	
4	Support home occupation as secondary business uses in residential areas: temporary uses of homes as holiday homes, short term accommodation, and function venues.	Protect
	Residential	
5	Densify in accordance with zone proposals through: - Subdivision (sectional title); - Infill development.	Change
6	Require private development to include different housing topologies.	Develop

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
No	**Proposals**	**Type**
	Roads	
7	Maintain access road through Dwarskersbos.	Protect
8	Provide safe NMT routes between residential areas.	Develop
	Pedestrian / cycle routes	
9	Implement traffic calming measures along the main road.	Develop

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Community facilities	
10	Maintain community facilities including preschool, community hall and public open spaces.	Protect
11	Provide for a service centre for the elderly as part of proposed residential development.	Develop

Objective 4: Protect and grow place identity and cultural integrity

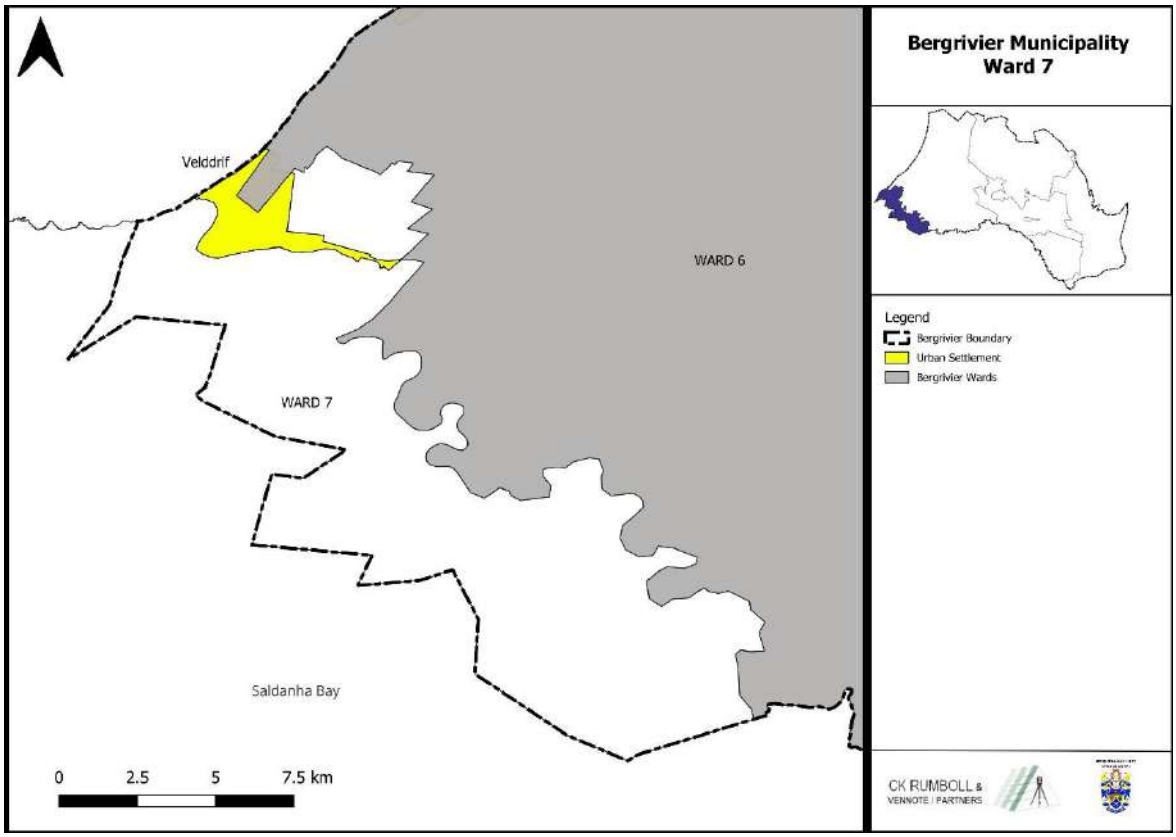
SPACE, BUILT		
No	**Proposals**	**Type**
	Heritage and Tourism	
12	Protect the coastal and holiday character within an eco and conservation environment true to the name of the settlement derived from "Kersbos" which is a part of the endemic vegetation.	Protect
13	Maintain and renew (when required) caravan park and holiday chalets.	Change
	Tourism	
14	Protect the residential function as coastal settlement whilst promoting its holiday settlement function: Support residences to double-up to provide short term accommodation for national and international visitors.	Protect
15	Support development of tourism related infrastructure.	Develop
16	Develop short term accommodation options in surrounding rural area.	Develop
17	Develop a LUMS overlay zone for erven along the coast to allow for limited tourism related uses additional to primary residential use rights e.g. wedding/party venues, photo/advertising shoots and film production, temporary use of dwellings for exhibition and sale of products.	Develop

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Public and Private Space	
18	Protect beach and beach dunes as a public amenity.	Protect
	Nature & Conservation	
19	Prohibit development in high conservation worthy areas and exclude areas from urban edge.	Protect
20	Enhance the coastline along the route between the settlement footprint and the dune and create awareness of the sensitivity of the coast through information boards and displays.	Protect
21	Remove alien vegetation and rehabilitate open space areas.	Change
	Gateways	
22	Keep gateways natural.	Protect

5.7 Ward 7: Velddrif/Laaiplek

Velddrif/Laaiplek including Noordhoek and Port Owen is located on the northern bank of the pristine Berg River estuary, having RAMSAR status, and along the Atlantic Ocean. Surrounded by marginal farmland, fishing was the main economic activity, which lately changed as a wider variety of food sources are processed. Being a coastal town, makes it ideal as a retirement and work from home hub.



5.7.1 Velddrif/Laaiplek Status Quo

Velddrif/Laaiplek has strengths and weaknesses set out according to the settlement's biophysical, socio-economic and built environments.

Biophysical:

Strengths	Weaknesses
• Location along the banks and estuary plain of the Berg River. • Flood plains and wetlands support Cape Estuarine Salt March vegetation being home to a large variety of bird species and biodiversity.	• *Cultivation cause pollution.* • *Urban development threatens natural ecosystems status particularly when encroaching onto highly sensitive areas.* • *Disruption of natural wind and water sand movement cause coastal erosion and storm damage.* • *Potential development on southern bank of highly sensitive ecosystem.*

Socio-Economic:

Strengths	Weaknesses
• Provide administrative and social services for surrounding area.	• *Economy relies on seasonal tourism.* • *Limited number of major retail outlets.*

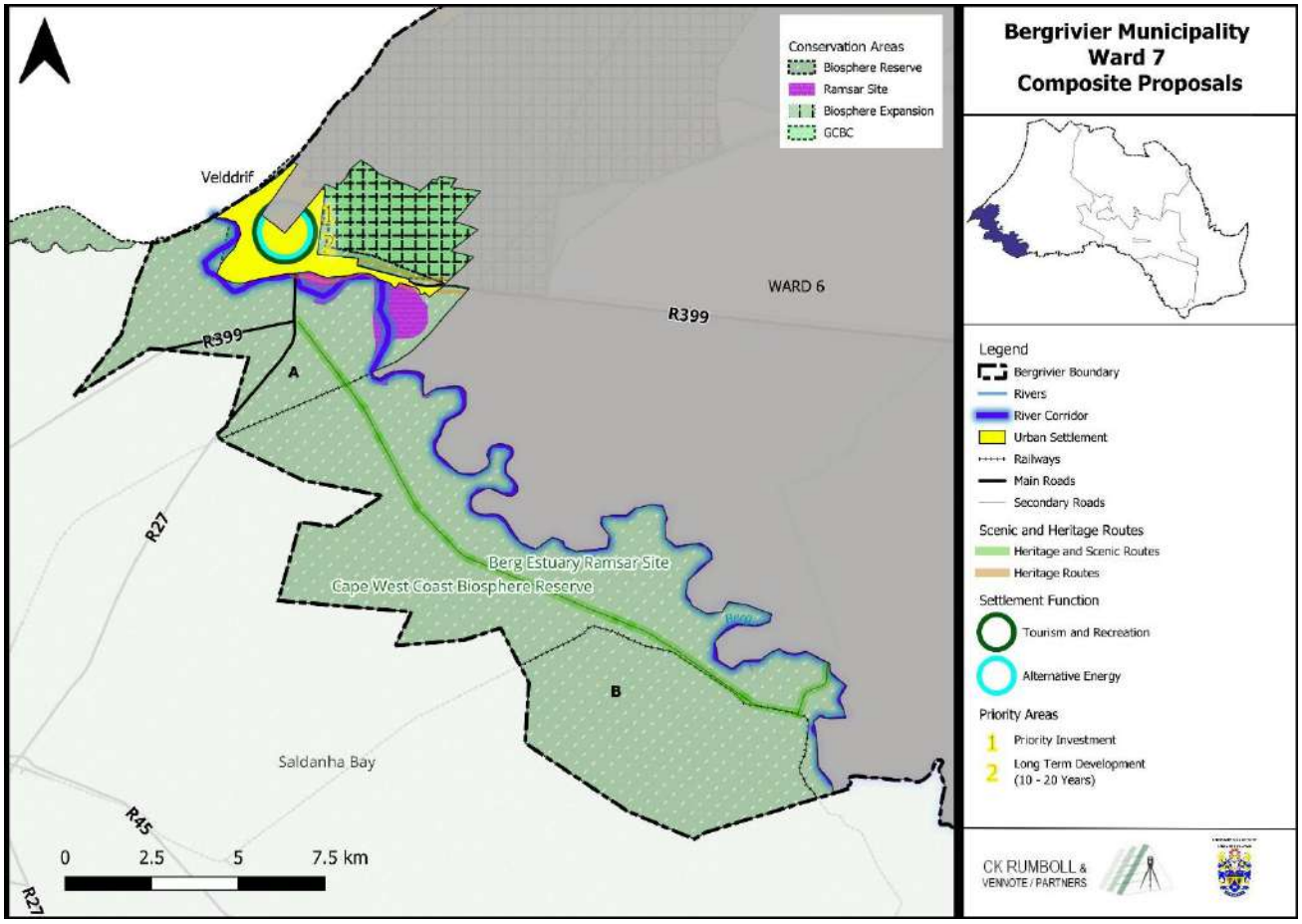
• Economic landscape change from fishing and fish processing to a services-based town. • Tourists, retirees, 2nd home residents and the workforce make up the community. • Provision of economic opportunities within light industrial area.	• *Poverty and unemployment.* • *Drug trading and abuse.*

Built Environment:

Strengths	Weaknesses
• Vacant land available for development within urban edge. • Golf course attracts local residents and tourists. • Unique heritage resources, such as Bokkomlaan. • Businesses and facilities located within central business area and along activity corridors. • Active taxi rank at Lofdal, Church and Albatross intersection provides transportation to Noordhoek. • Upgrading of services infrastructure is required in the longer term: o WTW: Upgrade needed between 2028 – 2033. o Water Storage: Upgrade needed after 2033. o WWTW: Upgrade needed between 2028 – 2033.	• *Low density single residential development and wide road layouts being very permeable.* • *Lack of infrastructure to promote walkability for tourist and local pedestrians.* • *Old town not serviced with a waterborne sewer system.* • *Deterioration of main roads due to increase in heavy vehicle traffic.* • *Upgrading of services infrastructure is required immediately:* o Electricity: Upgrade needed before 2028.

From these strengths and weaknesses, the following were proposed for Ward 7:

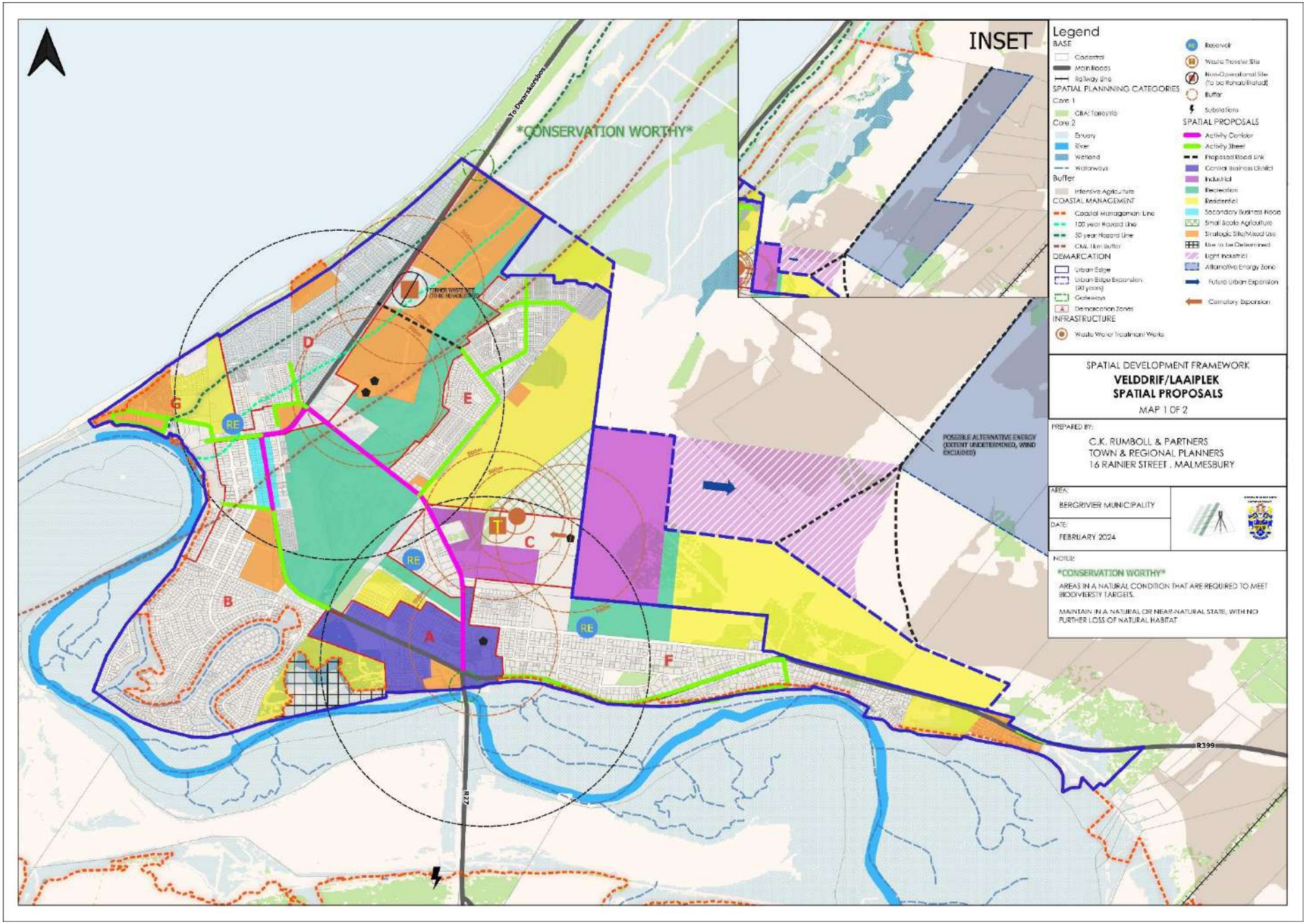
Map 38: Ward 7 Composite Proposals



5.7.2 Development Zones and Proposals for Velddrif/Laaiplek

Development Zones are described in the table and delineated in the Velddrif/ Laaiplek SDF proposal map.

	VELDDRIF LAND USE ZONES	Low Density Residential	Medium Density Residential	High Density Residential	Secondary Education	Place of Instruction	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A has been identified as the town's CBD and allows for future business expansion. Strengthen the area as the business core of the town and allow for various mixed uses within the identified mixed-use precinct.	X	X	X	X	X	X	X	X	X	X	X	X	X 2	X
B	Zone B is a low to medium density residential area with supporting amenities and recreational uses. Allow for various mixed uses within the identified mixed-use precinct.	X	X	X 1,3,4	X	X	X	X 3,4	X 1,3, 4	X	X	X	X		X
C	Zone C has been identified as an industrial precinct with the possibility of future expansion.				X	X	X	X	X	X		X	X	X	X
D	Zone D has a medium density residential character. Allow for various mixed uses within the identified mixed-use precinct.	X	X	X 1,3	X	X	X	X 3	X 1,3	X	X	X	X		X
E	Zone E is a medium to high density residential area and provides an opportunity for residential expansion. Area identified for small-scale agriculture/community garden.	X	X	X	X	X	X		X 1,3	X	X	X	X	X 2,3	X
F	Zone F is a medium to low density residential area. Provides opportunities for residential and recreational development.	X	X	X 1	X	X	X		X 1	X	X	X	X	X 2,3	X
G	Zone G contains a historic medium-density residential area with supporting amenities, and has potential for tourism development. Allow for various mixed uses within the identified mixed-use precinct.	X	X	X 1,3	X	X	X	X 3	X 1,3	X	X	X	X	X 2,3	X
	(1) Along activity streets/corridors (2) Service trades (3) At identified Mixed-Use Precincts (4) At existing/identified business nodes	**Business Uses** e.g. shop, supermarket, restaurant, offices, service station. **Place of Instruction** e.g. Schools, places of instruction, trade schools in industrial areas. **Professional Uses** e.g. offices like doctors, dentists, attorneys, architechs, engineers and town planners. **Secondary Business Uses** e.g. neigbourhood business uses such as house shops, small offices and home occupation. **Secondary Educational Uses** e.g. Crèches/day care, crèches for factories in industrial areas.														


INSET
Legend
BASE
Cadastral
Main Roads
Railway Line
SPATIAL PLANNNING CATEGORIES
Core 1
CBA Terrestrial
Core 2
Estuary
River
Wetland
Waterways
Buffer
Intensive Agriculture
COASTAL MANAGEMENT
Coastal Management Line
100 year Hazard Line
50 year Hazard Line
DEMARCATION
Urban Edge
Urban Edge Expansion (20 years)
Gateways
Demarcation Zones
INFRASTRUCTURE
Waste Water Treatment Works
Reservoir
Waste Transfer Site
Non-Operational Site (To be Rehabilitated)
Buffer
Substations
SPATIAL PROPOSALS
Activity Corridor
Activity Street
Proposed Road Link
Central Business District
Industrial
Recreation
Residential
Secondary Business Node
Small Scale Agriculture
Strategic Site/Mixed Use
Use to be Determined
Light Industrial
Alternative Energy Zone
Future Urban Expansion
Corridory Expansion
CONSERVATION WORTHY
To Durbanville
POSSIBLE ALTERNATIVE ENERGY (EXTENT UNDETERMINED, WIND EXCLUDED)
R399
R27
SPATIAL DEVELOPMENT FRAMEWORK
VELDDRIF/LAAIPLEK
SPATIAL PROPOSALS
MAP 1 OF 2
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
16 RAINIER STREET , MALMESBURY
AREA:
BERGRIVIER MUNICIPALITY
DATE:
FEBRUARY 2024
NOTES:
CONSERVATION WORTHY
AREAS IN A NATURAL CONDITION THAT ARE REQUIRED TO MEET BIODIVERSITY TARGETS.
MAINTAIN IN A NATURAL OR NEAR-NATURAL STATE, WITH NO FURTHER LOSS OF NATURAL HABITAT

5.7.3 Velddrif/Laaiplek Settlement Proposals

Development proposals according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Upgrade reservoirs after 2033.	Develop
2	Upgrade WTW between 2028 – 2033.	Develop
3	Promote the establishment of, operation and maintenance of a desalination plant.	Develop
4	Mixed-Use Development promoting utilities at V26.	Develop
	Sewerage and Sanitation	
5	Upgrade WWTW by 2025 and between 2028 – 2033.	Change
6	Provide for expansion or a location for future Wastewater Treatment Works, expand wastewater reticulation to manage sewerage in holiday season (reduce the need to rent an additional truck to pump sewerage during holiday season).	Develop
	Stormwater	
7	Formalise storm water channels in Noordhoek directing storm water to feed into retention pond.	Change
	Waste	
8	Secure budget for and rehabilitate landfill site at the former landfill on Erf 3606 (private).	Protect
9	Provide for a garden and building rubble waste site separate from the transfer station.	Change
	Electricity and Reticulation	
10	Upgrade bulk electricity before 2028.	Change
	Pedestrian / cycle routes	
11	Formalise NMT route along Jameson Street becoming Main Road up to intersection with Lofdal.	Change
12	Formalise NMT along R27 across the river and the Carinus Bridge along Church and Lofdal Streets.	Change
13	Extend Albatros Street as a NMT route which is landscaped and well-lit to connect with Voortrekker Road (Velddrif/Laaiplek Precinct Plan) along the golf course.	Change
14	Formalise pedestrian NMT routes with hardened surfaces between Noordhoek Primary and the corner of Marcon and Crystal Streets in Noordhoek.	Change
15	Formalise NMT routes between Noordhoek and Laaiplek with recreational spaces in between (Velddrif/Laaiplek Precinct Plan)	Change
	Communication Infrastructure	
16	Support installation and replacement of communication infrastructure.	Develop
17	Provide for ICT networks and user sites.	Develop
	Safety and Risk Management Services	
18	Implement river maintenance programme by the Department of Water and Sanitation.	Change
SPACE, BUILT		
	Residential	
19	Infill developments at V1, V3, V15 & V17.	Protect
20	A variety of residential developments at V1, V9, V14 & V17.	Protect
21	Mixed-use residential development at V5, V12, V18, V21, V22 & V23.	Protect
22	Provide a service centre for the aged and the youth at site V4 or in close proximity to Noordhoek Community Hall.	Develop
23	Increase density in and around the CBD and along activity streets, encouraging renewal, creating a vibrant character in newly developed and developing precincts, while protecting the historic core.	Develop
24	Consider longer term subsidised, GAP and FLISP residential development at V2.	Develop
25	Consider longer term residential development at V16.	Develop
	Residential as commercial	
26	Support secondary tourism and tourism related business along the coastline/beach front such as temporary use of homes over holiday periods for exhibiting and selling products, small function venues, shooting advertisements and films, etc.	Protect/ Change
27	Develop a LUMS Overlay Zone for alternative uses of dwellings along beachfront and waterfront e.g. for film shoots.	Develop
	Commercial	
28	Support light industry and industrial uses along Lofdal and Church Roads at V19.	Change
29	Encourage business and small business uses along activity streets and at proposed secondary business node at V25.	Change
	Agriculture	
30	Make provision for small-scale agriculture within sewer works buffer at V20.	Develop
	Industrial	
31	Consider future light industrial expansion at V27.	Develop
32	Consider longer term light industrial development at V8	Develop

Objective 2: Proximate, convenient and equal access

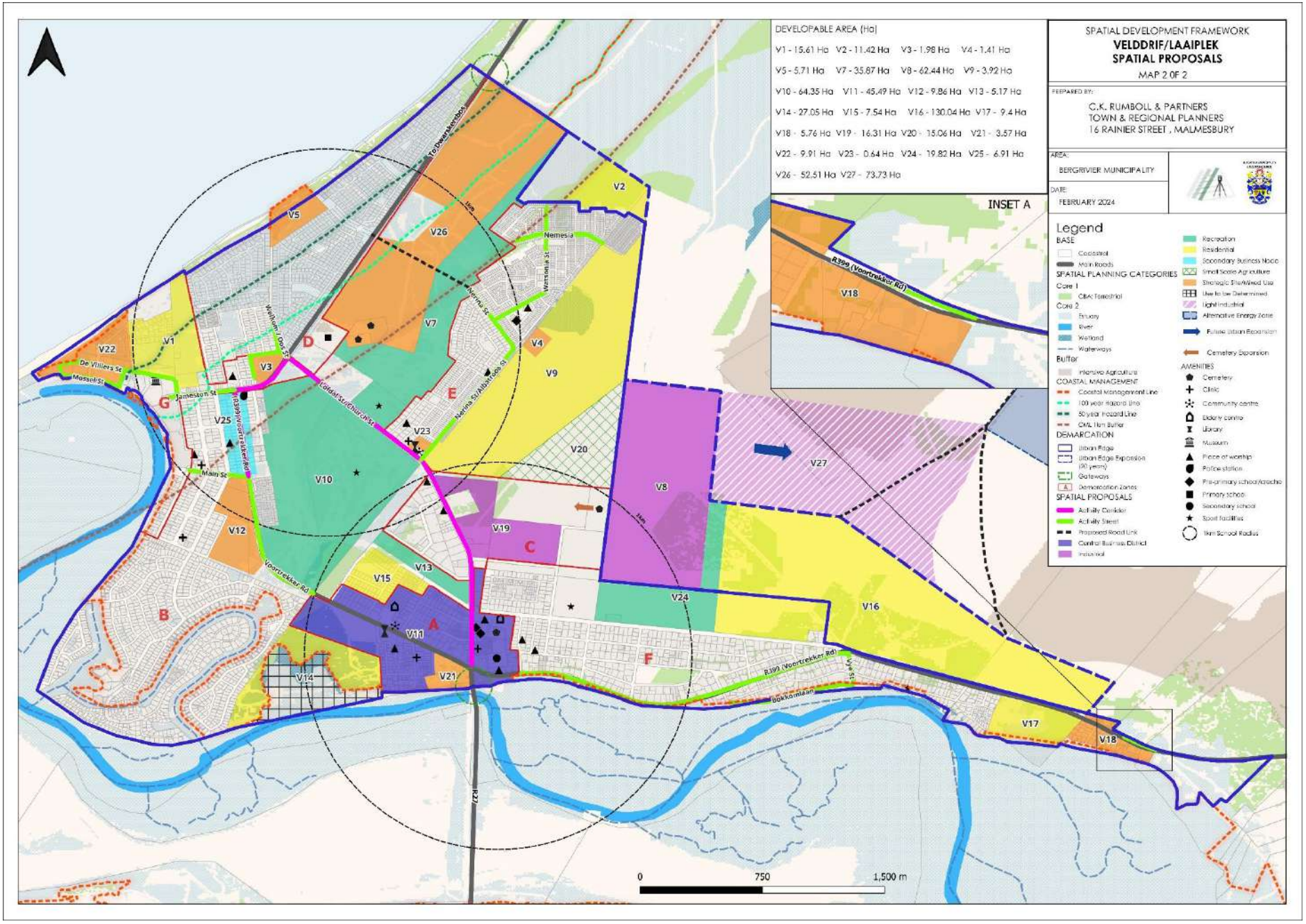
CONNECTIVITY		
No	**Proposals**	**Type**
	Activity streets	
33	Develop a centralised taxi/bus stop with relevant infrastructure and an all-weather shelter for commuters in central business district area in both Velddrif and Laaiplek.	Develop
34	Promote the following streets and street portions as activity streets: - A portion of Main Street from the corner of Rivier Street to the corner of Voortrekker Road; - Voortrekker Road, (R399), from the corner of Vye Street to the corner of Main Street; - A portion of Oos Street from the corner of Vrede Street to Welkom Street; - Vye Street, R399 (Voortrekker Road); - Bokkomlaan; - A portion of Nemesia Street; - Watsonia Street; - Nerina Street; - A portion of Albatros Street from the corner of Lofdal Street to Nerina Street.	Change
35	Promote the following streets and street portions as activity corridors: - A portion of Church Street from the corner of Voortrekker Road; - A portion of Lofdal Street to the corner of Main Road; - A portion of Main Road from the corner of Welkom and Lofdal Streets to Voortrekker Road; - A portion of Voortrekker Road from the corner of Jameson Street to Main Road; - De Villiers Street; - Mossel Street.	Change
	Roads	
36	Support upgrade of southern access and bridge widening across the Berg River, upgrade of Church Street and Lofdal Street which connects to Cape Town and Saldanha Bay and the northern parts of South Africa.	Change
37	Deproclamation of Main Road in Velddrif and intensify and densify uses along deproclaimed main road.	Change
38	Develop route between Main Road and White City (Noordhoek) for emergency vehicles.	Develop
39	Provide for transport infrastructure to improve transport linkages and accessibility, dictated by the Saldanha-Northern Cape Development Corridor (one of 18 National Infrastructure Plan (SIPs) (SDF 2019-2023).	Develop
	Pedestrian / cycle routes	
40	Promote walkability for both pedestrians and NMT routes along the R399 and portion of Voortrekker Road within Velddrif. Provide accessible, surfaced, shaded, adequately lit and safe NMT routes.	Change

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Community facilities	
41	Support and enhance the existing public nodes such as CBD at V11, Noordhoek node and Laaiplek node.	Change
42	Coastal Upgrades and Promenade: Develop Coastal Boardwalks and the upgrading of Pelikaan Park, Stywelyne (Velddrif/Laaiplek Precinct Plan).	Change
43	Develop educational and social facilities on vacant school site. Promote the establishment of a Community College: Skills development, technical campus, catering school (WCG owned site) at V12.	Develop
44	Provide for additional sports facilities, i.e a driving range and community swimming pool.	Develop

Objective 4: Protect and grow place identity and cultural integrity

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Tourism	
45	Redesign the circle area in front of Laaiplek Hotel into a public square with seating and landscaping, where locals can enjoy lunch and tourists can walk across towards the museum along the harbour promenade.	Change
46	Protect the residential function as coastal settlement whilst promoting its holiday settlement function: Support residences to double-up to provide short term accommodation for national and international visitors.	Protect
47	Develop accommodation options in the urban and surrounding rural area (supporting settlement as conference destination).	Develop
48	Promote and develop tourism related uses within the Pelican and Laaiplek harbours (as strategic sites).	Develop
	Heritage and Tourism	
49	Diversify the neighbourhood of Noordhoek through encouraging mixed-use activities and reconfiguring current community nodes to create internal public squares (VPP).	Change
50	Manage visitor threshold at Bokkomlaan (BCMP).	Change


DEVELOPABLE AREA (Ha)
V1 - 15.61 Ha V2 - 11.42 Ha V3 - 1.98 Ha V4 - 1.41 Ha
V5 - 5.71 Ha V7 - 35.87 Ha V8 - 62.44 Ha V9 - 3.92 Ha
V10 - 64.35 Ha V11 - 45.49 Ha V12 - 9.86 Ha V13 - 5.17 Ha
V14 - 27.05 Ha V15 - 7.54 Ha V16 - 130.04 Ha V17 - 9.4 Ha
V18 - 5.76 Ha V19 - 16.31 Ha V20 - 15.06 Ha V21 - 3.57 Ha
V22 - 9.91 Ha V23 - 0.64 Ha V24 - 19.82 Ha V25 - 6.91 Ha
V26 - 52.51 Ha V27 - 73.73 Ha
SPATIAL DEVELOPMENT FRAMEWORK
VELDDRIF/LAAIPLEK
SPATIAL PROPOSALS
MAP 2 OF 2
PREPARED BY:
C.K. RUMBOLL & PARTNERS
TOWN & REGIONAL PLANNERS
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Buffer
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100 year Hazard Line
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Urban Edge Expansion (20 years)
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Recreation
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Small Scale Agriculture
Strategic Site/Mixed Use
Use to be Determined
Light Industrial
Alternative Energy Zone
Future Urban Expansion
Cemetery Expansion
AMENITIES
Cemetery
Clinic
Community centre
Elderly centre
Library
Museum
Place of worship
Police station
Pre-primary school/crache
Primary school
Secondary school
Sport facilities
1km School Radius
R399 (Voortrekker Rd)
Nemesia
Jamieston St
Main St
Voortrekker Rd
Bokkomlaan
0
750
1,500 m

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Nature and Conservation	
47	Support the protection of Berg River Estuary character: No advertisements, signage, inscriptions, neon and flashing lighting allowed along the river and sea frontage of the settlement footprint and a short section of the southern entrance road north of Carinus bridge up to first intersection with Voortrekker. Nameboards equal in size to a numberplate are allowed on buildings along the waterfront. Develop a guideline for using marketing materials and signage and confirmed monitoring mechanism and procedures.	Protect
48	Enhance the implementation of a conservation management plan to preserve the declared RAMSAR site.	Protect
49	Enhance conservation and protection of the natural environment and vegetation in particular the Estuary and Coastline (SDF 2019-2024).	Protect
50	Protect natural vegetation on open fields and within open space corridors to optimize veld flowers as tourism attraction in spring (V13, V7, V10, V24).	Protect
51	Protect tree lane and tree clusters demarcating eastern gateway.	Protect

5.7.4 Velddrif/Laaiplek Settlement Directives

Development directives according to the SDF objectives:

Objective 1: Grow economic sectors and prosperity

PUBLIC UTILITIES		
No	**Proposals**	**Type**
	Water	
1	Protect and maintain water sources, waterworks, reticulation and storage capacity including water supplied by the WCDM (from Withoogte) via a pipeline crossing the Berg River along the Carinus Bridge, two (2) reservoirs (5 500 kℓ), two water towers and the water reticulation network.	Protect
	Sewerage and Sanitation	
2	Maintain waterborne sewerage systems used in Port Owen, Noordhoek and new development areas and promote replacement of septic tank system in older (historic) residential areas.	Protect
	Waste	
3	Reduce waste transported from the transfer station at Velddrif to Vredenburg landfill site.	Protect
	Safety and Risk Management Services	
4	Support National Sea Rescue Institute stations at St Helena's Station 44 and Langebaan's Station 4 (neighbouring coastal settlements).	Protect
SPACE, BUILT		
	Residential	
5	Protect traditional grid pattern with the focal point of the settlement being the river and the harbour at the Berg River Mouth.	Protect
6	Encourage transition zones between precincts to counter segregated urban form consisting of lower density residential erven along the river and ocean front and higher density residential uses to the northeast of the town. Encourage the following in transition zones:	Protect
7	Densification in accordance with zone proposals through: - Subdivision (sectional title); - Infill development; - Renewal, intensification and restructuring.	Protect
8	Spatially allow for provision of different residential types.	Protect
9	Strategically increase density and introduce medium-density housing types (such as group and townhouses, as well as second dwellings) by architecturally designing buildings on each plot to resemble a single large manor house with an outbuilding.	Protect
10	Develop an old age home and other retirement developments and facilities.	Protect
11	Encourage low to medium residential opportunities that are market-driven, yet affordable for the section of society whose income is below the neighbourhood's median or average household income. Affordability is enhanced by smaller erven and houses, apartments, group and town housing and also retirement village facilities, aimed at first time home owners, young professionals, couples, retirees, etc.	Protect
	Commercial	
12	Allow development of limited-service industries.	Change

Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
	Gateways	
13	Beautify and keep settlement accesses natural: Plant tree lanes or tree clusters.	Change

Objective 3: Sustain material, physical and social well-being

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Community facilities	
14	Maintain all community facilities including a clinic, primary and high schools, libraries, cemeteries, community halls, resorts and a golf course.	Protect
16	Support the provision of adequate primary health facilities.	Develop

Objective 4: Protect and grow place identity and cultural integrity

PUBLIC INSTITUTIONS		
No	**Proposals**	**Type**
	Tourism	
17	Enhance crayfish/food route along the West Coast.	Protect
18	Protect fishing related infrastructure such as wooded jetties and pole frameworks where Bokkoms are dried.	Protect
19	Protect historic fish-industry uses including fish processing (factories) in harbours (Pelican and Laaiplek) and fish drying in Bokkomlaan.	Protect
20	Maintain holiday resort at Port Owen (Private) and refurbish holiday resort and caravan park at Pelican Park and Stywelyne (Municipal).	Protect
21	Promote annual Berg River Canoe Marathon and related festivities.	Protect
22	Provide for and promote bird watching as BRE is an important bird habitat and home to around 30 000 birds, including up to 80 species endemic to the Cape coast.	Change/ Protect
23	Encourage tourism related investment and small-scale industrial/commercial activities (VPP).	Change
24	Promote land use that optimises Velddrif as retirement, holiday and tourism and conference destination while building its economic core.	Change
	Heritage and Tourism	
25	Support sensitive development of and improve tourism related infrastructure including local tourism kiosk, tourism signs and coastal recreational facilities (fishing, canoeing, restaurants and venues).	Protect/ Change

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
No	**Proposals**	**Type**
	Public and Private Space	
26	Ensure greenfields developments connect urban landscape to natural vegetation corridors.	Change
27	Protect fishing stock (as natural resource) whilst promoting artisanal fishing as supplement to domestic food security.	Protect
	Nature and Conservation	
28	Comply with the Berg River Estuary Usage Zones By-laws.	Protect

Description of proposed land uses in the identified Development Zones of the towns in the Bergrivier Municipality	
Proposed land uses	**Description**
Low density Residential uses	*Residential densities of up to 15 units per hectare within the Single Residential Zone I, and General Residential Zone I* zoning can be accommodated within these zones.*
Medium density Residential uses	*Residential densities of up to 20 to 50 units per hectare within the General Residential Zones II and III* can be accommodated within these zones.*
High density Residential uses	*Residential densities of above 50 units per hectare can be accommodated within these zones with proposed zonings Single Residential Zone II and General Residential Zone IV, V and VI*.*
Secondary Educational uses	*Allow for educational uses such as Crèches, After Care facilities and Day Care Centres.*
Place of Instruction	*Allow for places of education (crèches, schools, colleges, universities, technical institutes, public art gallery, research institutions, public library, museums, or a place of instruction in sport where the main objective is instruction rather than participation of the public as competitors or spectators, a conference facility or other centre of education and includes associated hostels.*
Professional Uses	*Means that kind of use which is normally and reasonably associated with professionals such as doctors, dentists, attorneys, architects, engineers and town planners, where services rendered, are separate from trading are one of the distinguishing factors as accommodated under Business Zones 1 and 2*.*
Business Uses	*Business uses that include business premises, restaurants, shops, supermarket, offices, service trade and other uses as included under Business Zone I (at CBDs), Business Zones II, III, IV and V and VI* (where designated).*
Secondary Business Uses	*Allow for low intensity commercial and mixed uses to provide for the needs of the local neighbourhood in terms of consumer goods and personal services. This includes consent uses like house taverns and house shops. House taverns will only be allowed at the discretion of the Municipality. Other uses include low impact uses under Business Zones II, III and IV*. These types of uses should be limited and must be able to integrate with surrounding residential areas without negatively impacting these areas.*
Place of Worship	*Means a church, synagogue, mosque, temple, chapel or other place for practising a faith or religion, and includes any building, including ancillary uses associated therewith, such as religious leaders' residences, office, function hall or place of religious instruction and a crèche as allowed under Community Zone II*, but does not include a funeral parlour, cemetery or crematorium.*
Institution	*Means premises used as or intended to be used as a social, health or welfare facilities, or for the administration thereof and includes a hospital, clinic, pharmacy, home for the aged, retired, indigent or handicapped, social facility such as a counselling centre, orphanage and rehabilitation centre; and includes ancillary accommodation, administrative, health care, training and support services and facilities that are allowed for as a primary use under the Community Zone III* as well as allowed for as a consent use under Business Zone IV*, Community Zones I* and II*. Does not include a correctional facility.*
Guest Houses	*Means a dwelling house, second dwelling or additional dwelling unit which is used for the purpose of supplying lodging and meals to transient guests for compensation, in an establishment which exceeds the restrictions of a bed and breakfast establishment (more than 2 guest rooms or 4 guests), and includes business meetings or training sessions by and for guests on the property for up to 12 persons. Does not include agricultural workers' accommodation. As allowed for as a consent use under Single Residential Zone I* and as a primary use under Agricultural Zones I and II*.*
Authority	*A use which is practiced by or on behalf of a public authority and that cannot be classified or defined under other uses in this zoning scheme, and includes a use practiced by the national government, including a military centre or installation, police station or correctional facility; the provincial government, including a road station or road camp; the Municipality, including a fire service or a municipal depot with related uses, including limited accommodation for staff required to be on standby for emergencies; or a foreign government including an embassy or consulate, but does not include a dwelling house when the dominant use is for living accommodation of foreign diplomatic personnel. Uses as allowed under Authority Zone.*
Sport/Recreational Facilities	*Allow for sport facilities and other related recreational and tourism facilities like showgrounds, picnic and camping areas.*
Industrial/Service Trade and Industries	*Allow for development of industries, service industries and service trade related uses, with the different types of industries considering the context and locality in the urban areas. Certain commercial uses including shops, restaurants, places of assembly, adult entertainment as well as funeral parlours and places of worship that are allowed for under these zones in accordance with the zoning scheme.*

** The proposed zonings are in accordance with the Bergrivier Municipal Land Use Planning By-law 2020 or as may be amended in future. The proposed zonings only provide an indication of the zonings that can be allowed within the zones. Any land use application within the development zones area will still be subject to other regulations that are applicable to the specific areas and within the zoning scheme.*

CHAPTER 6: Rural and Regional Cross-Border Proposals & Environmental Management and Climate Mitigation Framework

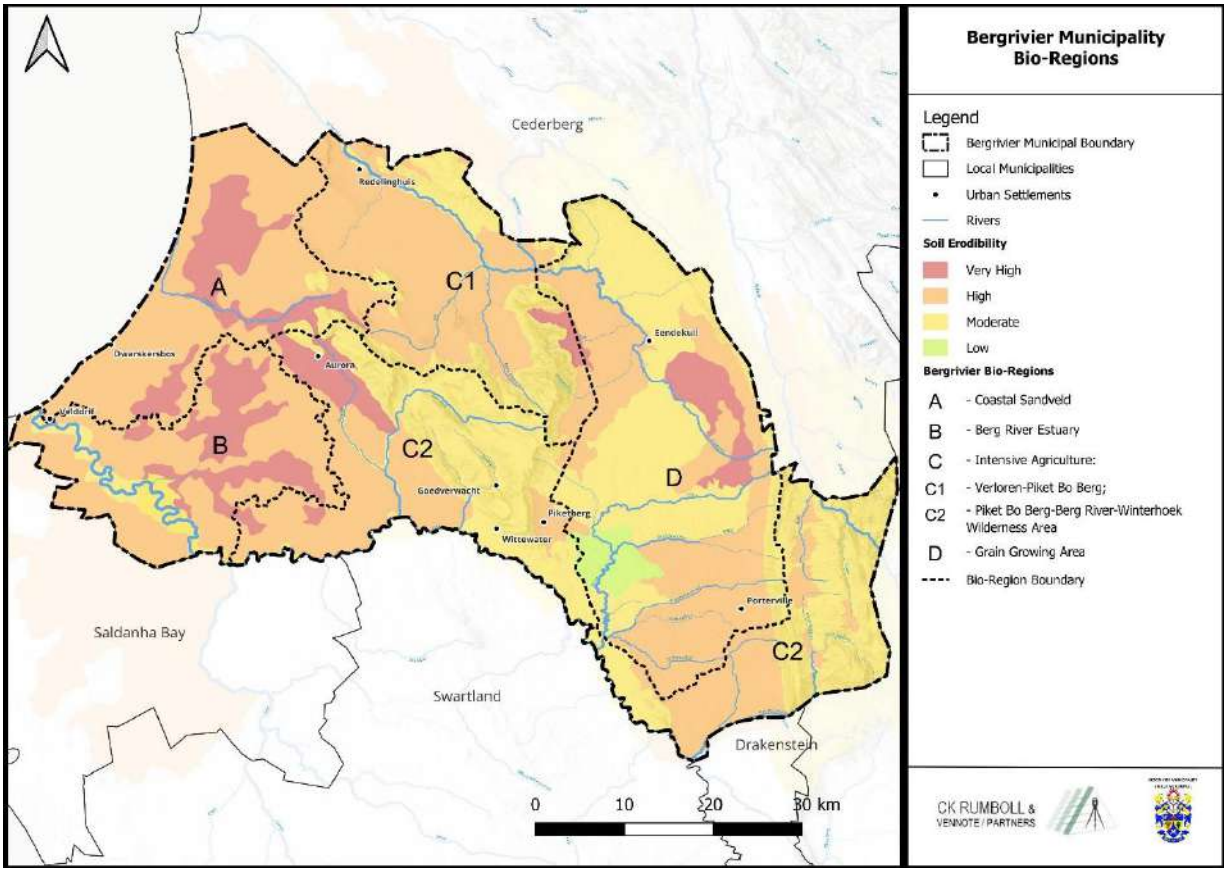
Bergrivier Municipality is situated within the expansive West Coast region that spans from Atlantis in the south to Papendorp in the north, with the Cape Fold Mountains marking its inland boundary. Within this area, three distinct bio-regions have been identified based on both natural environmental factors and economic significance. One of the bio-regions is made up of three subregions. These bio-regions are home to diverse ecological and economic landscapes:

A. Coastal Sandveld region;
B. Berg River Estuary Sandveld region;
C. Intensive agricultural area:
   C1 Verlorenvlei to Piket Bo Berg;
   C2 Piket Bo Berg to Berg River and Vier-en-Twintig River including Winterhoek Mountains and Wilderness Area.
D. Piketberg Porterville Grain Growing region.

The table to follow provides an overview of the five regions:

All proposals should be read and implemented within the framework of the Western Cape Land Use Planning: Rural Guidelines, 2019.

Map 39: Bergrivier Municipality Bio-Regions



	Coastal Sandveld Corridor (A)	Berg River Estuary Sandveld (B)	Grain Growing Agricultural Area (D)	Verlorenvlei Piket Bo Berg Area (C1)	Piket Bo Berg, Berg River & Winterhoek Wilderness Area (C2)
Altitude (m)	0 – 300	0 – 100	‹100 – 600	‹100 – 1 000	‹100 – 1 500
Population distribution (2023)	Dwarskersbos: 868 Aurora: 748	Velddrif: 14 272	Porterville: 10 098 Piketberg: 16 076 Eendekuil: 1 983	Redelinghuis: 743	Goedverwacht: 2 563 Wittewater: 1 099
Agriculture (Primary Economy)	Mixed farming (small grain and some potatoes), sheep & fishing.	Mixed farming (small grain and some potatoes), sheep & fishing.	Small grain, rooibos & some vineyards.	Citrus, table grapes & potatoes.	Citrus, deciduous (pone, berries) fruit & potatoes.
Mining (Primary Economy)	Salt and shells.	Salt.	None.	Tungsten deposits.	Lime and sand.
Biodiversity	Coastal fynbos: Dune strandveld, seashore vegetation, sand fynbos, salt pans.	Sand fynbos, seashore vegetation, estuarine salt marshes.	Succulent shrubland, silcrete renosterveld, sandstone fynbos, vernal pools.	Sandstone fynbos, Sand fynbos.	Sandstone fynbos, sand fynbos, shale renosterveld, alluvium fynbos.
Secondary Economy		Fish processing.	Agri-processing.	Agri-Processing.	Agri-processing.
Tertiary Economy	Ecotourism. Alternative energy.	Ecotourism.	Agritourism. Alternative energy.	Agritourism.	Ecotourism. Alternative energy.
Renewable energy potential	Relatively medium wind speed. Medium levels of solar radiation.	Partially relatively medium wind speeds. Medium levels of solar radiation.	Relatively low wind speeds. Medium levels of solar radiation.	Relatively low wind speed. Medium levels of solar radiation.	Relatively low wind speeds. Medium levels of solar radiation.
Hydrology	Papkuils River – moderately modified.	Berg River and Berg River Estuary moderately modified.	Smaller rivers: Generally not at an accepted class because of interventions.	Verlorenvlei River moderately modified.	Berg River moderately modified, Olifants unmodified, Vier-en-Twintig, largely natural.
Landscape character	Romantic.	Romantic.	Cosmic.	Classical.	Classical.

6.1 Regional and Rural, Environmental Management and Climate Change Proposals

The rural development proposals for the Bergrivier Municipality are centred around natural resources, including Water, Soil (Land), Minerals, Vegetation and Fauna and Ecosystems, Air and Wind, Sun, and one man-made resource, Connectors. These proposals and directives respond to: Opportunities (to develop), Disasters (to protect and adapt to), and Risks (to mitigate and change). The proposals are listed and address three key aspects: land use (LU), environmental management (EM), and climate change (CC) indicated by using the icons that follow:

Land Use	Environmental Management	Climate Change
		

Furthermore, the rural development initiatives in Bergrivier align with national and provincial projects, alongside investments by state-owned entities. Notable projects include the upgrading of the Carinus Bridge and provincial road (R399) in Velddrif by the Department of Transport and Public Works, farmer production support units in Piketberg facilitated by the Department of Land Reform and Rural Development, as well as subsidised residential development initiatives in Piketberg, Porterville, and Eendekuil led by the Department of Human Settlements. Additionally, residential developments in Wittewater and Goedverwacht are considered by the Department of Rural Development and Land Reform. These projects inform subsequent development proposals.

6.1.1 Water/ Hydrology

Opportunities
Water catchment areas, water courses, highly and average productive underground water sources and the coast.
Adhere to the following buffers where no development (permanent structures) is allowed, unless authorized by an environmental impact and/or water use and/or coastal management assessment to limit risks and to reduce and prevent pollution and degradation of water resources: • 32m wide buffer area along rivers and riverbanks (NWA, 1998); • 1:100 floodline buffer along a Water Course (The outer edge of the 1:100 year floodline and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the water course of a river. In the absence of a determined 1:100 year floodline or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench) (NEMA regulations, 2014); • 1km buffer along the coast (ICMA, 2008); • 500m buffer (delineated during wet season) around wetlands, estuaries, salt marshes, or within the 1:50 year flood line; • Low-lying areas where the area is exposed to floods not only caused by rivers, but by groundwater or storm water collection (prohibit development including Cemeteries, Industrial Areas, Fuel Storage Facilities and Intensive Agricultural Uses). Adhere to the coastal management lines in Velddrif and Dwarskersbos and setback lines along the Berg, Jakkalskloof, Verlorenvlei and Papkuils Rivers respectively in Velddrif, Porterville and Redelinghuis and Rocherpan.

Promote and delineate natural open space networks and restore, rehabilitate, maintain and enhance various river corridors:



- Ecological: preserve aquatic and associated ecosystems and their biological diversity along the following rivers and tributaries:
  - Berg;
  - Papkuils (feeding into Rocherpan);
  - Vier-en-Twintig (southern boundary shared with Drakenstein);
  - Olifants (tributaries: Dwars and Ratel);
  - Verlorenvlei;
  - Krom Antonies;
  - Hol;
  - Kruismans;
- Previously disturbed areas in flood plains and catchments performing ecological services, drainage, filtering, biota and vegetation links.
- Ecotourism:
  - Provide for social amenities connecting rivers and tributaries within settlements to the rural surroundings for example:
    - Platkloof river at Goedverwacht;
    - Tributary through Wittewater;
    - Tributaries through Piketberg feeding into the Pyls river;
    - Tributaries through Eendekuil feeding into the Kruismans river;
    - Tributaries through Porterville feeding into the Jakkalskloof river;
    - Berg River along Velddrif;
    - Verlorenvlei River along Redelinghuis.
- Conservation:
  - Restore existing and historical connections between wetlands, drainage ports and rivers/streams and groundwater (and directed by groundwater connections);
  - Of moderately and largely modified rivers and tributaries across Bergrivier Municipality.

- Preserve the integrity of coastal and marine resources and systems to prohibit exploitation and degradation of sensitive and risk prone coastal and marine environments as a result of anthropogenic activities;
- Ensure the protection of sandy beaches and dune systems by prohibiting vehicle access above the high tide/water mark. This includes popular swimming beaches, areas supporting sea life, and coastal conservation zones.
- Avoid at all costs the removal and fragmentation of indigenous vegetation, in the buffer area, on dunes and in the coastline area;
- Place infrastructure in such a way as to prevent damage caused by coastal processes. Adhere strictly to the precautionary principle should fixed infrastructure be installed below the high watermark;
- Adhere to rehabilitation guidelines taking into account biodiversity and ecosystem requirements and strictly enforce to protect against the following coastal processes or combination thereof:
  - Impact of successive heavy storms;
  - Coastline movement;
  - Global sea level rise;
  - Change of natural coastal processes.

Prepare for and mitigate coastal erosion particularly at Velddrif and Dwarskersbos.

Enhance Compliance Monitoring and Enforcement Efforts and implement and enforce various legislation.

Maintain ecosystem integrity and health and:

- Assess and effectively manage coastal protected areas;
- Monitor mining activities in the coastal zone;
- Facilitate the coordinated management of Marine Living Resources;
- Address Coastal Erosion within the coastal zone;
- Rehabilitate the coastal zone.

Tourism, sport and recreation

Promote and strengthen natural, rural and cultural environments and develop guidelines and location specific water resources zone (WRZ) plans to promote, manage and guide land use related to tourism, sport and recreation along rivers, dams, the Atlantic Sea and other water resources addressing:

- Infrastructure in and around water resources (to comply with operational requirements and to mitigate and manage socio-economic impacts) guided by Guidelines for resort developments along Berg, Verlorenvlei and other rivers and the Atlantic Coastline;
- Provide day facilities and picnic areas alongside resorts including camping, caravan parks, and reserves.

Activities and events in accordance with the relevant Bergrivier municipal by-laws i.e. By-law relating to the Berg River Estuary Usage Zones (Government Gazette No. 8810, 11 August 2023) regulating waterskiing, canoeing, river rafting, fishing and boat trips.

- Whilst considering the Provincial Biodiversity Strategy and Action Plan (PBSAP).

Facilitate and manage access to the coast for all people and ensure full compliance with the relevant provisions in the Integrated Coastal Management Act (ICMA, 2008) and full consideration of the results of the West Coast District Municipality Coastal Access Audit:

- Ensure public safety and security;
- Improve conditions of access roads to coastal areas;
- Minimise alienation of land that prohibits coastal access for example aquaculture, mining and residential estates;
- Enhance tourism opportunities and economic benefits for communities through engagement with the Working for the Coast Programme;
- Ensure efficient management of public launch sites and provide for recreational and commercial events on beaches.

Sustainably develop and maintain harbours as part of promoting “Small Harbours”, an Economic Development Framework proposal, and:

- Upgrade Laaiplek Harbour precinct and Carinus Bridge precinct (Pelican Harbour) at Velddrif;
- Enhance maintenance of existing permanent and less permanent fishing infrastructure to keep Velddrif/ Laaiplek’s sense of place;
- Promote coastal tourism in working harbours.

Enhance socio-economic development of Coastal Communities and:

- Facilitate coastal tourism development.

Waste Management

- Promote municipal integrated waste management strategy and make provision for the associated costs.
- Provide appropriately located land for and maintain waste facilities:
  - Promote the rehabilitation of closed waste disposal sites in Piketberg, Porterville, Redelinghuis and Aurora to ensure compliance with closure license requirements. Continue waste delivery to the Swartland Highlands and Saldanha municipal waste/landfill sites, emphasising avoidance and reduction, as well as treatment and disposal measures.
  - Investigate and provide for drop off locations for waste:
    - In rural areas along major routes and at large farming operations;
    - In Redelinghuis, Dwarskersbos and Eendekuil.
- Promote recycling of domestic waste and provide for composting of garden waste and re-use of building rubble separately in all settlements:
  - Specifically, in Piketberg, Velddrif and Porterville where compositing facilities can be established on under-utilised municipal land;
  - Establish igloos sites for specific types of domestic waste, composting facilities for garden waste, and building rubble facilities to facilitate the reuse of building materials. Additionally, implement waste recovery programmes to extract usable products from waste streams.
  - Implement waste to energy programmes.
- Support and empower small waste related businesses and consider integration of waste pickers in waste management system (particularly reclamation of recyclable material).
  - Enable access to waste, including by-law regulations, once a municipal waste recovery facility is implemented.

Research and Education:

- Promote river health projects of both Berg and Olifants/Doorn catchment areas, as managed by the Department of Water and Sanitation.

Develop and facilitate awareness, education, training, capacity building, research and information gathering and a sense of custodianship in the district:

- Promote active waste education and awareness strategies. Implement programmes within the Bergrivier community and its schools to emphasise the value of water resources in light of climate change and water scarcity.

Disasters

Water catchment areas, water courses, highly and average productive underground water sources and the coast.

Pollution and Risk Control:

- Improve pollution control, management and monitoring of effluent generating infrastructure and facilities to prevent pollution of the coastal zone.
  - Divert infrastructure and development that may have significant impact on water sources include intensive agricultural activities, waste management (transfer & recycle) sites, fuel storage facilities and industrial areas.
  - Consider developments that may have little or no significant impact including residential development and standard agricultural activities.

Alternative Water Resources:

- Support the use of alternative water resources (all boreholes and ground water, water harvesting, desalination) and the reuse of appropriately treated water (stormwater, waste and grey water) to alleviate water shortages that may arise during droughts.
  - Secure operational and maintenance costs of alternative water provision.
- Provide for establishing alternative water resources e.g. desalination plant at Laaiplek in the Coastal settlements of Velddrif and Dwarskersbos.

Floods, Coastal Erosion and Droughts

Support monitoring and management aspects to guarantee water quality:

- River monitoring must take place according to the guidelines of the Department of Water and Sanitation's River Health Programme for all developments e.g. agri-industry. The health of rivers in the Bergrivier municipal area is tabulated below:

River Status	Berg (Dwarskersbos, Velddrif, Aurora, Wittewater, Goedverwacht, Piketberg and Porterville):	Olifants/Doorn Water Management Area (Eendekuil and Redelinghuis).
Largely natural, few modifications		Olifants and tributaries: Dwars and Ratel rivers.
Moderately Modified	Minor rivers are Bergvallei (across border of Cederberg and Bergrivier Municipalities).	Vier-en-Twintig (southern mutual boundary with Drakenstein).
Largely Modified	Berg (tributaries: Boesmans, Kuilders and Platkloof at Goedverwacht). Verlorenvlei (upper) (tributaries: Krom Antonies, Papkuils (feeding into Rocherpan).	
Critically/ Extremely modified		Pyls, Smits, Witelsbosspruit and Krom (across eastern wheatfield plain) and Hol and Kruismans.

- Borehole monitoring must take place in all developments that could lead to possible groundwater pollution, e.g. waste landfills, intensive farming practices;
- Stormwater management and treatment must prevent pollution:
  - In rural areas, for example, on intensive farming practices such as cattle housing above underground water sources. Improve stormwater treatment in urban and rural -agri and industrial zones, service stations, and fuel distribution areas.
- Water quality monitoring is required for all water and stormwater treatment systems;
- Management, monitoring and evaluation and rehabilitation must be regulated by an area specific Environmental Management Plan.

Risks
Water catchment areas, water courses, highly and average productive underground water sources
Support effective and fair management of state dam basins, water resources and catchment areas based on social, economic and environmental impact consideration: to secure water volumes and quality including guarding against erosion and mitigating drought and flooding impacts.

• Protect and promote maintenance of and reduced risk within water catchment areas inclusive of wetlands and highly and average productive underground water sources:
  ○ Mountain catchment areas: upper Olifants, upper Verlorenvlei and the Krom Antonies;
  ○ Effectively remove and control invasive alien plants with the exception of heritage trees (trees older than 20 years);
  ○ Delineate underground water resources and aquifers to guard against overexploitation.
• Promote cooperative Management of Protected Areas (National Environmental Management: Protected Areas Act);
  ○ And avoid development of infrastructure and waste sites (including cemeteries) and caution development of residential, commercial and industrial developments, intensive agriculture and fuel storage.

Water quality: • Assure developments in all phases uphold water quality standards and thresholds; • Assure of supply levels of all water sources, especially surface water resources and re-evaluate water sources especially where demand is close to the safe, 1:20 year yields; • Require efficient water use in all development proposals; • Consider all applicable guidelines, policies and legislation pertaining to freshwater impacts where relevant to proposed developments; • Promote small sewerage treatment package plants and alternative technologies on farms (agri-villages) and in rural settlements.

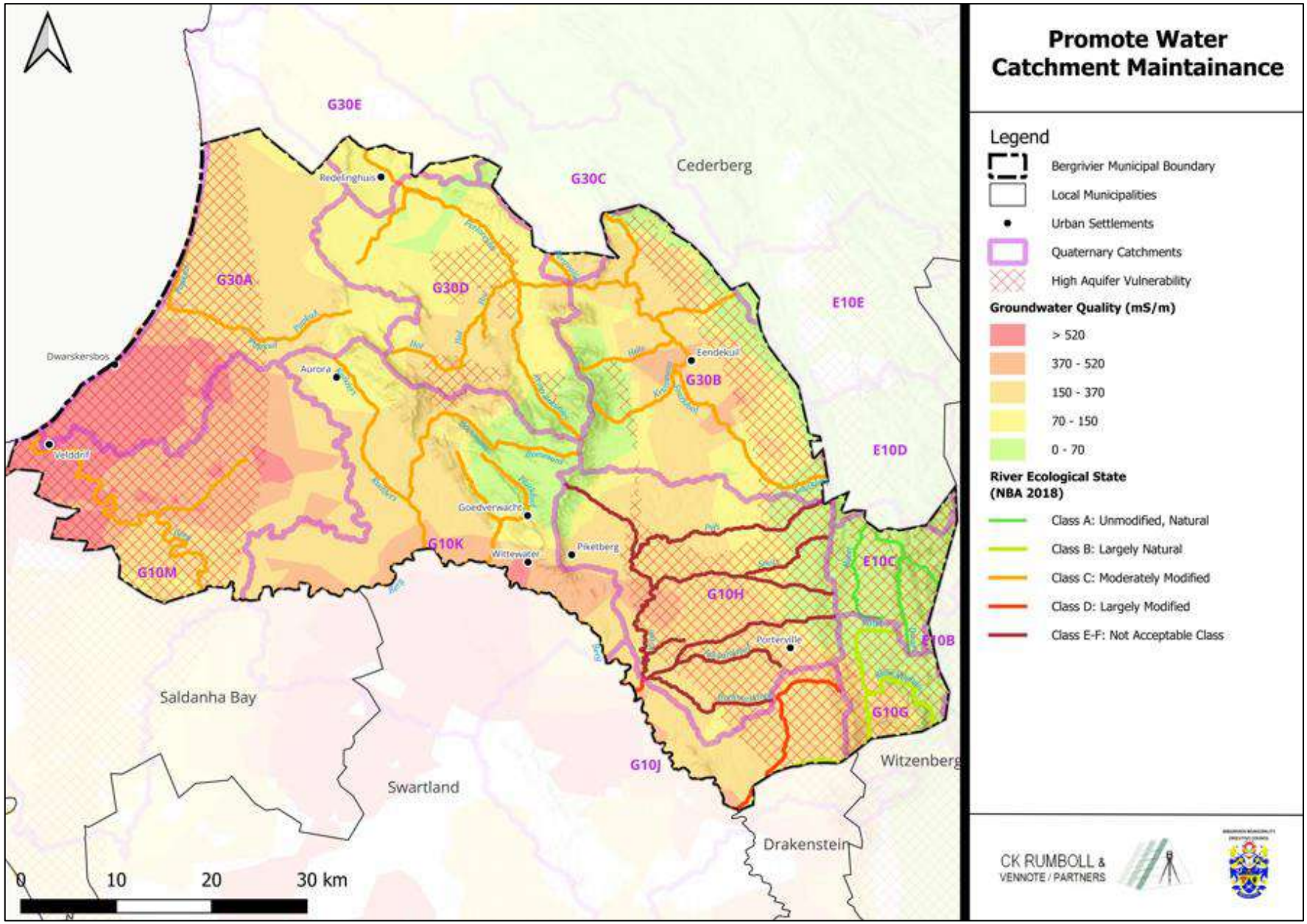
Environmental justice and impact assessment requirements:
 	
Promote environmental justice by ensuring that adverse environmental impacts are not unfairly distributed, especially among vulnerable and disadvantaged individuals. Implement all Environmental Approvals according to approved Environmental Management Plans, which outline directives for management and monitoring:
• All proposed settlement and infrastructure developments must have Environmental Approval or confirmation of applicability of the Environmental Management Act before proceeding and include developments:
  ○ Covering an area of 50 m² and more and within 32 m from the banks of a water source;
  ○ Impacting on estuary, terrestrial, marine and heritage environments, conservation worthy natural vegetation and off-set areas (for the Saldanha IDZ).

Cemeteries, sanitation, waste and water storage
Cemetery expansion: • Expand cemeteries per settlement and promote local rather than regional cemeteries. • Promote memorial parks that include a combination of uses such as passive entertainment and passive recreation activities.
Sanitation in rural villages and rural areas: Maintain sanitation in rural villages and in rural areas according to prescribed standards: • Monitoring water quality of all water treatment systems; • Renew bulk infrastructure where required.
Waste site: Promote a municipal waste facility as priority, despite using of a regional landfill facility at Malmesbury and Vredenburg: • Prohibit waste disposal sites on Highly Productive Underground Water Sources (HPUWS), which encompass highly productive interrelated and broken underground water sources, as well as average productive sources; • Prioritise compliance with environmental authorisations for operating Bergrivier Municipal waste management facilities. Refer to Map 41.

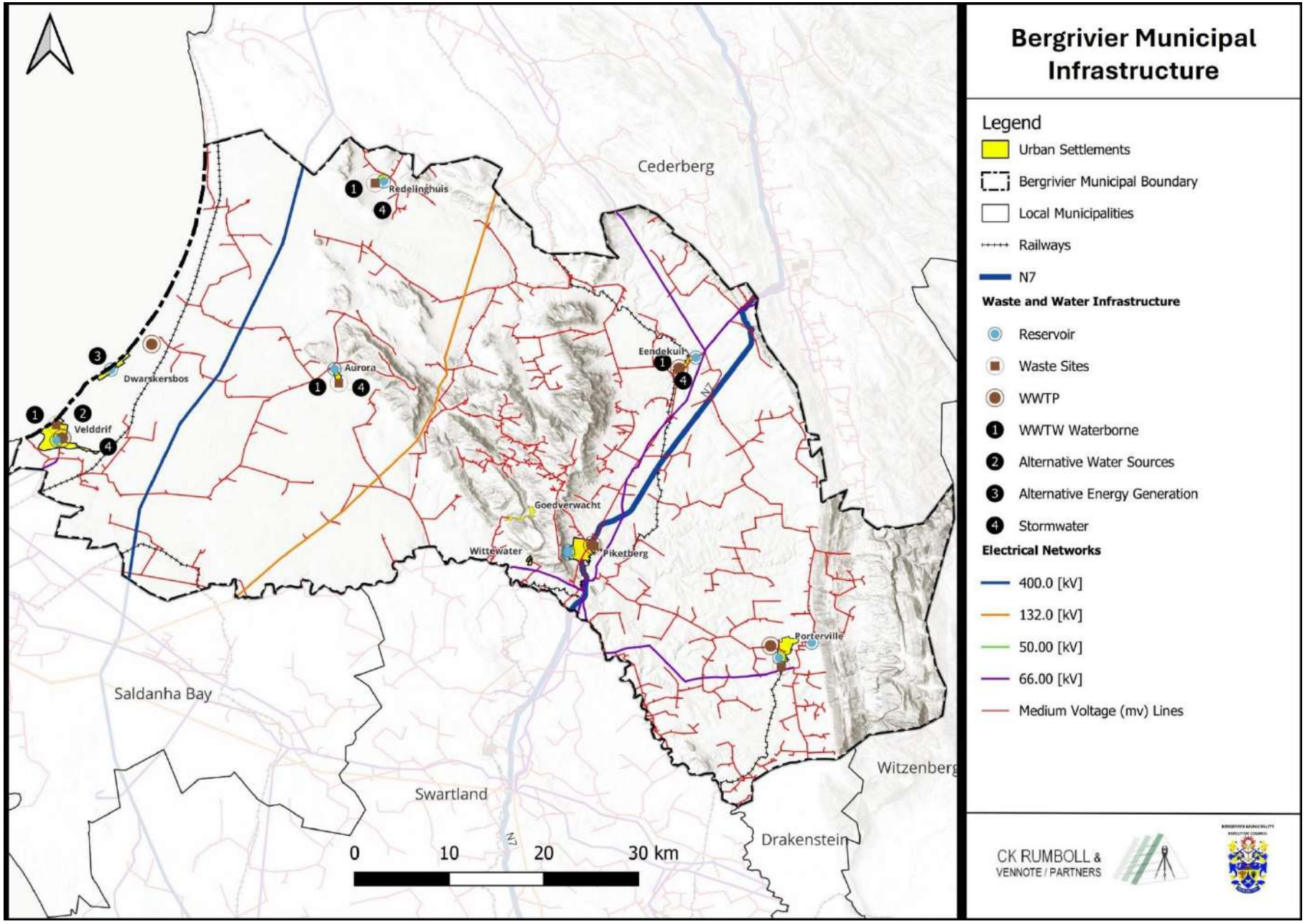
Risk
Water catchment areas, water courses, highly and average productive underground water sources

Water security:   
• Potable Water Storage: Add at least 10% additional supply capacity (headroom) when considering the maximum 24-hour demand in the highest (peak) demand month of the year;
• Subject proposed developments to proper investigation of the impact on water sources and long-term sustainability;
• Vigorously implement Water Demand Management measures, especially in terms of the following:
  ○ Increased water efficiency;
  ○ Frequent monitoring of water supply systems;
  ○ Conduct regular and adequate system maintenance and repairs.
• Diversify water resources, e.g. surface water and groundwater use and wastewater re-use;
• Plan for, provide and maintain adequate water resources, water storage capacity and networks for settlements and rural areas and expand bulk infrastructure, where required.

Map 40: Proposal: Maintain Bergrivier Water Catchment Management Areas



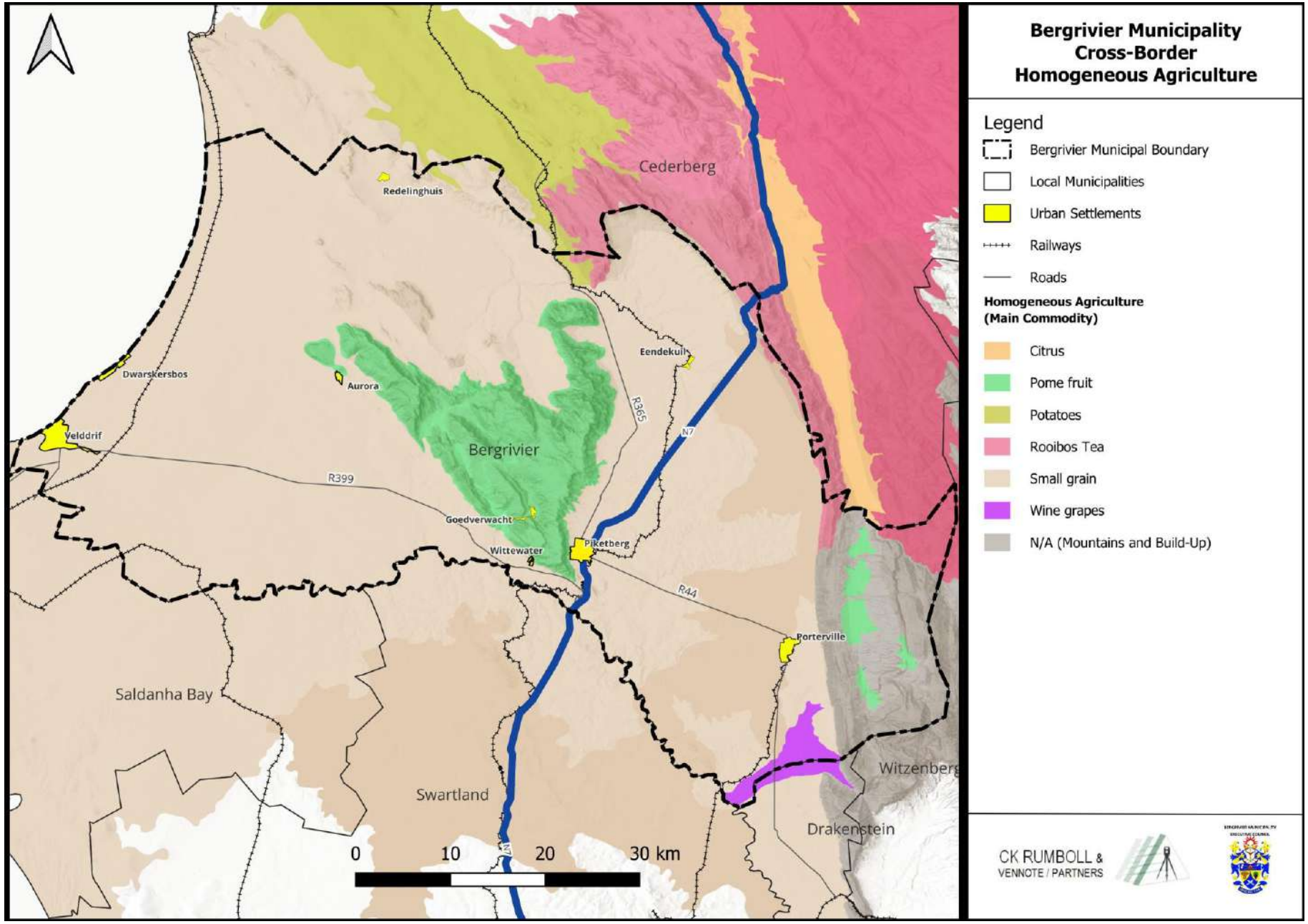
Map 41: Proposal: Plan for and Maintain Bergrivier Water and Waste Infrastructure



6.1.2 Land/ Soil

Opportunities
Soil Suitability and Agriculture (Food Security)
Conserve and preserve high potential agricultural land:   
• Protect and preserve agricultural resources (soil, water and ecology) in the Bergrivier municipal area, including: o High-potential unique agricultural land, food production and agricultural landscapes; o Protect water sources and quality: Intensively irrigated areas along the Berg and Upper Verlorenvlei Rivers; o Other areas of significant agricultural value; o Extensive agricultural production and strip farming; o Smallholdings. • Specifically, focus on areas along rivers: o Berg (Boesmans, Kuilders and Platkloof at Goedverwacht); o Upper Verlorenvlei (Krom Antonies, Hol and Kruismans); o Papkuils (feeding into Rocherpan); o Bergvallei (across border of Cederberg and Bergrivier Municipalities); o Vier-en-Twintig (at the border with Drakenstein); o Pyls, Smits, Witelsbosspruit and Krom (across the eastern grainfields plain); o Dwars and Ratel Rivers (feeding into the Olifants River). • And: o Ensure no cultivation of virgin land takes place without the written consent of the Minister of Agriculture; o Ensure no land with a slope of more than 20% will be cultivated without written consent of the Minister of Agriculture; o Ensure cultivated land is effectively protected against water and wind erosion; o Avoid use of vegetation in a marsh or a water sponge or in a floodplain; o Prohibit any development that will contradict or may have a significant impact on the cultivation of land with high and significant (medium) agricultural potential (e.g. settlement development and mining), whilst allowing for development that will have limited or no significant impact on agricultural areas. (See also Rural Guidelines); o Delineate and protect intensive and extensive agricultural productive land, after consideration of social, economic and environmental impacts, to support effective and fair management of: ▪ State dam basins; ▪ Water resources; ▪ Catchment areas. o Maintain firebreaks around farms to mitigate the risk of wildfires.
• Protect agricultural cultivation across municipal borders to maintain homogeneous agricultural areas and to promote food security. This includes:    o Safeguarding Rooibos tea cultivation towards Piekenierskloof and in the Sandveld; o Potatoes towards the coast, along the Berg and Upper Verlorenvlei River; o Citrus cultivation along the Upper Verlorenvlei River; o Pome fruit, berries, and flower cultivation along the southeastern boundary of the Winterhoek mountains (Witzenberg Municipality) adjacent to Cederberg, Witzenberg, and Drakenstein Municipalities; o Vineyards and mixed farming along the foothills of the Piketberg Mountains; o Small grain cultivation in the south adjacent to Swartland Municipality; o Mixed farming and conservation in the southwest (Bergrivier Municipality) adjacent to Saldanha Municipality.
• Protect underground water as limited resources. Encourage dry land cultivation.
• Support cultivation and conservation e.g. Biodiversity and Potato Initiative   o Promote the Sandveld Environmental Management Framework (EMF) addressing the cumulative impact of ecological degradation and biodiversity loss.
• Protect sensitive natural and agricultural environments as agriculture is the biggest GDP and employment contributor and an important economic, environmental and cultural resource from inappropriate and opportunistic development to enhance food security: o Delineate intensive and extensive agricultural land.
• Prepare for coastal erosion particularly at Velddrif and Dwarskersbos.

Map 42: Bergrivier Municipality Cross-Border Homogeneous Agriculture



- Effectively manage erosion, both water and wind, through conservation agriculture methods, including:
  - Planting perennial legumes;
  - Implementing contour line management.

- Maintain the SmartAgri plan initiated by the Western Cape Government, prioritizing sustainable practices encompassing:
  - Conservation agriculture;
  - Ecological infrastructure restoration;
  - Integrated catchment management;
  - Energy efficiency;
  - Climate-resilient agri-processing;
  - Knowledge systems for climate-smart agricultural extension.
- Support ongoing research into the impact of climate change on current crop production and sustainable cultivation methods (Western Cape Agricultural Sector Climate Change Framework and Implementation Plan).

- Promote long term sustainability of agriculture and agricultural development:
  - Support compliance with environmental and water legislation;
  - Application of standard environmental management principles;
  - Provide for management and monitoring of implementation of Environmental Approvals regulated by an approved Environmental Management Plan.

Agri and fishing industry and food security

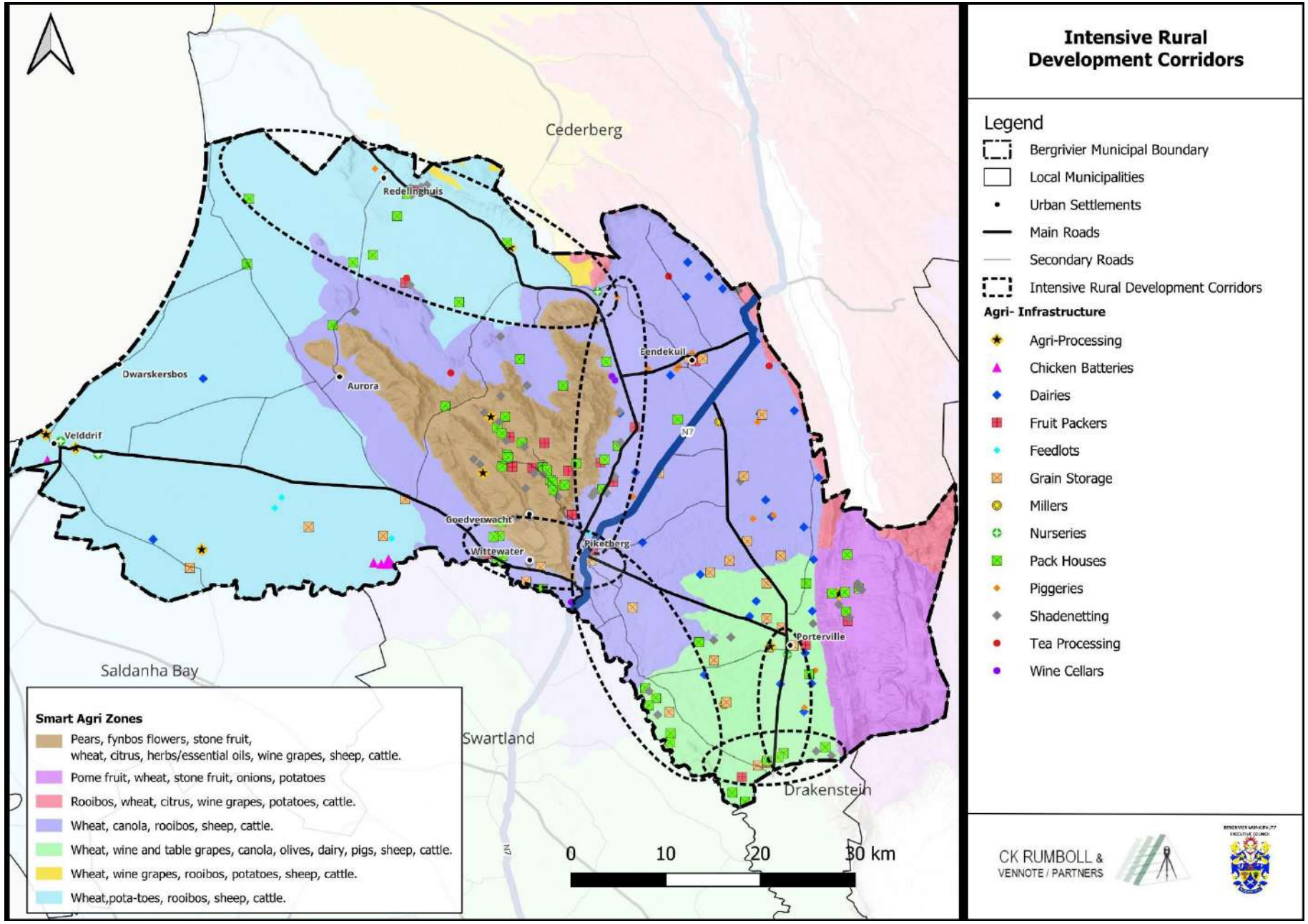
- Promote the following settlements as regional and local agricultural (and local fishing in the case of Velddrif) service centres:
  - Piketberg (wards 3 & 4);
  - Porterville (wards 1 & 2);
  - Velddrif (ward 7).

- Support development of an Intensive Rural Development Corridor (Production and agri-industry) along prominent transport links and at intersections:
  - Along the R44 between Voorberg Prison (Blikhuis, Porterville), Saron (Gouda) and the Berg and Vier-en-Twintig Rivers' confluence, from the confluence along the Berg River to Zoutkloof;
  - Along the R366 between Piketberg and Eendekuil along the foot of Piketberg Mountains;
  - Along the Upper Verlorenvlei (along the R365);
  - Including agricultural industries and big box agricultural buildings (to scale within agricultural context);
  - Including tourist facilities and farm stalls;
  - Including the heritage areas in the rural areas.

- Promote Agri-industrial infrastructure in settlements and delineate areas outside settlements to locate such infrastructure with the neccessary sensitivity regarding visual impact and water quality, along the:
  - R366 (between Piketberg and Eendekuil);
  - Between the Assegaaibosspruit and Vier-en-Twintig River;
  - Other areas where intensive cultivation takes place.

- Strengthen agricultural value chain and support the development related to agricultural produce and services along transport networks and tourism routes:
  - Distribution facilities (e.g. pack sheds and cool storage);
  - Agri-related production facilities (e.g. bio-fuel);
  - Tourism development (protect the food value chain);
  - Agricultural and related industries, including agri-processing (potato, wineries, citrus, grape, and fruit processing);
  - Composting;
  - Alternative energy generation;
  - Ancillary services such as repair services.

Map 43: Intensive Rural Development Corridors



- Encourage labour intensive processing and manufacturing (for small-scale agriculture);
- Support the initiation of commercial activities involving agricultural/farm workers, such as farm stalls and local markets. (see also land reform);
- Promote a Bergrivier brand /branded identity for produce from the Bergrivier municipal area;
- Enhance opportunities to establish new markets at local, regional, provincial and national level;
- Promote the cultivation and marketing of agricultural produce (e.g. various fruits, citrus, potatoes, rooibos tea, and flowers) and their by-products (labelling, biofuel, agricultural service industries);
- Stimulate the growth and diversification of the agricultural sector by combining cultivation with conservation to create new products and markets, such as alternative energy, tourism (mediterranean climate and unique landscape features) and by-products.

Fisheries (and ocean):

- Upgrade harbour precinct and Carinus Bridge precinct at Velddirf and enhance maintenance of existing permanent and less permanent fishing infrastructure to support local fishing (food security) and to keep sense of place (tourism);
- Upgrade Laaiplek Harbour.
    - Provide for manufacturing and maintenance of watercraft.

- Support Small-Scale Fisheries industry and sustainable harvesting opportunities of the seafood value chain including aquaculture commodity production and licenced fishing:
    - Linefish (snoek, etc);
    - Permitted net fish, mainly being harders;
    - Seaweed harvesting including beach cast kelp (for plant growth stimulants), Gracilaria (for agar), fresh harvested kelp (macroalgae feed);
    - Harvesting marine species including octopus, redbait and swimming crabs.

- Promote the maintenance of existing and related fishing infrastructure to keep sense of place.

Land reform and food security

- Protect and promote food security cross-spectrum (households to global).

Promote innovative land reform models with access to land and water and allow for various size farm units and rural living smallholdings.

- Facilitate tenure opportunities for new and emerging farmers, both small-scale and commercial, on municipal and state land as part of Land Reform Implementation.

- Prepare Piketberg and its surrounding area as a potential future Agricultural Farmer Production Support Unit (FPSU) for the proposed Vredendal Agri Hub under the West Coast District Rural Development Plan.

- Identify potential urban and non-urban areas including municipal land to be utilised for community gardens and small-scale agriculture in all settlements.

- Promote the revitalisation of the rural economy to address poverty and improve access to local economy;
- Provide agricultural workers the opportunity to fully or partially (e.g. farm stalls and local markets) participate in the rural economy within settlements and rural area:
    - Encourage food gardens, community gardens and small-scale agriculture;
    - Encourage the preference for locally produced agricultural products;
    - Promote the production of niche products on farms (value adding) and investigate the production of new agricultural related and complimentary products e.g. stream aquaculture along the:
        - Olifants;
        - Upper Verlorenvlei and Berg Rivers;
        - Porterville dam;
        - In farm dams.

- Re-orientate existing agricultural model to allow for the creation of agricultural units of various sizes (smallholdings, intensive and extensive agricultural farms, larger residential units) to accommodate:
    - Intensive cultivation;
    - Alternative farming methods.

To support innovative approaches to food production and encourage diversification.

- Identify locations to establish skills development facilities for agricultural workers to receive training in agriculture, tourism, niche product manufacturing (e.g. biofuel), and business operations and management.
    - Promote a small-scale agricultural forum for informal and small-scale farming areas to deliberate development issues and establish development parameters;
    - Strengthen associations to promote community participation in local development issues and to determine land use/ zoning guidelines.

Landscapes, Historical areas, Scenic routes, Public Structured open spaces & networks 

Netting, tunnels and agricultural industry and public utilities:

- Ensure adverse effects of the placement of:
    - Poly tunnels;
    - Agricultural shade netting;
    - Agricultural industries exceeding 2000 m²;

  are mitigated with measures such as repositioning or screening after careful consideration of potential visual, cultural, and heritage impacts.
- Decommissioning of poly tunnels and agricultural shade netting is a requirement;
- Encourage repurposing rather than demolition of agri-industrial buildings, ensuring that conversions address concerns about activity intensity and adverse impacts on the surrounding character and cultural amenities.

- Proposed large scale facilities (tourism and big-box) should be subjected to an environmental assessment and environmental approval must be obtained before the development may take place. (And manage and monitor as per EMPr).

- Specify guidelines for fences, allowing wire or steel palisade structures up to 2.1 meters in height, with limitations on masonry walls and brick piers to preserve visual aesthetics.

Public Utilities: 

- Promote communication corridors and zones through:
    - Improved communication networks;
    - Promote access to information & technology;
    - Including access to internet prioritizing rural areas.
- Advocate for the establishment and careful placement of communication network facilities, data centres, and telecommunication towers in rural areas and on agricultural land, considering environmental and community sensitivities;
- Provide for adequate bulk infrastructure and the location thereof.

- Preserve the agricultural character along the Berg and Upper Verlorenvlei Rivers. 

Tourism: 

- Support Bergrivier cultivation routes (wheat, fruit and potatoes) and the development of related infrastructure, facilities and accommodation.

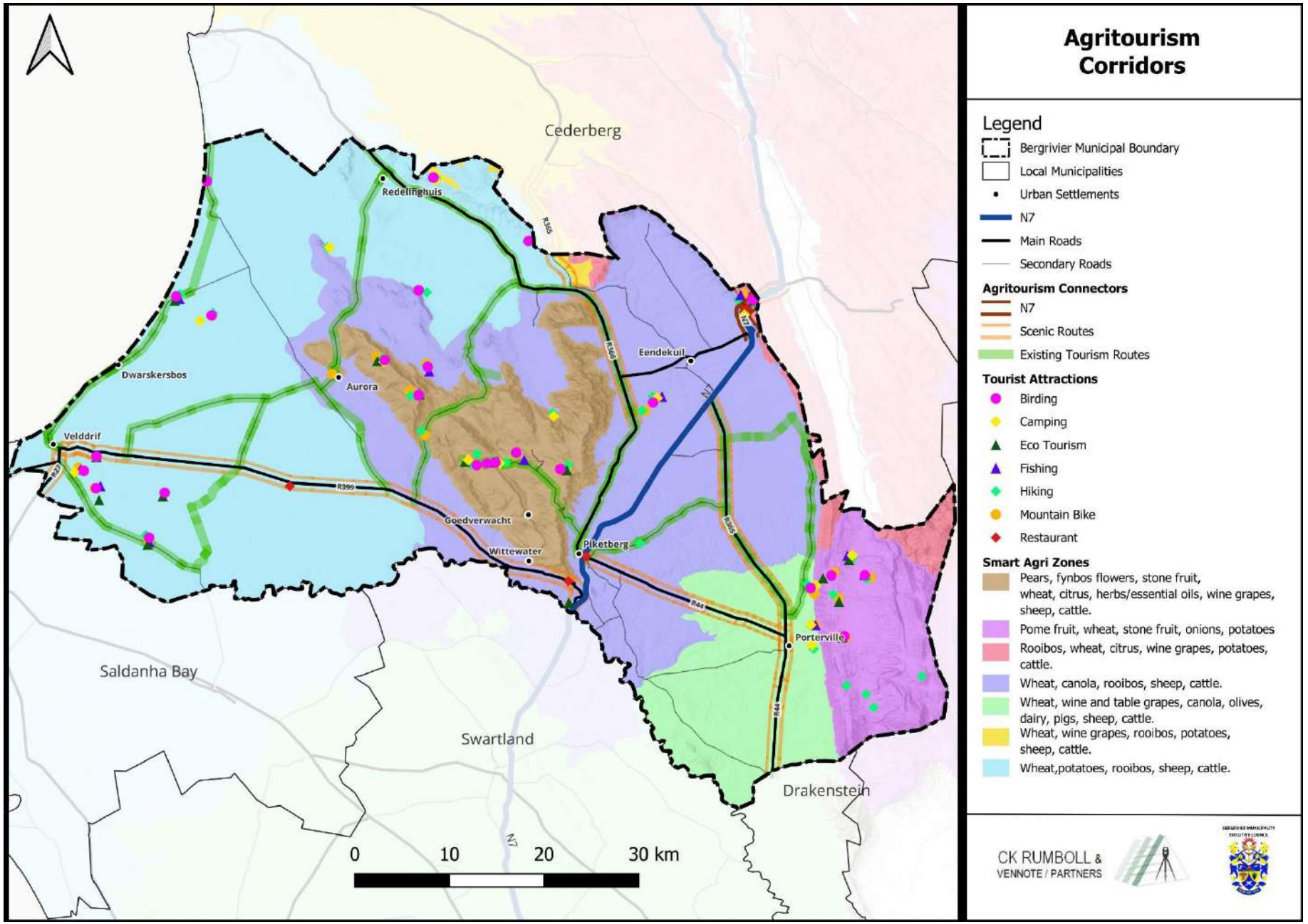
- Implement restrictions on: 
    - Advertisements;
    - Signage;
    - Lighting.
- Along river and sea frontages within the settlement footprint, with exceptions for nameboards (numberplate size) on waterfront buildings.

- Protect natural landscapes and establish development lines around mountains and koppies. Ensure preservation of marshes, water sponges, and floodplains. 

- Encourage tourism related activities on farms and along waterways (rivers): 
    - Berg;
    - Platkloof at Goedverwacht;
    - Upper Verlorenvlei;
    - Vier-en-Twintig;
    - Olifants;
    - Papkuils (Rocherpan) Rivers.

- Tourism-related activities such as:
  - Farm stays;
  - Leisure accommodation and resort development;
  - Agri-processing;
  - Tastings;
  - Restaurants;
  - Farm stalls;
  - Wineries and private nature reserves.

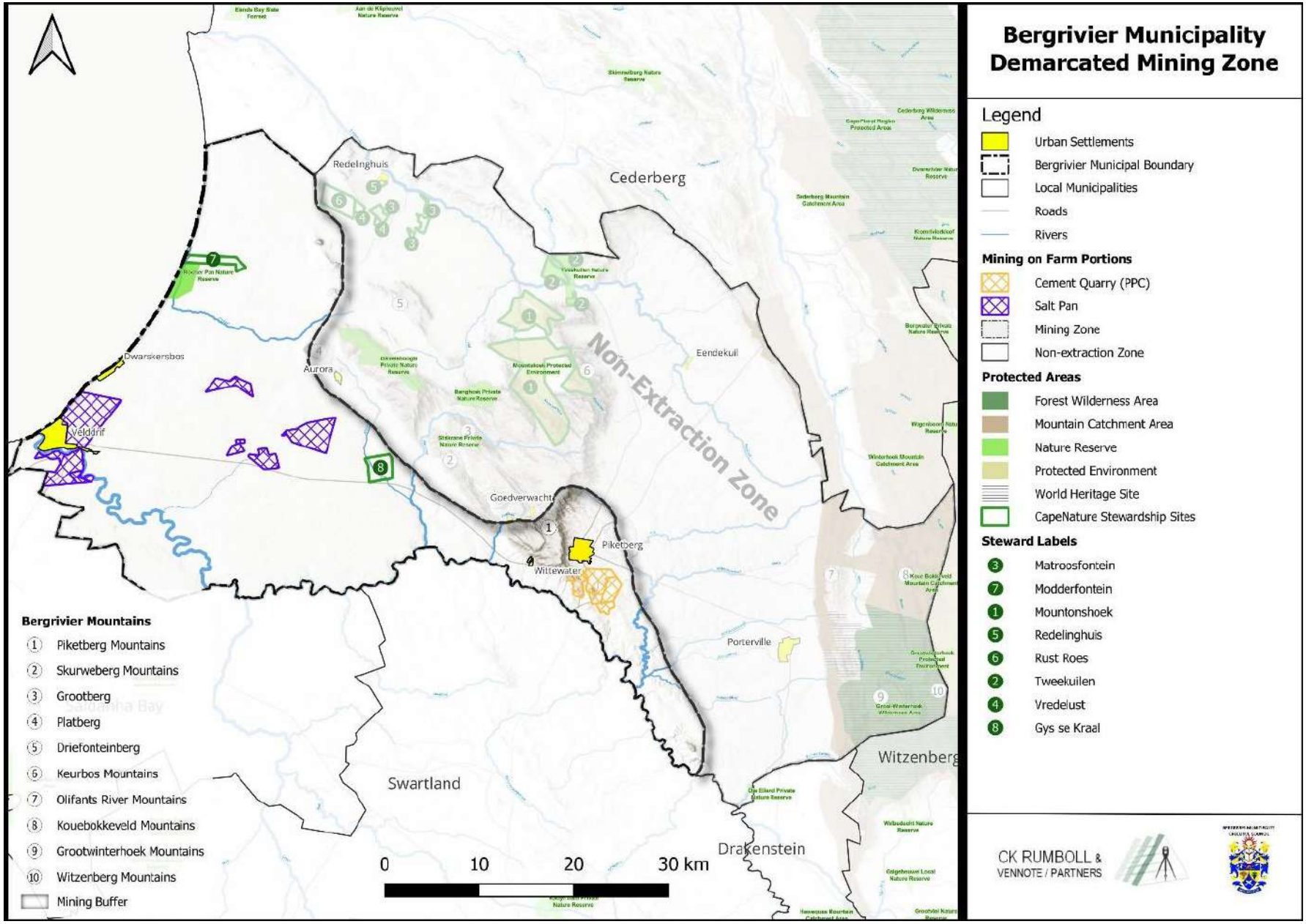
Map 44 Bergrivier Municipality Agritourism Corridors



6.1.3 Mineral Resources

Opportunities			
Minerals			
• Support land use changes for mining viable volumes of natural resources aligning with sustainability and environmental norms. Ensure mitigation of impacts, effective rehabilitation, and utilisation of alternative transportation methods.			
• In the absences of Priority Mineral Resource Areas, mining related developments o Should be prohibited on mine sites; o At long lifespan mines (example: lime mines) should be limited to workers housing, social amenities (significant impact) and mine infrastructure (no or limited impact).	-do-	-do-	-do-
• Encourage the development of mining-related industries, mineral beneficiation (e.g. De Hoek lime mine) and support services at long lifespan mines to maximize economic benefits and create labor-intensive employment opportunities.	-do-	-do-	-do-
Risks			
Dust, Colouration, Visual Impact and Water Quality			
Ensure EMPrs limit ecological (dust, water quality), and aesthetic damage (visual intrusion and coloration): • Pursue and ensure continuous rehabilitation and/ or repurposing of exploration activities or mines during and after operations as per EMPr; • Monitor adherence to EMPr and application of mitigation measures; • Develop land use directives in the absence of an EMPR to rehabilitate or repurpose ceased mines.			
Align mining activities, as illustrated in Map 45, with spatial planning, land use and environmental norms and parameters: • Limit mining to proven viable operations (Identify all mineral and geological sources suitable for mining and determine its financial viability [i.e. quality and quantity of resources] versus environmental degrading [impact on aesthetic value, tourism, boutique wine industry and intensive agricultural land uses] and ability to mitigate during operations and to rehabilitate). o Assess cost-benefit ratios locally, nationally, and internationally to inform decision-making and develop guidelines for sensitive areas; o Mandate adherence to sustainable environmental standards to minimise economic, environmental, and social impacts; o Prevent high visual impact, short-, long-term and cummulative impacts on scenic landscapes and conservation-worthy resources; o Develop guidelines and detailed Area Plans to avoid sensitive landscapes and to prohibit mining working against tourism; o Require rehabilitation and repurposing; o Mitigate existing impacts e.g. use alternative transport of mined resources. • Ensure mines provide for adequate storage of overburden to limit and mitigate potential impact of mine dumps (heaps) on rural landscape; • Avoid contamination of water sources (in a water scarce municipal area contamination would have a long-term impact on the landscape character); • Caution and mitigate dust generation leading to landscape discoloration; • Prohibit mining that conflicts with conservation of resources of international importance.			
• Caution mining activities which are not viable (all types but sand mining specifically) and/or are conflicting with and counterproductive to the character and value of the landscape in wards: o Wards 1 and 5 and partially wards 2 and 3 excluding a buffer of ±5km from the Berg River.			

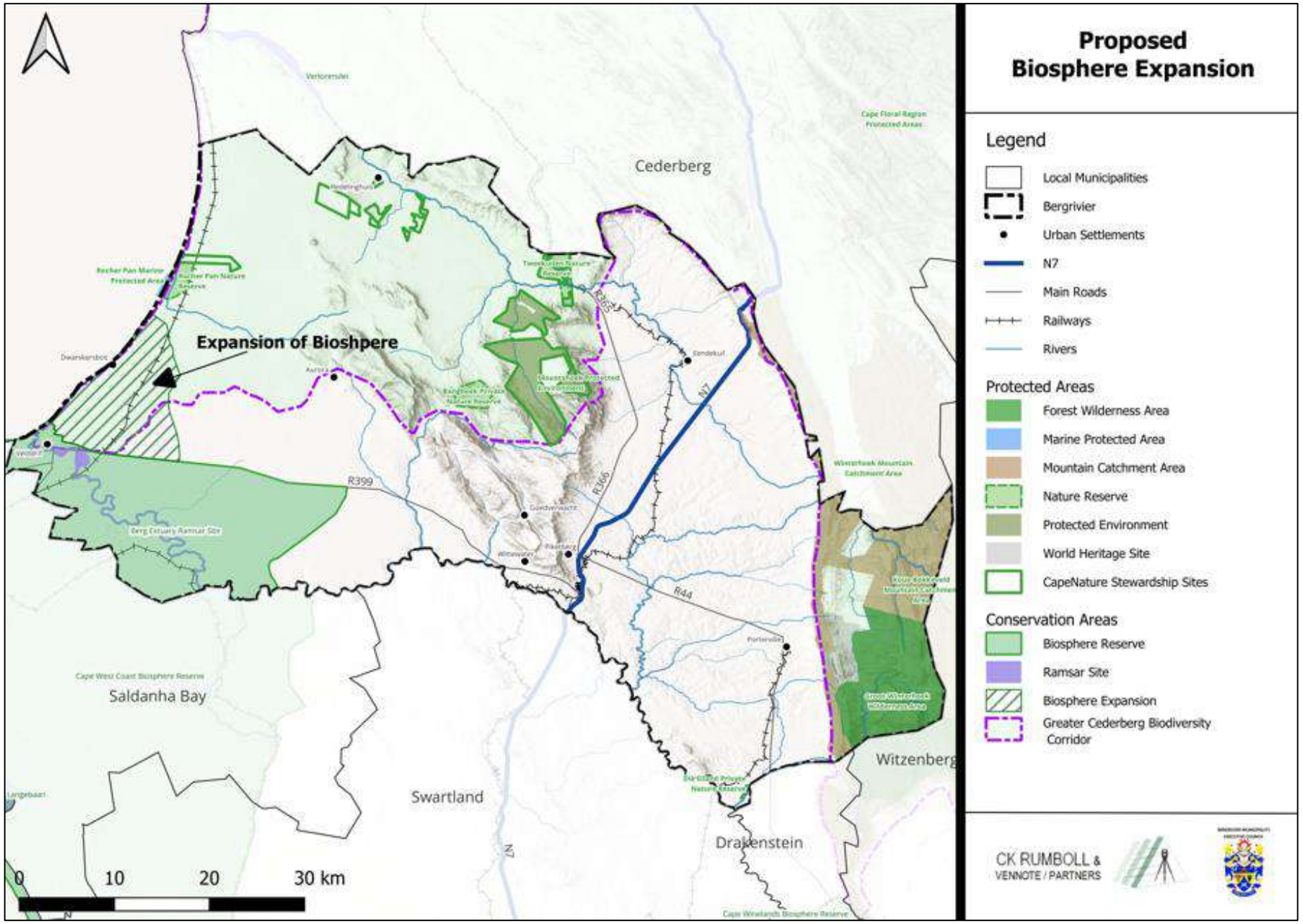
Map 45: Proposed Mining Zone, Bergrivier Municipality



6.1.4 Vegetation, Fauna, Ecosystems

Natural environment and Ecosystems			
• Protect natural assets, ecosystems and resources:			
• Preserve the critical natural capital within Bergrivier, as it provides for continuous income from ecosystem advantages such as biological diversity, mineral resources and clean air and water (including biodiversity, topography, soils and water resources, geology, hydrology), and: o Promote its natural heritage value and use serving the public interest; o Pursue threatened fauna and flora species targets; o Preserve mature eucalyptus trees, whether as single mature trees or clusters, and woodlots; o Promote the establishment of wildflower reserves and nature reserves; o Target the inclusion of remnants of natural vegetation, in front of setback lines, behind development lines and within buffers along the coast and along the lower reaches of mountains to restore ecological services. Where such remnants occur outside these lines and buffers, extend the conservation area; o Manage conservation areas in accordance with national norms and standards to ensure their long-term viability; o Limit internal fences to create natural corridors and areas.			
• Promote the establishment of cross border initiatives (important conservation corridors) such as the Cederberg Conservancy, Greater Cederberg Biodiversity Corridor, West Coast Conservation Corridor and West Coast Biosphere to establish links between the natural environment to the larger network of reserves and conservation areas in and beyond Bergrivier Municipal area.			
• Support the application of the Greater Saldanha Bay Environmental Management Framework (as part of this SDF) for Bergrivier Municipality's Southern boundary.			

Map 46: Proposed Biosphere Expansion



- Control invasive alien species (heighten fuel loads, increasing the risk and intensity of vegetation fires):
  - No listed invasive alien plant species may be planted;
  - Prioritise control efforts along ecological pathways like river valleys and remnant indigenous vegetation to prevent the spread of existing invasive alien plants beyond property boundaries;
  - and maintain firebreaks around property and infrastructure;
  - Erosion prevention when biomass is removed and firebreaks prepared;
  - Preventive Early Detection and Rapid Response (EDRR) measures must be implemented, such as regular surveys, prevention of seed production, identification of new species and prohibiting re-sprouting;
  - Apply systematic (mechanical, chemical and biological or natural enemy) control.

Refer to Map 47 for an illustration of Bergrivier Municipality Vegetation Types.

- Promote the establishment and formalisation of ecological corridors and conservation areas to facilitate connectivity between different habitat areas, allowing for the movement of wildlife and to protect natural habitat areas.
- Establish conservation buffers and/or corridors inter alia to mitigate climate change and enhance proper ecosystem functioning:
  - Along mountains to ensure effective conservation and management of natural vegetation remnants;
  - Along agricultural landscapes;
  - As Open Space Networks in urban areas linking to rural areas to protect natural habitat areas;
  - As designated biodiversity priority areas.
- Preserve vital corridors and remnants of lowland habitat to boost agricultural productivity. This includes promoting CapeNature Stewardship Programmes and fostering partnerships with stakeholders.
- Establish buffer zones in urban, rural, and agricultural areas as part of Open Space and Conservation Networks to enhance proper ecosystem functioning. These areas will support climate change corridors, with examples like the West Coast Biosphere Reserve and the Greater Cederberg Conservation corridor serving as models.
- Promote management and conservation of catchment areas, clearing of alien vegetation, and wetland & river management.
- Minimise waste and mitigate environmental damage in the food production chain.
- Ensure that all development activities, including mining, cultivation, or business activities, are subject to and comply with:
  - Regulations set forth in the National Environmental Management Act and where required, guided by an environmental impact study and environmental management plan;
  - Risk and disaster management plans.

Spatial Planning categories:

- Promote application of spatial planning categories, and WCBSP land use guidelines to protect ecosystems and facilitate objective decision making in development applications:
  - Core Areas (Winterhoek Wilderness Area, Banghoek Nature Reserve, Rocherpan, Coastline, Berg River Estuary, public and private nature reserves) and nature reserves within Bergrivier are categorized as Core 1 and 2 areas. All threatened Renosterveld ecosystems (Critically Biodiverse Areas (CBA's)) are categorised as Core 1 & 2 areas;
  - Buffer Areas along mountain ranges: Olifantsrivier, Kouebokkeveld, Groot Winterhoek, Witsen and Piketberg including Skurweberg, Groot- and Platberg-, Driefontein and Keurbos mountains) and wildland interfaces where settlements and agricultural production units meet;
  - Intensive Agricultural areas such as potato cultivation at Redelinghuis and Berg River, fruit and flowers at Piket Bo Berg, fruit, flowers and berries on the plateau between Olifantsrivier-Winterhoek-Witzen mountains and along Vier-en-Twintig River.

Impact on Landscapes

Limit the impact of development and urban growth on significant landscape features:

- Delineate development lines for settlements along mountains: Piketberg-, and for agriculture along the Skurweberg-, Groot, Platberg, Driefontein- and Keurbos mountain cluster and Olifantsrivier mountains.
- Ensure no land with a slope of more than 20% will be cultivated without written consent of the Minister of Agriculture.

- Promote sustainable coastal development characterised by intensification and densification rather than expansion and ensuring the well-being of present and future generations.



- Limit development:
  - That will lead to the clearing of more than 300m² of natural vegetation, where natural vegetation covers more than 75% of the area;
  - Of proposed large scale tourism facilities.



Limit the impact of development and urban growth on significant landscape features. Prohibit in accordance with the WCBSP land use guidelines the following development that should not occur:



- In <u>settlements</u>: Demolition of historical buildings. Any negative impacts on buildings or sites that have cultural or historical values;
- <u>Landscapes</u>: Uncontrolled, unsightly development;
- <u>Historical areas</u>: Uncontrolled, unsightly development;
- <u>Scenic routes</u>: Uncontrolled, unsightly development e.g. wind farms;
- <u>Structured open space & networks</u>: Commercial, industrial or residential developments;
- <u>Conservation areas: Critical Biodiversity Areas:</u> any development not focused on ecotourism;
- <u>Critical Biodiversity Areas 2 (Rehabitable & irreplaceable areas) and Critical Ecological Support Areas and Other Ecological Support Areas</u>: developments that are not closely focused on ecotourism. Limited development after an Environmental Impact Assessment has determined the guidelines, could be considered;
- <u>Other natural vegetation areas:</u> uncontrolled and non-compliant development. Residential, commercial and industrial developments could be considered.

Issue development and no-development instructions according to the SPCs.

Encourage development, in accordance with the WCBSP land use guidelines that has no significant impact:



- In <u>settlements</u>: Restoration of buildings for offices, guest houses, etc.;
- <u>Landscapes</u>: Limited, low-density development that is not visually apparent and adds value to the environment;
- <u>Historical areas</u>: Limited, light density development that is not visually apparent and adds value to the environment;
- <u>Scenic routes</u>: Limited, light density development that is not visually intrusive;
- <u>Structured open space & networks</u>: Limited development.

Develop guidelines for:



- Open space networks and riverfront interfaces, and addressing elements like use of colors, landscaping, lighting, and architectural form;
- Scenic and heritage (landscape heritage) route management.

Coastal ecosystems (estuaries, sandy beaches and dune systems, dune groves and fynbos)

Adhere to species specific conservation directives:
Lowland fynbos ecosystems (sand fynbos and limestone fynbos):



- Protect and promote conservation of coastal ecosystems, including estuaries, sandy beaches, dune systems, dune groves, and fynbos:
  a) <u>Retain natural corridors</u> of at least 20m width in dune fynbos and dune thicket to facilitate movement of birds and animals between habitats. Avoid development that disrupts these connections;
  b) For the protection of lowland fynbos ecosystems such as sand fynbos and limestone fynbos, it is imperative to maintain corridors of sand fynbos at a minimum width of 300m. This is crucial to safeguard the slow-growing and vulnerable limestone fynbos types;
  c) Mediterranean and mountain fynbos ecosystems, including alluvial fynbos, granite, ferrous, conglomerate, silkrete fynbos, grass fynbos, and sandstone fynbos. Orchards and indigenous plantations like proteas and buchu should be situated no closer than 2km from their natural habitats. This measure helps in protecting the biodiversity of these ecosystems;
  d) Renosterveld ecosystems (coastal renosterveld and interior renosterveld): Ideally a buffer of at least 30m must be left between all development, especially agricultural land and core renosterveld conservation areas.

Strandveld dune thicket and dune fynbos:

- Avoid development of all rocky reefs and coastal dunes;
- <u>Maintain natural corridors</u> along the coast (north-south) as well as coastal-interior gradients;
- Avoid impacts on wetland areas or river banks;

- Could consider node development in dune fynbos;
- Retain corridors of at least 20m width of natural vegetation in dune fynbos as well as dune thicket, to allow movement of birds and animals between undisturbed and continuous habitats;
- Avoid development that disturbs connections between valley troughs and dune thickets.

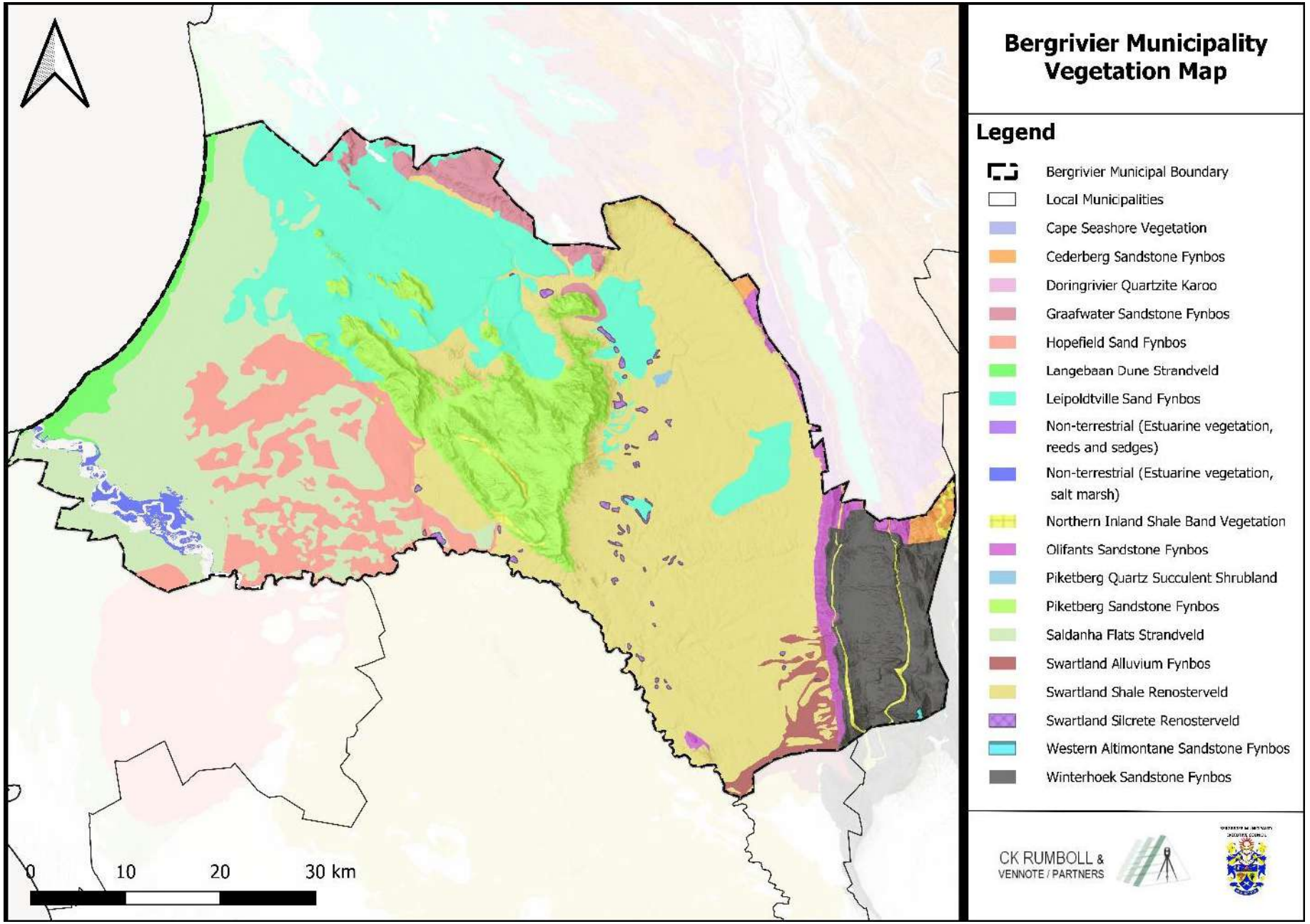
Mediterranean and mountain fynbos ecosystems (alluvial fynbos, granite, ferrous, conglomerate and silcrete fynbos, grass fynbos and sandstone fynbos):

- Develop to allow for controlled / uncontrolled fires, with firebreaks as part of development footprint;
- Link fynbos, located in lower-lying areas, to rocky areas and outcrops, by natural vegetation corridors;
- Avoid fragmenting ecological corridors;
- Locate orchards and indigenous plantations (proteas, buchu) not closer than 2km from where such plants naturally occur;
- Avoid mountain peaks as locations for telecommunications masts, 4x4 routes or roads;
- Develop footpaths carefully and maintain paths regularly to prevent erosion.

Renosterveld ecosystems (coastal renosterveld and interior renosterveld):

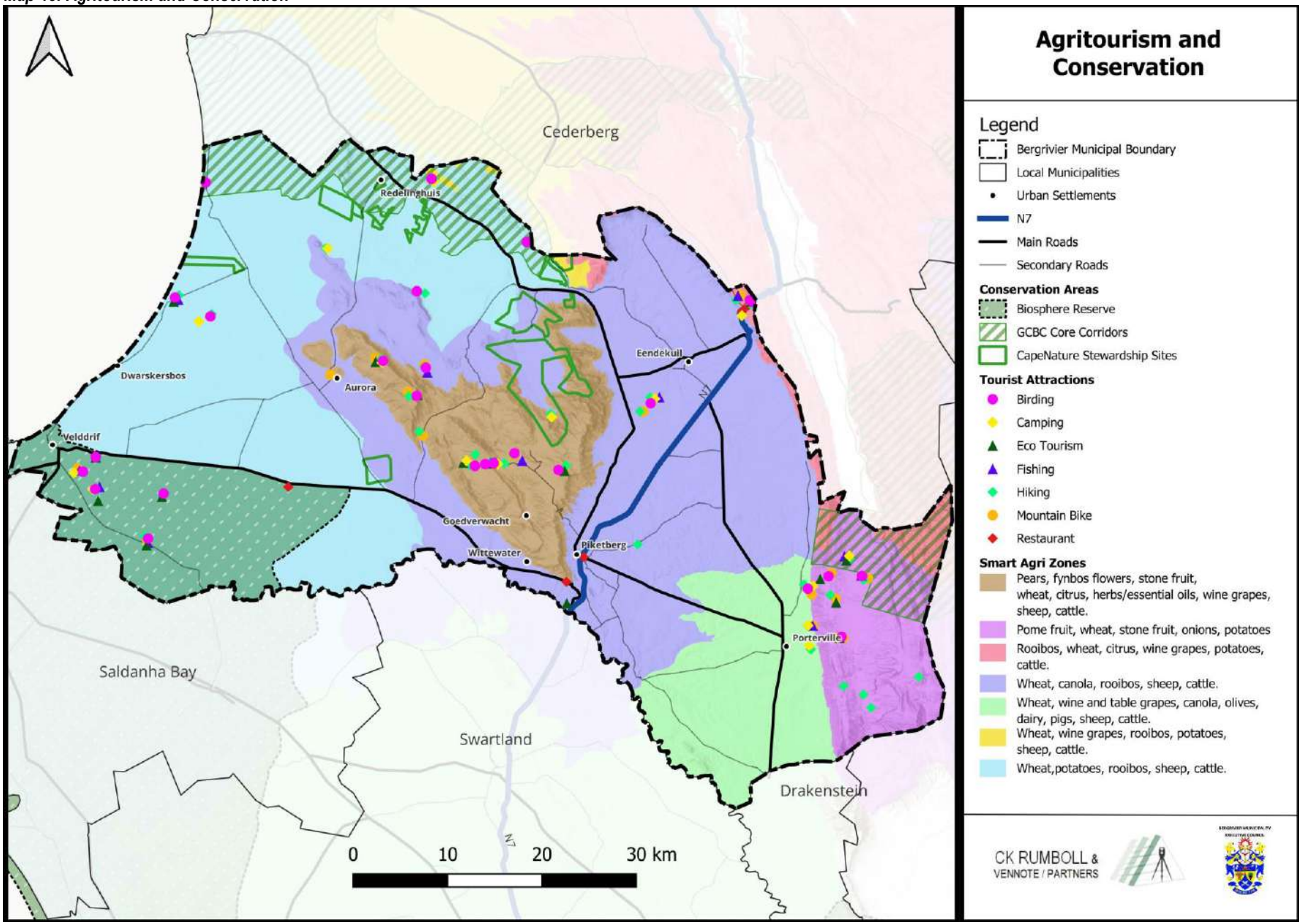
- Create buffers, ideally at least 30m between all development, especially agricultural land and core renosterveld conservation areas;
- Prevent further fragmentation of renosterveld and maintain connections between sections. Where possible, connections should be rehabilitated;
- Fence off silcrete, ferric and quartzite areas, without impeding the free movement of turtles and small buck species.

Map 47: Bergrivier Municipality Vegetation Types



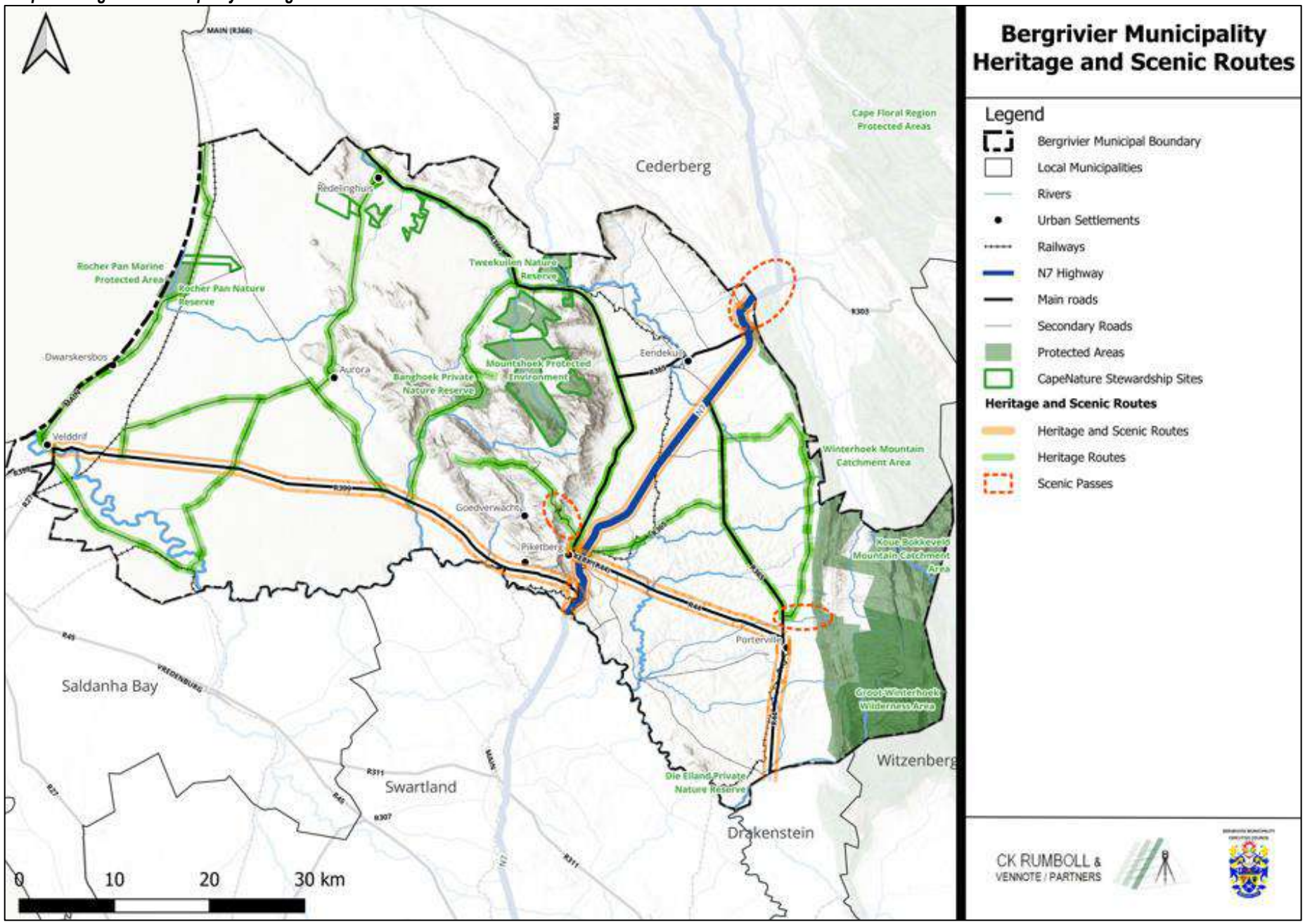
Conservation Agriculture:   
• Identify and delineate areas prone to erosion, both by wind and water, and implement measures to enhance rehabilitation and prevent erosion, employing protective preparation methods and planting perennial crops to stabilise the soil and mitigate erosion risks;
• Enhance food security and protect sensitive natural environment and agricultural resources from inappropriate and opportunistic development.
• Protect and conserve the agricultural landscape and retain and conserve the rural character through development guidelines.

Map 48: Agritourism and Conservation



Heritage and Tourism and Sense of Place			
Heritage Management: • Support the integration of heritage management and planning functions as per National Heritage Resources Act, Act 25 of 1999 (NHRA): o Compile a heritage inventory, urban and rural, inclusive of heritage resources (buildings and structures, archaeology), landscapes and prominent natural features, in its areas of jurisdiction (Sections 30 (5) and 31) and heritage overlay zones (special heritage areas) to be submitted to the relevant provincial heritage authority for formalisation; o Protect the cultural resources creating Bergrivier's sense of place and forms the basis of tourism; o Grading heritage resources to ensure the effective management and preservation thereof. (Grading has to be overseen by the Provincial Heritage Authority). A future consideration is to become a heritage authority in the local areas for some of the approved graded resources.			
Scenic and Heritage Routes: • Promote scenic and heritage routes: o Explore alternative and more effective utilisation of conservation areas and heritage resources to create opportunities for alternative income generation on farms, such as hosting festivals.			
Establish conservation routes along the R366 from Piketberg along upper-Verlorenvlei to Redelinghuis, and from Velddrif over Draaihoek to Verlorenvlei en route to Elands Bay. Implement conservation efforts along the Main Road (R27) on the West Coast. Enhance Groot Winterhoek and designate Piketberg Mountains as conservation and heritage areas.			
Gateways and Signage: • Develop understated, unique and where possible natural gateways to settlements. Avoid gateways and gateway precincts becoming advertisement spaces.			
• Promote improved standard roadside signage.			
Preserve cultural and heritage resources with information boards. Utilise heritage sites for recreation and tourism. Develop tourism infrastructure sensitive to natural and historical landscapes.			
Celebrating heritage resources: Promote conservation of natural, cultivated, and domestic landscapes and heritage resources within the municipal area, safeguarding features like heritage elements, old farmsteads, and mature trees. Also, highlight socio-economic resources like biomes, wildflowers, historical and cultural heritage, and agricultural areas such as potato, citrus, and grape cultivation for tourism.			
• Map heritage landscapes, zones in settlements, significant farmyards and any other heritage resources in rural areas to guide appropriate development.			
• Declare local heritage areas in settlement and rural areas.			
• Support the restoration of historic spatial patterns and the effective and efficient use of existing infrastructure.			
• Manage, rehabilitate and preserve cultural and historical landscapes, graves, monuments, etc. described by the National Heritage Resources Act.			
• Improve and rehabilitate: Restore buildings and sites that have heritage value.			
• Integrate ecological processes and community needs to ensure sustainable resource use in mountainous and riverine areas, guided by bioregional planning principles.			
• Integrate Bergrivier Municipality within the broader West Coast region renowned for its birdlife, diverse biomes, agricultural landscapes, small stock farming, fishing, and limited wine production.			

Map 49: Bergrivier Municipality Heritage and Scenic Routes



- Ensure that the amenity capacity of the biophysical environment is not exceeded.



- Implement Economic incentives (for conservation) to stimulate growth (tax rebates).

- Attract more retirees and working people (for whom remote working is an option due to improved technology and connectivity) who want to live in a more tranquil rural environment to settle in Bergrivier municipal area (improved rates and taxes).

Creating heritage:

- Protect heritage resources, yet create areas with a fresh or new sense of place through urban design and rejuvenation.



- Promote the planting of trees by all households and protect mature trees (20 years and older).
- Promote evolving heritage sites as tourism destinations, including cultural and landscape routes, to celebrate and preserve local history and traditions.

Sense of Place and Landscapes:

- Preserve and promote the character of the Bergrivier municipal area, inclusive of the unique agricultural (citrus, grapes, potatoes and rooibos), heritage and natural environment and landscape (coastlines, rivers, plains and mountains).



- Develop design and development parameters to protect settlement patterns and rural landscapes:
  - Conserve historical town centres often determined by the location of drinking water or a church and grid layout pattern;
  - Protect unique character of settlement and within settlements:
    - Protect critical biodiversity areas, ecological corridors and ecosystems;
    - Protect unique natural and man-made landscape features and structures;
    - Protect scenic routes and vistas;
    - Protect heritage features and landscapes and create future heritage landscapes;
    - Preserve the Marine and Coastal environments;
    - Maintain existing and related fishing infrastructure to keep sense of place.
  - Conservation areas designated as biodiversity priority areas as indicated in the Spatial Development Framework, must be retained and preserved;
  - All monitoring and management aspects must be set out by a biodiversity environmental management plan, to be drawn up for priority areas.



- Promote guidelines for rural areas:
  - Maintain existing nodes and a meaningful settlement hierarchy in the Western Cape. Promote smart growth by curbing urban sprawl and prioritizing infill and densification of existing urban areas.
  - To prevent urban development encroachment into agricultural areas, scenic landscapes and biodiversity priority areas;
  - To provide housing opportunities and agri-villages or agri-precincts for rural dwellers in existing settlements (in partnership with agricultural workers and farmers) or to ensure security of tenure for agricultural workers or to ensure their enrollment on the waiting list. Eendekuil and Redelinghuis are agri-settlements.

6.1.5 Air, Wind and Sun

Opportunities
Air & wind and sun

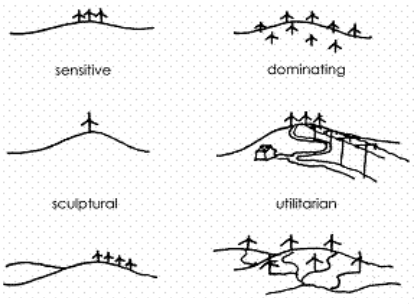
Promote the establishment of alternative energy generation facilities (wind, solar, and hydrogen) only in viable zones:
• Solar Energy (Refer to Map 51):
  ○ In wards 1 and 6, which have the highest solar radiation and suitable topography;
  ○ Consider sensitivity around visual impact in protected and conservation areas.
• Wind Energy (Refer to Map 50):
  ○ In wards 6 and 7 with an exclusion zone around the settlements of Velddrif and Dwarskersbos.
• Hydrogen: along the coast;
• At all settlements in Bergrivier to accommodate future urban expansion.
  ○ Focus on Velddrif, Piketberg, and Porterville and plan for expansion and upgrading of transmission infrastructure to support increased energy capacity accordingly.

Risk

• Implement measures to protect surface and groundwater by:
  ○ Designing roads;
  ○ Treating runoff from roads;
  ○ Disturbed surfaces to reduce sedimentation and prevent erosion.
• Prohibit erosion potential and soil type influences resulting from road construction and re-vegetation efforts.

• Conduct a comprehensive vegetation assessment if the proposed development site is not in an agriculturally disturbed area. The assessment should evaluate the location and condition of:
  ○ Extent of disturbed or alien vegetation;
  ○ Extent of any natural vegetation;
  ○ Indigenous and endemic species;
  ○ Rare and threatened species.

• Consider the following for terrain suitability:
  ○ Slopes by gradient classes;
  ○ Rocky areas;
  ○ Soil type and permeability;
  ○ Natural watercourses and areas with high water tables, rainfall data;
  ○ Vegetation.
The natural landscape contributes significantly to the cultural integrity and future heritage of the environment of Bergrvier as conservation and ecotourism destination.

Consider placement on Slopes given impact on: • Wind Potential – slopes, up to a certain gradient, orientated towards prevailing wind directions, tend to augment average wind speed; • Solar radiation – slopes influence placement and various technologies require different placement direction; • Visibility – wind and solar farms on slopes have increased visibility; • Road layout and design – slopes to be considered in road layout to reduce erosion potential, of road runoff, rock-fall and landslide potential; • Tower foundation/ pedestal design – need to consider falls across the platforms; • Soil stabilisation – steep road verges and cuts require re-vegetation to reduce erosion from runoff.    Location options for wind turbines

Air Quality
Management and monitoring of air quality to prohibit air pollution: • Enhance enforcement and management of air quality compliance. Increase awareness regarding air quality management. Upgrade existing air quality management tools. • Invest in adequate human and financial resources to ensure effective implementation and management of air quality; • Integrate Climate Change and Air Quality Management.
Pollution Sources: Where information is available or where emission factors can be applied to quantify emissions, an emissions inventory for air pollution sources has been compiled for the West Coast District Municipality. (See SANS 1929: 2005 - Ambient Air Quality - Limits for common pollutants and National Environmental Management: Air Quality Act 39 of 2004). Potential air pollution sources in Bergrivier:
• Industrial operations - mainly emissions from boilers (Particulate and gaseous emissions).
• Agricultural activities - although not quantified, agricultural activities are considered to be a contributor to ambient particulate concentrations. • Agriculture is a dominant land-use within Bergrivier.
• Mining Activities for example lime mining. – Pollution sources are mainly surface activities like: o Waste loading and unloading; o Resource loading and unloading; o Exposed screening plants; o Waste dumps; o Stock yards; o Exposed pit surfaces; o Transport roads and haul roads.
• Biomass burning (veld fires) - also not quantified, owing to the irregular and seasonal nature of this source.
• Vehicle and generator tailpipe emissions - from petrol and diesel vehicles along major roads and generators (to generate energy during loadshedding). These are not considered to be a significant air pollution source (Particulate and gaseous emissions).
• Waste Treatment and Disposal – information regarding disposal facilities (landfills and incinerators) has been collected partially.
• Domestic fuel burning including wood and paraffin.
• Dust from paved and unpaved roads.
• Other fugitive dust sources such as wind erosion of exposed areas.
Manage (avoid, mitigate or reduce) air pollution: Ensure that air pollution is avoided, or where it cannot be altogether avoided, mitigated or minimised in accordance with the Bergrivier Air Quality By-law, 2020 or any other related laws.
• All monitoring and management aspects as set by regulations of Bergrivier Air Quality By-law, 2020 and Air Quality Management Plan (AQMP) to be drawn up for priority areas: o Agriculture and mining; o Utilities (sewerage, waste); o Industrial areas (areas of production within settlements) (All industries using coal to operate boilers and having stacks e.g. the fish factory in Velddrif); o Serving as informant of future development in close proximity and guided by an environmental impact study. • All proposed activities where emissions exceed intensities as per listed activities in section 21 and 23 of the Air Quality Act, including: o Smoke caused by burning; o Generated dust;

- Odours and spraying (e.g. Conduct passive H2S monitoring of Laaiplek fish factory) must be subjected to an environmental impact assessment and environmental approval must be obtained before the activities may take place;
- Monitor implementation of mitigation measures to prevent increased air pollution episodes that contributes to climate change. Measures to address climate change include (See also WCCCRS, 2023):
  - Increasing the number of monitoring stations in the Western Cape;
  - Effective dissemination of air quality information;
  - Introducing cleaner fuel programmes for households and transport.

- Bergrivier Municipality to refine priority pollutants list according to its by-laws, establish more stringent local air quality standards, set local emission standards, monitor ambient air quality, and prepare an annual report on the implementation of the AQMP.

Prevention and reduction measures:

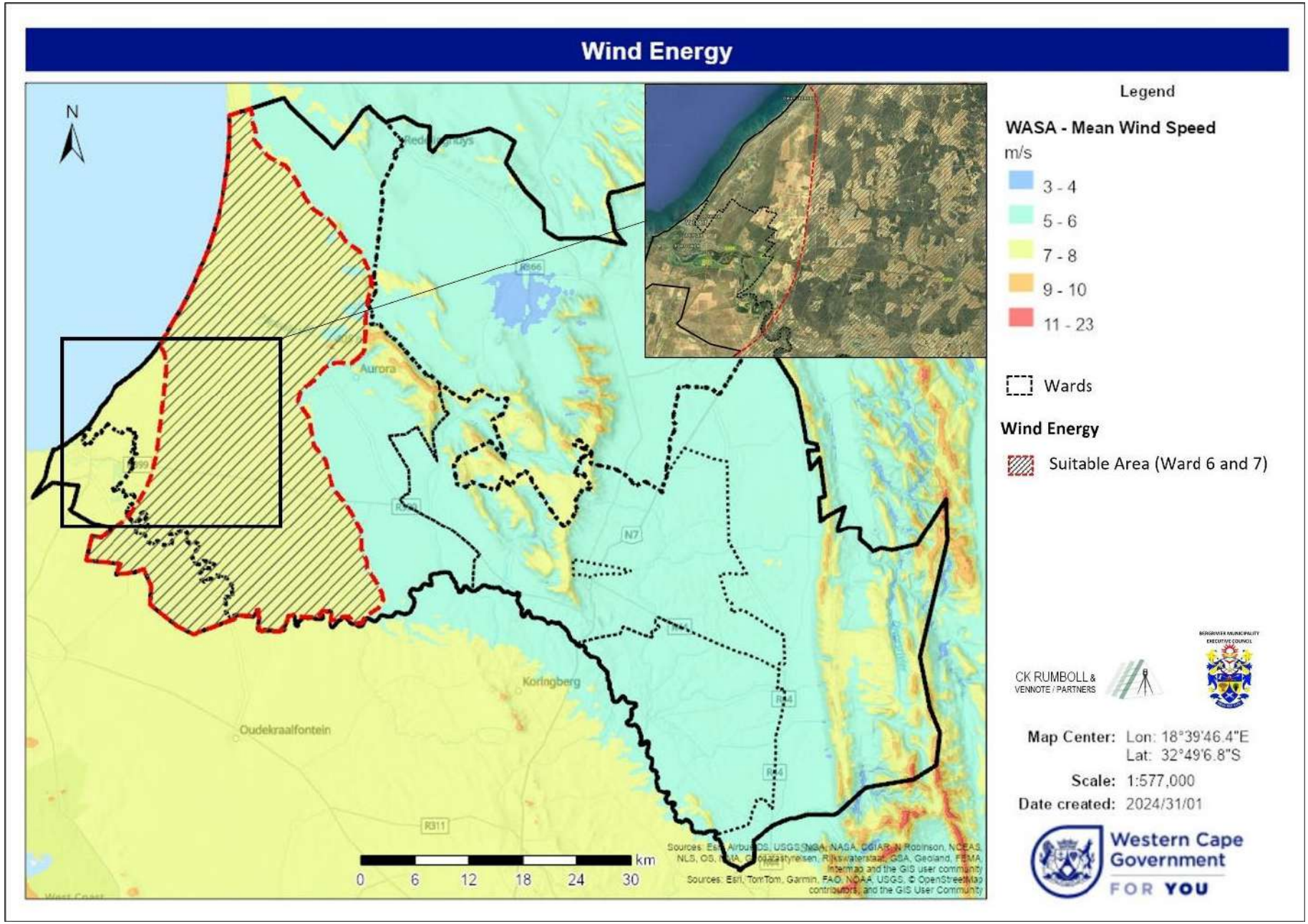


- Prepare for wildfires in mountain areas and delineating firebreak buffers around towns such as Aurora and Piketberg.

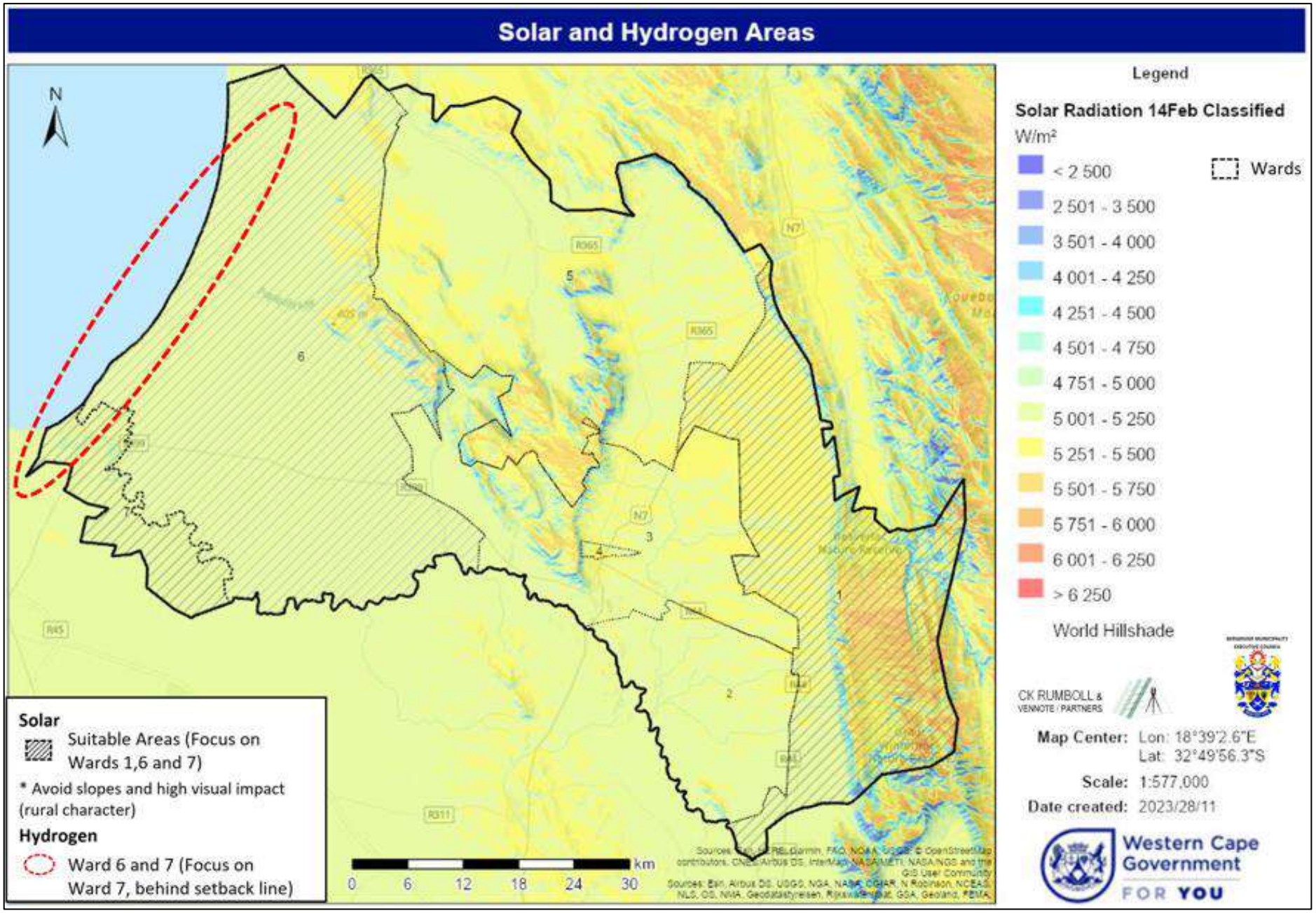
- Promote the incorporation of trees and plants that enhance air quality in all development projects. Advocate for mitigation measures to address dust, discoloration, and visual impacts associated with mining activities.

- Adopt climate change mitigations to reduce GHG emissions. This is done to build a sustainable low carbon economy including but not limited to: a reduction in need for transport fuels, compact settlement planning, a reduction in energy use and a switch to renewable energy.

Map 50: Proposed Wind Zone, Bergrivier Municipality



Map 51: Proposed Solar and Hydrogen Zones, Bergrivier Municipality



6.1.6 Connectors

See Annexure 1 for directives of the Department of Infrastructure (DOI) Transport Infrastructure Branch.

Opportunities
Mobility, Transport Networks & Economic Links:

Roads as connectors:
• Functionally (easy access) integrate rural and urban areas as connector roads within Bergrivier Municipal area to link with:
  ○ Western Cape;
  ○ Northern Cape;
  ○ Namibia;
  ○ the Karoo;
  ○ and provide important freight and scenic routes, across the region.
• Support the enhancement of the following freight routes:
  ○ N7 as connector between Namibia and Cape Town, markets in the south and access to international markets;
  ○ R44 from N7 (Porterville) to N1 (Touwsrivier and Worcester) (N7 to Porterville, to Gouda and Ceres (R46) and to Worcester (R43), ultimately to N1);
  ○ R44 links R399 (to Velddrif) and R366 (to Cederberg);
  ○ R27, R399 (Piketberg to Velddrif);
  ○ R366 (Piketberg to Het Kruis);
  ○ R365 Het Kruis to Upper Verlorenvlei, to Leipoldtville;
  ○ Lamberts Bay and N7 -Clanwilliam;
  ○ Eendekuil to N7 links to the West Coast;
  ○ Providing access to the Cape Metropolitan area, Saldanha Bay IDZ, and neighbouring regions.
• Promote maintenance of road network to support economic activities (commercial, industrial and agricultural);
• Rail freight has experienced a significant decline, while road freight has seen a sharp increase, especially with the N7 serving as a major freight route through the Bergrivier Municipality.

Transport nodes:
• Promote and support the establishment of transport and transport service nodes along key provincial and national roads and at intersections, such as the:
  ○ R399;
  ○ R366;
  ○ R44;
  ○ N7, that
• Adhere to SANRAL and Department of Infrastructure: Transport Infrastructure Branch criteria such as distance between nodes and visibility where applicable;
• Develop new transport infrastructure (farm stalls or convenience shops) sensitively within the agricultural and conservation landscape to support economic activity and seamlessly integrate and harmonise into the environment;
• Ensure visibility of node development to safeguard intersection nodes;
• Enhance mobility between rural and urban areas;
• Focus node development on:
  ○ Tourism and mobility;
  ○ Agricultural and fishing support services;
  ○ Reliable public transport services (a mobility hub) along the N7 (cross-border) between Clanwilliam and Malmesbury to improve mobility within the West Coast District and to the Metropole;
  ○ Freight distribution;
  ○ Enhancing service stations.
• Should an Arterial Management Plan be required for the development of nodes, it is subject to approval by the DTPW Roads Branch, to preserve the mobility function of routes (refer to Annexure 2 for details);
• Provide access along Proclaimed Provincial and National Roads in accordance with the WCG DTPW Access Management Guidelines (2020) and SANRAL policies.

- Develop an area plan and guidelines for clustered agricultural development along scenic routes and rural corridor/ triangle around and between:
  - Eendekuil;
  - Porterville;
  - Goedverwacht;
  - Wittewater.
- Including agricultural industries and big box agricultural buildings.



Rail:

- Encourage the use of rail as an alternative mode of transport, particularly for freight (agriculture and mining);
  - Bellville to Bitterfontein (Matzikama) over Graafwater (Cederberg) that passes through De Hoek, Piketberg, Pools, Eendekuil and Het Kruis;
  - Belville to Wellington link to the PPC lime mines in Riebeek-Kasteel and to Porterville grain silo where it terminates.



Mobility:

- Promote improved mobility in rural areas:
  - Provide for upgrading of pedestrian routes and adequate lighting;
  - Where freight routes intersect with settlements, locate pedestrian and NMT routes away from freight route;
  - Along freight routes outside settlement, locate pedestrian and NMT routes at a safe distance or away from freight route;
  - Identify and provide for safe/all-weather bus/taxi stops along main transport network to serve the rural community.



Public Transport, motorized:

- Investigate the feasibility and reliability of a public transport service along the N7 corridor:
  - Between Piketberg and Clanwilliam;
  - Citrusdal (north) and Moorreesburg;
  - Malmesbury (south) and to the Metropole.

(West Coast District Municipal Integrated Transport Plan, 2020 - 2024).



Public transport, rail:

- Introduce or enhance passanger rail services (public-private partnership) for both commuters and tourists along the:
  - West Coast, from Malmesbury through Piketberg to Graafwater (via Clanwilliam) (long distance commuting);
  - from Bellville to Bitterfontein (inter-municipal route) (long distance commuting);
  - from Porterville to Riebeek Valley (Riebeek-Kasteel) to enhance arts and culture;
  - Eendekuil and Piketberg (daily commuting);
  - Broodkraal and Piketberg (daily commuting).



Air:
Support private airstrips and helicopter landing pads which are used in cases of emergency.



Social amenities

- Provide social amenities in accordance with CSIR and DEADP standards to enhance the well-being of residents.



Access to education:

- Promote access for agricultural workers and rural dwellers to education and development programmes.



- Provide for and support development of early childhood education facilities on farms and rural areas such as:
  - Eendekuil;
  - Redelinghuis;
  - Aurora.
- Support a West Coast College Satellite (tertiary education in Piketberg (in addition to Citrusdal).
- Establish a skills training facility and short-term accommodation in Eendekuil.

Repurposing of railway infrastructure and stations:
• Promote the renewal, upgrading, and redevelopment of existing station buildings at:
  ○ Porterville;
  ○ Piketberg;
  ○ Eendekuil.
• Additionally, improve siding infrastructure including grain silos and water storage facilities;
• Specifically, focus on enhancing facilities at sidings on the Piketberg line such as:
  ○ Moravia;
  ○ De Hoek;
  ○ Piketberg;
  ○ Burgers;
  ○ Pools;
  ○ Droëryskloof;
  ○ Het Kruis.
• As well as sidings on the Porterville line including:
  ○ Halfmanshof;
  ○ Blikhuis;
  ○ Kleindrif.
			

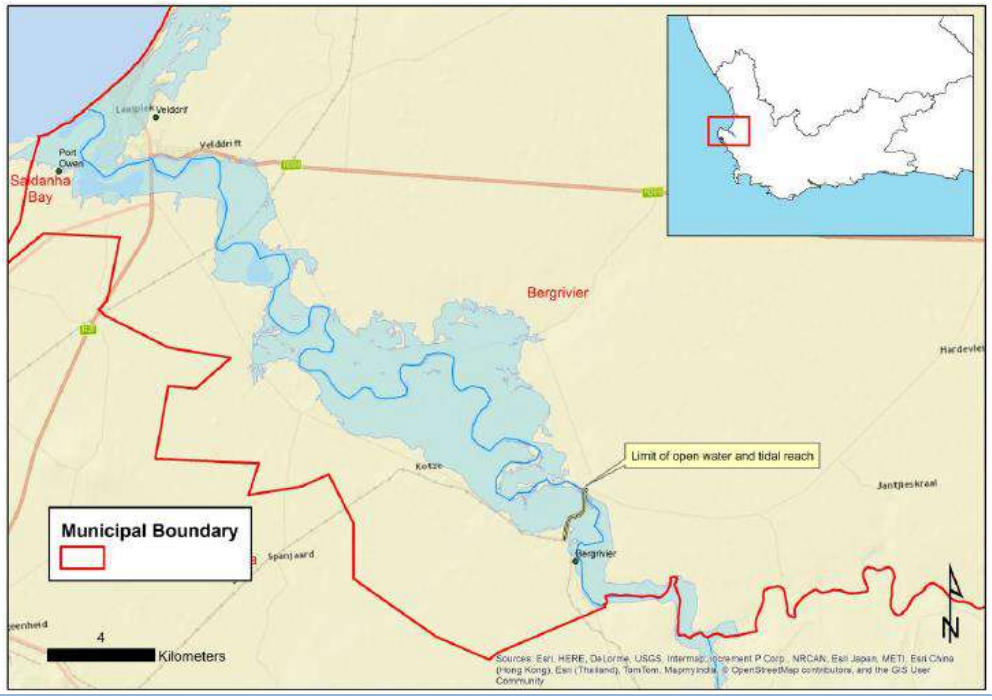
Mobile social services:
• Provide for mobile social service in rural areas and prevent deterioration in the Human Development Index, including:
  ○ Mobile clinics;
  ○ Early childhood education facilities;
  ○ Mobile libraries;
  ○ Firefighting;
  ○ Ambulance service;
  ○ Busses and taxis;
  ○ Law enforcement.
			

Rural public open spaces to simultaneously promote recreation and proper ecosystem functioning: • Promote the identification and formalisation of public open spaces along specific water courses in rural areas; • Enhance public areas or spaces through promoting urban design and landscaping.			
Strategic rural sites: • Identify strategic rural sites to provide for consolidated, centralised social and sport infrastructure in highly accessible nodes i.e. sport complexes combined with community facilities.			

6.1.7 Estuaries

6.1.7.1 Berg River Estuary

Environmental Impact Management: Berg River Estuary

Management Priority	Priority Focus Area
Berg River Estuary	• Along the Berg River from Velddrif to approximately the farm Steenboksfontein (Known as the Berg River Estuary); • The Berg River Estuary is located approximately 130 km north of Cape Town on the West Coast of South Africa. Based on the extent of tidal influence, the estuary is estimated to be 65 km long, although seawater does not penetrate this far upstream; • The Berg River Estuary is one of 279 functional estuaries in South Africa (Turpie 2004) and one of 4 permanently open estuaries on the west coast (Whitfield 2000). It is the one of the largest estuaries in the country, with a total area of 61 km²; • The estuary holds significant conservation value, ranking among the most crucial in the country. The extensive floodplain that surrounds the middle and upper reaches of the system make it unique in the South-Western Cape; ***Figure 6: Location of Berg River Estuary within Bergrivier Local Municipality*** 
Conservation of biodiversity and wilderness character	• Integrate Berg River Estuarine Management Plan into development planning; • Fully revised zonation plan; • Formally demarcate the extent of the Coastal Protection Zone (CPZ) and Coastal Management Line (CML) around the Berg River Estuary and establish a Zonation Area that incorporates the lower reaches of the estuary upstream to the Hopefield Bridge, zoned in accordance with the present scheme; • Regulate boat traffic by implementing an Estuary Zonation Plan (EZP) to minimise impact on biodiversity and sense of place; • Maintain Ramsar status for the Berg River Estuary (Ramsar status granted 1 February 2022); • Ensure sustainable use of estuary resources; • Redefine the Berg River Estuary as a core area within the Cape West Coast Biosphere Reserve (CWCBR).

	
Co-management and effective governance	• Sustain the operation of the Berg Estuary Advisory Forum (BEAF); • Define co-operative governance arrangements for the management of the Berg River Estuary; • Secure financing; • Ensure adequate resources and capacity; • Manage compliance with Berg River Estuary Usage Zones By-law and other applicable By-laws.
Restoring estuary health	• Secure adequate quantity and quality of freshwater input to restore and maintain ecosystem health and functioning; • Remove obstructions to flow in the estuary channel and invasive alien vegetation; • Promote sustainable agriculture.
Research and monitoring	• Promote scientific research; • Monitor biophysical indicators of estuary health; • Monitor human use of the estuary.
Public awareness	• Create and maintain effective mechanisms for ongoing communication with stakeholders; • Develop an effective education and awareness programme for the protected area that enhances visitor experiences. • Make visitors aware to use established paths
Economic benefits and ecotourism	• Establish and manage visitor facilities; • Market the Berg River Estuary as a wilderness and nature-based ecotourism destination.
Development that should not occur	• Any urban type of development. Exploitation of important species (Fauna and Flora).

6.1.7.2 Rocherpan Marine Protected Area and Nature Reserve

Environmental Impact Management: Rocherpan Marine Protected Area and Nature Reserve:

Management Priority	Priority Focus Area
Rocherpan Nature Reserve	• Located 25km north of Velddrif along the Atlantic Ocean, Rocherpan provides protection to diverse marine, freshwater, and terrestrial habitats. Established as a nature reserve in 1966, Rocherpan spans 930 hectares, with an additional 150-hectare marine reserve declared in 1988 along the adjacent section of the Atlantic Ocean. • Rocherpan is a coastal nature reserve teeming with birds and colourful wildflowers; • The reserve, which lies 25km north of Velddrif on the Cape West Coast, consists largely of a seasonal vlei that is usually dry between March and June; • Rocherpan is dominated by the large central vlei (a shallow natural pool of water) and a 4.7km stretch of sandy Atlantic coastline, of which the southern 3km, and the area 500m seaward, constitutes the marine protected area. ***Figure 7: Location of Rocherpan Nature Reserve*** 
Conservation of biodiversity and wilderness character	• Rocher and his team closed off the mouth of the Papkuils River, forcing it to flow behind the dunes that separate the sandveld from the sea; • This inadvertently created a perfect habitat for waterbirds, and the local species have thrived ever since; • Along the coast, is seen the rare and endangered black oystercatcher, the kelp gull and the Cape shoveler; • Rocherpan offers protection to diverse marine, freshwater and terrestrial habitats.
Co-management and effective governance	• Rocherpan Marine Protected Area is managed by the National Department of Environmental Affairs; • Rocherpan Nature Reserve is managed by CapeNature; • Secure financing; • Ensure adequate resources and capacity.
Research and monitoring	• Promote scientific research; • Maintain ecosystem health and functioning; • Remove invasive alien vegetation.
Public awareness	• Develop an effective education and awareness programme for the nature reserve area that enhances visitor experiences. • Make visitors aware to use established paths.
Economic benefits and ecotourism	• Establish and manage visitor facilities; • Rocherpan currently has eight eco-cabins available to be booked for accommodation, of which the four newest cabins were recently opened; • Market the Rocherpan Nature Reserve as a wilderness and nature-based ecotourism destination.
Development that should not occur	• Any urban type of development. Exploitation of important species (Fauna and Flora).

6.1.7.3 Banghoek Private Nature Reserve

Environmental Impact Management: Banghoek Private Nature Reserve

Management Priority	Priority Focus Area
Banghoek Private Nature reserve	• Situated in the northern parts of the Piketberg Mountains. Maintaining pristine areas of fynbos on the West Coast. • The full registered name of the development is "The Banghoek Private Nature Reserve" registration no 5597/91; • Banghoek Private Nature Reserve is a sectional title development comprising a maximum of 40 residential units plus the original 4 farm dwellings. It falls under the ambit of the Sectional Titles Act no 95 of 1986 as amended effective 7 October 2016.
Conservation of biodiversity and wilderness character	• Banghoek is one of the few remaining relatively pristine areas of fynbos left on the West Coast; • The Reserve is home to several rare and endangered plant species and has a wide diversity of plants in its own right; • Banghoek members feel privileged to own and be custodians of this unique floral kingdom.
Co-management and effective governance	• The Trustees of the body corporate will manage the affairs of the Banghoek Private Nature Reserve; • Trustees have in 2019 started a programme to contain the spread of the poplar invasion into the reserve area; • Secure financing; • Ensure adequate resources and capacity.
Research and monitoring	• Promote scientific research; • Maintain ecosystem health and functioning; • Remove invasive alien vegetation.
Public awareness	• Develop an effective education and awareness programme for the nature reserve area that enhances visitor experiences. • Make visitors aware to use established paths.
Economic benefits and ecotourism	• Establish and manage visitor facilities; • Market Banghoek Nature Reserve as a wilderness and nature-based ecotourism destination.
Development that should not occur	• Farming, any urban type of development. Exploitation of important species (Fauna and Flora).

6.1.7.4 Groot Winterhoek and surrounding areas

Environmental Impact Management: Groot Winterhoek, Beaverlac

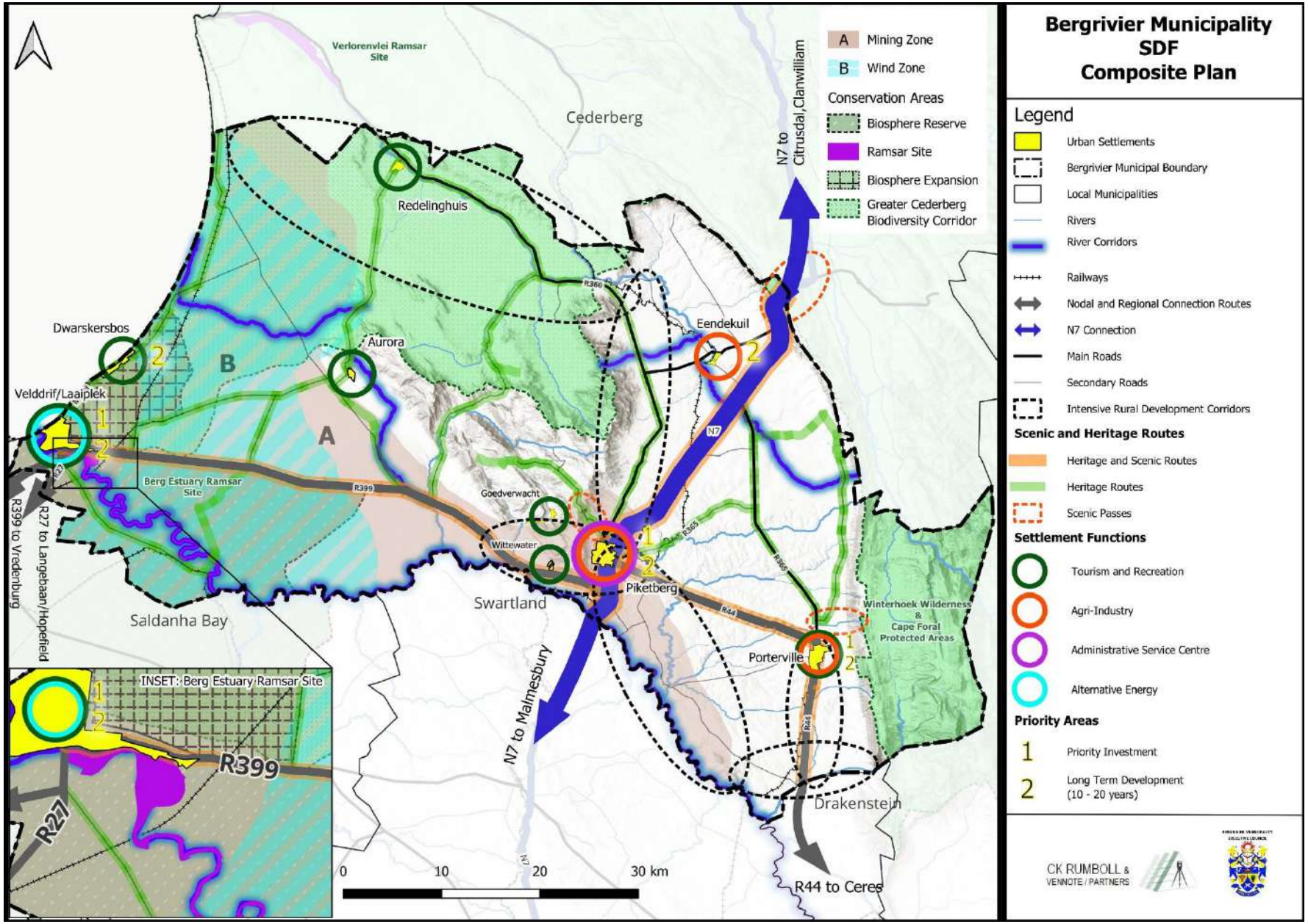
Management Priority	Priority Focus Area
Groot Winterhoek Wilderness and Beaverlac	• The Groot Winterhoek Wilderness has a rugged, wild landscape, with exceptional rock formations; • Winters are cold and wet with temperatures below freezing; • Beaverlac, in the Olifants River Mountains above Porterville, offers camping and cabins; • Beaverlac is fed by two rivers, the Ratel (Honey Badger) and the Olifants.
Conservation of biodiversity and wilderness character	• Grootfontein farm is a natural heritage site; • Vegetation consists of a variety of Mountain Fynbos including ericas; • The endemic Ixianthus Retzoides commonly known as River Bells grows along the Ratel River; • Beaverlac's rich diversity of birds includes the Black Eagle, Jackal Buzzard and sunbirds; • The rivers are home to Clanwilliam Redfins and Yellowfish, both protected species.
Co-management and effective governance	• Beaverlac, Grootfontein farm adjoining the Groot Winterhoek Mountain Catchment Area and the Cederberg Leopard Conservation Area are successful example of agritourism.
Research and monitoring	• Promote scientific research; • Maintain ecosystem health and functioning; • Groot Winterhoek's San and Khoi rock art vary between 300 and 6 000 years of age; • Rock art is protected by the National Monuments Act (1969).

Public awareness	• Due to depleted fish stocks, fishing is no longer allowed in the Olifants, or in Beaverlac; • Capacity is limited as a means to limit human impact on the area.
Economic benefits and ecotourism	• Parts of the greater conservation area, like Sneeugatrivier and the mountain peaks, are true wilderness – showing no traces of human intervention; • Market the Groot Winterhoek Wilderness and surrounding areas as a wilderness and nature-based ecotourism destination.
Development that should not occur	• Any urban type of development. Exploitation of important species (Fauna and Flora).

6.2 Composite Proposals

The composite spatial plan indicates all the rural development proposals. The composite plan also illustrates the well-connected location of the Bergrivier settlements and the opportunities for spatial integration of the rural development proposals.

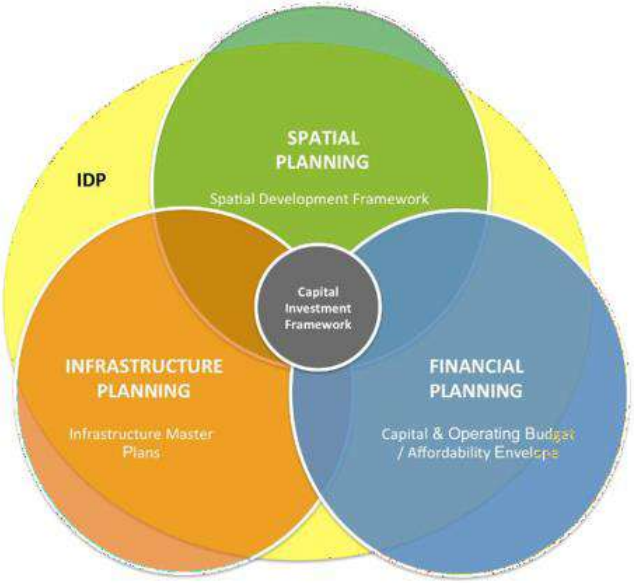
Map 52: Bergrivier Municipality SDF Composite Plan



CHAPTER 7: Implementation Plan and Capital Expenditure Framework

Both the Municipal Systems Act, 2000 (Act 32 of 2000) and the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) requires that a municipal spatial development framework "determine a capital expenditure framework for the municipality's development programmes, depicted spatially".

The framework effectively links the municipality's spatial development strategies with the municipality's budget and grants of relevant government sectors, grounded in the existing and future infrastructure backlogs and demands, as well as the affordability envelope as defined by the Long-Term Financial Plan, as illustrated in the adjacent figure.



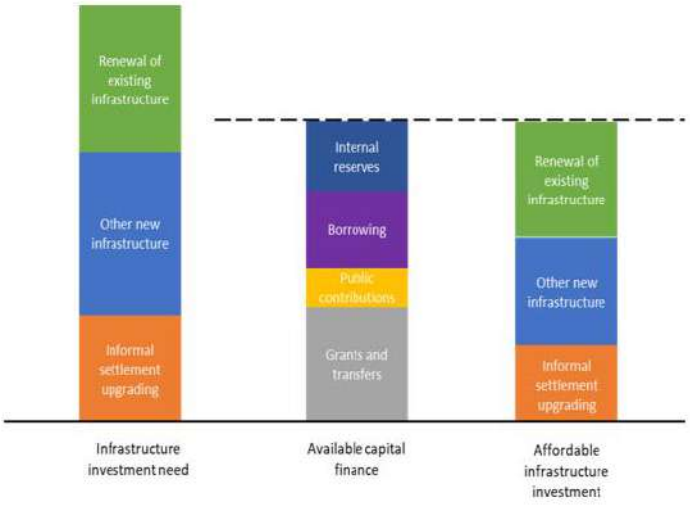
The framework brings together spatial planning, infrastructure planning and financial planning. The framework assists to guide investment to spatial priorities and categories and thus enhance financial sustainability.

Infrastructure investment include:

a) Renewal of existing infrastructure;
b) New infrastructure;
c) Informal settlement upgrading.

Available finance and capital include

d) Internal resources;
e) Borrowing;
f) Public contribution;
g) Grants and transfers.

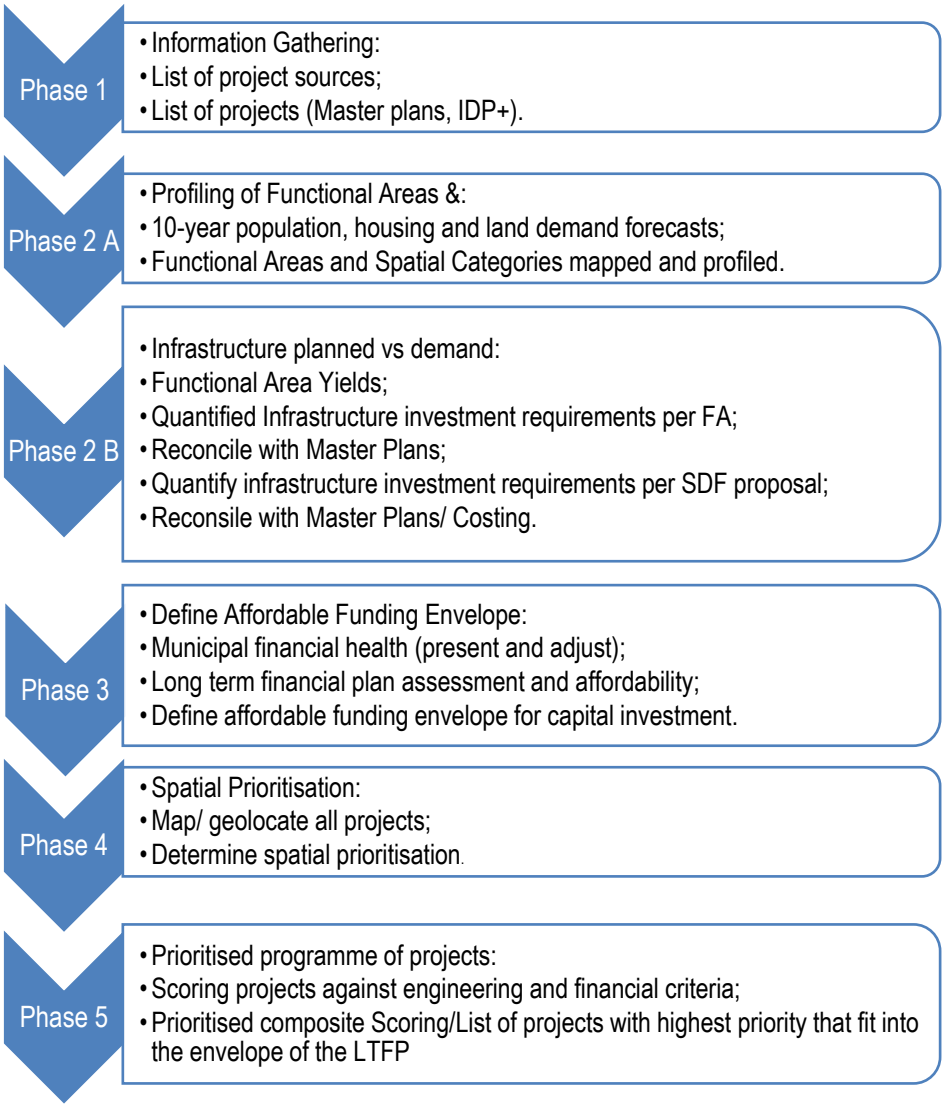


Aligning the infrastructure investment with available finance ensures prioritization and guided investment.

In summary, a MSDF must articulate what kind of development should take place and where it should take place; the infrastructure master plans will ground these proposals in a quantification of the infrastructure implications, whilst the long-term financial plan must define the financial parameters within which the infrastructure, assets and built environment must be developed and managed. With the information at hand

and with an overview of Bergrivier Municipality's financial health, spending and revenue as well as a 10-Year Capital Expenditure, development projects are prioritised. The 10-Year Capital Expenditure demand is around R784 million whilst the appropriate Capital funding and thus affordability is R638 million or R68 million per year.

Bergrivier Capital Expenditure Framework includes different milestones listed below:



7.1 Infrastructure determination

Phases 1, 2a and 2b are inter-dependent and determine the infrastructure demand and capital investment needs that the implementation of the MSDF will generate over a 10-year period.

7.1.1 Phase 1: A Consolidated Portfolio of Capital Investment Needs

Information was gathered in Phase 1 and all infrastructure investment projects identified as needed (new renewal and maintenance) for a 10-year period was combined into a single table.

Note:

a) *A complete list of the documents used appears on the cover pages of the List of projects: DEADP template. Developed in 2023, it includes:*
   - *The Bergrivier Capital Budget for 2023/24, 2024/25 and 2025/26;*
   - *Capital Project Needs articulated in the 2022 – 2027 IDP;*
   - *The Human Settlements Plan;*
   - *The MSDF (2022);*
   - *Service Master Plans.*

b) *Though Engineering Services Master Plans (Civil 2014, Electrical 2015) are outdated, with the exception of the Integrated Waste Management Plan (2019), the infrastructure identified as needed in these plans is still needed. These needs and their costing (adjusted according to CPI) were used to compile the CEF.*

c) *The database represents capital investments for the following service types:*
   - *Water;*
   - *Wastewater management;*
   - *Energy / Electricity;*
   - *Waste Management.*
   - *Roads;*
   - *Social and economic infrastructure;*
   - *Human settlements;*
   - *Information Technology;*
   - *Other, such as furniture, equipment and tools/machinery.*

This consolidated database of capital investment needs forms the basis upon which the CEF was developed, and the projects contained herein forms the basis upon which the prioritised portfolio of capital investments will be developed.

The output of phase 1 is a consolidated table of infrastructure investments (new, upgrade or maintenance) per infrastructure type, per functional area, for the entire municipality. Figure 8 below provides an extract of the consolidated table of infrastructure investments.

Figure 8: A Consolidated Database of Capital Investment Needs for Bergrivier Municipality

Project ID	Project Name	Project Source	Municipal Department	MSCOA Function (asset class)	Municipal, Provincial or National	Funding Source	Project_type: New, Upgrade, Rehabilitate, Maintenance, Equipment or Plan?	Basic Service? (Yes / No)	Linked to informal settlement upgrading? (Yes / No)	Total Project Value	Town or Area	Functional Area (as per CEF map from MSDF)
1	Diverse office furniture and equipment	A1	Mayor and Council	Corporate Services	Municipal	CR	Equipment	No	No	50 000,00	BR	All
2	Furniture and equipment - Communication	A1	Municipal Manager	Corporate Services	Municipal	CR	Equipment	No	No	5 000,00	BR	All
3	Furniture and equipment - MM Office	A1	Municipal Manager	Corporate Services	Municipal	CR	Equipment	No	No	25 000,00	BR	All
7	Furniture , Equipment - Finance	A1	2.1 - Finance	Finance and Administration	Municipal	CR	Equipment	No	No	30 000,00	BR	All
10	Furniture , Equipment - Human Resources	A1	3.2 - Human Resources	Corporate Services	Municipal	CR	Equipment	No	No	20 000,00	BR	All
12	Time and Attendance System (Payday)	A1	3.2 - Human Resources	Corporate Services	Municipal	CR	Equipment	No	No	750 000,00	BR	All
13	WI-FI Installation at Offices of BRM	A1	3.3 - Information Technology	Corporate Services	Municipal	CR	New	No	No	200 000,00	BR	All
14	IT Equipment	A1	3.3 - Information Technology	Corporate Services	Municipal	CR	Equipment	No	No	210 000,00	BR	All
16	Replacement of computers	A1	3.3 - Information Technology	Corporate Services	Municipal	EL	Upgrade	No	No	800 000,00	BR	All
17	IT System Upgrade (Enhancement of IT system : Busi	A1	3.3 - Information Technology	Corporate Services	Municipal	EL	Upgrade	No	No	1 000 000,00	BR	All
20	Photocopier machine for new office building	A1	3.4 - Administrative and Corporate Support	Corporate Services	Municipal	CR	Equipment	No	No	150 000,00	BR	All
21	FURNITURE AND EQUIPMENT - DIRECTOR CORPORATE SERVI	A1	3.5 - Director: Corporate Services	Corporate Services	Municipal	CR	Equipment	No	No	45 000,00	BR	All
22	Furniture , Equipment - Building Control	A1	4.1 - Building Control	Civil Engineering Services	Municipal	CR	Equipment	No	No	-	BR	All
24	Furniture and Equipment - Project Management	A1	4.2 - Project Management Unit	Community and Social Services	Municipal	CR	Equipment	No	No	-	PB	Piketberg
29	Piketberg N7 Housing (46) (Roads)	A1	4.2 - Project Management Unit	Civil Engineering Services	Municipal	PAWK	New	Yes	No	-	PB	Piketberg
33	Piketberg (1000) (150) Housing (Sanitation)	A1	4.2 - Project Management Unit	Waste Water Management	Municipal	PAWK	New	Yes	No	-	PB	Piketberg
37	Eendekuil 47 Housing (Electricity)	A1	4.2 - Project Management Unit	Electro-technical Services	Municipal	PAWK	New	Yes	No	-	EK	Eendekuil
46	Porterville 177 Housing (Water)	A1	4.2 - Project Management Unit	Water Management	Municipal	PAWK	New	Yes	No	-	PV	Portervillle
50	New municipal offices -PMU	A1	4.2 - Project Management Unit	Corporate Services	Municipal	EL	New	No	No	-	PB	Piketberg
51	Furniture , Equipment - Council Property	A1	4.3 - Property Services	Corporate Services	Municipal	CR	Equipment	No	No	17 000,00	BR	All
52	Tools (Property Services)	A1	4.3 - Property Services	Corporate Services	Municipal	CR	Equipment	No	No	32 000,00	BR	All
53	Air conditioners - offices	A1	4.3 - Property Services	Corporate Services	Municipal	CR	Equipment	No	No	170 000,00	BR	All
56	Stores Velddrif (Erf 551)	A1	4.3 - Property Services	Corporate Services	Municipal	CR	Upgrade	No	No	830 000,00	VD	Velddrif
57	Ontwikkel munisipale kantore VD	A1	4.3 - Property Services	Corporate Services	Municipal	CR	New	No	No	1 010 000,00	VD	Velddrif

Figure 9: A Summary of Capital Investment Needs for Bergrivier Municipality

Engineering Services Type	Sum of Budget 23/24	Sum of Budget 24/25	Sum of Budget 25/26	Total
Water Distribution	14 783 102.00	7 893 000.00	14 653 695.00	37 329 797.00
Water Treatment	1 440 000.00	2 350 000.00	4 100 000.00	7 890 000.00
Sewage	10 285 652.00	2 953 000.00	6 360 435.00	19 599 087.00
Wastewater Treatment	2 080 000.00	3 100 000.00	3 200 000.00	8 380 000.00
Electricity	6 095 782.00	19 548 377.00	8 147 826.00	33 791 985.00
Street Lighting	640 000.00	850 000.00	950 000.00	2 440 000.00
Roads	4 755 000.00	12 545 000.00	13 970.00	17 313 970.00
Storm Water Management	1 568 914.00	3 579 912.00	407 000.00	5 555 826.00
Solid Waste Removal	1 605 000.00	1 690 000.00	4 061 000.00	7 356 000.00
Street Cleaning	10 000.00	20 000.00		30 000.00
Grand Total: Bergrivier	43 263 450.00	54 529 289.00	41 893 926.00	139 686 665.00
Social Infrastructure	**Sum of Budget 23/24**	**Sum of Budget 24/25**	**Sum of Budget 25/26**	**Total**
Housing (Core)	3 060 000.00	0.00	0.00	3 060 000.00
Sports Ground and Stadiums	2 410 000.00	3 213 696.00	2 630 870.00	8 254 566.00
Swimming Pools	1 065 000.00			1 065 000.00
Holiday Resort	850 000.00	510 000.00	1 060 000.00	2 420 000.00
Community Halls & Facilities	340 000.00	0.00	400 000.00	740 000.00
Community Parks	1 389 000.00	1 370 000.00	0.00	2 759 000.00
Libraries and Archives	20 000.00	1 000 000.00	1 500 000.00	2 520 000.00
Economic Development (PF Youth Centre, Piketberg)	0.00	0.00	340 000.00	0.00
Traffic Control	365 000.00	830 000.00	400 000.00	1 595 000.00
Fire Fighting and Protection	1 171 000.00	0.00	1 000 000.00	2 171 000.00
Cemeteries	2 060 000.00	175 000.00	400 000.00	2 635 000.00
Grand Total: Bergrivier	12 730 000.00	7 098 696.00	7 730 870.00	27 219 566.00

The list of projects serves as the engineering and infrastructure informants.

The municipality has to improve infrastructure maintenance and strongly improve upgrades which impacts on its financial sustainability. The municipality also plans for expansion of its service network. Hence the municipality has to ensure policies are in place that seek to focus on utilising its current infrastructure asset network more cost-effectively and caution costly outward urban expansion of this network.

The following factors are worth noting from an infrastructure backlogs and planning perspective:

- Bulk water: Piketberg, Velddrif, Eendekuil, Aurora and Dwarskersbos are running at capacity. Redelinghuis and Porterville have sufficient capacity. There is an overall need to find additional bulk water sources, which is an expensive exercise;
- Water Network Infrastructure: The water network has capacity for limited expansion in the current network though the networks are generally old and reactive maintenance is being done on a regular basis. An updated multi-year infrastructure maintenance programme budget is needed to systematically address this infrastructure maintenance backlog;
- Wastewater Treatment Works (WWTW) are nearing capacity in each town and require regular maintenance to keep this infrastructure working well and to prevent ecological disasters (such as spills) that could severely undermine river health as well as agricultural and economic productivity

which are dependent on clean river systems. Dwarskersbos, Eendekuil, Piketberg, and Velddrif do require WWTW upgrading. Aurora and Redelinghuis require new Waste Treatment facilities amounting to R9,2 million and R9,6 million (R18,8 million in total).

- The Sewer Network is running at capacity with not much room for accommodating expansion. The networks generally are old and reactive maintenance is being done, however insufficiently funded;
- Bulk Electricity: Dwarskersbos and Velddrif do not have sufficient capacity and require immediate upgrades. Porterville and Piketberg requires upgrading. Eendekuil, Redelinghuis and Aurora have sufficient capacity.
- The Electricity Network is running at capacity with not much room for accommodating expansion. The networks generally are old and reactive maintenance is being done, however insufficiently funded.

The following are key questions that will need to be addressed in medium term budgets following the updates of the relevant engineering masterplans, which are largely outdated, as well as Financial Strategy which should detail:

a) Where is sewer / water / roads and storm water infrastructure failing / under pressure?
b) How much will it cost to address failing infrastructure and infrastructure needing maintenance?
c) How much money is available to address failing infrastructure and infrastructure needing maintenance?
d) What is the planned new infrastructure on the books?
e) Is the municipality meeting the minimum requirement of 8% of spending on repairs and maintenance as a percentage of property plant and equipment? Bergrivier LM has to increase its repairs and maintenance spending from 4,9% to 6% of property plant and equipment.
f) Expenditure on repairs and maintenance as a percentage of property plant and equipment (4.9%) remained below the NT benchmark of 8% during the review period, but could be attributed to the infrastructure expansion and development that has happened recently. Effort should be made to increase Repairs and Maintenance to 6%.
g) What new connection needs does the municipality need to action?
h) What are affordable development options vs. unaffordable development options?
i) What is deemed to be revenue generating infrastructure vs. non-revenue generating infrastructure?
j) What is the strategy to transition areas / neighbourhoods from 'indigent' neighbourhoods to 'service paying' neighbourhoods over time? Inherent to this question is what is the municipality's strategy to achieve municipal financial sustainability over time?

The above questions will inform a more spatially-specific Capital Expenditure Framework for Bergrivier.

Priority spending and efforts should be placed on infrastructure maintenance and upgrading rather than on infrastructure network expansion. Maintenance of existing infrastructure and existing assets is first and foremost the priority of the municipality.

Optimising the use of existing infrastructure systems must be prioritised as well. This means actively

increasing densities within the existing footprint of the municipality, specifically in the middle- and upper-income areas, to moderately increased densities.

7.1.2 Phase 2a: Functional area and spatial category for investment planning profiling and yield determinations in preparation for infrastructure demand quantification

Functional Areas are areas of similar characteristics, service levels and have similar service requirements, such as low density established suburbs, industrial areas, high density informal areas or central business districts. These areas usually correspond to an area sharing the same engineering and utility service requirements and levels of service (or have similar upgrading needs).

Bergrivier Municipality was divided into 27 Functional Areas (FAs) that have similar or common characteristics from a development, level of service, and/or service demand perspective. For each FA (Functional Area) infrastructure investments (new, upgrade or maintenance) per infrastructure type for the entire municipality were listed.

Each functional area was profiled as projected population and household growth were set out. Potential yields (including gross leasable areas) are then determined for each functional area, based on the spatial budget and proposals from the MSDF which identifies sites for densification, infill, or new urban growth. This exercise considers the MSDF proposals section, as well as whether an investment (spatial) category falls within the functional area, which may provide specific objectives that need to be attained. To phase development, sites were categorized in short-, medium- and longer-term developments. The priority (short term) sites stay priority across the duration (planning, budgeting, obtaining rights and implementation) of the development.

The results of phase 2a establish an understanding of what projected growth will occur in each functional area over the 10-year period, including potential land yields, potential gross leasable areas, and identification of sites to accommodate development, as well as an indication of priority / phasing for these sites.

The results of phase 2a will, in phase 2b, assist to determine the infrastructure need and service demand per functional area, as well as help to determine bulk infrastructure demand per service type over a 10-year period.

The section following sets out the functional areas and development and investment priorities:

a) *Functional areas* were delineated to correspond to Enumerator Areas and with services reticulation. Current and future population and household projections were based on enumerator area data and proportioning the information where required, according to the number of residential opportunities per functional area.

	Aurora		Dwarskersbos		Eendekuil		Redelinghuis
A	Old town	A	Old town	A1	Old town	B	Old town
B	Aurora South	B	New town	A2	South Western	A1	Old town, West
				B	South Eastern	A	South
	Piketberg		Porterville		Velddrif		
C1	Old town	A	Old Town, Golf Club	A	Atlantic Sands		
C2	Old town, Winkelshoek	A1	Old Town	B	Laaiplek		
B	Golf Course	B1	West	B1	Spreeuwal		
B1	Old town, North	D	Monte Bertha	C	Port Owen		
A	Wheatfields new	C	Industrial, East	D	Noordhoek		
D	Industrial, East			E	Velddrif		

Maps of the functional areas for Bergrivier settlements are included:

Figure 10: Functional Areas for the town of Aurora

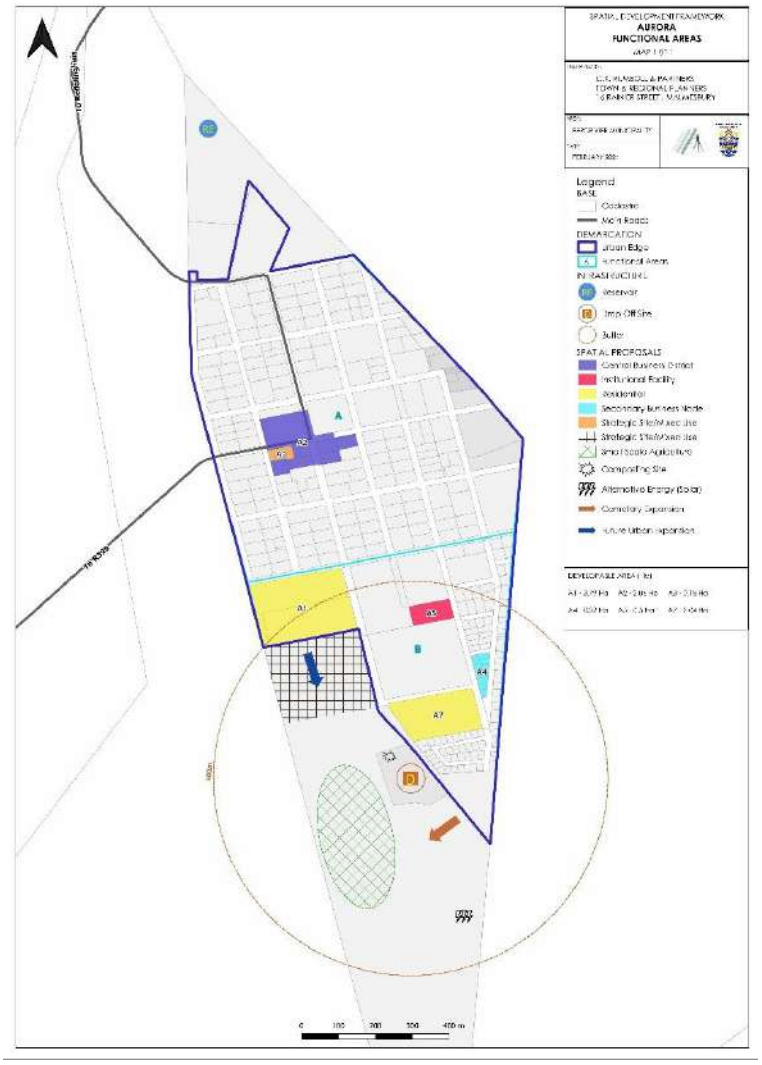


Figure 11: Functional Areas for the town of Dwarskersbos

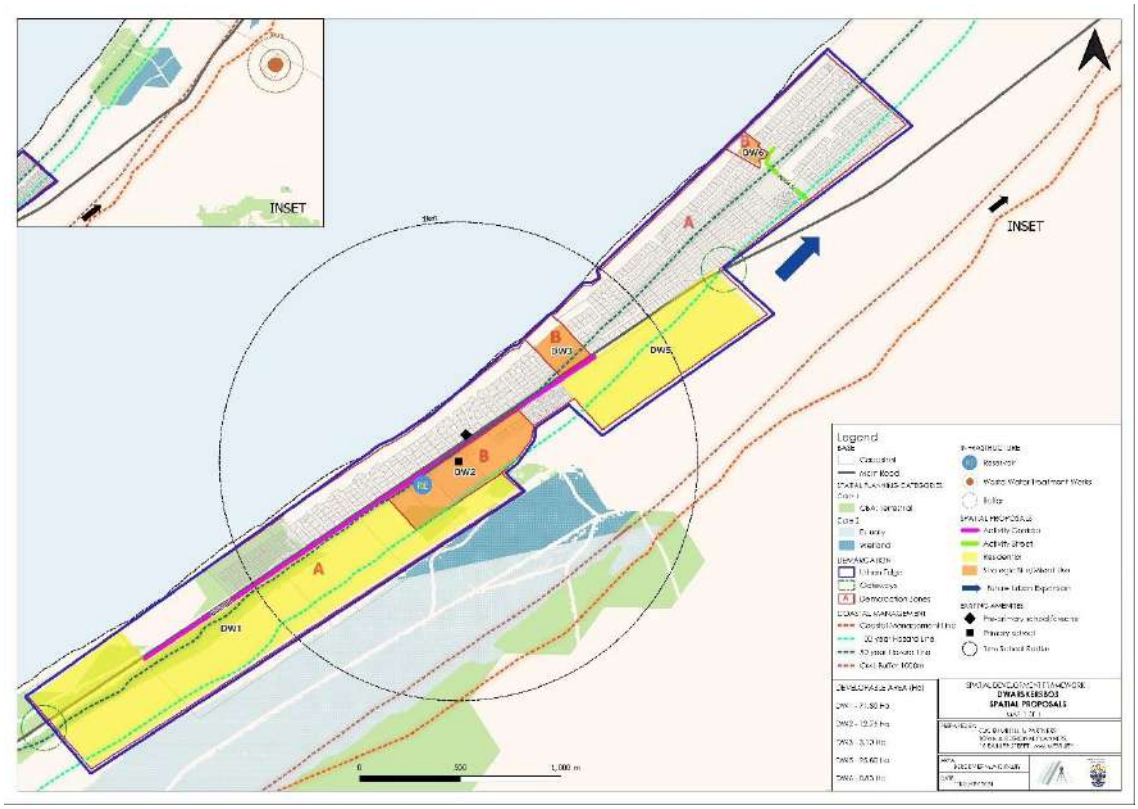


Figure 12: Functional Areas for the town of Eendekuil

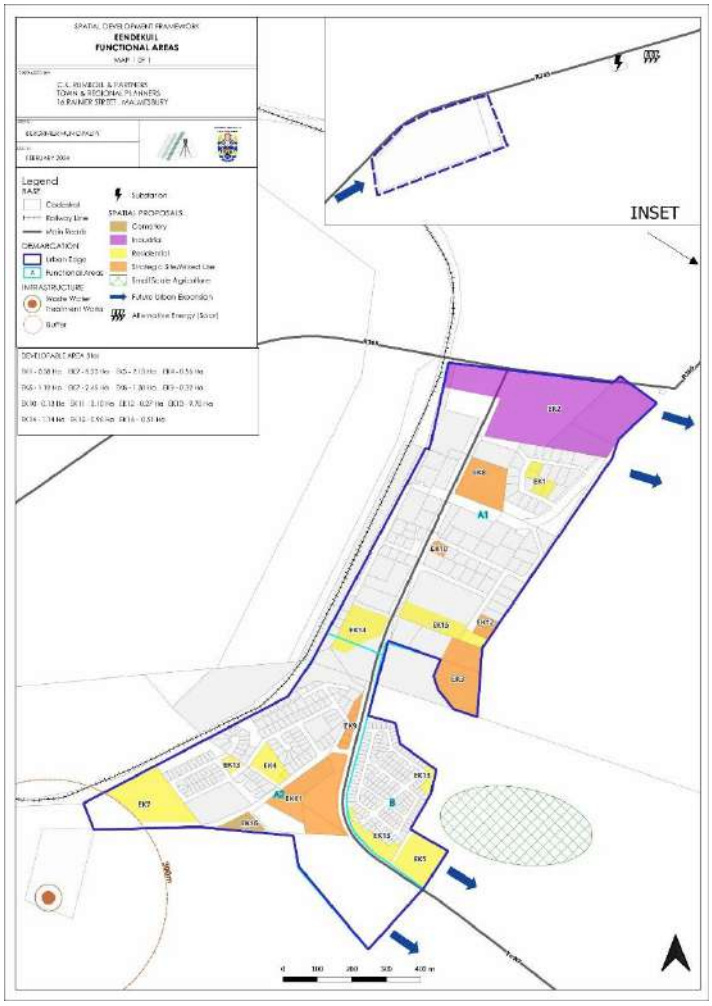


Figure 13: Functional Areas for the town of Redelinghuis

Figure 14: Functional Areas for the town of Porterville

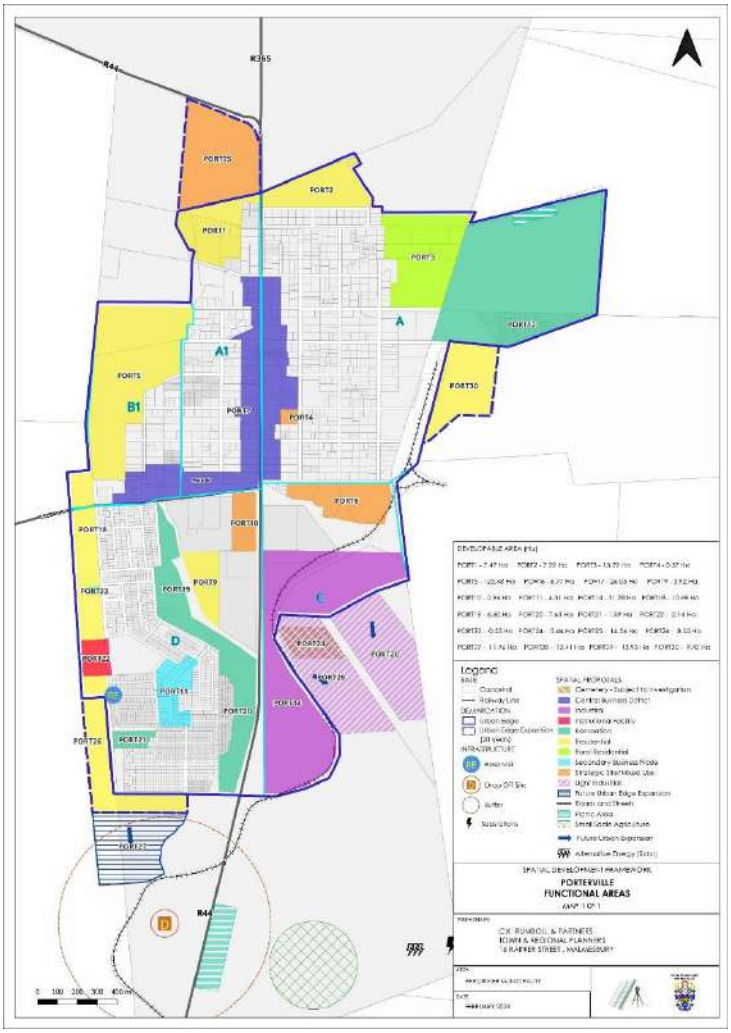


Figure 15: Functional Areas for the town of Piketberg

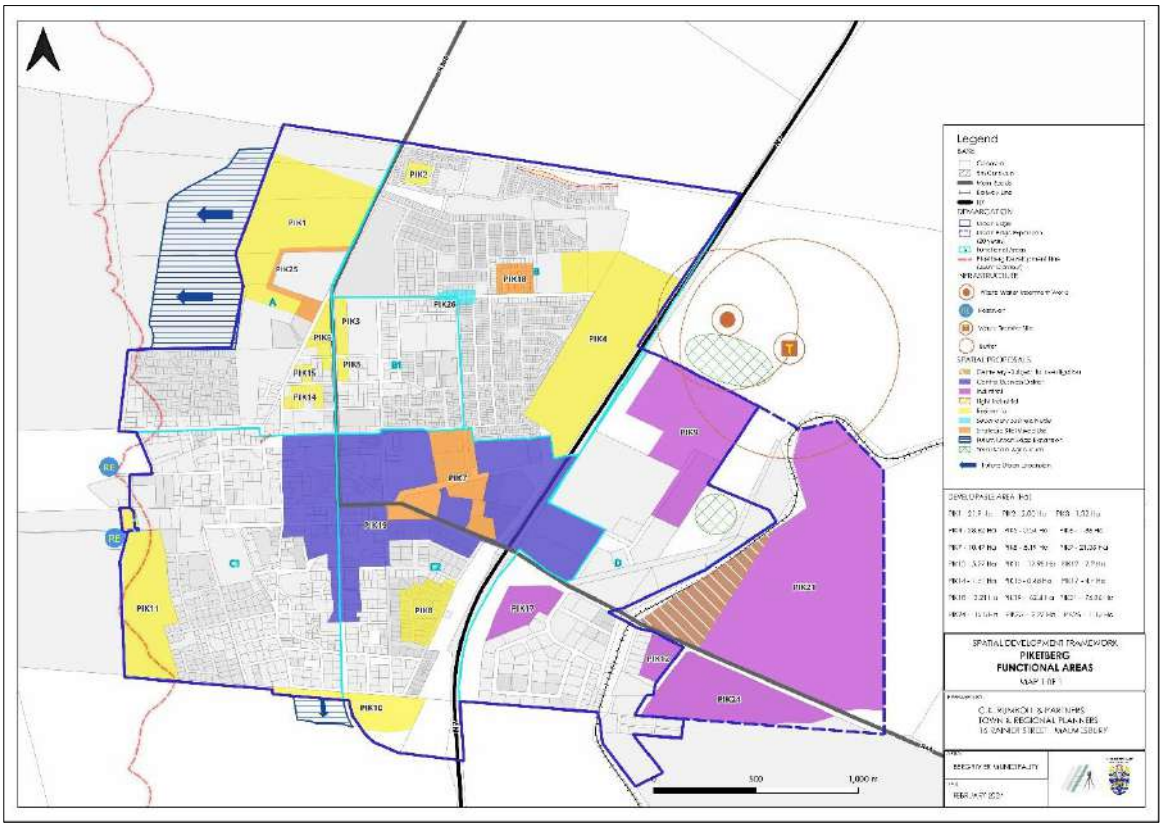
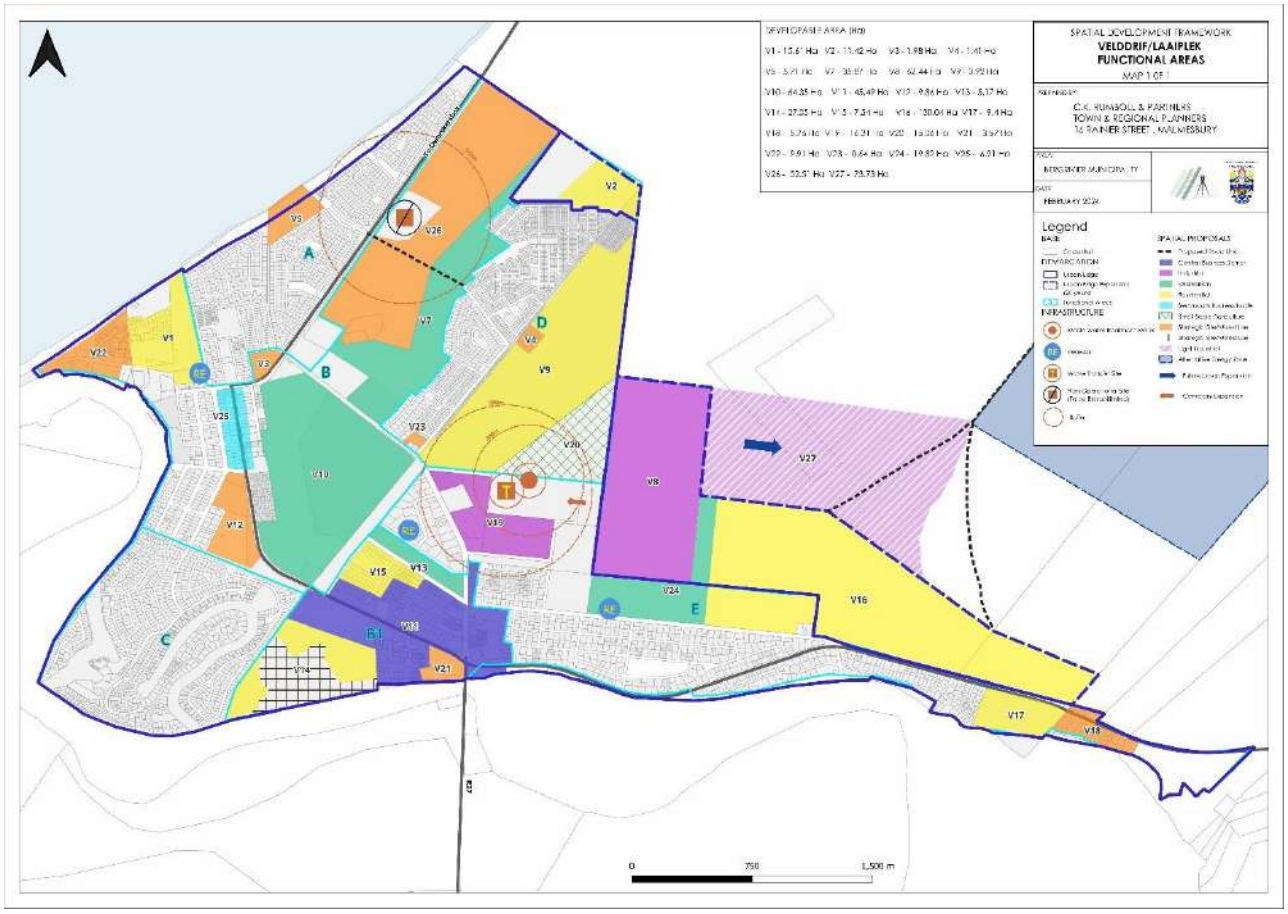


Figure 16: Functional Areas for the town of Velddrif



All development sites were labelled with the first or first few letters of the settlement name. Sites were prioritised and priority sites (if any) for the purposes of phasing future growth were set out per functional area. Priority sites and the related land parcels will occupy priority in terms of all (planning, budgeting and implementation) phases.

b) Investment (or spatial) categories identified for guiding investment planning within Bergrivier, are set out below, as well as shown in Figure 17.

Priority Investment Areas at the *municipal-wide* scale refer to towns in Bergrivier that are:

- An investment priority within the regional context;
- Generally occupying a high-order in terms of the services, facilities and employment opportunities that are on offer;
- Generally, with the largest population size and greatest social need;
- Economic growth potential within the region.

Generally, investments made in these settlements will have the greatest multiplier effect and impact on the greatest number of people.

Priority investment areas at *municipal scale* include:

- Piketberg CBD, industrial area and residential areas;
- Velddrif CBD, harbours, alternative energy generation, industrial and residential areas and alternative throughfare road linked to Carinus Bridge (to allow the residential areas to enjoy the coast and river and trucks to cross the town on an alternative route).

Priority Investment Areas at the *settlement scale*:

These are:

- The principal transport activity corridors;
- Bergrivier CBDs,
- The secondary nodes and priority public transport-oriented development nodes connected by the corridors;
- Restructuring zone which seeks to reinforce the centre.

These areas must be the focus for getting the basics right as well as adding value through new investment to facilitate social inclusion, attract economic activity and private sector and household investment.

- There is scope for the absorption of residential, commercial, and industrial growth within this zone.

These areas and the priority nodes specifically should be the focus of any municipal investment incentives including expedited land use development procedures and/or relaxation of development controls; e.g. parking requirements. This should be done in a way that creates a public realm and streetscape that must keep intact and enhance the integrity of the Sandveld and West Coast identity and attractiveness.

The Bergrivier Municipality is dedicated to maintaining, strengthening and intensifying CBDs of Bergrivier's settlements as their primary economic activity centres. Incentives for private investment in the upgrading and redevelopment of the CBD's buildings will be supported and promoted. Key spatial actions related to the CBD are to:

- Continue to resist the trend of "dispersed" business development in the CBD, specifically the spread of business development into surrounding residential areas;
- Retain office activities in the CBD;
- Support residential densification along key CBD routes;
- Implement public space upgrades to ensure a vibrant, integrated, and safe pedestrian environment;
- Promote high quality urban design with the aim of reducing crime and improve the overall appeal of the CBD and confidence for private sector investment.

Settlement with several priority nodes, were advanced as priority areas at settlement scale.

Priority investment areas at settlement scale include:

- Porterville CBD (and precinct plan), industrial and residential area, sports destination and silos and railway station precinct;
- Dwarskersbos residential and mixed-use areas;
- Eendekuil industrial and agri-industrial, mixed use and residential areas.

Upgrading areas at the *municipal-wide* scale: These are the settlements that still:

- Have considerable populations, services, and some job opportunities, but that are not seen as primary service centres at the regional scale;
- They are generally major rural settlements that play a role in the economy of the region, but also with pressing social needs;
- Further significant expansion of these areas not advised.

Bergrivier has no upgrading areas at municipal scale.

Upgrading areas at the *settlement scale*:

- These are areas primarily focused on informal settlement and marginalised rural settlements and areas that require upgrading and improvement to bring them to an acceptable standard of performance as residential settlements.

Bergrivier has Wittewater and Goedverwacht as upgrading areas at settlement scale once the Genadendal Accord is implemented.

Consolidation areas at the settlement and municipal-wide scale forms the balance of the settlement footprint. In these areas the focus is to ensure the provision and maintenance of services so that the area may perform well within their current functions with no further expansion or growth of these areas, as far as possible. Bergrivier has the following consolidation areas:

a) Aurora;

b) Redelinghuis.

Any growth in these settlements will be dependent on private sector investment.

Long term (speculative) development area (10 – 20 years), applicable only at the settlement-scale, is an area identified as the desired location for long term growth first with the understanding that residential, commercial, and business opportunities in Priority Development Areas are taken up, before allowing development of Long Term or Speculative Development Areas. Speculative development may occur only in 10 to 20 years time (i.e. after 2030).

Bergrivier has areas to develop in 20-years time and beyond in Piketberg, Velddrif and Porterville.

Densification encouragement areas are generally well-established residential areas that are extremely low density (with erf sizes ranging from between 500 to 2000m² - translating to a net dwelling unit density of between 5 to 20 dwelling units per hectare) that could accommodate densification in the form of subdivisions to accommodate one or two additional houses, as well as accommodating "granny flats". The intention here is to double the density of the neighbourhood over the long term and to allow the infrastructure systems to be utilised more effectively. This densification should not drastically alter the nature or feel of these neighbourhoods.

It should be noted that the current zoning scheme by-law already provides for second dwellings as a consent use.

Densification encouragement areas include all the single residential areas and activity streets in Piketberg, Porterville, Velddrif, Eendekuil and Dwarskersbos and the single residential areas in Aurora and Redelinghuis.

A summary of all development areas per settlement follows:

Priority Area	Piketberg	Porterville	Velddrif	Dwarskers bos	Eendekuil	Redeling huis	Aurora	Goed verwacht	Witte water
Priority investment areas & types	Municipal	Settlement	Municipal	Settlement	Settlement				
	Residential, Education. CBD								
	Industrial				Agri-Industrial				
Upgrading Area								Settlement	Settlement
Consolidation areas						Settlement	Settlement		
Long term development Areas (10 – 20 years)	Residential								
	Industrial				Agri-Industrial				
			Green Energy						
Densification areas	Res I areas, Activity Streets					Res I overall		Overall	
Intensification areas	CBD, Mixed Use, Activity Streets							Village Centre	

The section following sets out the various projections and potential yields.

c) Population and household projections follow as per the tables below. Population and households were projected per functional area for intervals of 5 years: 2022, 2027 and 2032.

Table 11: Population projections for each Functional Area in Bergrivier Municipality (settlements only)

Functional Areas	Population 2022	Population 2027	Population 2032	Population Growth 2022 - 2027	Population Growth 2022 - 2032
Aurora (A)	479	521	562	42	83
Aurora (B)	226	246	265	20	39
Dwarskersbos (A)	459	499	538	40	80
Dwarskersbos (B)	358	390	421	32	62
Eendekuil (A1)	370	402	434	32	64
Eendekuil (A2)	652	708	765	57	113
Eendekuil (B)	844	918	991	74	147
Piketberg (A)	1 597	1 737	1 874	140	278
Piketberg (B)	8 453	9 194	9 924	742	1 471
Piketberg (B1)	1 444	1 571	1 695	127	251
Piketberg (C1)	2 225	2 420	2 612	195	387
Piketberg (C2)	1 327	1 443	1 557	116	231
Piketberg (D)	82	89	96	7	14
Porterville (A)	2 632	2 862	3 090	230	458
Porterville (A1)	1 037	1 128	1 218	91	180
Porterville (B1)	137	148	160	12	24
Porterville (C)	33	36	38	3	6
Porterville (D)	5 673	6 170	6 660	497	987
Redelinghuis (A)	223	242	261	19	39
Redelinghuis (A1)	97	106	114	8	17
Redelinghuis (B)	380	413	446	33	66
Velddrif (A)	2 728	2 967	3 202	239	474
Velddrif (B)	969	1 054	1 138	85	169
Velddrif (B1)	1 000	1 087	1 173	88	174
Velddrif (C)	2 736	2 976	3 212	240	476
Velddrif (D)	3 984	4 334	4 678	349	693
Velddrif (E)	2 018	2 195	2 369	177	351
Grand Total	**42 162**	**45 858**	**49 495**	**1 624**	**3 220**

Table 12: Household projections for each Functional Area in Bergrivier Municipality (settlements only)

Functional Areas	Households 2022	Households 2027	Households 2032	New Households Formed 2022 - 2027	New Households Formed 2022 - 2032
Aurora (A)	177	193	208	16	31
Aurora (B)	84	91	98	7	15
Dwarskersbos (A)	241	263	283	21	42
Dwarskersbos (B)	189	205	221	17	33
Eendekuil (A1)	93	101	109	8	16
Eendekuil (A2)	163	177	191	14	28
Eendekuil (B)	211	230	248	18	37
Piketberg (A)	425	462	499	37	74
Piketberg (B)	2 249	2 446	2 640	197	391
Piketberg (B1)	384	418	451	34	67
Piketberg (C1)	592	644	695	52	103
Piketberg (C2)	353	384	414	31	61
Piketberg (D)	22	24	26	2	4
Porterville (A)	764	831	897	67	133
Porterville (A1)	301	328	354	26	52
Porterville (B1)	40	43	47	3	7
Porterville (C)	10	10	11	1	2
Porterville (D)	1 647	1 791	1 933	144	286
Redelinghuis (A)	70	76	82	6	12

Redelinghuis (A1)	30	33	36	3	5
Redelinghuis (B)	119	129	139	10	21
Velddrif (A)	941	1 023	1 104	82	164
Velddrif (B)	334	364	392	29	58
Velddrif (B1)	345	375	405	30	60
Velddrif (C)	943	1 026	1 107	83	164
Velddrif (D)	1 374	1 494	1 613	120	239
Velddrif (E)	696	757	817	61	121
Grand Total	**12 794**	**13 915**	**15 020**	**454**	**901**

As can be seen from the above tables:

The population of settlements in Bergrivier is growing, with the total population increasing from 42 162 people in 2022 to 45 858 in 2027 and to 49 495 in 2032 (a total increase of 3 220 people by 2032 in settlements).

Overall (including the rural population and smaller villages not included in functional areas), the population of Bergrivier is growing, with the total population increasing from 75 484 people in 2022 to 82 100 in 2027 and to 88 616 in 2032 (a total increase of 13 132 people by 2032 settlements).

The number of households in Bergrivier settlements will grow from 12 794 in 2022 to 13 915 in 2027 and 15 020 in 2037 based on a household size of 3.8 persons per household (a total increase of 901 settlement households whilst the increase in total Bergrivier households is 1 282 households).

The above household numbers do not account for the existing housing backlog and only reflects the population growth expected over this period in Bergrivier Settlements.

Most household growth is expected to take place in functional area Piketberg B and B1, Porterville D (Mont Berta), Velddrif A (Atlantic Sands) and D (Noordhoek), and Eendekuil A2 and B, Aurora B and Redelinghuis A. This “growth pressure” does not necessarily mean that the actual households will be accommodated within these areas in the future, as new development opportunities in line with the MSDF proposals, may accommodate some of this growth. The growth in the rural areas, representing 39% of the households, will also be accommodated within the opportunities in line with the MSDF.

d) The total housing demand (Including backlog) per functional area is set out in the table below for the municipality, considering the housing backlog per functional area, up until 2031.

Table 13: Total Housing Demand projections for each Functional Area in Bergrivier Municipality

Functional Areas	2022 to 2037 additional HH	April 2022 Housing Waiting List	Total Housing Demand 2022 to 2037 + Waiting List	Units Potentially Yielded in 2024 - 2029 SDF	Surplus or Under Supply (SDF Yield minus 2037 total housing demand)
Aurora (A)	70	0	70	0	-70
Aurora (B)	33	88	121	143	22
Dwarskersbos (A)	95	0	95	3 595	3 499
Dwarskersbos (B)	74	0	74	0	-74
Eendekuil (A1)	37	0	37	188	151
Eendekuil (A2)	64	137	201	173	-28
Eendekuil (B)	83	137	220	58	-161
Piketberg (A)	168	0	168	1 234	1 066
Piketberg (B)	887	1 623	2 510	1 470	-1 040
Piketberg (B1)	152	695	847	91	-756
Piketberg (C1)	234	0	234	366	132
Piketberg (C2)	139	0	139	182	42
Piketberg (D)	9	0	9	0	-9
Porterville (A)	302	0	302	173	-129
Porterville (A1)	119	0	119	261	143
Porterville (B1)	16	0	16	822	806
Porterville (C)	4	0	4	0	-4
Porterville (D)	650	1 324	1 974	940	-1 034
Redelinghuis (A)	27	254	281	69	-213
Redelinghuis (A1)	12	0	12	16	4
Redelinghuis (B)	47	0	47	132	85
Velddrif (A)	371	0	371	0	-371
Velddrif (B)	132	0	132	795	663
Velddrif (B1)	136	0	136	399	263
Velddrif (C)	372	0	372	0	-372
Velddrif (D)	542	1 084	1 626	3 292	1 666
Velddrif (E)	275	0	275	879	605
Grand Total	**5 050**	**5 341**	**10 391**	**15 278**	**4 887**

As can be seen from the above table, Piketberg (3 907), Porterville (2 415) and Velddrif (2 912) account for 88,9% (9 234 households) of the total housing demand between 2022 and 2037, primarily because of its significant housing backlog.

e) *Priority sites for future development* were identified in the Bergrivier MSDF (2020). Priority sites can accommodate future growth urban development, infill, and densification. The tables below sets out each of these sites, which functional area each site falls in, the total area, proposed use, density, and the number of residential units and/or GLA that the site can accommodate. In addition to this, the maps below show some of the abovementioned functional areas, and the sites identified that can accommodate future growth pressures.

f) Once an understanding of the existing and projected population and households was undertaken per functional area, various scenarios were tested to determine (1) how many households could potentially be accommodated per functional area and (2) reconcile this with the spatial budget and

the sites that have been identified for potential urban expansion in Bergrivier. The yield calculations are shown in detail in the tables below;

g) In order to determine the approximate Gross Leasable Area (GLA) and number of units possible in each functional area, a number of assumptions have been made. These assumptions are:
   i. 30% of developable area deducted for open space and parking;
   ii. Maximum floor area is between 1 and 2 storeys, depending on in which zone the unit will fall;
   iii. Average gross dwelling unit density ranges from between 20 and 35 dwelling units per hectare, with exception of 5, 6 and 10 units per hectare.

h) The High Priority sites can accommodate up to 4 885 residential units, as well as significant industrial (1 259 350m^2) and commercial / retail (919 317m^2) development gross leasable area.

Table 14: A summary of High Priority Sites identified from the MSDF that can accommodate future urban growth, and the projected yield and/or GLA per site.

Timeframes	Sum of Developable Area (m2)	Sum of GLA in m2 (=built foot x storeys)	Sum of Retail / commercial (m2)	Sum of Industrial (m2)	Sum of Residential (m2)	Sum of Residential units yielded
0	3 563 500	1 777 930	899 997	91 350	411 432	1 043
<5	2 930 300	2 639 210	19 320	1 167 880	1 401 120	3 842
5 - 10	2 039 800	2 486 890	0	31 780	2 168 460	5 843
<5, 5 - 10	1 126 800	1 577 520	318 430	0	940 660	3 292
10 - 20	219 000	306 600	0	0	306 600	1 073
20	3 155 300	4 417 420	61 152	2 140 600	2 215 668	5 924
20+	1 602 700	1 911 700	0	1 414 980	388 430	912
Grand Total	**14 637 400**	**15 117 270**	**1 298 899**	**4 846 590**	**7 832 370**	**21 930**

i) In summary, as per the 'high density' scenario, the following is pertinent to note:
   a. A total of 1 464 hectares of land is potentially available for urban expansion as indicated in the individual Settlement proposal maps in Chapter 5;
   b. Up to 21 930 new residential units can be accommodated within the proposed expansion areas at densities mainly between 20 to 35 dwelling units per hectare);
   c. 15 278 new residential units have been provided for in the 5-year and 20-year edge whilst the units beyond 20 years were not included. The SDF yielded a surplus of 4 887 units in the beyond 20-year scenario.

Table 15: All sites identified from the MSDF that can accommodate future urban growth, and the projected yield and/or GLA per site.

Functional Area Name	New Dev Site ID on SDF Map	Main Place Name	Sub Place Name	Does Site Fall in SDF Development Node, Densification corridor or Priority Investment Area?	Area (Ha)	Proposed Use	Proposed Density	Developable Area (m2)	Built Footprint 70% coverage (m2)	Storeys	GLA in m2 (=built foot x storeys)	Retail / commercial (m2)	Industrial (m2)	Residential (m2)	Residential units yielded
Aurora (B)	**A1**	Aurora	Aurora	No	3,79	Residential	35	37 900	26 530	1	26 530	0	0	26 530	93
Aurora (B)	**A5**	Aurora	Aurora	No	0,50	Institutional Facility	NA	5 000	3 500	1	3 500	0	0	0	0
Aurora (B)	**A7**	Aurora	Aurora	No	2,04	Residential	35	20 400	14 280	1	14 280	0	0	14 280	50
Aurora OUE	**OUE**	Aurora	Aurora	No	4,20	TBD	35	42 000	29 400	1	29 400	0	0	0	0
Aurora (A)	**A3**	Aurora	Aurora	Yes	0,18	Strategic Site And/ Or Mixed Use	5	1 800	1 260	1	1 260	1 260	0	0	0
Aurora (B)	**A4**	Aurora	Aurora	Yes	0,32	Secondary Business Node	10	3 200	2 240	1	2 240	2 240	0	0	0
Aurora (A)	**A2**	Aurora	Aurora	Yes	2,06	Central Business District	17	20 600	14 420	1	14 420	14 420	0	0	0
Piketberg (C2)	**PIK8**	Piketberg	Piketberg N	No	5,19	Residential	25	51 900	36 330	2	72 660	0	0	72 660	182
Piketberg (A)	**PIK14**	Piketberg	Piketberg S	Yes	1,51	Residential	25	15 100	10 570	2	21 140	0	0	21 140	53
Piketberg (A)	**PIK15**	Piketberg	Piketberg S	Yes	0,48	Residential	25	4 800	3 360	2	6 720	0	0	6 720	17
Piketberg (B)	**PIK2**	Piketberg	Piketberg S	Yes	1,00	Residential	35	10 000	7 000	2	14 000	0	0	14 000	49
Piketberg (B1)	**PIK3**	Piketberg	Piketberg S	Yes	1,32	Residential	35	13 200	9 240	2	18 480	0	0	18 480	65
Piketberg (B1)	**PIK5**	Piketberg	Piketberg S	Yes	0,54	Residential	35	5 400	3 780	2	7 560	0	0	7 560	26
Piketberg (A)	**PIK6**	Piketberg	Piketberg S	Yes	1,86	Residential	35	18 600	13 020	2	26 040	0	0	26 040	91
Piketberg (B)	**PIK4**	Piketberg	Piketberg S	Yes	28,62	Residential	35	286 200	200 340	2	400 680	0	0	400 680	1402
Piketberg (C1)	**PIK11**	Piketberg	Piketberg N	No	12,95	Residential	20	129 500	90 650	1	90 650	0	0	90 650	181
Piketberg (C1)	**PIK10**	Piketberg	Piketberg N	No	5,27	Residential	25	52 700	36 890	2	73 780	0	0	73 780	184
Piketberg (A)	**PIK1**	Piketberg	Piketberg S	Yes	21,90	Residential	35	219 000	153 300	2	306 600	0	0	306 600	1073
Piketberg OUE	**OUE**	Piketberg	Piketberg S	No	31,97	Residential	15	319 700	223 790	1	223 790	0	0	223 790	336
Piketberg (B)	**PIK18**	Piketberg	Piketberg S	Yes	2,21	Strategic Site And/Or Mixed Use	30	22 100	15 470	2	30 940	6 188	0	6 188	19
Piketberg (C2)	**PIK7**	Piketberg	Piketberg N	Yes	10,47	Strategic Site And/ Or Mixed Use	21	104 700	73 290	1	73 290	0	0	0	0
Piketberg (A)	**PIK25**	Piketberg	Piketberg S	Yes	2,27	Strategic Site And/Or Mixed Use	10	22 700	15 890	2	31 780	0	31 780	0	0

Piketberg (C1) & Piketberg (C2)	**PIK19**	Piketberg	Piketberg N	Yes	62,40	Central Business District	25	624 000	436 800	1	436 800	436 800	0	0	0
Piketberg (B) & Piketberg (B1)	**PIK26**	Piketberg	Piketberg S	Yes	1,15	Secondary Business Node	33	11 500	8 050	2	16 100	16 100	0	0	0
Piketberg (D)	**PIK17**	Piketberg	Piketberg E	Yes	4,40	Industrial	10	44 000	30 800	2	61 600	0	61 600	0	0
Piketberg (D)	**PIK9**	Piketberg	Piketberg E	Yes	21,03	Industrial	10	210 300	147 210	2	294 420	0	294 420	0	0
Piketberg (D)	**PIK12**	Piketberg	Piketberg E	Yes	2,20	Industrial	10	22 000	15 400	2	30 800	0	30 800	0	0
Piketberg 20E	**PIK21**	Piketberg	Piketberg E	No	74,96	Industrial	10	749 600	524 720	2	1 049 440	0	1 049 440	0	0
Piketberg 20E	**PIK24**	Piketberg	Piketberg E	No	15,50	Industrial	10	155 000	108 500	2	217 000	0	217 000	0	0
Piketberg 20E	**PIK23**	Piketberg	Piketberg E	No	9,05	Cemetery - Location subject to further investigation	NA	90 500	63 350	NA	0	0	0	0	0
Porterville (D)	**PORT9**	Porterville	Monte Bertha	Yes	3,92	Residential	35	39 200	27 440	2	54 880	0	0	54 880	192
Porterville (A)	**PORT3**	Porterville	Porterville N	No	13,29	Rural Residential	5	132 900	93 030	1	93 030	0	0	93 030	47
Porterville (B1)	**PORT5**	Porterville	Porterville N	No	23,48	Residential	25	234 800	164 360	2	328 720	0	0	328 720	822
Porterville (A)	**PORT2**	Porterville	Porterville N	No	7,22	Residential	25	72 200	50 540	1	50 540	0	0	50 540	126
Porterville (A1)	**PORT1**	Porterville	Porterville N	No	7,47	Residential	25	74 700	52 290	2	104 580	0	0	104 580	261
Porterville (D)	**PORT18**	Porterville	Monte Bertha	Yes	10,69	Residential	50	106 900	74 830	2	149 660	0	0	149 660	748
Porterville 20E	**PORT26**	Porterville	Monte Bertha	No	8,55	Residential	50	85 500	59 850	2	119 700	0	0	119 700	599
Porterville OUE	**PORT27**	Porterville	Monte Bertha	No	11,76	Residential	35	117 600	82 320	2	164 640	0	0	164 640	576
Porterville 20E	**PORT30**	Porterville	Porterville N	No	9,42	Residential	25	94 200	65 940	2	131 880	0	0	131 880	330
Porterville (A)	**PORT4**	Porterville	Porterville N	Yes	0,57	Strategic Site And/Or Mixed Use	NA	5 700	3 990	1	3 990	3 990	0	0	0
Porterville (C)	**PORT6**	Porterville	Porterville E	Yes	6,77	Strategic Site And/Or Mixed Use	10	67 700	47 390	1	47 390	0	0	0	0
Porterville (D)	**PORT10**	Porterville	Monte Bertha	Yes	2,94	Strategic Site And/Or Mixed Use	10	29 400	20 580	1	20 580	0	0	0	0
Porterville 20E	**PORT25**	Porterville	Porterville N	No	14,56	Strategic Site And/Or Mixed Use	20	145 600	101 920	2	203 840	61 152	0	142 688	285
Porterville (A1) & Porterville (A) & Porterville (B1)	**PORT7**	Porterville	Monte Bertha	Yes	26,05	Central Business District	15	260 500	182 350	1	182 350	54 705	0	0	0
Porterville (D)	**PORT11**	Porterville	Monte Bertha	Yes	4,31	Secondary Business Node	33	43 100	30 170	2	60 340	60 340	0	0	0
Porterville (D)	**PORT23**	Porterville	Monte Bertha	Yes	0,23	Secondary Business Node	33	2 300	1 610	2	3 220	3 220	0	0	0
Porterville (D)	**PORT21**	Porterville	Monte Bertha	Yes	1,39	Recreation	NA	13 900	9 730	NA	0	0	0	0	0

Porterville (C)	**PORT14**	Porterville	Porterville E	Yes	31,28	Industrial	10	312 800	218 960	2	437 920	0	437 920	0	0
Porterville OUE	**PORT28**	Porterville	Porterville E	No	13,41	Light Industrial	10	134 100	93 870	2	187 740	0	187 740	0	0
Porterville OUE	**PORT29**	Porterville	Porterville E	No	13,93	Light Industrial	10	139 300	97 510	2	195 020	0	195 020	0	0
Porterville (D)	**PORT22**	Porterville	Monte Bertha	Yes	2,14	Institutional Facility	25	21 400	14 980	2	29 960	0	0	0	0
Porterville (A)	**PORT13**	Porterville	Porterville N	No	40,14	Recreation	1	401 400	280 980	NA	0	0	0	0	0
Porterville (D)	**PORT19**	Porterville	Monte Bertha	Yes	6,60	Recreation	NA	66 000	46 200	NA	0	0	0	0	0
Porterville (D)	**PORT20**	Porterville	Monte Bertha	Yes	7,63	Recreation	NA	76 300	53 410	NA	0	0	0	0	0
Porterville OUE	**PORT24**	Porterville	Porterville E	No	3,44	Cemetery - Location subject to further investigation	NA	34 400	24 080	NA	0	0	0	0	0
Eendekuil (A2)	**EK4**	Eendekuil	Eendekuil S_O	Yes	0,56	Residential	35	5 600	3 920	2	7 840	0	0	7 840	27
Eendekuil (A2)	**EK13**	Eendekuil	Eendekuil S_O	Yes	0,16	Residential	35	1 600	1 120	2	2 240	0	0	2 240	8
Eendekuil (A1)	**EK1**	Eendekuil	Eendekuil N_O	No	0,38	Residential	25	3 800	2 660	2	5 320	0	0	5 320	13
Eendekuil (A2)	**EK7**	Eendekuil	Eendekuil S_O	Yes	2,37	Residential	35	23 700	16 590	2	33 180	0	0	33 180	116
Eendekuil (A1)	**EK15**	Eendekuil	Eendekuil N_O	No	0,96	Residential	25	9 600	6 720	1	6 720	0	0	6 720	17
Eendekuil (B)	**EK5**	Eendekuil	Eendekuil S_N	Yes	1,19	Residential	35	11 900	8 330	2	16 660	0	0	16 660	58
Eendekuil (A1) & Eendekuil (A2)	**EK14**	Eendekuil	Eendekuil N_O	Yes	1,14	Residential	25	11 400	7 980	2	15 960	0	0	15 960	40
Eendekuil (A1)	**EK8**	Eendekuil	Eendekuil N_O	Yes	1,30	Strategic Site And/Or Mixed Use	25	13 000	9 100	2	18 200	0	0	0	0
Eendekuil (A2)	**EK9**	Eendekuil	Eendekuil S_O	Yes	0,32	Strategic Site And/Or Mixed Use	20	3 200	2 240	2	4 480	4 480	0	0	0
Eendekuil (A2)	**EK11**	Eendekuil	Eendekuil S_O	Yes	3,10	Strategic Site And/Or Mixed Use	10	31 000	21 700	2	43 400	21 700	0	21 700	22
Eendekuil (A1)	**EK10**	Eendekuil	Eendekuil N_O	Yes	0,13 +	Strategic Site And/Or Mixed Use	20	1 300	910	2	1 820	0	0	0	0
Eendekuil (A1)	**EK3**	Eendekuil	Eendekuil N_O	Yes	2,13	Strategic Site And/Or Mixed Use	35	21 300	14 910	2	29 820	0	0	29 820	104
Eendekuil (A1)	**EK12**	Eendekuil	Eendekuil N_O	Yes	0,27	Strategic Site And/Or Mixed Use	35	2 700	1 890	2	3 780	0	0	3 780	13
Eendekuil (A1)	**EK2**	Eendekuil	Eendekuil N_O	Yes	8,20	Industrial	1	82 000	57 400	2	114 800	0	114 800	0	0
Eendekuil (A2)	**EK16**	Eendekuil	Eendekuil S_O	Yes	0,51	Cemetery	NA	5 100	3 570	NA	0	0	0	0	0
Dwarskersbos (A) & Dwarskersbos (B)	**DW5**	Dwarskersbos		Yes	25,80	Residential	25	258 000	180 600	2	361 200	0	0	361 200	903
Dwarskersbos (A)	**DW1**	Dwarskersbos	Dwarskersbos Old	No	71,80	Residential	25	718 000	502 600	2	1 005 200	0	0	1 005 200	2513

Dwarskersbos (A)	**DW2**	Dwarskersbos	Dwarskersbos Old	Yes	12,76	Strategic Site And/Or Mixed Use	20	127 600	89 320	2	178 640	89 320	0	89 320	179
Dwarskersbos (A)	**DW3**	Dwarskersbos	Dwarskersbos New	Yes	3,10	Strategic Site And/Or Mixed Use	20	31 000	21 700	1	21 700	0	0	0	0
Dwarskersbos (B)	**DW6**	Dwarskersbos	Dwarskersbos New	Yes	0,83	Strategic Site And/Or Mixed Use	20	8 300	5 810	1	5 810	0	0	0	0
Redelinghuis (A)	**RH1**	Redelinghuis	Redelinghuis S	Yes	1,96	Residential	25	19 600	13 720	2	27 440	0	0	27 440	69
Redelinghuis (A1)	**RH3**	Redelinghuis	Redelinghuis Old	No	0,45	Residential	25	4 500	3 150	2	6 300	0	0	6 300	16
Redelinghuis (B)	**RH10**	Redelinghuis	Redelinghuis Old	No	7,54	Residential	25	75 400	52 780	1	52 780	0	0	52 780	132
Redelinghuis OUE	**RH11**	Redelinghuis	Redelinghuis Old	No	10,21	Residential	TBC	102 100	71 470	1	71 470	0	0	0	0
Redelinghuis (B)	**RH8**	Redelinghuis	Redelinghuis Old	Yes	0,43	Strategic Site And/Or Mixed Use	20	4 300	3 010	1	3 010	903	0	0	0
Redelinghuis (A1)	**RH7**	Redelinghuis	Redelinghuis Old	Yes	1,57	Strategic Site And/Or Mixed Use	20	15 700	10 990	2	21 980	0	21 980	0	0
Redelinghuis (A1) & Redelinghuis (B)	**RH9**	Redelinghuis	Redelinghuis Old	Yes	1,57	Central Business District	20	15 700	10 990	1	10 990	5 495	0	0	0
Redelinghuis OUE		Redelinghuis	Redelinghuis Old	No	1,06	Cemetery - Location subject to further investigation	NA	10 600	7 420	1	7 420	0	0	0	0
Velddrif (B1)	**V15**	Velddrif/Laaiplek	Velddrif Old	Yes	7,54	Residential	25	75 400	52 780	1	52 780	0	0	52 780	132
Velddrif (D)	**V9**	Velddrif/Laaiplek	Velddrif Old	Yes	67,19	Residential	35	671 900	470 330	2	940 660	0	0	940 660	3292
Velddrif (B1)	**V14**	Velddrif/Laaiplek	Velddrif Old	No	16,95	Residential	20	169 500	118 650	2	237 300	0	0	118 650	237
Velddrif (E)	**V16 (1)**	Velddrif/Laaiplek	Velddrif	No	16,45	Residential	25	164 500	115 150	2	230 300	0	0	230 300	576
Velddrif 20E	**V16 (2)**	Velddrif/Laaiplek	Velddrif	No	113,59	Residential	25	1 135 900	795 130	2	1 590 260	0	0	1 590 260	3976
Velddrif (E)	**V17**	Velddrif/Laaiplek	De Plaat	No	9,40	Residential	20	94 000	65 800	2	131 600	0	0	131 600	263
Velddrif (B)	**V1**	Velddrif/Laaiplek	Laaiplek		15,61	Residential	35	156 100	109 270	2	218 540	0	0	218 540	765
Velddrif 20E	**V2**	Velddrif/Laaiplek	Noordhoek	Yes	11,24	Residential	35	112 400	78 680	2	157 360	0	0	157 360	551
Velddrif (A)	**V5**	Velddrif/Laaiplek	Atlantic Sands	Yes	5,71	Strategic Site And/Or Mixed Use	20	57 100	39 970	2	79 940	0	0	0	0
Velddrif (B)	**V3**	Velddrif/Laaiplek	Laaiplek Old	Yes	1,98	Strategic Site And/Or Mixed Use	20	19 800	13 860	2	27 720	19 404	0	8 316	17
Velddrif (D)	**V4**	Velddrif/Laaiplek	Noordhoek	Yes	1,41	Strategic Site And/Or Mixed Use	20	14 100	9 870	2	19 740	19 740	0	0	0

Velddrif (E)	**V18**	Velddrif/Laaiplek	De Plaat	Yes	5,76	Strategic Site And/Or Mixed Use	20	57 600	40 320	1	40 320	20 160	0	20 160	40
Velddrif (B1)	**V21**	Velddrif/Laaiplek	Velddrif Central	Yes	3,57	Strategic Site And/Or Mixed Use	20	35 700	24 990	2	49 980	34 986	0	14 994	30
Velddrif (B)	**V12**	Velddrif/Laaiplek	Laaiplek	Yes	9,86	Strategic Site And/Or Mixed Use	20	98 600	69 020	2	138 040	0	0	0	0
Velddrif (B)	**V22**	Velddrif/Laaiplek	Laaiplek Harbour	Yes	9,91	Strategic Site And/Or Mixed Use	10	99 100	69 370	2	138 740	55 496	69 370	13 874	14
Velddrif (D)	**V23**	Velddrif/Laaiplek	Noordhoek	Yes	0,64	Strategic Site And/Or Mixed Use	NA	6 400	4 480	NA	0	0	0	0	0
Velddrif (B)	**V26**	Velddrif/Laaiplek	Noordhoek	Yes	52,51	Strategic Site And/Or Mixed Use	NA	525 100	367 570	NA	0	0	0	0	0
Velddrif (B1)	**V11**	Velddrif/Laaiplek	CBD	Yes	45,49	Central Business District	20	454 900	318 430	2	636 860	318 430	0	0	0
Velddrif (B)	**V25**	Velddrif/Laaiplek	Laaiplek	Yes	6,91	Secondary Business Node	20	69 100	48 370	1	48 370	48 370	0	0	0
Velddrif (E)	**V19**	Velddrif/Laaiplek	Velddrif Industrial	Yes	16,31	Industrial	10	163 100	114 170	2	228 340	0	228 340	0	0
Velddrif 20E	**V8**	Velddrif/Laaiplek	Velddrif	No	62,44	Industrial	1	624 400	437 080	2	874 160	0	874 160	0	0
Velddrif OUE	**V27**	Velddrif/Laaiplek	Velddrif	No	73,73	Light Industrial	1	737 300	516 110	2	1 032 220	0	1 032 220	0	0
Velddrif (B1)	**V13**	Velddrif/Laaiplek	Velddrif Old	Yes	5,17	Recreation	NA	51 700	36 190	0	0	0	0	0	0
Velddrif (B)	**V7**	Velddrif/Laaiplek	Noordhoek	Yes	35,87	Recreation	NA	358 700	251 090	0	0	0	0	0	0
Velddrif (B)	**V10**	Velddrif/Laaiplek	Laaiplek	Yes	64,35	Recreation	1	643 500	450 450	0	0	0	0	0	0
Velddrif (E)	**V24**	Velddrif/Laaiplek	Velddrif Old	Yes	19,82	Recreation	NA	198 200	138 740	0	0	0	0	0	0
Velddrif (D)	**V20**	Velddrif/Laaiplek	Velddrif Industrial	Yes	20,00	Small-Scale Agriculture	NA	200 000	140 000	0	0	0	0	0	0

Of the above sites, the following sites in Piketberg and Velddrif at municipal level and Porterville and Eendekuil at settlement level have been identified as being high priority sites for future development:

Table 16: Details of the High Priority Sites identified from the MSDF that can accommodate future urban growth, and the projected yield and/or GLA per site.

Functional Area Name	New Dev Site ID on SDF Map	Main Place Name	Sub Place Name	Does Site Fall in SDF Development Node, Densification corridor or Priority Investment Area?	Area (Ha)	Proposed Use	Proposed Density	Developable Area (m2)	Built Footprint 70% coverage (m2)	Storeys	GLA in m2 (=built foot x storeys)	Retail / commercial (m2)	Industrial (m2)	Residential (m2)	Residential units yielded	Development Priority
Aurora (A)	A3	Aurora	Aurora	Yes	0,18	Strategic Site And/Or Mixed Use	5	1 800	1 260	1	1 260	1 260	0	0	0	0
Aurora (B)	A4	Aurora	Aurora	Yes	0,32	Secondary Business Node	10	3 200	2 240	1	2 240	2 240	0	0	0	0
Aurora (A)	A2	Aurora	Aurora	Yes	2,06	Central Business District	17	20 600	14 420	1	14 420	14 420	0	0	0	0
Piketberg (C2)	PIK8	Piketberg	Piketberg N	No	5,19	Residential	25	51 900	36 330	2	72 660	0	0	72 660	182	0
Piketberg (A)	PIK14	Piketberg	Piketberg S	Yes	1,51	Residential	25	15 100	10 570	2	21 140	0	0	21 140	53	0
Piketberg (A)	PIK15	Piketberg	Piketberg S	Yes	0,48	Residential	25	4 800	3 360	2	6 720	0	0	6 720	17	0
Piketberg (B)	PIK2	Piketberg	Piketberg S	Yes	1,00	Residential	35	10 000	7 000	2	14 000	0	0	14 000	49	0
Piketberg (B1)	PIK3	Piketberg	Piketberg S	Yes	1,32	Residential	35	13 200	9 240	2	18 480	0	0	18 480	65	0
Piketberg (B1)	PIK5	Piketberg	Piketberg S	Yes	0,54	Residential	35	5 400	3 780	2	7 560	0	0	7 560	26	0
Piketberg (A)	PIK6	Piketberg	Piketberg S	Yes	1,86	Residential	35	18 600	13 020	2	26 040	0	0	26 040	91	0
Piketberg (B)	PIK18	Piketberg	Piketberg S	Yes	2,21	Strategic Site And/Or Mixed Use	30	22 100	15 470	2	30 940	6 188	0	6 188	19	0
Piketberg (C2)	PIK7	Piketberg	Piketberg N	Yes	10,47	Strategic Site And/Or Mixed Use	21	104 700	73 290	1	73 290	0	0	0	0	0
Piketberg (C1) & Piketberg (C2)	PIK19	Piketberg	Piketberg N	Yes	62,40	Central Business District	25	624 000	436 800	1	436 800	436 800	0	0	0	0
Porterville (D)	PORT9	Porterville	Monte Bertha	Yes	3,92	Residential	35	39 200	27 440	2	54 880	0	0	54 880	192	0
Porterville (A)	PORT4	Porterville	Porterville N	Yes	0,57	Strategic Site And/Or Mixed Use	NA	5 700	3 990	1	3 990	3 990	0	0	0	0
Porterville (D)	PORT10	Porterville	Monte Bertha	Yes	2,94	Strategic Site And/Or Mixed Use	10	29 400	20 580	1	20 580	0	0	0	0	0
Porterville (A1) & Porterville (A) & P	PORT7	Porterville	Monte Bertha	Yes	26,05	Central Business District	15	260 500	182 350	1	182 350	54 705	0	0	0	0
Porterville (D)	PORT11	Porterville	Monte Bertha	Yes	4,31	Secondary Business Node	33	43 100	30 170	2	60 340	60 340	0	0	0	0
Porterville (D)	PORT21	Porterville	Monte Bertha	Yes	1,39	Recreation	NA	13 900	9 730	NA	0	0	0	0	0	0
Porterville (A)	PORT13	Porterville	Porterville N	No	40,14	Recreation	1	401 400	280 980	NA	0	0	0	0	0	0
Eendekuil (A2)	EK4	Eendekuil	Eendekuil S_O	Yes	0,56	Residential	35	5 600	3 920	2	7 840	0	0	7 840	27	0
Eendekuil (A2)	EK13	Eendekuil	Eendekuil S_O	Yes	0,16	Residential	35	1 600	1 120	2	2 240	0	0	2 240	8	0
Eendekuil (A1)	EK1	Eendekuil	Eendekuil N_O	No	0,38	Residential	25	3 800	2 660	2	5 320	0	0	5 320	13	0

Functional Area Name	New Dev Site ID on SDF Map	Main Place Name	Sub Place Name	Does Site Fall in SDF Development Node, Densification corridor or Priority Investment Area?	Area (Ha)	Proposed Use	Proposed Density	Developable Area (m2)	Built Footprint 70% coverage (m2)	Storeys	GLA in m2 (=built foot x storeys)	Retail / commercial (m2)	Industrial (m2)	Residential (m2)	Residential units yielded	Development Priority
Eendekuil (A1)	**EK8**	Eendekuil	Eendekuil N_O	Yes	1,30	Strategic Site And/Or Mixed Use	25	13 000	9 100	2	18 200	0	0	0	0	0
Eendekuil (A2)	**EK9**	Eendekuil	Eendekuil S_O	Yes	0,32	Strategic Site And/Or Mixed Use	20	3 200	2 240	2	4 480	4 480	0	0	0	0
Eendekuil (A2)	**EK11**	Eendekuil	Eendekuil S_O	Yes	3,10	Strategic Site And/Or Mixed Use	10	31 000	21 700	2	43 400	21 700	0	21 700	22	0
Eendekuil (A1)	**EK10**	Eendekuil	Eendekuil N_O	Yes	0,13	Strategic Site And/Or Mixed Use	20	1 300	910	2	1 820	0	0	0	0	0
Dwarskersbos (A)	**DW2**	Dwarskerbos	Dwarskersbos Old	Yes	12,76	Strategic Site And/Or Mixed Use	20	127 600	89 320	2	178 640	89 320	0	89 320	179	0
Dwarskersbos (A)	**DW3**	Dwarskerbos	Dwarskersbos New	Yes	3,10	Strategic Site And/Or Mixed Use	20	31 000	21 700	1	21 700	0	0	0	0	0
Dwarskersbos (B)	**DW6**	Dwarskerbos	Dwarskersbos New	Yes	0,83	Strategic Site And/Or Mixed Use	20	8 300	5 810	1	5 810	0	0	0	0	0
Redelinghuis (B)	**RH8**	Redelinghuis	Redelinghuis Old	Yes	0,43	Strategic Site And/Or Mixed Use	20	4 300	3 010	1	3 010	903	0	0	0	0
Redelinghuis (A1)	**RH7**	Redelinghuis	Redelinghuis Old	Yes	1,57	Strategic Site And/Or Mixed Use	20	15 700	10 990	2	21 980	0	21 980	0	0	0
Redelinghuis (A1) & Redelinghuis (B	**RH9**	Redelinghuis	Redelinghuis Old	Yes	1,57	Central Business District	20	15 700	10 990	1	10 990	5 495	0	0	0	0
Velddrif (A)	**V5**	Velddrif/Laaiplek	Atlantic Sands	Yes	5,71	Strategic Site And/Or Mixed Use	20	57 100	39 970	2	79 940	0	0	0	0	0
Velddrif (B)	**V3**	Velddrif/Laaiplek	Laaiplek Old	Yes	1,98	Strategic Site And/Or Mixed Use	20	19 800	13 860	2	27 720	19 404	0	8 316	17	0
Velddrif (D)	**V4**	Velddrif/Laaiplek	Noordhoek	Yes	1,41	Strategic Site And/Or Mixed Use	20	14 100	9 870	2	19 740	19 740	0	0	0	0
Velddrif (E)	**V18**	Velddrif/Laaiplek	De Plaat	Yes	5,76	Strategic Site And/Or Mixed Use	20	57 600	40 320	1	40 320	20 160	0	20 160	40	0
Velddrif (B1)	**V21**	Velddrif/Laaiplek	Veddrif Central	Yes	3,57	Strategic Site And/Or Mixed Use	20	35 700	24 990	2	49 980	34 986	0	14 994	30	0
Velddrif (B)	**V22**	Velddrif/Laaiplek	Laaiplek Harbour	Yes	9,91	Strategic Site And/Or Mixed Use	10	99 100	69 370	2	138 740	55 496	69 370	13 874	14	0
Velddrif (D)	**V23**	Velddrif/Laaiplek	Noordhoek	Yes	0,64	Strategic Site And/Or Mixed Use	NA	6 400	4 480	NA	0	0	0	0	0	0
Velddrif (B)	**V25**	Velddrif/Laaiplek	Laaiplek	Yes	6,91	Secondary Business Node	20	69 100	48 370	1	48 370	48 370	0	0	0	0
Velddrif (B1)	**V13**	Velddrif/Laaiplek	Velddrif Old	Yes	5,17	Recreation	NA	51 700	36 190	0	0	0	0	0	0	0
Velddrif (B)	**V7**	Velddrif/Laaiplek	Noordhoek	Yes	35,87	Recreation	NA	358 700	251 090	0	0	0	0	0	0	0
Velddrif (B)	**V10**	Velddrif/Laaiplek	Laaiplek	Yes	64,35	Recreation	1	643 500	450 450	0	0	0	0	0	0	0

Functional Area Name	New Dev Site ID on SDF Map	Main Place Name	Sub Place Name	Does Site Fall in SDF Development Node, Densification corridor or Priority Investment Area?	Area (Ha)	Proposed Use	Proposed Density	Developable Area (m2)	Built Footprint 70% coverage (m2)	Storeys	GLA in m2 (=built foot x storeys)	Retail / commercial (m2)	Industrial (m2)	Residential (m2)	Residential units yielded	Development Priority
Velddrif (D)	V20	Velddrif/Laaiplek	Velddrif Industrial	Yes	20,00	Small Scale Agriculture	NA	200 000	140 000	0	0	0	0	0	0	0
Aurora (B)	A1	Aurora	Aurora	No	3,79	Residential	35	37 900	26 530	1	26 530	0	0	26 530	93	<5
Aurora (B)	A5	Aurora	Aurora	No	0,50	Institutional Facility	NA	5 000	3 500	1	3 500	0	0	0	0	<5
Aurora (B)	A7	Aurora	Aurora	No	2,04	Residential	35	20 400	14 280	1	14 280	0	0	14 280	50	<5
Piketberg (B)	PIK4	Piketberg	Piketberg S	Yes	28,62	Residential	35	286 200	200 340	2	400 680	0	0	400 680	1402	<5
Piketberg (B) & Piketberg (B1)	PIK 26	Piketberg	Piketberg S	Yes	1,15	Secondary Business Node	33	11 500	8 050	2	16 100	16 100	0	0	0	<5
Piketberg (D)	PIK17	Piketberg	Piketberg E	Yes	4,40	Industrial	10	44 000	30 800	2	61 600	0	61 600	0	0	<5
Piketberg (D)	PIK9	Piketberg	Piketberg E	Yes	21,03	Industrial	10	210 300	147 210	2	294 420	0	294 420	0	0	<5
Piketberg (D)	PIK12	Piketberg	Piketberg E	Yes	2,20	Industrial	10	22 000	15 400	2	30 800	0	30 800	0	0	<5
Porterville (A)	PORT3	Porterville	Porterville N	No	13,29	Rural Residential	5	132 900	93 030	1	93 030	0	0	93 030	47	<5
Porterville (B1)	PORT5	Porterville	Porterville N	No	23,48	Residential	25	234 800	164 360	2	328 720	0	0	328 720	822	<5
Porterville (C)	PORT6	Porterville	Porterville E	Yes	6,77	Strategic Site And/Or Mixed Use	10	67 700	47 390	1	47 390	0	0	0	0	<5
Porterville (D)	PORT23	Porterville	Monte Bertha	Yes	0,23	Secondary Business Node	33	2 300	1 610	2	3 220	3 220	0	0	0	<5
Porterville (C)	PORT14	Porterville	Porterville E	Yes	31,28	Industrial	10	312 800	218 960	2	437 920	0	437 920	0	0	<5
Porterville (D)	PORT19	Porterville	Monte Bertha	Yes	6,60	Recreation	NA	66 000	46 200	NA	0	0	0	0	0	<5
Porterville (D)	PORT20	Porterville	Monte Bertha	Yes	7,63	Recreation	NA	76 300	53 410	NA	0	0	0	0	0	<5
Eendekuil (A2)	EK7	Eendekuil	Eendekuil S_O	Yes	2,37	Residential	35	23 700	16 590	2	33 180	0	0	33 180	116	<5
Eendekuil (A1)	EK15	Eendekuil	Eendekuil N_O	No	0,96	Residential	25	9 600	6 720	1	6 720	0	0	6 720	17	<5
Eendekuil (B)	EK5	Eendekuil	Eendekuil S_N	Yes	1,19	Residential	35	11 900	8 330	2	16 660	0	0	16 660	58	<5
Eendekuil (A1)	EK3	Eendekuil	Eendekuil N_O	Yes	2,13	Strategic Site And/Or Mixed Use	35	21 300	14 910	2	29 820	0	0	29 820	104	<5
Eendekuil (A1)	EK12	Eendekuil	Eendekuil N_O	Yes	0,27	Strategic Site And/Or Mixed Use	35	2 700	1 890	2	3 780	0	0	3 780	13	<5

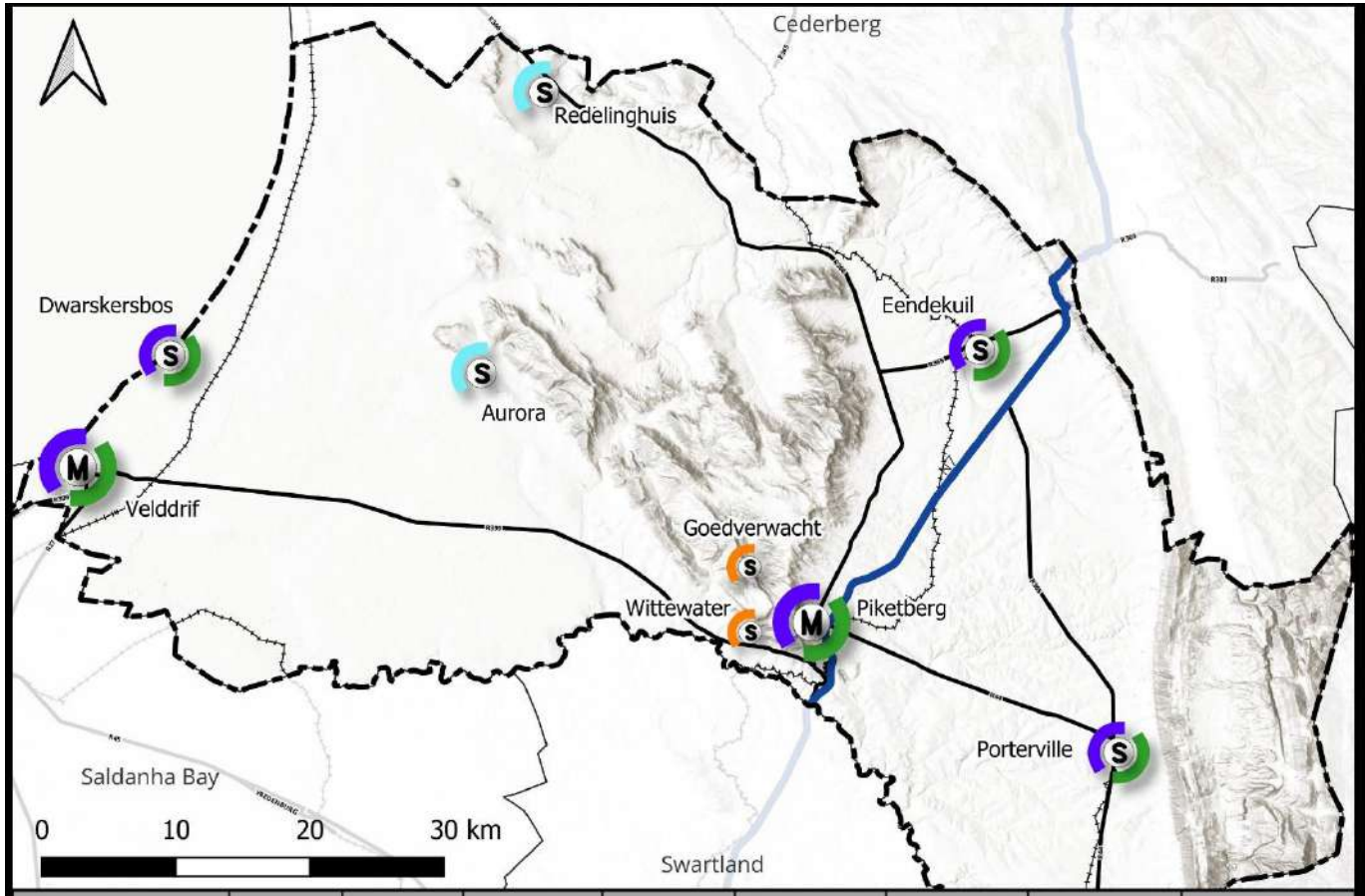
Functional Area Name	New Dev Site ID on SDF Map	Main Place Name	Sub Place Name	Does Site Fall in SDF Development Node, Densification corridor or Priority Investment Area?	Area (Ha)	Proposed Use	Proposed Density	Developable Area (m2)	Built Footprint 70% coverage (m2)	Storeys	GLA in m2 (=built foot x storeys)	Retail / commercial (m2)	Industrial (m2)	Residential (m2)	Residential units yielded	Development Priority
Eendekuil (A1)	EK2	Eendekuil	Eendekuil N_O	Yes	8,20	Industrial	1	82 000	57 400	2	114 800	0	114 800	0	0	<5
Eendekuil (A2)	EK16	Eendekuil	Eendekuil S_O	Yes	0,51	Cemetery	NA	5 100	3 570	NA	0	0	0	0	0	<5
Dwarskersbos (A) & Dwarskersbos (E	DW5	Dwarskerbos		Yes	25,80	Residential	25	258 000	180 600	2	361 200	0	0	361 200	903	<5
Redelinghuis (A)	RH1	Redelinghuis	Redelinghuis S	Yes	1,96	Residential	25	19 600	13 720	2	27 440	0	0	27 440	69	<5
Redelinghuis (A1)	RH3	Redelinghuis	Redelinghuis Old	No	0,45	Residential	25	4 500	3 150	2	6 300	0	0	6 300	16	<5
Velddrif (B1)	V15	Velddrif/Laaiplek	Velddrif Old	Yes	7,54	Residential	25	75 400	52 780	1	52 780	0	0	52 780	132	<5
Velddrif (B)	V26	Velddrif/Laaiplek	Noordhoek	Yes	52,51	Strategic Site And/Or Mixed Use	NA	525 100	367 570	NA	0	0	0	0	0	<5
Velddrif (E)	V19	Velddrif/Laaiplek	Velddrif Industrial	Yes	16,31	Industrial	10	163 100	114 170	2	228 340	0	228 340	0	0	<5
Velddrif (E)	V24	Velddrif/Laaiplek	Veddrif Old	Yes	19,82	Recreation	NA	198 200	138 740	0	0	0	0	0	0	<5

The table below reflects a summary of the total developable land in each functional area.

Table 17: Summary of the total developable areas in each of the Functional Areas – including the number of residential units that can be yielded per functional area

Functional Areas	Sum of Developable Area (m2)	Sum of GLA in m2 (=built foot x storeys)	Sum of Retail / commercial (m2)	Sum of Industrial (m2)	Sum of Residential (m2)	Sum of Residential units yielded
Aurora (A)	22 400	15 680	15 680	0	0	0
Aurora (B)	66 500	46 550	2 240	0	40 810	143
Aurora OUE	42 000	29 400	0	0	0	0
Dwarskersbos (A)	876 600	1 205 540	89 320	0	1 094 520	2 692
Dwarskersbos (A) & Dwarskersbos (B)	258 000	361 200	0	0	361 200	903
Dwarskersbos (B)	8 300	5 810	0	0	0	0
Eendekuil (A1)	133 700	180 460	0	114 800	45 640	148
Eendekuil (A1) & Eendekuil (A2)	11 400	15 960	0	0	15 960	40
Eendekuil (A2)	70 200	91 140	26 180	0	64 960	173
Eendekuil (B)	11 900	16 660	0	0	16 660	58
Piketberg (A)	280 200	392 280	0	31 780	360 500	1 234
Piketberg (B)	318 300	445 620	6 188	0	420 868	1 470
Piketberg (B) & Piketberg (B1)	11 500	16 100	16 100	0	0	0
Piketberg (B1)	18 600	26 040	0	0	26 040	91
Piketberg (C1)	182 200	164 430	0	0	164 430	366
Piketberg (C1) & Piketberg (C2)	624 000	436 800	436 800	0	0	0
Piketberg (C2)	156 600	145 950	0	0	72 660	182
Piketberg (D)	276 300	386 820	0	386 820	0	0
Piketberg 20E	995 100	1 266 440	0	1 266 440	0	0
Piketberg OUE	319 700	223 790	0	0	223 790	336
Porterville (A)	612 200	147 560	3 990	0	143 570	173
Porterville (A1)	74 700	104 580	0	0	104 580	261
Porterville (B1)	234 800	328 720	0	0	328 720	822
Porterville (C)	380 500	485 310	0	437 920	0	0
Porterville (D)	398 500	318 640	63 560	0	204 540	940
Porterville (A1) & Porterville (A) & Porterville (B1)	260 500	182 350	54 705	0	0	0
Porterville 20E	325 300	455 420	61 152	0	394 268	1 214
Porterville OUE	425 400	547 400	0	382 760	164 640	576
Redelinghuis (A)	19 600	27 440	0	0	27 440	69
Redelinghuis (A1)	20 200	28 280	0	21 980	6 300	16
Redelinghuis (A1) & Redelinghuis (B)	15 700	10 990	5 495	0	0	0
Redelinghuis (B)	79 700	55 790	903	0	52 780	132
Redelinghuis OUE	112 700	78 890	0	0	0	0
Velddrif (A)	57 100	79 940	0	0	0	0
Velddrif (B)	1 970 000	571 410	123 270	69 370	240 730	795
Velddrif (B1)	787 200	976 920	353 416	0	186 424	399
Velddrif (D)	892 400	960 400	19 740	0	940 660	3 292
Velddrif (E)	677 400	630 560	20 160	228 340	382 060	879
Velddrif 20E	1 872 700	2 621 780	0	874 160	1 747 620	4 526
Velddrif OUE	737 300	1 032 220	0	1 032 220	0	0
Grand Total	**14 637 400**	**15 117 270**	**1 298 899**	**4 846 590**	**7 832 370**	**21 930**

Figure 17: Settlements that can accommodate future growth pressures in De Rust (Functional Area 7)



Bergrivier Municipal Investment Areas

Legend

- Local Municipalities
- Bergrivier
- N7
- Main Roads
- Railways
- M Municipal Scale
- S Settlement Scale

Priority Areas

- Priority Investment Areas
- Upgrading Areas
- Consolidation Areas
- Long Term Development Areas (10 - 20 years)

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Priority Area	Piketberg	Porterville	Velddrif	Aurora	Eendekuil	Redelinghuis	Dwarskersbos	Goedverwacht, Wittewater
Priority Investment Areas & Types	Municipal	Settlement	Municipal		Settlement		Settlement	
	Industrial, Residential, Education , CBD				Agri-Industrial			
Upgrading Areas								Settlement
Consolidation Areas				Settlement		Settlement		
Long-Terms Development Areas	Industrial, Residential		Industrial, Residential, Green Energy		Agri-Industrial		Residential	
Densification Areas	Res I Areas, Activity Streets			Res I Overall	Res I Areas, Activity Streets	Res I Overall	Res I Areas, Activity Streets	Overall
Intensification Areas	CBD ,Mixed Use,Activity Streets							Village Centre

7.1.3 Phase 2b: Undertake infrastructure demand quantification and identify infrastructure investment requirements

Based on the residential yields and/or GLA determined from phase 2a for each site, phase 2b translates this into infrastructure demand and infrastructure service implications. The infrastructure determined from this phase is then included in the consolidated database of capital investments, created during phase 1 of the CEF process.

Table 18: The engineering infrastructure and capital investment implications of the yields derived per residential site.

New Dev Site ID on SDF Map	Water Infrastructure Installation Costs (excl VAT)	Sanitation Infrastructure Installation Costs (excl VAT)	Roads Infrastructure Installation Costs (excl VAT)	Stormwater Infrastructure Installation Costs (excl VAT)	Solid Waste Infrastructure Installation Costs (excl VAT)	Electricity Infrastructure Installation Costs (excl VAT)	Total Infrastructure Installation Cost (excl VAT)
A1	R1 578 814	R2 663 731	R1 180 558	R266 215	R365 247	R347 556	**R6 402 122**
A5	R0	R0	R0	R0		R0	**R0**
A7	R849 810	R1 433 776	R635 446	R143 293	R196 598	R187 075	**R3 445 997**
OUE							**R0**
PIK8	R6 177 190	R8 684 989	R2 309 498	R520 791	R714 525	R1 359 832	**R19 766 824**
PIK14	R1 797 217	R2 526 847	R671 935	R151 521	R207 887	R395 635	**R5 751 041**
PIK15	R571 301	R803 236	R213 595	R48 166	R66 083	R125 765	**R1 828 146**
PIK2	R833 147	R1 405 663	R622 986	R140 483	R192 743	R183 407	**R3 378 429**
PIK3	R2 199 508	R3 092 459	R822 342	R185 438	R254 420	R484 194	**R7 038 361**
PIK5	R899 799	R1 265 097	R336 412	R75 861	R104 081	R198 080	**R2 879 329**
PIK6	R3 099 307	R4 357 555	R1 158 754	R261 298	R358 501	R682 274	**R9 917 690**
PIK4	R23 844 667	R40 230 075	R17 829 859	R4 020 623	R5 516 295	R5 249 108	**R96 690 629**
PIK11	R6 165 288	R8 668 255	R2 305 048	R519 787	R713 148	R1 357 212	**R19 728 738**
PIK10	R6 272 407	R8 818 862	R2 345 097	R528 818	R725 539	R1 380 793	**R20 071 515**
PIK1	R36 491 839	R51 306 700	R13 643 393	R3 076 578	R4 221 065	R8 033 227	**R116 772 800**
OUE							**R0**
PIK18	R315 644	R532 545	R236 023	R53 223	R73 022	R69 485	**R1 279 942**
PORT9	R3 265 936	R5 510 199	R2 442 105	R550 693	R755 551	R718 955	**R13 243 440**
PORT3	R1 581 789	R2 223 960	R591 392	R133 359	R182 968	R348 211	**R5 061 678**
PORT5	R27 946 131	R39 291 628	R10 448 365	R2 356 101	R3 232 570	R6 151 995	**R89 426 789**
PORT2	R4 296 658	R6 041 004	R1 606 414	R362 245	R497 001	R945 856	**R13 749 178**
PORT1	R8 890 869	R12 500 360	R3 324 075	R749 577	R1 028 420	R1 957 215	**R28 450 516**
PORT18	R12 723 345	R21 466 482	R9 513 886	R2 145 376	R2 943 456	R2 800 887	**R51 593 432**
PORT26	R10 176 296	R17 169 170	R7 609 329	R1 715 900	R2 354 214	R2 240 186	**R41 265 093**
PORT27	R9 797 809	R16 530 597	R7 326 315	R1 652 080	R2 266 654	R2 156 866	**R39 730 321**
PORT30	R11 211 778	R15 763 507	R4 191 806	R945 250	R1 296 883	R2 468 134	**R35 877 357**
PORT25	R9 704 496	R13 644 302	R3 628 270	R818 173	R1 122 533	R2 136 325	**R31 054 100**
EK4	R466 562	R787 171	R348 872	R78 670	R107 936	R102 708	**R1 891 920**
EK13	R133 304	R224 906	R99 678	R22 477	R30 839	R29 345	**R540 549**
EK1	R452 280	R635 895	R169 096	R38 131	R52 316	R99 564	**R1 447 282**
EK7	R1 974 558	R3 331 421	R1 476 477	R332 945	R456 800	R434 675	**R8 006 876**
EK15	R571 301	R803 236	R213 595	R48 166	R66 083	R125 765	**R1 828 146**
EK5	R991 445	R1 672 739	R741 353	R167 175	R229 364	R218 254	**R4 020 330**
EK14	R1 356 839	R1 907 686	R507 289	R114 393	R156 948	R298 691	**R4 341 846**
EK11	R368 965	R622 508	R275 894	R62 214	R85 357	R81 223	**R1 496 161**
EK3	R3 549 206	R4 990 104	R1 326 960	R299 229	R410 542	R390 657	**R10 966 698**
DW5	R30 707 418	R43 173 935	R11 480 742	R2 588 901	R3 551 972	R6 759 858	**R98 262 826**
DW1	R85 457 078	R120 150 718	R31 950 282	R7 204 771	R9 884 946	R18 812 318	**R273 460 113**
DW2	R6 074 832	R8 541 076	R2 271 229	R512 161	R702 685	R1 337 299	**R19 439 282**
RH1	R1 166 406	R1 967 928	R872 180	R196 676	R269 840	R256 770	**R4 729 800**
RH3	R535 595	R753 034	R200 246	R45 155	R61 953	R117 905	**R1 713 887**
RH10	R4 487 092	R6 308 749	R1 677 612	R378 301	R519 028	R987 778	**R14 358 560**
V15	R4 487 092	R6 308 749	R1 677 612	R378 301	R519 028	R987 778	**R14 358 560**

V9	R55 979 147	R94 446 497	R41 858 429	R9 439 053	R12 950 380	R12 323 116	**R226 996 623**
V14	R8 069 624	R11 345 709	R3 017 032	R680 339	R933 425	R1 776 428	**R25 822 557**
V16 (1)	R19 578 955	R27 527 567	R7 320 086	R1 650 675	R2 264 726	R4 310 065	**R62 652 073**
V16 (2)							**R0**
V17	R8 950 379	R12 584 031	R3 346 325	R754 594	R1 035 304	R1 970 315	**R28 640 948**
V1	R26 010 849	R36 570 666	R9 724 811	R2 192 940	R3 008 713	R5 725 967	**R83 233 946**
V2	R9 364 572	R15 799 652	R7 002 363	R1 579 029	R2 166 428	R2 061 495	**R37 973 538**
V3	R565 588	R795 204	R211 459	R47 684	R65 422	R124 507	**R1 809 864**
V18	R1 371 122	R1 927 766	R512 628	R115 597	R158 600	R301 836	**R4 387 549**
V21	R1 019 772	R1 433 776	R381 267	R85 976	R117 959	R224 490	**R3 263 240**
V22	R471 799	R663 339	R176 394	R39 777	R54 574	R103 861	**R1 509 744**
	R464 852 821	**R691 205 061**	**R223 832 818**	**R50 474 177**	**R69 250 571**	**R101 990 458**	**R1 601 605 906**

Table 19: The engineering service demand implications of the yields derived per residential site.

New Dev Site ID on SDF Map	Water Service Demand (kl/day)	Sanitation Service Demand (kl/day2)	Roads Service Demand (Trips/peak hour)	Stormwater Service Demand ©	Solid Waste Service Demand (kg/day)	Electricity Service Demand (kVA/day)
A1	37	33	371		1 368	232
A5	0	0			0	0
A7	20	18	200		736	125
PIK8	145	109	727		5 353	581
PIK14	42	32	211		1 557	169
PIK15	13	10	67		495	54
PIK2	20	18	196		722	123
PIK3	26	23	259		1 906	207
PIK5	11	10	106		780	85
PIK6	73	55	365		2 686	292
PIK4	561	505	5 610		20 661	3 506
PIK11	145	109	725		5 342	580
PIK10	148	111	738		5 435	590
PIK1	858	644	4 292		31 620	3 434
PORT9	77	69	768		2 830	480
PORT3	37	28	186		1 371	149
PORT5	657	493	3 287		24 215	2 055
PORT2	101	76	505		3 723	404
PORT1	209	157	1 046		7 704	837
PORT18	299	269	2 993		11 025	1 871
PORT26	239	215	2 394		8 818	1 496
PORT27	230	207	2 305		8 490	1 441
PORT30	264	198	1 319		9 715	1 055
PORT25	228	171	1 142		8 409	913
EK4	11	10	110		404	88
EK13	3	3	31		116	25
EK1	11	8	53		392	43
EK7	46	42	465		1 711	372
EK15	13	10	67		495	54
EK5	23	21	233		859	146
EK14	32	24	160		1 176	128
EK11	9	8	87		320	54
EK3	83	63	417		3 075	334
DW5	722	542	3 612		26 608	2 890
DW1	2 010	1 508	10 052		74 049	8 042
DW2	143	107	715		5 264	572
RH1	27	25	274		1 011	172
RH3	13	9	63		464	50
RH10	106	79	528		3 888	422

V15	106	79	528		3 888	422
V9	1 317	1 185	13 169		48 506	8 231
V14	190	142	949		6 992	759
V16 (1)	461	345	2 303		16 965	1 842
V17	211	158	1 053		7 756	842
V1	612	459	3 060		22 538	2 448
V2	220	198	2 203		8 114	1 377
V3	13	10	67		490	53
V18	32	24	161		1 188	129
V21	24	18	120		884	96
V22	11	8	55		409	44
	4 582	**3 677**	**31 005**	**0**	**170 113**	**21 532**

Table 20: Summary of the engineering service demand implications of the yields derived per site, per functional area.

Functional Areas	Sum of Water Service Demand (kl/day)	Sum of Sanitation Service Demand (kl/day2)	Sum of Solid Waste Service Demand (kg/day)	Sum of Roads Service Demand (Trips/peak hour)	Count of Stormwater Service Demand ©	Sum of Electricity Service Demand (kVA/day)
Aurora (A)	0	0	0	0	0	0
Aurora (B)	57	51	2 104	571	0	357
Aurora OUE	0	0	0	0	0	0
Dwarskersbos (A)	2 153	1 615	79 312	10 767	0	8 613
Dwarskersbos (A) & Dwarskersbos (B)	722	542	26 608	3 612	0	2 890
Dwarskersbos (B)	0	0	0	0	0	0
Eendekuil (A1)	108	81	4 352	591	0	473
Eendekuil (A1) & Eendekuil (A2)	32	24	1 176	160	0	128
Eendekuil (A2)	69	62	2 550	692	0	539
Eendekuil (B)	23	21	859	233	0	146
Piketberg (A)	987	740	36 358	4 936	0	3 948
Piketberg (B)	581	522	21 383	5 880	0	3 628
Piketberg (B) & Piketberg (B1)	0	0	0	0	0	0
Piketberg (B1)	36	33	2 686	365	0	292
Piketberg (C1)	293	219	10 777	1 463	0	1 170
Piketberg (C1) & Piketberg (C2)	0	0	0	0	0	0
Piketberg (C2)	145	109	5 353	727	0	581
Piketberg (D)	0	0	0	0	0	0
Piketberg 20E	0	0	0	0	0	0
Piketberg OUE	0	0	0	0	0	0
Porterville (A)	138	104	5 094	691	0	553
Porterville (A1)	209	157	7 704	1 046	0	837
Porterville (B1)	657	493	24 215	3 287	0	2 055
Porterville (C)	0	0	0	0	0	0
Porterville (D)	376	339	13 855	3 762	0	2 351
Porterville (A1) & Porterville (A) & Porterville (B1)	0	0	0		0	0
Porterville 20E	731	585	26 942	4 854	0	3 464
Porterville OUE	230	207	8 490	2 305	0	1 441
Redelinghuis (A)	27	25	1 011	274	0	172
Redelinghuis (A1)	13	9	464	63	0	50
Redelinghuis (A1) & Redelinghuis (B)	0	0	0	0	0	0
Redelinghuis (B)	106	79	3 888	528	0	422
Redelinghuis OUE	0	0	0	0	0	0
Velddrif (A)	0	0	0	0	0	0
Velddrif (B)	636	477	23 437	3 182	0	2 545
Velddrif (B1)	319	240	11 764	1 597	0	1 278
Velddrif (D)	1 317	1 185	48 506	13 169	0	8 231
Velddrif (E)	703	528	25 909	3 517	0	2 814
Velddrif 20E	220	198	8 114	2 203	0	1 377
Velddrif OUE	0	0	0	0	0	0
Grand Total	**10 892**	**8 646**	**402 911**	**70 474**	**0**	**50 354**

7.1.4 Phase 3: Define 10-year affordability envelop for capital infrastructure investment and maintenance

The total affordable capex for the period FY2022/2023 to FY2031/32 amounts to R 683 million. The affordable capex is perpetually lower than the future capex replacement need. The historic level of annual capital spending was an annual average of R 36 million. INCA Portfolio Managers (Pty) Ltd build a model that accelerates capital expenditure over the 10-year period. The accelerated capex is funded through a similar funding mix as observed historically, though not yet optimal as there remains scope to increase borrowings. The funding mix to fund the future affordable capex is determined by the model by ensuring that the available cash is either invested to cover the minimum liquidity requirements and fund a capital replacement reserve or invested in capital assets. In accordance with the model the capex may be funded as follows:

Table 21: Estimated 10-Year Funding of Capital Expenditure R million

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Public & Developer' Contribution	-	-	-	-	-	-	-	-	-	-
Capital Grants	16	18	19	19	19	19	19	19	19	19
Financing	39	17	16	17	17	1	19	20	21	22
Capital Reserve Funds	19	14	19	22	26	30	34	38	43	48
Capital Expenditures	**74**	**49**	**54**	**58**	**62**	**67**	**72**	**77**	**83**	**89**

Of the total estimated 10-year CAPEX funding, 27% will be obtained from Capital Grants, 30% from borrowing and 43% from cash reserves and cash funds.

Table 22: Funding Future Affordable Capital Expenditure

Source of funds	Amount Rm	%
Public & Developers' Contributions	-	0%
Capital Grants	184	27%
Financing	207	30%
Cash Reserves Funds	292	43%
Cash Shortfall	-	0%
TOTAL	1 198	100%

The demand for future capital expenditure has been describe by INCA Portfolio Managers (Pty) Ltd in the section to follow. Considerations regarding Asset Replacement Expenditure are as follows:

a) The replacement cost at a future replacement date for all the assets in the asset register was determined. "Replacement" could also imply rehabilitation, enhancement (upgrade) or renewal (refurbishment) of that asset but excludes routine repairs and maintenance;

b) The calculation is done mechanistically and does not cater for engineering judgement. The information in the municipality's asset registers was used to estimate the future replacement cost1. The model calculates the Replacement Cost (in nominal terms) of assets for the Planning Period, i.e. up to and including 2031/32. Some asset classes were not reviewed for replacement, viz. "Land", "Heritage Assets", "Investment Properties";

c) The outcome of this analysis and the Annual Replacement Cost ("ARC") is presented in Annexure 4: Assets Earmarked for Replacement;

d) According to a mechanistic calculation, the nominal replacement cost for the period from 2022/23 (and before) to 2031/32 amounts to R 842.4 million. The replacement of assets in the road infrastructure category amounts to 30% of this amount and 23% comprises water supply infrastructure. The estimated current replacement cost ("CRC") of only those assets that were assessed, amounts to R5.3 billion compared to the carrying value of PPE and Intangible assets of approximately R458 million in 2021. This gap between CRC and Carrying Value is an indication of the backlog that exists in the replacement of ageing infrastructure;

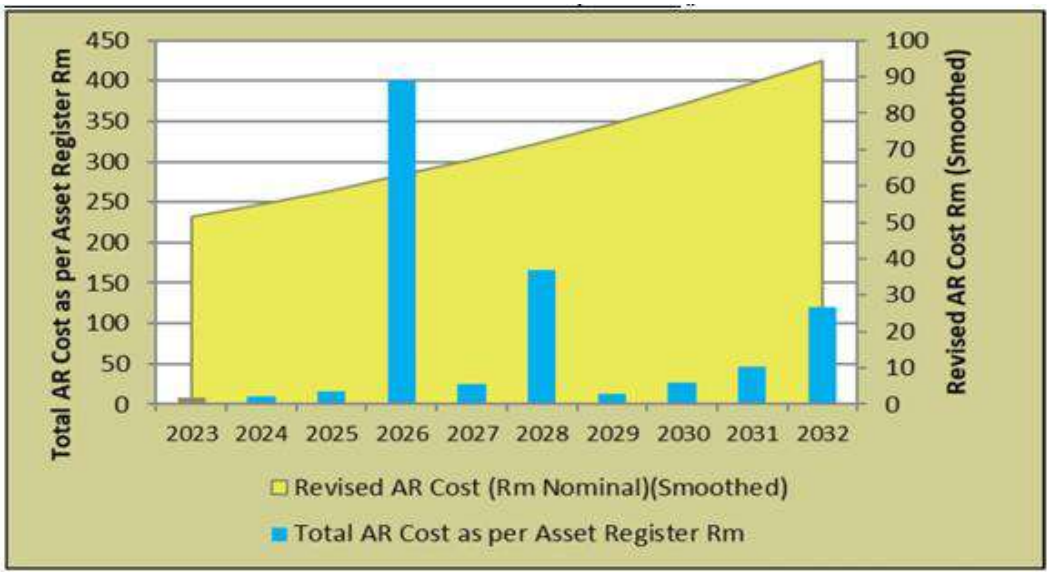
e) We have amended the estimated replacement costs. This was achieved by:
   - Assuming that the actual remaining life of some assets will exceed the life recorded for some of the assets in the asset register;
   - Assuming that only a percentage of assets will be replaced when their estimated useful life expires (e.g. in the case of buildings, it is doubtful whether the whole structure will have to be replaced, possibly only certain fittings, roof, finishes, etc.);
   - Spreading replacement not done in the past over several future years;
   - Smoothing the constant 2022 value over the Planning Period and reverting these back to nominal values.

f) The total asset replacement cost, for the period 2022/23 to 2031/32 was reduced from the original R842.4 million to R710.0 million.

1 Note: The original cost to date of some of the asset components recorded in the FAR seem to be improbable. As the future replacement cost is based on the original cost, the outcome of the assessment is at best an indication of possible future values rather than exact figures.

g) The graph below compares the replacement cost as determined from the asset register and the smoothed replacement cost after adjustment as described above:

Figure 18: Bergrivier Asset Replacement Cost, RM P.A.



h) The high amounts estimated for 2026 and 2028 are due to (but not exclusively):

2026:

- Roads Infrastructure:
  - Road surfacing and structural layers of various streets.
- Water Supply Infrastructure:
  - Electric equipment at reservoirs in Velddrif and Laaiplek.

2028:

- Roads Infrastructure:
  - Road surfacing and structural layers of various streets.
- Water Supply Infrastructure:
  - Pipework of the supply network at Eendekuil.

i) It is worthwhile to assess the condition of the assets as accurately as possible and apply engineering judgement to determine when the asset components need to be replaced.

j) The smoothed Annual Replacement Cost ("ARC") curve ranges from R 51 to R 94 million p.a. for the period 2022/23 to 2031/32. A future smoothed asset replacement programme of this nature would be advisable. The quantum may however not be affordable considering that the investment in PPE of the municipality in 2020/21 was only R 48 million, which included investment in new as well as replacement assets.

k) In addition to asset replacement the municipality has the need to create new capital assets. However, in the light of the backlog of asset replacement this should not be neglected, and we propose that the municipality identify priority projects and implement a smooth asset replacement budget for future years.

l) In the light of the large demand for the replacement of assets that will be reaching the end of its useful life during the 10-year planning period, we propose that the municipality prioritises a cash backed Capital Replacement Reserve ("CRR") for this purpose. It would be prudent to prioritise the funding of the CRR once the cash balances are available. The CRR can then be used as a funding source for future capital expenditure. Furthermore, once the CRR has built up a significant balance the municipality should avoid depleting its CRR in any given financial year but use a percentage (say 50%) of the prior year balance for assets that require replacement. An asset replacement programme within the levels of available resources in the CRR will go a far way in quantifying the future replacement budget.

Affordability is scaled, yet using the capital allocations of the Medium-Term Financial budget (2023 – 2026) reveals that R597 million is required for the first 5 years or R199 million per annum.

Settlements	Sum of Total Project Value, 2025/2026
AUR	R34 937 015
BR	R110 860 988
DKB	R19 005 080
EK	R23 559 848
GVW	R6 027 120
PB	R152 933 305
PV	R63 012 531

RH	R26 360 748
VD	R159 865 393
WW	R409 000
Grand Total	R596 971 028

The Estimated 10-Year Funding of Capital Expenditure average R68,3 million per annum. Bergrivier decided to advance its capital expenditure given the upgrades required. The municipality will have to seriously consider its capital investment drive as its funding sources provide for only 34% of its envisaged investment. However, the MTF capital expenditure is within the 10-Year Capital Expenditure demand calculation of R842.4 million and reduced to R710 million.

A summary of observations made by INCA Portfolio Managers (Pty) Ltd in May 2022 pursuant to the Independent Financial Assessment for the historic period (Financial Year End) FYE2013/14 to FYE2020/21 and the interpretation of the socio economic and infrastructure data published by IHS Global Insight Rex database, follows below:

a) Strong current and historic liquidity ratio that is above the 1.5:1 NT benchmark - 2:1 and 3.17:1. The exclusion of debtors greater than 30 days however significantly impacts the liquidity ratio, which then deteriorates to 2.52:1; this indicates reasonably high levels of long outstanding debtors.

b) Unencumbered cash and cash equivalents fully covered the minimum liquidity requirements, with the cash surplus increasing from a deficit of R 6.7 million as at FYE2014 to a surplus of R 16.7 million as at FYE2021.

c) The collection ratio as at FYE2021 was 100%, though the average over the review period was 93% which is below the NT benchmark of 95%; of concern though is Net Debtor days which stood at 91 as at FYE2021 - above the 30 days NT benchmark.

d) Bergrivier LM has generated Accounting Surpluses throughout the 8-year assessment period. The surpluses fluctuated annually between R 20 million and R 40 million.

e) Bergrivier managed to generate cash from its operations annually throughout the 8- year period. Cash generated from operations as at FYE2021 was R 57.6 million, which was the highest amount over the assessment period.

f) The municipality managed to maintain gross surplus margins on water and electricity services throughout the 8-year period. As the main operating income contributor electricity services maintained a gross surplus margin averaging 24% over the 8-year period. Water services maintained an average gross surplus margin of 82% over the same period.

g) Staff costs as a percentage of total operating expenditure fluctuated between 33% and 36%; within the NT maximum norm range of between 30% and 40%. Contracted services (functions that are outsourced to consultants) as a percentage of total expenditure for the last three years was within the NT norm range of between 2% and 5%.

h) Expenditure on repairs and maintenance as a percentage of property plant and equipment (4.9%) remained below the NT benchmark of 8% during the review period, but could be attributable to the infrastructure expansion and development that has happened recently. Effort should be made to increase Repairs and Maintenance to 6% as a percentage of PPE.

i) Cumulative capital expenditure of R 285 million over the 8-year period was primarily funded by grants (48%) and own cash (29%), followed by external loans (20%) and sales of fixed assets (3%).

j) Bergrivier LM underspent on its capital budget throughout the assessment period with average capital expenditure as a percentage of budgeted capital expenditure being below the NT norm range of 95% and 100%. This ratio has deteriorated to 85% in FYE2021, but could also partially be ascribed to the Covid-19 restrictions.

INCA Portfolio Managers (Pty) Ltd in May 2022 generated a Base Case Scenario for Bergrivier LM in order for the municipality over the 10-year planning period ending at FY2031/32, realise Operating Surpluses of R85 million, generate Cash from Operations of R 626 million and be able to afford a Capital Investment Programme of R 683 million.

They made several recommendations of which the following focus areas should be noted.

- Improve the liquidity position of the municipality by increasing efforts to collect consumer debts and apply a balanced capital funding mix, which includes prudent utilisation of debt funding and minimalizing own cash funding of capital expenditure.
- Develop a clear capital prioritization approach to infrastructure investment.
- Implement and develop a cost reflective tariff model to ensure that the rate charged for services at least reflects the costs to deliver the services.
- Curb technical losses on water services and maintain low losses on electricity services through improved policing, safeguarding infrastructure and effective law enforcement.

INCA Portfolio Management (Pty) Ltd considered a scenario where Optimized External Financing & Accelerated capital Investment is combined. In this scenario it is important to note that:

a) Borrowings were adjusted over the MTREF period as stated in the previous scenario:
   - Capital expenditure is increased by 12.5% annually;
   - Loans are increased by 15% annually to finance capital expenditure.

Table 23: Base Case vs Combination Scenario

Outcome	Base Case	Combination Scenario
Average annual % increase in Revenue	8.8%	8.8%
Average annual % increase in Expenditure	7.9%	8.2%
Accounting Surplus accumulated during Planning Period (Rm)	R 269	R 161
Operating Surplus accumulated during Planning Period (Rm)	R 85	-R 23
Cash generated by Operations during Planning Period (Rm)	R 626	R 530
Average annual increase in Gross Consumer Debtors	11.5%	11.5%
Capital investment programme during Planning Period (Rm)	R 683	R 794
External Loan Financing during Planning Period (Rm)	R 207	R 405
Cash and Cash Equivalents at the end of the Planning Period (Rm)	R 322	R 252
No of Months Cash Cover at the end of the Planning Period (Rm)	4.5	3.4
Liquidity Ratio at the end of the Planning Period	4.4 : 1	3.1 : 1
Gearing at the end of the Planning Period	13.8%	26.9%
Debt Service to Total Expense Ratio at the end of the Planning Period	3.5%	6.5%

The 10-year CAPEX affordability envelop for Bergrivier Municipality provides the “ceiling” within which capital investments must be planned and budgeted for and will assist in prioritizing and sequencing capital expenditure for Bergrivier municipality over the 10-year period.

Bergrivier uses its cash reserves and capital grants as the main funding source. The over-utilization of cash resources is not sustainable over the longer term as it results in the depletion of cash resources and declining liquidity levels. As a result, Bergrivier may consider to revise its CAPEX funding mix by taking up borrowings to create an optimal funding mix. However, this may not be the policy of the municipality. It is important to note that due to the prevailing national fiscus constraints, grant funding in future will decline in real terms. It is therefore imperative that the municipality improve its profitability by managing its expenditure and carefully consider increases in future tariffs that result in higher surplus margins, whilst maintaining a collection rate above 95%. Increasing tariffs should be considered carefully.

7.1.5 Phase 4: Define a prioritisation tool to assist in project prioritisation

The total infrastructure demands have been established in phase 1 and phase 2 within Bergrivier Municipality, and phase 3 has assisted in determining the capital affordability envelop, this phase will apply a tool that will assist the municipality in prioritizing its capital investments to ensure capital demand stays within what is affordable. This prioritization tool will help develop the prioritised portfolio of capital investments for Bergrivier Municipality, and is shown below.

An infrastructure projects prioritization tool and criteria, based on spatial, financial, and engineering prioritization criteria, is applied in this phase. The purpose of this phase is to agree on an infrastructure projects prioritization criteria and through a multi-criteria analysis, score each project against the prescribed set of municipal priorities. The end objective will be to ensure that projects that most align with MSDF proposals, spatial transformation objectives, engineering, and financial priorities, are given the highest scores. This will help to identify and prioritise projects that are strategy-aligned.

Figure 19: The prioritisation tool that will be used to prioritise capital investments

PRIORITISATION TOOL FOR INFRASTRUCTURE INVESTMENT				
		Project A	Project B	Project C
SPATIAL STRATEGY PRIORITISATION CRITERIA	Criteria 1: Project Falls within a **Municipal Scale: Priority Investment Area** as per the MSDF? (Y = 1, N = 0)	1	1	0
	Criteria 2: Project Falls within a **Settlement Scale Priority Investment Area** as per the MSDF? (Y = 1, N = 0)	1	0	0
	Criteria 3: Project Falls within a **settlement scale Priority Investment Area, Upgrade Area, Densification Encouragement Area or Informal Settlement Upgrading Area** as per the MSDF? (Y = 1, N = 0)	1	0	0
	Criteria 4: Project directly related to enabling the implementation of a MSDF Spatial Policy or Strategy, such as Spatial Transformation? (Y = 1, N = 0)	1	0	1
ENGINEERING PRIORITISATION CRITERIA	Criteria 5: Is this **addressing a backlog**? (Y = 1, N = 0)	1	0	1
	Criteria 6: Is this project **giving effect to services required in terms of a statutory or legal requirement**? (Y = 1, N = 0)	0	1	1
	Criteria 7: Will this project **unlock new investments, attract new economic activities or generate new rates income** for the municipality? (Y = 1, N = 0)	0	1	1
	Criteria 8: Is the project **implementation ready**? (Y = 1, N = 0)	1	1	1
	Criteria 9: Is this infrastructure a **net Asset (YES) or net Liability (NO)** for the municipality? (Y = 1, N = 0)	1	0	1
FINANCIAL PRIORITISATION CRITERIA	Criteria 10: Will this infrastructure be **revenue generating**? (Y = 1, N = 0)	0	0	0
	Criteria 11: Will this infrastructure be **affordable to the municipality from a capital investment perspective**? (Y = 1, N = 0)	0	0	0
	Criteria 12: – Is the project an **asset maintenance / renewal / replacement project**? (Y = 1, N = 0)	0	1	0
	Criteria 13: Will this infrastructure be **affordable to the municipality from an operational / maintenance perspective**? (Y = 1, N = 0)	1	0	0
COMPOSITE SCORE PER PROJECT		**8**	**5**	**6**
COMPOSITE PERCENTAGE PER PROJECT		**62**	**38**	**46**

7.1.6 Phase 5: Scoring of projects and arriving at a prioritised capital expenditure programme

In this phase, the following was done:

- A 10-year capital project portfolio (the list of required capital infrastructure expenditure projects), per functional area, as derived from phase 1 and phase 2b was set out;
- Using the prioritisation tool all infrastructure projects were scored (and indirectly scored in collaboration with the engineering, finance, and town planning municipal officials).
- The prioritised list of infrastructure projects, together with the defined funding envelop from phase 3, was used to fit the prioritised infrastructure projects within the 10-year funding envelop. Projects were identified which do fall within and which do not fall within the affordability envelop, considering interdependencies between infrastructure investments needed. The proposed programme still has to be tailored within the defined expenditure envelope defined by the MTFP (from phase 3);
- With the information available, a spatially referenced capital project portfolio which is prioritised, was compiled;
- Funding strategies were identified.

Figure 20: The scored capital project list

The following Table scores all of the Capital Porjects according to the 13 prioritisation criteria agreed to within the municipality, through Phase 4. It provides a composite score for each project. The composite score will range between 0% (for projects that dont meet any criteria) to 100% (for projects that meet all criteria).

							SPATIAL STRATEGY PRIORITISATION CRITERIA				ENGINEERING PRIORITISATION CRITERIA					FINANCIAL PRIORITISATION CRITERIA				FINAL SCORE	
Project ID	Project Name	Project_type: New, Upgrade, Rehabilitate, Maintenance, Equipment or Plan?	Linked to informal settlement upgrading? (Yes / No)	Total Project Value	Town or Area	Functional Area (as per CEF map from MSDF)	Criteria 1: Project Falls within a Municipal Scale Priority Investment Area as per the MSDF? [Y - 1, N - 0]	Criteria 2: Project Falls within a Settlement Scale Priority Investment Area as per the MSDF? [Y - 1, N - 0]	Criteria 3: Project Falls within a settlement scale Priority Investment Area, Upgrade Area, Densification Encouragement Area or Informal Settlement Upgrading Area as per the MSDF? [Y - 1, N - 0]	Criteria 4: Project directly related to enabling the implementation of a MSDF Spatial Policy or Strategy, such as Spatial Transformation? [Y - 1, N - 0]	Criteria 5: Is this addressing a backlog? [Y - 1, N - 0]	Criteria 6: Is this project giving effect to services required in terms of a statutory or legal requirement? [Y - 1, N - 0]	Criteria 7: Will this project unlock new investments, attract new economic activities or generate new value income for the municipality? [Y - 1, N - 0]	Criteria 8: Is the project implementation ready? [Y - 1, N - 0]	Criteria 9: Is this infrastructure a net asset [YES] or net liability [NO] for the municipality? [Y - 1, N - 0]	Criteria 10: Will this infrastructure be revenue generating? [Y - 1, N - 0]	Criteria 11: Will this infrastructure be affordable to the municipality from a capital investment perspective? [Y - 1, N - 0]	Criteria 12: Is the project an asset maintenance / renewal / replacement project? [Y - 1, N - 0]	Criteria 13: Will this infrastructure be affordable to the municipality from an operational / maintenance perspective? [Y - 1, N - 0]	COMPOSITE SCORE	COMPOSITE PERCENTAGE
1	Diverse office furniture and equipment	Equipment	No	50 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
2	Furniture and equipment - Communication	Equipment	No	5 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
3	Furniture and equipment - MM Office	Equipment	No	25 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
4	Jeugsentrum PB: Furniture and equipment	Equipment	No	150 000,00	PB	B1	1	0	1	1	0	0	1	1	0	0	1	1	1	8	62%
5	Jeugsentrum PB: Fencing of centre	Maintenance	No	190 000,00	PB	B1	1	0	1	1	0	0	1	1	0	0	1	1	1	8	62%
6	Informal Trading Area	Plan	No	1 100 000,00	VD		1	0	1	1	0	0	1	1	0	0	1	1	1	8	62%
7	Furniture , Equipment - Finance	Equipment	No	30 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
8	Upgrade SCM Stores	Upgrade	No	490 000,00	PB	Municipal Wide	1	0	0	1	0	0	1	1	0	0	1	1	1	7	54%
9	Portable Meeting Recorder	Equipment	No	0,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
10	Furniture , Equipment - Human Resources	Equipment	No	20 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
11	Electronic application system for vacancies	Equipment	No	190 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
12	Time and Attendance System (Payday)	Equipment	No	750 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
13	WI-FI Installation at Offices of BRM	New	No	200 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	0	1	5	38%
14	IT Equipment	Equipment	No	210 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
15	Website - (Depended on SITA analysis and Strategic Report)	Maintenance	No	390 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
16	Replacement of computers	Upgrade	No	800 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
17	IT System Upgrade (Enhancement of IT system : Busi	Upgrade	No	1 000 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	1	0	1	1	1	7	54%
18	ERP (Integrated Electronic Records Management, Customer Care Credit control and Debt collection, Land Use Including Full	Equipment	No	1 060 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	1	0	1	1	1	7	54%
19	Smart City Network Infrastructure	Maintenance	No	6 000 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	1	0	0	1	1	6	46%
20	Photocopier machine for new office building	Equipment	No	150 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
21	FURNITURE AND EQUIPMENT - DIRECTOR CORPORATE SERVI	Equipment	No	45 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%
22	Furniture , Equipment - Building Control	Equipment	No	11 000,00	BR	Municipal Wide	1	0	0	0	0	0	1	1	0	0	1	1	1	6	46%

7.2 Implementation Requirements

To implement the SDF proposals, Bergrivier Municipality requires partnerships with the private and government sector. A municipal committee was established to monitor the alignment between budgets, proposal, priorities and expenditure.

a) Institutional Structure:

The municipal management committee (MMC) will be the guardian of the LSDF and CEF. Representatives from Municipal Finance, Civil and Electrical Services and Community Development (Both Spatial and IDP) serve on the committee.

b) Private Sector Participation:

Investors prefer to develop across the municipal area. Such development will contribute capital resources that should secure the development of infrastructure in these settlements. Representatives from existing developments (including industry) should be co-opted when necessary.

c) Review and Monitoring of the SDF:

The MMC should review and monitor the implementation of the SDF aligned with the IDP review (annually).

d) Amendment of SDF:

SDF amendments within the 5-year cycle are unlikely. Exceptions are derived from the annual IDP review resulting in:

- Aims and objectives of the IDP are changed;
- IDP changes that require sector plan changes;
- Budget realignment requirements (as Expenditure is not aligned);
- Circumstances out of control of the Municipality.

If no such exceptions demand an amendment, the SDF will be rewritten at the end of the 5-year cycle.

CHAPTER 8: Implementation Plan

The implementation timeline for every Bergrivier settlement follows:

Ward 1 & 2- Porterville						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Rehabilitate landfill site.	x	x			
2	Upgrade reservoir.					x
Residential						
3	Develop high- and low-density residential opportunities at: PORT3, PORT2, PORT1, PORT5.	x	x	x	x	
4	Develop high-density residential opportunities at PORT18 (high density).					x
5	Develop speculative development: PORT12.					x
Industry						
6	Develop light industrial node at BKB silos.		x	x	x	
7	Support industrial expansion at PORT14.	x	x	x	x	
8	Implement Porterville Precinct Plan.	x	x	x	x	
Roads						
9	Address traffic congestion on R44 (but maintain tree laned entrance).			x	x	
Pedestrian & cycle routes						
10	Provide pedestrian routes.	x	x	x		
Social facilities						
11	Upgrade community parks.	**x**				
12	Develop a market plain/square at PORT4.	x	x			
13	Develop a school at PORT22.			x	x	
14	Develop transport support hub.	x	x			
15	Encourage town identity as sports destination (at PORT6, PORT13, PORT19, PORT20, PORT21).	x	x	x	x	
Tourism						
16	Develop a Tourism Rail Service.			x	x	
17	Establish an open space and open space corridors.	x	x	x	x	
Recreation						
18	Develop recreational sites x2 (MB & Bloekombos) (PORT13, PORT20).	x	x			

Ward 3- Wittewater						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Upgrade bulk water reticulation.					
Social facilities						
2	Support Early Childhood Development.	x	x	x	x	
3	Support development of new sportsfield (North of bus stop).	x	x			
Tourism						
4	Enhance heritage tourism.		x	x		
Recreation						
5	Support the establishment of camping site.		x	x		
Transport						
6	Enhance bus stop.	x	x			

Ward 3- Goedverwacht						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Pedestrian & cycle routes						
1	Extend hiking & mountain bike trails.	x	x	x		
Social facilities						
2	Support Early Childhood development.	x	x	x	x	
3	Develop a skills centre.	x	x			
4	Enhance development of an Arts and Craft centre.		x	x		
Tourism						
5	Support the annual Snoek and Patat Fees.	x	x	x	x	
6	Enhance development of a small-scale holiday resort.		x	x	x	
7	Support funding application for (Goedverwacht Tourism Development Forum).	x	x	x	x	
8	Develop heritage route.	x	x			
Commercial						
9	Enhance development of settlement centre.	x	x			
Agriculture						
10	Enhance small-scale agriculture.	x	x	x	x	
11	Promote community gardens.	x	x	x	x	

Ward 3 & 4 - Piketberg						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Upgrade reservoir.					x
2	Build new reservoir.	x				
3	Upgrade WTW.					x
4	Upgrade WWTW.					x
5	Upgrade Main Street stormwater.					
6	Establish separate garden & building rubble site.	x	x			
7	Rehabilitate landfill.	x	x			
8	Develop aesthetic guidelines for heritage zones.		x	x		
9	Upgrade bulk electricity (2028+).					
Residential						
10	Promote high-density residential at PIK4.	x	x			
11	Develop medium-density residential at PIK1.		x	x		
12	Support infill development at PIK2, PIK3, PIK5, PIK6, PIK8, PIK10, PIK11, PIK14 & PIK15.	x	x	x	x	
13	Promote mixed-use at PIK18.	x	x			
Commercial						
14	Implement RSEP.	x	x	x	x	
15	Establish transport infrastructure (parking & ablution).	x				
Industry						
16	Support industrial development at PIK9, PIK12, PIK17 & PIK19.	x	x	x	x	
17	Develop guidelines for landscape industrial interface.				x	
Roads						
18	Piketberg Gateway and Integration Zone Precinct Plan.	x	x	x	x	
Rail						
19	Upgrade railway station.			x	x	
Pedestrian & cycle routes						
20	Build pedestrian link with N7.		x	x		
21	Upgrade community park.	x				

Social facilities						
22	Create a regional education hub.	x	x	x	x	
23	Develop a skill centre/sports academy/youth café at PIK7.					
Heritage and Tourism						
24	Develop aesthetic guidelines for heritage zones and resources in public domain.		x	x		
Nature and Conservation						
25	Celebrate Public Spring.		x			
26	Plant tree lanes (Subsidised residential development)	x				

Ward 5- Eendekuil						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Upgrade reservoir.	x				
2	Build new reservoir.		x			
3	Upgrade WTW.	x				
4	Upgrade stormwater.	x				
5	Upgrade WWTW (2028+).					x
Residential						
6	Establish medium density at EK5.					x
7	Establish infill at EK1, EK4, EK13 & EK15.	x	x	x	x	
8	Develop medium to low density at EK6, EK7 & EK14.	x	x	x	x	
9	Promote mixed-use at EK3, EK8, EK9, EK10, EK11 & EK12.	x	x	x	x	
10	Develop residential opportunities for retirees at EK3 & EK12.			x	x	
Industry						
11	Enhance agri-industry.	x	x	x	x	
12	Enhance agri–events.	x	x	x	x	
Agriculture						
13	Implement small-scale agriculture.	x	x	x	x	
Roads						
14	Deproclaim Main Road.				x	x
Pedestrian & cycle routes						
15	Build pedestrian & NMT route.		x	x		
16	Provision for pedestrian crossings.				x	
Social facilities						
17	Support educare facilities.	x	x	x	x	
18	Support rehabilitation facilities.	x	x	x	x	
19	Support youth & skills centre.			x	x	
Tourism						
20	Develop the railway station as a tourist and agri-events destination.			x	x	
Recreation						
21	Develop river as open space system.			x	x	
Commercial						
22	Develop mixed-use to promote business.	x	x	x	x	
Public and Private Open Space						
23	Plant tree lanes & clusters.	x	x	x		
24	Gateways.	x	x			

Ward 5- Redelinghuis						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Repair leaking reservoir.	x				
2	Rehabilitate landfill site.	x				
3	Implement river maintenance programme by the Department of Water and Sanitation.	x	x	x	x	x
Residential						
4	Promote single residential as dominant land use at RH1 and RH3.	x	x	x	x	
Commercial and Industry						
5	Promote local market at RH9.	x	x	x	x	x
6	Enhance the CBD at RH9.		x	x		
7	Support expansion and intensification of mixed-uses at RH7, including industrial uses.	x	x	x	x	x
Gateway						
8	Enhance town centre entrances specifically at RH1, RH7, RH8 and RH9.		x	x		
Activity Streets & Corridors						
9	Develop walking routes in nature reserve.		x	x		
Social Facilities						
10	Provide space for a play park at RH1.	x				
11	Establish an agri and conservation skills development centre			x	x	x
Heritage & Tourism						
12	Establish informal heritage zones and a Heritage and Eco Overlay Zone			x	x	
Nature & Conservation						
13	Develop interactive interfaces along Verlorenvlei open space network	x	x	x	x	x

Ward 6- Aurora						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Upgrade WTW (2028+).					x
2	Upgrade stormwater.		x			
3	Rehabilitate landfill.					
Residential						
4	Support development of agricultural worker housing.	x	x	x	x	x
5	Establish high density residential development at A1 & A7.					x
6	Support mixed-use development at A3.	x	x			
Safety and Risk Management Services						
7	Establish police station.	x	x			
Social facilities						
8	Upgrade community park.		x			
9	Develop a skills centre or high school at A5.			x	x	x
Heritage and Tourism						
10	Develop a guideline for the protection of heritage and tourism resources.		x	x	x	
Recreation						
11	Support and make provision for small-scale Agriculture.	x				
12	Promote hiking & biking routes.			x	x	x
Commercial						
13	Promote agri-market at A2.	x				
Gateways						
14	Develop a natural tree lane gateway.	x	x			

Ward 6 - Dwarskersbos						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Upgrade Reservoir.	x	x			
2	Upgrade WTW (2028+).					x
3	Upgrade WWTW.	x	x			
4	Upgrade bulk electricity.	x	x			
Residential						
5	Develop low and medium density residential opportunities	x	x	x	x	x
6	Encourage mixed-use.	x	x	x	x	x
7	Develop retirement facilities.			x	x	x
Pedestrian & cycle routes						
8	Build safe NMT routes.			x	x	x
9	Provide for pedestrian crossing.			x	x	
Social facilities						
10	Establish service centre for the elderly.		x	x	x	
11	Build a school.	x				
12	Provide social & community facilities during holiday season.		x	x	x	
Tourism						
13	Develop tourism overlay zone included in LUMs.	x	x			
Conservation						
14	Promote and protect archaeological sites.			x		

Ward 7- Velddrif						
No	**Proposal**	**2024**	**2025**	**2026**	**2027**	**2028**
Services						
1	Upgrade WTW.					x
2	Build a desalination plant.		x	x		
3	Upgrade WWTW.					x
4	Repair stormwater network in Noordhoek.	x				
5	Rehabilitate landfill.		x	x		
6	Establish site for garden waste and building rubble.			x	x	
7	Upgrade bulk electricity.	x				
Roads						
8	Establish central taxi and bus stop.		x	x		
9	Upgrade Carinus Bridge.	x	x	x		
10	Deproclaim Voortrekker Road.	x	x			
11	Provide supportive infrastructure and facilities for freight trucks.	x	x	x	x	
Residential						
12	Develop infill at V1, V3, V15 & V17	x	x	x	x	
13	Secure a variety of residential development at V1, V2, V9, V14, V16 & V17.	x	x	x	x	
14	Secure mixed-use development at V5, V12, V18, V21, V22, V23 & V26.	x	x	x	x	
Industry						
15	Develop light industrial at V19.	x	x			
Agriculture						
16	Implement small-scale agriculture at V20.	x				
Pedestrian & cycle routes						
17	Establish NMT route along R399 (Noordhoek, Laaiplek and Noordhoek, Velddrif)		x	x		

Social facilities						
18	Develop Noordhoek & Laaiplek public nodes.		x	x		
19	Upgrade Pelikaan Park & Stywelyne. (Resorts)	x	x			
20	Build service centre for youth & elderly at V4.	x	x	x		
21	Support and secure educational facilities.		x	x		
22	Establish additional sport facilities.	x	x			
23	Install communication infrastructure (ICT).	x	x	x	x	
Tourism						
24	Enhance and establish tourism nodes: Pelican and Laaiplek Harbours. (VPP)		x	x	x	
25	Build retirement facilities.	x	x	x	x	
26	VPP: redesign and refurbish circle at Laaiplek Hotel (Harbour).		x	x		
27	Apply LUMS overlay zone (along beachfront e.g. for film shoots).	x	x			
28	Implement neighbourhood upgrade (Noordhoek).	x	x			
29	Promote short-term accommodation, residences double up as conference facility.	x	x	x	x	
Nature and Conservation						
30	Develop guidelines for the protection of the character of Berg River Estuary (Signage and marketing).			x	x	
31	Implement river maintenance plan.	x	x	x		
Gateways						
32	Protect tree lanes at eastern entrance.	x	x	x	x	

No	Proposal	2024	2025	2026	2027	2028
Fresh and Saltwater Bodies and ecological infrastructure						
1	Establish alternative water resources (desalination plant).		x	x	x	
2	Promote recreation corridors along rivers, the coast, including social amenities.	x	x	x		
3	Compile water resources zoning plan.		x	x		
Landfill sites and cemeteries						
1	Establish drop off sites in Redelinghuis, Dwarskersbos and Eendekuil.			x	x	
Agriculture						
1	Commission the delineation of intensive and extensive agricultural productive land (secure food production).	x				
2	Facilitate development of an Intensive Rural Development Corridor along the R44 (between Voorberg Prison, Saron and the Berg and Vier-en-Twintig Rivers confluence), along the Berg River, and corridors along the R366 (between Piketberg and Eendekuil) and along the upper Verlorenvlei (along the R365).		x	x	x	
3	Promote the production of value added agri-products on farms.	Prv	Prv	Prv	Prv	Prv
4	Promote and provide for tourism related activities on farms.	Prv	Prv	Prv	Prv	Prv
Fisheries (and ocean)						
1	Upgrade harbour precinct and Carinus Bridge precinct at Velddrif (enhance maintenance of fishing infrastructure).	x	x	x		
2	Commission development of development lines around mountains, koppies, in marsh, floodplains, and across borders.		x			
3	Support licensed fishing & mussel harvesting.	Prv	Prv	Prv	Prv	Prv

Agritourism						
1	Promote agritourism on farms.	Prv	Prv	Prv	Prv	Prv
2	Established new tourism routes and destinations.		x	x	x	
3	Redevelop the railway stations.			x	x	x
4	Promote tourism and freight supportive infrastructure and nodes at intersections.	Prv	Prv	Prv	Prv	Prv
Mining						
1	Commission delineation of no-go areas		x	x		
Conservation						
1	Promote the establishment of the Cederberg Conservancy and West Coast Conservation Corridor.	x	x			
2	Promote conservation of coastal ecosystems (estuaries, sandy beaches, dune systems, dune groves and fynbos).	x	x			
Netting, tunnels and agricultural industry and public utilities						
Public Utilities						
1	Promote communication corridors and zones sensitively to landscape.	x	x	x	x	x
2	Develop guidelines for shade netting, big-box agri-buildings, alternative energy and mine (Landscape pollution).			x	x	
Alternative energy generation and social amenities						
1	Promote access to education at all levels by providing facilities in settlements (enhancing mobility of community members and providing social amenities).	x	x	x	x	x
2	Establish alternative energy facilities.	x	x	x		
Connectors						
1	Promote establishing of Tourism and Freight nodes along N7, R44, R365, R366 and R399 and at intersection.	Prv	Prv	Prv	Prv	Prv

ANNEXURES

Annexure 1: Proposals Affecting Proclaimed Provincial Road Network

Note: Any proposals affecting the Proclaimed Provincial Road Network are subject to consultation, endorsement and the approval of the Department of Infrastructure (DOI) Transport Infrastructure Branch:

- Softening main roads and traffic calming;
- Amendment of urban edge (impact on road authority boundaries);
- All proposals including land use change and developments adjacent to the Proclaimed Provincial Road Network and adjacent to or within the Proclaimed Provincial Road Network road reserve;
- Non-motorised movement across streets and corridors (safety hazards and risks are inadvertently introduced);
- Provision of access to and from the Proclaimed Provincial Road Network is to be assessed and provided in accordance with the WCG DTPW (now DOI) Access Management Guidelines (2020). Access includes farmstall accesses and tourism view or interest points. The provision of direct access and egress, must also consider the impact on the surrounding road network;
- Development of tourism routes, scenic routes and destinations or Scenic Drive (or similar) Policy to be undertaken in collaboration with and to the approval of the Regional Tourism Liaison Committee (RTLC);
- Corridors (include, but are not limited to scenic, tourism, freight, etc) impacting (directly or indirectly) on the Proclaimed Provincial Road Network assets. Arterial Management Plans for these corridors should be given due consideration;
- Prevent any potential impact, both during construction or operation, on the Proclaimed Provincial Road Network assets;
- Any proposal to expropriate sections of the Proclaimed Provincial Road Network Road Reserve to accommodate development;
- Planning for key bulk infrastructure needs to ensure appropriate space/provision is made;
- Maintaining, upgrading and new construction works;
- During the process of providing the required infrastructure to support growth and development;
- Development of a Municipal Roads Master Plan where proposals impact (directly or indirectly) the Proclaimed Provincial Road Network;
- Preparation of Arterial Management Plans.

Implementation timing and funding of DOI led projects is be determined by the DOI Transport Infrastructure Branch in accordance with the relevant Provincial Budget, commonly referred to as Vote 10. The DOI is mandated to provide and protect the proclaimed roads.

Annexure 2: Comments from the Department of Infrastructure Transport Infrastructure Branch

DOI Transport Infrastructure Branch approval required for land use change and developments adjacent to the Proclaimed Provincial Road Network.

Open Space Systems: Proposals for occasional activities at modal interchanges and intersections, accommodating a variety of users in and uses along major vehicular and public transport routes, appropriate road cross-sections widths (provide for vehicle traffic, parking, pedestrain movement, cycling and landscaping) and open space systems.

Opportunities to promote Agri-industries and Processing, Land Reform and Agritourism including development of tourism and recreational routes and destinations, activitiies or establishment of farm stalls and accommodation facilities.

Development of Tourism routes and destinations to be undertaken in collaboration with and to the approval of the Regional Tourism Liaison Committee (RTLC) and DOI Transport Infrastructure Branch.

Tourism and Agritourism: Provision of farm stall accesses and tourism view or interest points to be provided subject to DOI Transport Infrastructure Branch approval where access is obtained from the Proclaimed Provincial Road network.

Tourism and Agritourism: Settlements and Rural Settlements and Sense of Place

Landscape/Develop:

- Promote improved roadside signage and buildings in sensitive landscapes;
- Develop understated, unique gateways/entry point features to settlements;
- Develop support infrastructure and spaces for festivals, events and celebrations;
- Promote scenic and heritage routes and the development of special management guidelines.

All proposals adjacent to or within the road reserve or the Proclaimed Provincial Road Network are subject to DOI Transport Infrastructure Branch approval.

All measures along the Proclaimed Provincial Road Network are subject to DOI Transport Infrastructure Branch approval.

DOI Transport Infrastructure Branch, Subdirectorate Road Use Management decision (approval) is required and DOI Transport Infrastructure Branch will need to be consulted about any impact (direct or indirect) on or adjacent of the Proclaimed Provincial Road Network assets including:

a) Corridor development including but not limited to scenic, tourism, freight etc. Consider applicable Arterial Management Plans where these exist or where warrented, Arterial Management Plans are to be developed or approved by the DOI Transport Infrastructure Branch;
b) Activity Streets;
c) Node Development/ Access Provision;

d) Identification of scenic routes and/or rural areas and any Scenic Drive (or similar) Policy to promote the Cultural Landscape and sense of place;

e) Outdoor Advertising (adjacent to, and within the road reserve of the Proclaimed Provincial Road Network) and development of related Policy are subject to DOI Transport Infrastructure Branch approval;

f) Traffic Calming, Proclaimed Provincial Road Network serves a vital mobility function, providing connections between provincial towns and settlements and for the movement of citizens and goods, and in so doing, supports economic activity in the Western Cape;

g) Public Transport proposed projects and new links;

h) Renewal Energy Generation: Wind and Solar Farm Sites;

i) Location of bulk utilities sites to provide key bulk infrastructure needs;

j) Land use changes;

k) Any intensification including sensitive infill or redevelop of major arterial axes (develop both sides of activity streets and corridors to concentrate activities);

l) Expansion of biospheres and nature reserves where there are roads and infrastructure present;

m) Project Implementation: implementation timing and funding of DOI-led projects is to be determined by DOI Transport Infrastructure Branch in accordance with the relevant Provincial Budget, commonly referred to as Vote 10. This includes maintenance, upgrade and new construction works as applicable;

n) Road Authority Boundaries/Urban Edge: Amendment to the urban edge has an impact on road authority boundaries. Any amendments made to formal, agreed upon, urban edge boundaries need to be made in consultation with the relevant Road Authority/authorities;

o) Proposals for occasional activities at modal interchanges and intersections, accommodating a variety of users in and uses along major vehicular and public transport routes, appropriate road cross-sections widths (provide for vehicle traffic, parking, pedestrain movement, cycling and landscaping) and open space systems;

p) Development of the intersections as nodes;

q) Opportunities to promote Agri-industries and Processing, Land Reform and Agritourism including development of tourism and recreational routes and destinations, activitiies or establishment of farm stalls and accommodation facilities. Development of Tourism routes and destinations to be undertaken in collaboration with and to the approval of the Regional Tourism Liaison Committee (RTLC);

r) Tourism and Agritourism: Provision of farm stall accesses and tourism view or interest points where access is obtained from the Proclaimed Provincial Road network;

s) Tourism and Agritourism: Settlements and Rural Settlements and Sense of Place;

t) Landscape: improved roadside signage and building placement in sensitive landscapes, understated, unique gateways/entry point features to settlements, support infrastructure and spaces for festivals, events and celebrations and scenic and heritage routes and the development of special management guidelines.

Roads Master Plans: The Municipality is responsible for the development of a Municipal Roads Master Plan. The DOI Transport Infrastructure Branch is to be consulted where proposals impact (directly or indirectly) the Proclaimed Provincial Road Network.

Provision of access to and from the Proclaimed Provincial Road Network is to be assessed and provided in accordance with the WCG DTPW (now DOI) Access Management Guidelines (2020). Property Developments need to be undertaken with due consideration not only of the provision of direct access and egress, but also the impact on the surrounding road network.

Provision of farm stall accesses and tourism view or interest points where access is obtained from the Proclaimed Provincial Road network.

Annexure 3: Description of Terminology

Term	Description
Activity Corridor	Means an area of generally higher intensity urban use or land suitable for intensification, parallel to and on both sides of an activity spine, and includes any higher order transport routes such as railway lines and thoroughfares.
Activity Spine	Means a public street, incorporating an existing or planned public transport route, and adjacent land used or intended for mixed use development. The activity spines are major routes that connect one or more metropolitan nodes, and support and give access to most of the mixed-use development and community activities within the activity corridor.
Activity Streets	Means major public streets that are primarily designed to accommodate high levels of pedestrian and/or vehicular activity often characterised by a mix of land uses, such as retail shops, restaurants, office spaces, and residential buildings to create a vibrant and bustling environment typically designed for social interaction and walkability. They are aimed at enhancing the liveability and economic vitality of an urban area, attracting both locals and visitors by providing a diverse range of commercial, cultural, and recreational activities.
Agri-Industrial	Agri-industrial pertains to activities or processes that involve the combination of agricultural and industrial practices. It encompasses the utilisation of industrial techniques and technologies in agricultural production, processing, and distribution. Agri-industrial practices often aim to increase efficiency, productivity, and profitability in the agricultural sector by incorporating mechanisation, automation, and advanced manufacturing methods. Agricultural industries include a winery, dairy, distillery, packing store, the bottling of spring water, an abattoir and a saw mill.
Agri-Processing	Agri-processing refers to the conversion of raw agricultural products into value-added goods through various manufacturing and processing techniques. This includes activities such as cleaning, sorting, packaging, preserving, and transforming agricultural commodities into marketable products like food, beverages, pharmaceuticals, and biofuels. Agri-processing plays a crucial role in adding value to agricultural output, extending shelf life, improving product quality, and meeting consumer demands.
Amenities	Amenities are features or facilities that contribute to the comfort, convenience, and enjoyment of a particular place or environment. They can include both natural and man-made elements such as parks, recreational areas, public transportation, shopping centres, educational institutions, healthcare facilities, cultural institutions, and utilities like water and electricity. Amenities enhance the overall quality of life in a community, making it more attractive for residents, visitors, and businesses.
Biodiversity	The variability among living organisms from all sources, including, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part. It also includes diversity within species, between species, and of ecosystems. (National Spatial Development Framework 2022)
Biophysical Environment	The biophysical environment can be defined as the physical environment (water, soil, etc.) as well as the biological activity within it (plants, animals, etc.) (Digby Wells, 2013). (West Coast District: Spatial Development Framework)
Bioregional Planning	Bio-regional planning refers to an integrative, internationally accepted approach to regional planning and management that endeavours to promote sustainable development. (West Coast District: Spatial Development Framework)
Climate change	A change in the statistical properties of the climate system and weather patterns when considered over long periods of time, regardless of cause. The most commonly observed changes are rising temperatures, dryer conditions, high intensity storms with flooding and sea level rise. (West Coast District: Spatial Development Framework)
Climate Change Mitigation	The use of new technologies and renewable energies with the aim of (1) making older equipment more energy-efficient, and/or (2) changing management practices or consumer behaviour to reduce the emission of greenhouse gasses. (National Spatial Development Framework 2022)
Conservation	The management of the use of natural and human resources to ensure that these are preserved and protected against undesirable development. It also relates to the protection, maintenance and rehabilitation of resources. (West Coast District: Spatial Development Framework)
Core Area	A terrestrial, aquatic or marine area of high conservation importance that must be protected from change or restored to its former level of functioning. Private and public ownership is permitted. Privately owned land should be designated either as private nature reserve or under stewardship regulations. There are two types of Core Areas, Core 1 have a level of statutory proclamation or designation, and Core 2 have the potential to be brought up to Core Area 1 status. (West Coast District: Spatial Development Framework)
Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)	These are natural areas of critical importance for ecological sustainability and should be kept in their natural, or at least semi-natural state. The management objective of CBAs is for identified areas to be maintained in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity, and sensitive land uses are appropriate. Areas identified as ESAs should be kept in at least a 'semi-natural condition', i.e. with their basic ecological functioning still intact. (National Spatial Development Framework 2022)
Densification	The process of increasing residential densities, i.e. the number of people living in a specific area, and is often expressed in numerical terms, e.g. 'persons per hectare'. Densification supports increased efficiency in the utilisation of infrastructure, services and amenities. (National Spatial Development Framework, 2022)
Development	In relation to land or place, means any process initiated by a person or body to change the use, physical nature or appearance of that land or place to prepare or develop land for occupation or use and without limitation includes: a) the construction, erection, alteration, demolition or removal of a structure or building for which building plan approval is required; b) change of land-use c) up-or downgrading of development rights, including the subdivision or consolidation of land; d) the preparation, surveying or advertising of land in anticipation of approval of amended rights or in a way as

	to suggest possible approval; e) the installation of infrastructure or the preparation of land therefore f) change to the existing or natural topography of land; g) the destruction or removal of vegetation; and h) any other physical change being brought about in respect of land, buildings, infrastructure or other structures. (West Coast District: Spatial Development Framework)
Development Corridor	A development corridor is a geographical area identified as a priority for investment to catalyse economic growth and development. Development corridors have the potential to diversify and improve livelihoods by making trade, communications and services more efficient. It is an integrated linear network of dense infrastructure, economic activity and residential development built on and along a major road and/or railway line that (1) bind it together and (2) act as a form-giving and structuring spine. Development corridors typically fulfil a variety of multiple, complex and interrelated functions, such as: (1) the movement of people and freight; (2) retail and trade; (3) the flow of information; (4) the provision of basic services, such as water and gas; and (5) tourism. Supportive functions may also be located in corridors, e.g. logistics. Development corridors generally include both a human settlement and economic component, i.e. (1) higher-density, transit-oriented mixed-use residential development, and (2) industrial, retail, entertainment and office development adjacent to, or along, the main transport routes. (National Spatial Development Framework 2022)
Diversification	The process of introducing and/or allowing a greater mix of land-uses in an area, to: (1) boost local people-to-people service economies; (2) stimulate co-production of knowledge, innovation and jobs; (3) reduce the need for motorised travel, and shorten travel distances; (4) bring more vibrancy and life to an area; (5) enhance social interaction and cohesion; and (6) make better use of land. (National Spatial Development Framework 2022)
Ecological Corridor	It is a functional zone of passage between several natural zones for a group of species dependent on a single environment. It encompasses continuous areas of complimentary vegetative habitats that allow for the movement of fauna and flora along them. (West Coast District: Spatial Development Framework)
Ecological Infrastructure	It is a functional zone of passage between several natural zones for a group of species dependent on a single environment. It encompasses continuous areas of complimentary vegetative habitats that allow for the movement of fauna and flora along them to enhance proper ecosystem functioning. (West Coast District: Spatial Development Framework)
Ecosystem	The dynamic and complex interplay of animal, plant, and micro-organism communities and their non-living environment (soil, water, climate and atmosphere) as a functional unit. (National Spatial Development Framework 2022). It means a self-sustaining and self-regulating community of organisms and the interaction between the organisms with one another and with their environment (Bergrivier Municipality: Integrated Zoning Scheme By-Law).
Environmental Impact Assessment	The administrative or regulatory process by which the environmental impact of a project is assessed and determined in terms of the provisions of the National Environmental Management Act, No 107 of 1998. (West Coast District: Spatial Development Framework)
Food Security	A condition of having reliable access to a sufficient quantity of affordable and nutritious food through locally-grown produce and/or imports. Food security exists when people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. (National Spatial Development Framework 2022)
Gateways	Key entry points that provide access to settlements.
Greenfields Developments	Urban development on previously unserviced, vacant land that had been used for agriculture or other non-urban uses (West Coast District: Spatial Development Framework, 2020)
Human Settlement / Settlement	A place where people live, work, study, relax and play. A settlement can range in size from (1) a small number of dwellings grouped together, to (2) a large city or groups/conglomerations of cities tied together through dense transport and communication networks. (National Spatial Development Framework 2022)
Infill Development	Development of undeveloped or underdeveloped land adjacent to and/or between existing developments. A way to accommodate increased population in an area without extending the urban edge. (West Coast District: Spatial Development Framework, 2020). Infill development is critical to accommodating growth and redesigning our cities to be environmentally- and socially-sustainable.
Infrastructure	The basic equipment, utilities, productive enterprises, installations, and services essential for the development, operation, growth, sustenance and continued viability of human settlements and economic activities. Infrastructure includes items such as: (1) roads, railway lines and stations, airports, and harbours; (2) utility lines and related structures for the provision of water, sanitation, electricity and drainage services; and (3) information and communications technology grids/networks. A distinction is often made between (1) 'engineering infrastructure', such as roads, electricity, sewerage and water services; and (2) 'social infrastructure', which includes facilities at which social services, such as health, education, community, welfare support, citizen registration, and cultural facilities are offered/provided. (National Spatial Development Framework 2022)
Intensive Agriculture	Intensive agriculture refers to a modern farming approach characterised by maximising production efficiency through high inputs of labour, capital, fertilizers, pesticides, and machinery. This method aims to achieve high yields per unit of land, often employing techniques such as monocropping, extensive irrigation, and the use of genetically modified organisms (GMOs). Intensive agriculture typically involves large-scale farms and often relies on mechanization and technology to optimise output.
Land Use	The purpose for which an area of land is being used, such as residential, agricultural, commercial, retail, or industrial, a mixture of these.

Mountain catchment area	An extent or area of land where water from rain, melting snow and/or ice drains downhill into a body of water, such as a river, lake, reservoir, estuary, wetland, sea or ocean. The catchment area includes both the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels, and is separated from adjacent catchment areas by a geographical barrier such as a ridge, which is known as a water divide. (West Coast District: Spatial Development Framework)
NMT Routes	Non-Motorised Transport (NMT) routes, includes all surfaces for means of transport that are human powered. Non Motorised Transportation includes walking, animal power and bicycling, and variants such as small wheeled transport (skates, skateboards, push scooters and hand carts) and wheelchair travel.
Node	Nodes are concentrations and clusters of activities of varying intensity and can be either mixed-use or mono-functional (e.g. an office node). (National Spatial Development Framework, 2022)
Open Space	Means land which may be public or privately owned and which is set aside for open space, such as a park, national reserve, garden, vegetable garden, square, river or stream and may include ancillary structures for management and maintenance of such open spaces. Open spaces refer to areas within urban environments that are intentionally left undeveloped or designated for non-built uses. Natural Open spaces, whilst providing opportunities for recreation and social interaction have to balance ecological conservation and proper ecosystem functioning. Soft and Hard open spaces most likely will contribute to a social realm but indirectly toe ecosystem functioning. Open spaces contribute to the overall liveability and sustainability of urban areas by mitigating environmental impacts, enhancing air and water quality, and preserving biodiversity. Reference made to open space(s) does not grant such spaces the zoning of public or private open spaces. The term and mapping are used to indicate the need for a public realm and where natural the need for ecosystem functioning.
Overlay Zone	Means a category of zoning applicable to a particular area or land unit that (a) stipulates development parameters or use rights in addition to the base zoning requirements, which may be more or less restrictive; and (b) may include provisions and development parameters relating to primary uses, or consent uses, provisions in the base zone, subdivision and subdivisional areas, development incentives, density limitations, urban form, urban renewal, heritage and environmental protection, management of the urban edge, scenic drives or local areas, coastline setbacks (Bergrivier Municipality: Integrated Zoning Scheme By-Law)
Precinct	A precinct refers to a defined geographic area or district with distinct characteristics, functions, or purposes. Precincts may encompass commercial, residential, cultural, or mixed-use developments and often have their own unique identity or sense of place. Examples include central business districts, historic precincts, waterfront areas, or industrial zones.
Protected Area	An area of special natural, ecological, architectural or historical interest that is protected by law. The protected areas referred to in this MSDF are those areas that are officially classified as such in terms of the National Environmental Management: Protected Areas Act (Act No. 57 of 2003). (National Spatial Development Framework 2022)
Recreation	Recreation refers to activities undertaken for leisure, enjoyment, or physical activity purposes, often within designated recreational areas such as parks, nature reserves, beaches, or sports facilities. Recreation can include a wide range of activities such as hiking, picnicking, swimming, sports, wildlife viewing, and cultural events
Region	A distinguishable geographic area that does not necessarily correspond with administrative boundaries, which may exist at supra-national or sub-national scale, and (1) which is home to distinct topographical, economic, ecological, social, cultural, linguistic and/or historical features, attributes, characteristics or traditions, (2) whose inhabitants share similar ideological views, positions, concerns, or aspirations, and/or (3) which is systemically bound together by regular social interactions and/or economic transactions, that are, in turn, enabled, facilitated and enhanced by road, rail, harbour, port and ICT infrastructure and networks. Regions are in many cases governed by formal structures, and their social, economic, cultural and linguistic ties and connections strengthened by formal and informal economic, social and cultural structures, bodies and associations. (National Spatial Development Framework 2022)
River Corridor	The main course of a river and its tributaries which shall be protected by a 32m buffer from urban development and intensive and extensive agriculture. (West Coast District: Spatial Development Framework)
Rural	Areas of land located outside of defined urban areas and where much of the land is devoted to agriculture / natural environment. (West Coast District: Spatial Development Framework)
Rural Area	Generally regarded as areas outside cities and towns. Economic activities in these areas (1) are in most cases intrinsically tied to the use and/or beneficiation of natural resources, and (2) typically consist of agriculture, fishing, agro-processing, forestry, nature conservation, ecotourism and/or mining. In South Africa, there are rural areas that are densely populated, but without (1) the distinct and diverse nodal areas of dense economic activity, or (2) the wide range of supporting, enabling and life-enhancing amenities typically associated with urban areas. These rural areas are a remnant of colonial and Apartheid spatial planning and the creation of the Bantustans. (National Spatial Development Framework 2022)
Rural Development	The process of improving the quality of life and economic well-being of people living in a rural area by planned interventions in (1) the ownership and use of land in the area, (2) the provision, maintenance and upgrading of transport and communication infrastructure, both in the area, and between the area and other rural and urban areas it is systemically connected to, (3) the type and intensity of economic activities in the area, (4) the quantity and quality of social, education, welfare and safety and security services in the area, and (5) the 'presence' and capacity of the State as institution in the area. (National Spatial Development Framework 2022)

Rural Residential	The establishment of housing or settlements in predominantly rural or peri-urban areas. These developments often cater for individuals seeking a quieter lifestyle away from urban centres and may include single-family homes, hobby farms, or small-scale agricultural properties. *Reference: "Rural Residential Development Patterns and Trends in South Africa" by L. J. van der Merwe and M. B. Kriel (2015), published in the South African Geographical Journal.*
Secondary Business Node	Secondary Business Node refers to a decentralised commercial area or district outside of the primary central business district (CBD) of a city or town. These nodes typically offer a range of services, amenities, and employment opportunities to residents and businesses within their respective areas.
Socio-Economic Development	In the context of a spatial development framework, refers to a diverse combination of sectors relating to the locations where people live, work and play giving consideration to social and economic factors. (West Coast District: Spatial Development Framework). Socio-economic development in planning refers to the intentional efforts aimed at improving the overall quality of life, well-being, and economic prosperity of a community or society. It involves implementing strategies and policies that address social and economic challenges, promote equitable opportunities, and foster sustainable growth.
Town	A place where people and services are geographically concentrated in a distinct and identifiable area. While towns can vary in size, they tend to have a smaller population, lower residential densities, fewer employment opportunities and fewer and/or smaller economic activities than cities. (National Spatial Development Framework, 2022)
Transfer Station	A transfer station, in the context of waste management and transportation, is a facility where solid waste is temporarily deposited before being transported to its final destination, such as a landfill, recycling centre, or waste-to-energy facility. Transfer stations serve as intermediate points between the collection of waste from homes, businesses, and other sources, and its ultimate disposal or processing.
Tributaries	A tributary, or affluent, is a stream or river that flows into a larger stream or main stem (or parent) river or a lake. A tributary does not flow directly into a sea or ocean.
Urban Edge	Means a demarcated line which is designated as an urban edge in terms of an approved policy or plan, which may follow cadastral boundaries or not; (Bergrivier Municipality: Integrated Zoning Scheme By-Law)
Water Sources	Water source means an aquifer, aquifer system, or surface water body, including a stream, stream system, lake, or reservoir and any spring water or underground water that is part of or tributary to the surface water body or aquifer that the Department of Water and Sanitation determines to be an independent water body for the purposes of water right administration. These sources can include natural bodies of water, as well as artificially constructed reservoirs and water supply systems.

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