

***Land availability assessment for
cemeteries development and expansion
IERM presentation
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Research contributors



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Rationale



- The development of a holistic cemetery framework, environmental compliance and management plan for CoJ/JCPZ beyond 2016
- Constitutional mandate section 10
 - Human dignity - everyone has inherent dignity and the right to have their dignity respected and protected
- Service delivery mandate
 - Park development, open space protection and provision of burial space

Methodology

Integrated qualitative and quantitative

- **Regulatory focused criteria**
- **Mapping and surveys**
 - Wetland and technical assessment
 - Assessment of site specific conditions
- **Historical**
 - Correlation pictorial evidence
 - Web-based and archival research
- **Interviews** and personal engagements
- **Statistical** interpretation
- **Laboratory and scientific**

CoJ policy alignment



Cemeteries and crematoria planning

- 1) Need and justification** for a cemetery in accordance with the current land use patterns
- 2) Location and size**
- 3) Stakeholder and community engagement**
- 4) Scoping** - geotechnical, geo-hydrological, physical suitability, and soil characteristics
- 5) Environmental authorization**
- 6) Rezoning** and ownership of the site
- 7) Partnerships with faith-based organizations**

CoJ By-laws alignment



Cemeteries and Crematoria By-Laws

- Places a responsibility on city council to uphold a health and safety standards

Risk assessment findings:

- Public safety and liability
- **Open graves hazards***
- **Rocky and uneven terrain***
- **Bulk services and servitudes***
- Environmental awareness
- Appropriate signage

Legend

 Municipal Boundaries

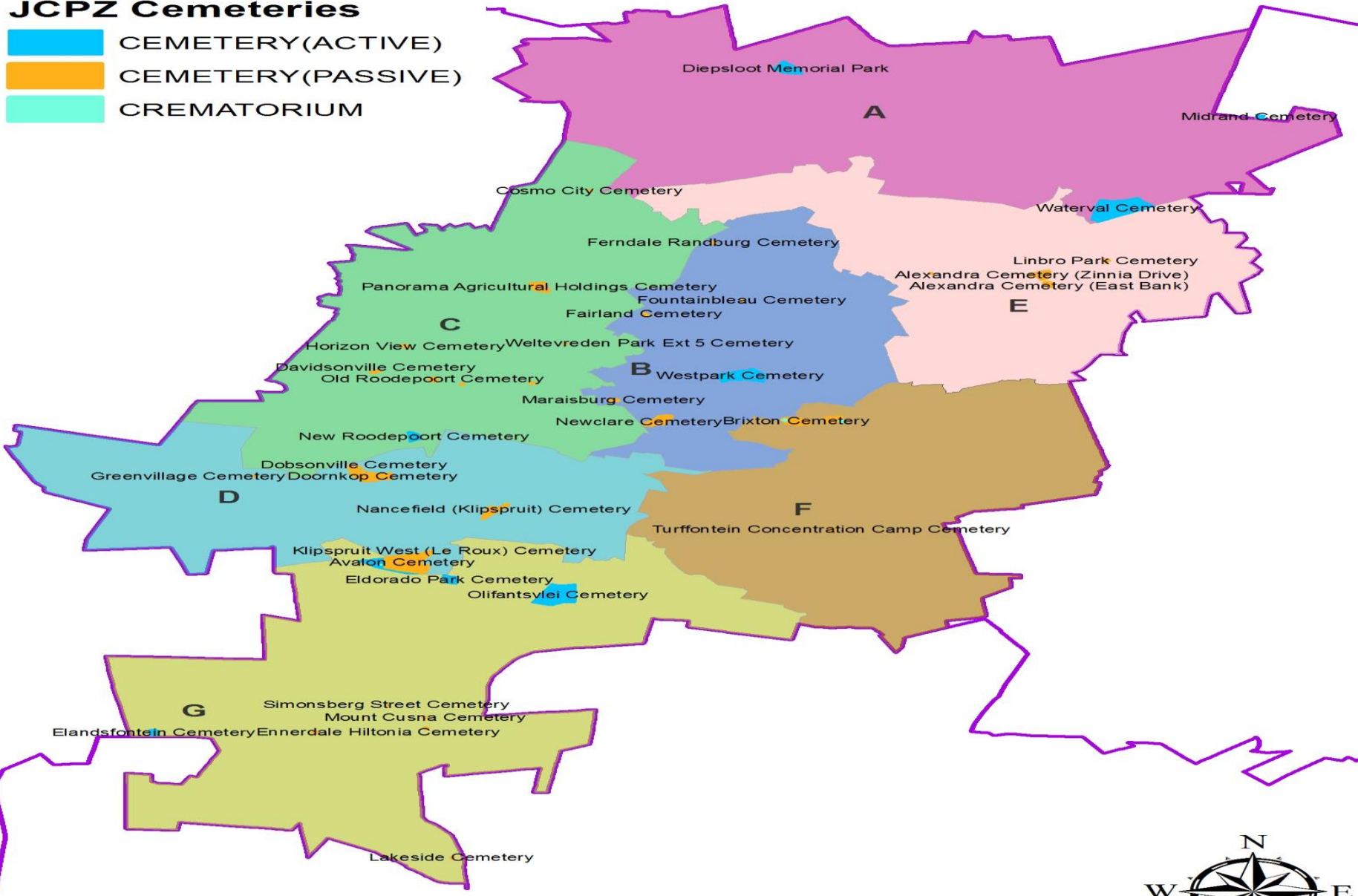
JCPZ Cemeteries

 CEMETERY(ACTIVE)

 CEMETERY(PASSIVE)

 CREMATORIUM

CoJ Cemeteries

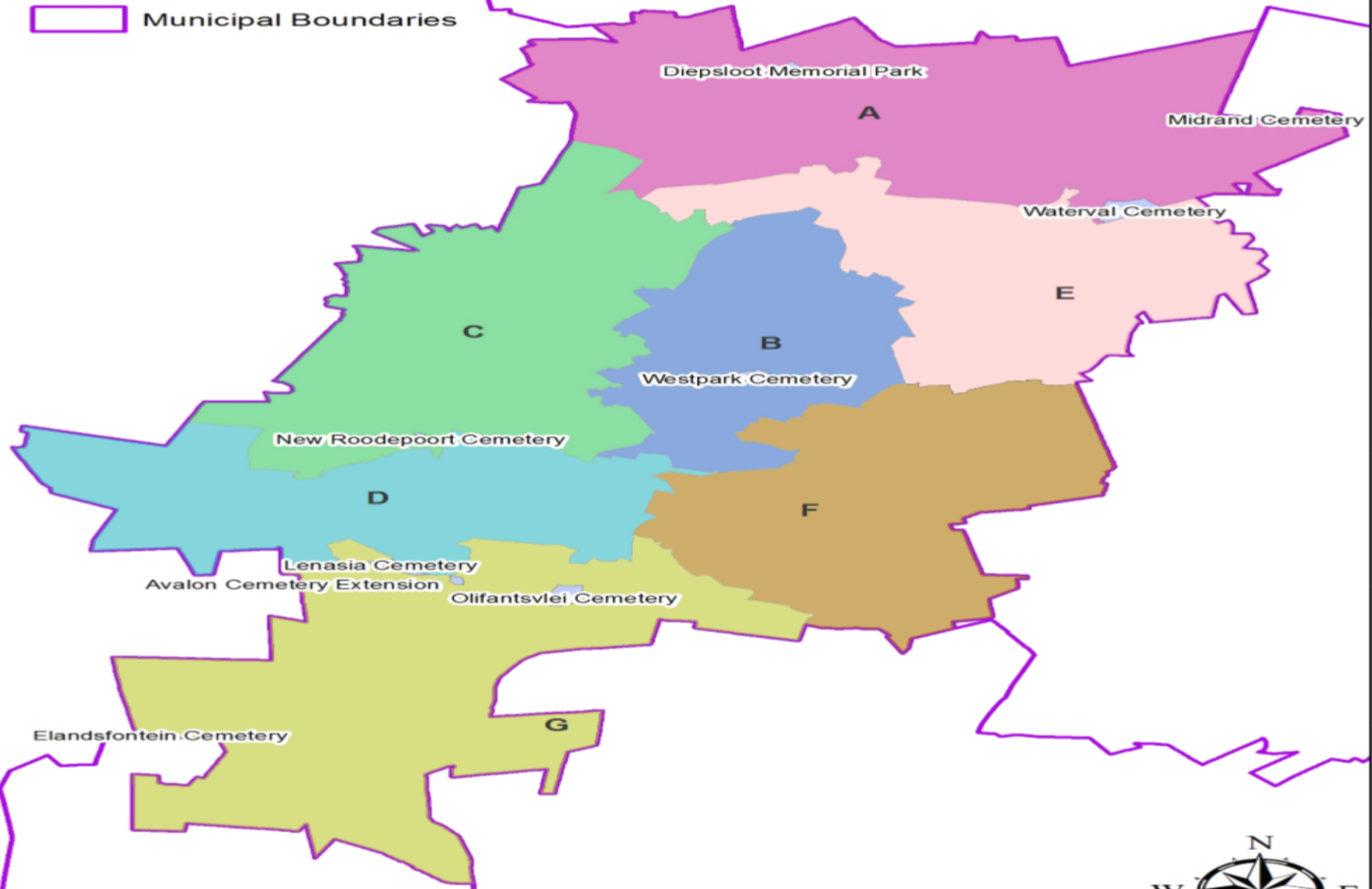


0 5,000 10,000 20,000 Meters

Legend

- Active Cemeteries
- Municipal Boundaries

Active cemeteries

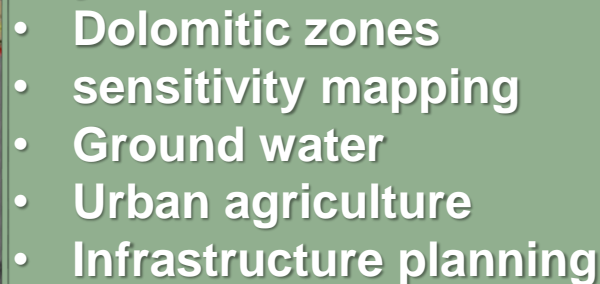


0 5,000 10,000 20,000 Meters

Available burial space

Cemetery	Available burial space (hectares)	Approximate burial/ lifespan (number of available graves excluding private cemeteries)
1. Lenasia	2*	4 000
2. Elandsfontein	0.6*	600
3. New Roodepoort	0.6*	600
4. Olifantsvlei	400	800 000
5. Waterval	180	360 000
6. Diepsloot	40	80 000
7. West Park	25	50 000
8. Doornkop	4*	8 000
9. Ennerdale	1*	2 000
Total	256	1309.200 / 15 000 = 88 years *15 000 average burials per annum Excluding private cemeteries

Olifantsvlei Cemetery – Region G



Region E - Alexandra Cemetery



Stand = 306
Size = 8141.40326 m²
Zoning = Public Open Space

Stand = 70
Size = 34894.52938 m²
Zoning = Business 3

Key considerations – short term

- Food security and poverty alleviation - cooperatives
- Accessible
- Shortage of burial space (2-3 yrs)

Region E – Linbro Park Cemetery



FRST

Stand = 4
Size = 18570.73 m²
Zoning = Agricultural

Key considerations – short term

- Agricultural holdings
- Existing graves on site
- Confirmation of Heritage
- Future densification
- Accessibility
- Infrastructure planning

0 20 40

Region D – Slovoville Memorial Park



RE/130/239-IQ

113/239-IQ

66/239-IQ

69/239-IQ

67/239-IQ

68/239-IQ

RE/109/239-IQ

26766.1 m²

22064.2 m²

10976.4 m²

9501 m²

2831.4 m²

6226.5 m²

7013.7 m²

9733.9 m²

16602.4 m²

40441.4 m²

5126.1 m²

10631.6 m²

85659.9 m²

55574.1 m²

6300.6 m²

5174.8 m²

2295 m²

5871.6 m²

Key considerations – short/medium term

- Private ownership
- Available space
- Liability and costing
- Records management

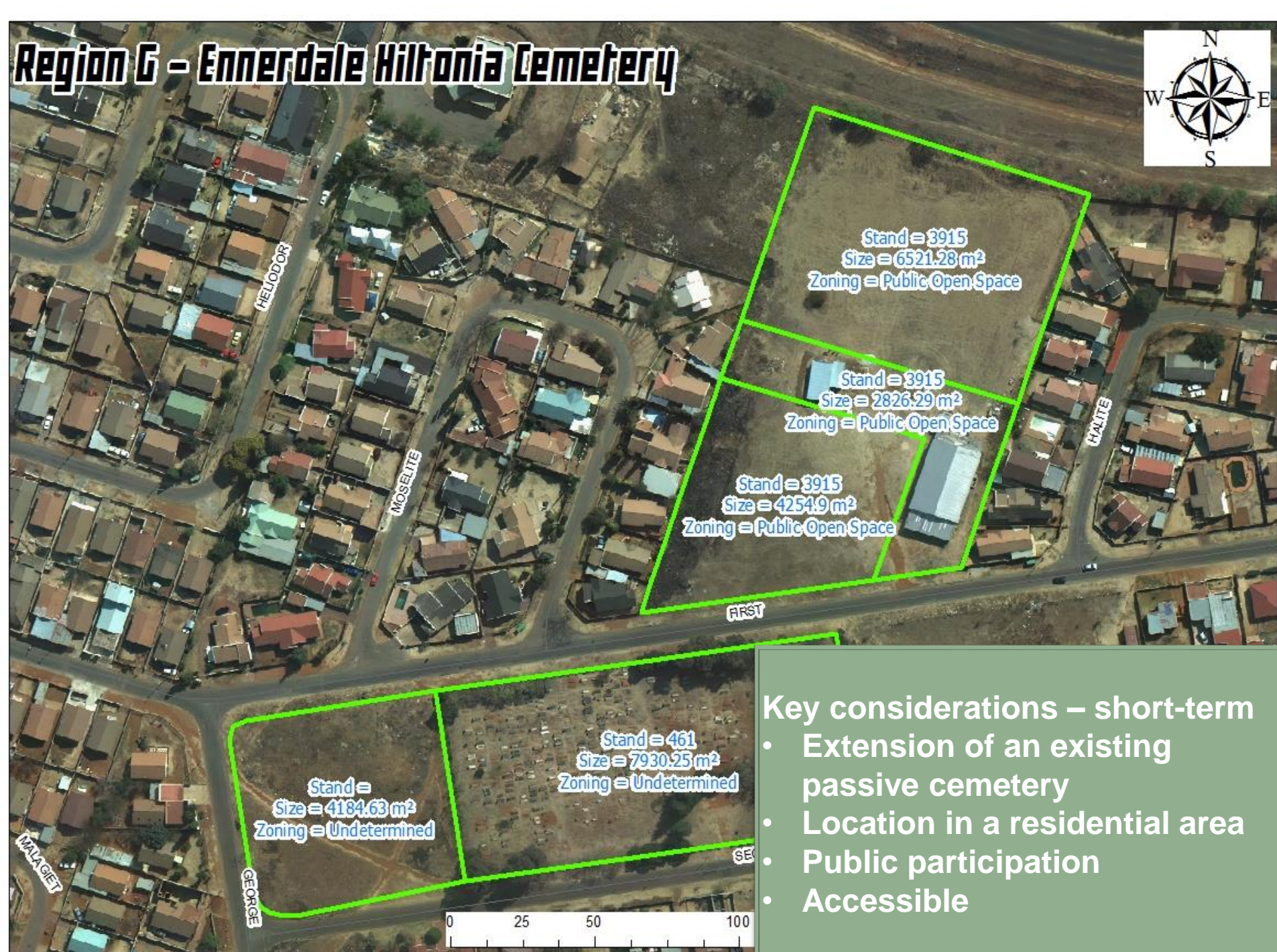
Legend

- Available Land = 189018.3 m²
- Existing Burials = 139772.6 m²

Key considerations – long term

- **Rocky terrain**
- **Shallow graves**
- **Geotechnical**

Region G - Ennerdale Hilton Cemetery



Key considerations – short-term

- Extension of an existing passive cemetery
- Location in a residential area
- Public participation
- Accessible

Region G - Eldorado Park Cemetery



N12

ST MARKS

Stand = 103/299-1Q
Size = 150623.67 m²
Zoning = Undetermined

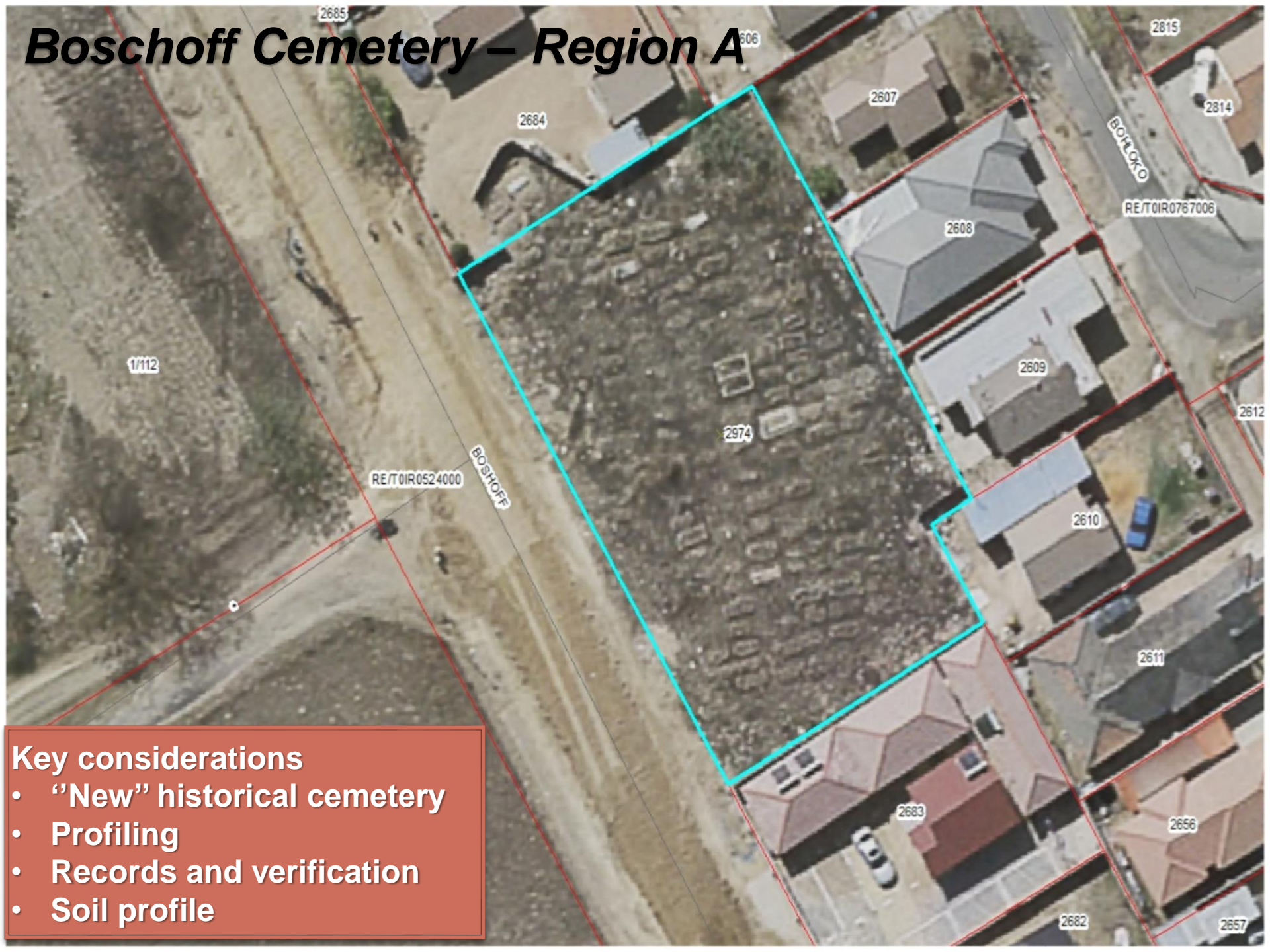
Stand = 103/299-1Q
Size = 39686.57 m²
Zoning = Undetermined

Key considerations – short term

- Two portions – new and extension
- Klip River wetland
- Accessible
- Rocky terrain
- Critical biodiversity site

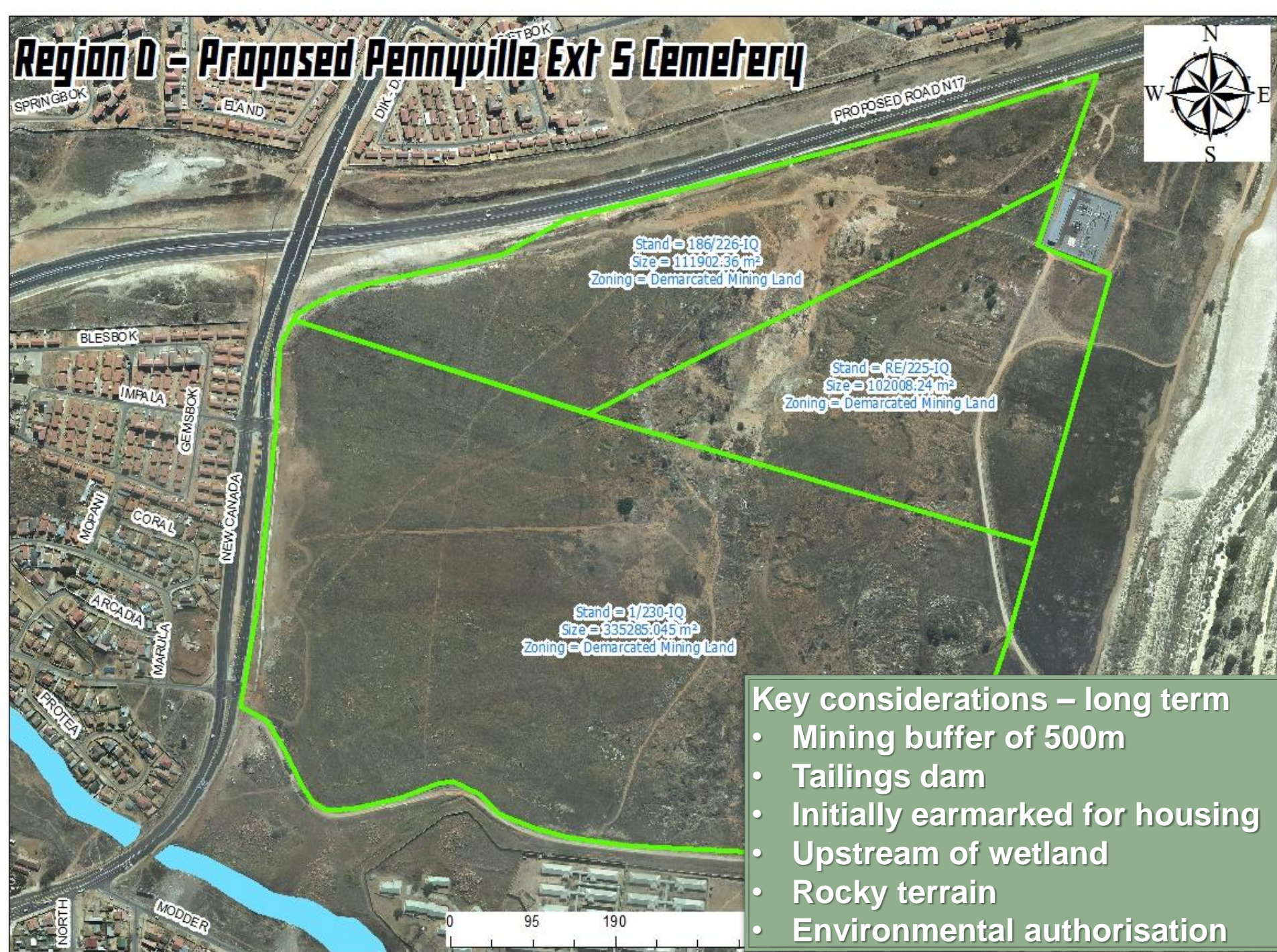
240 Meters

Boschoff Cemetery – Region A

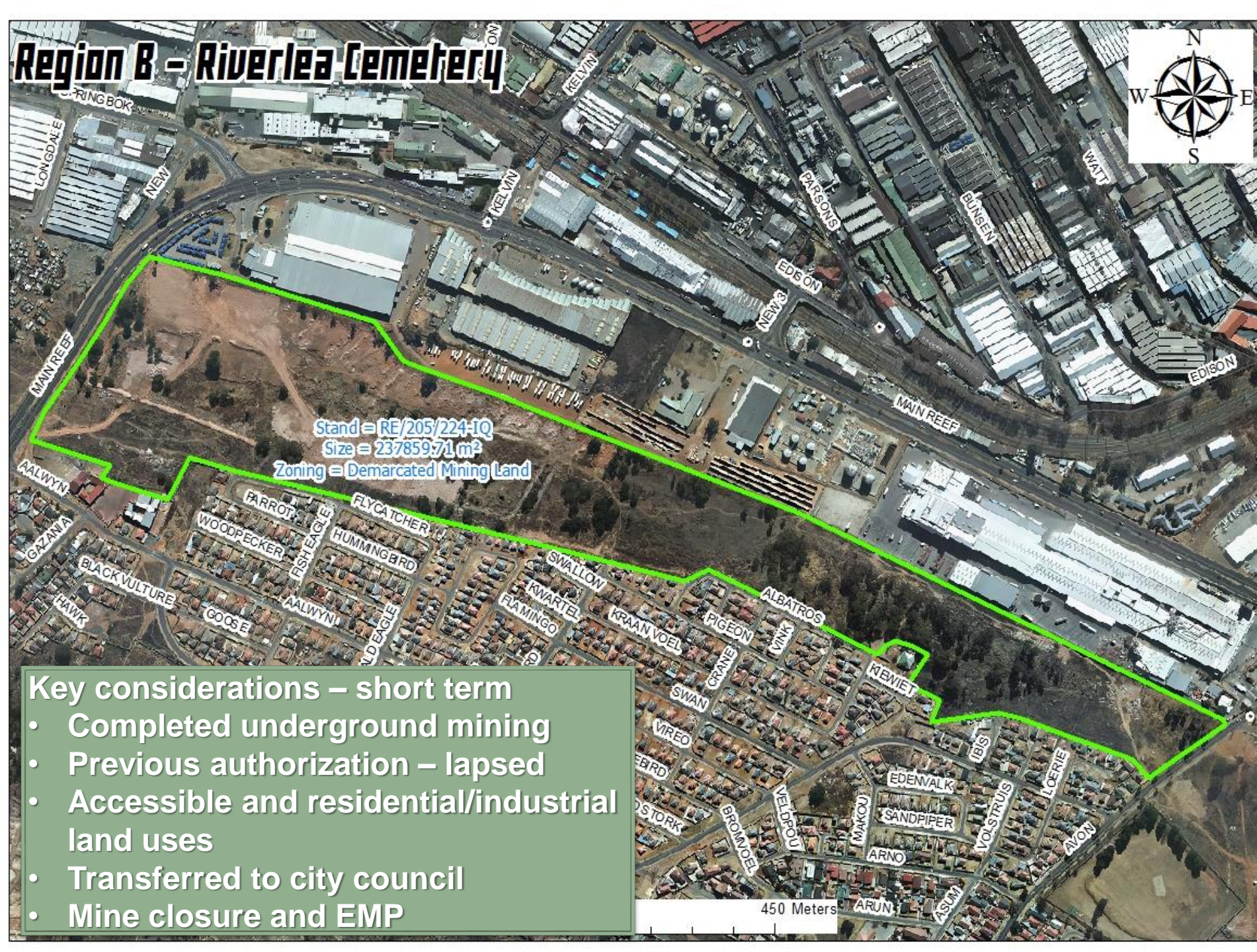


Key considerations

- “New” historical cemetery
- Profiling
- Records and verification
- Soil profile



Region B - Riverlea Cemetery



Stand = RE/205/224-1Q

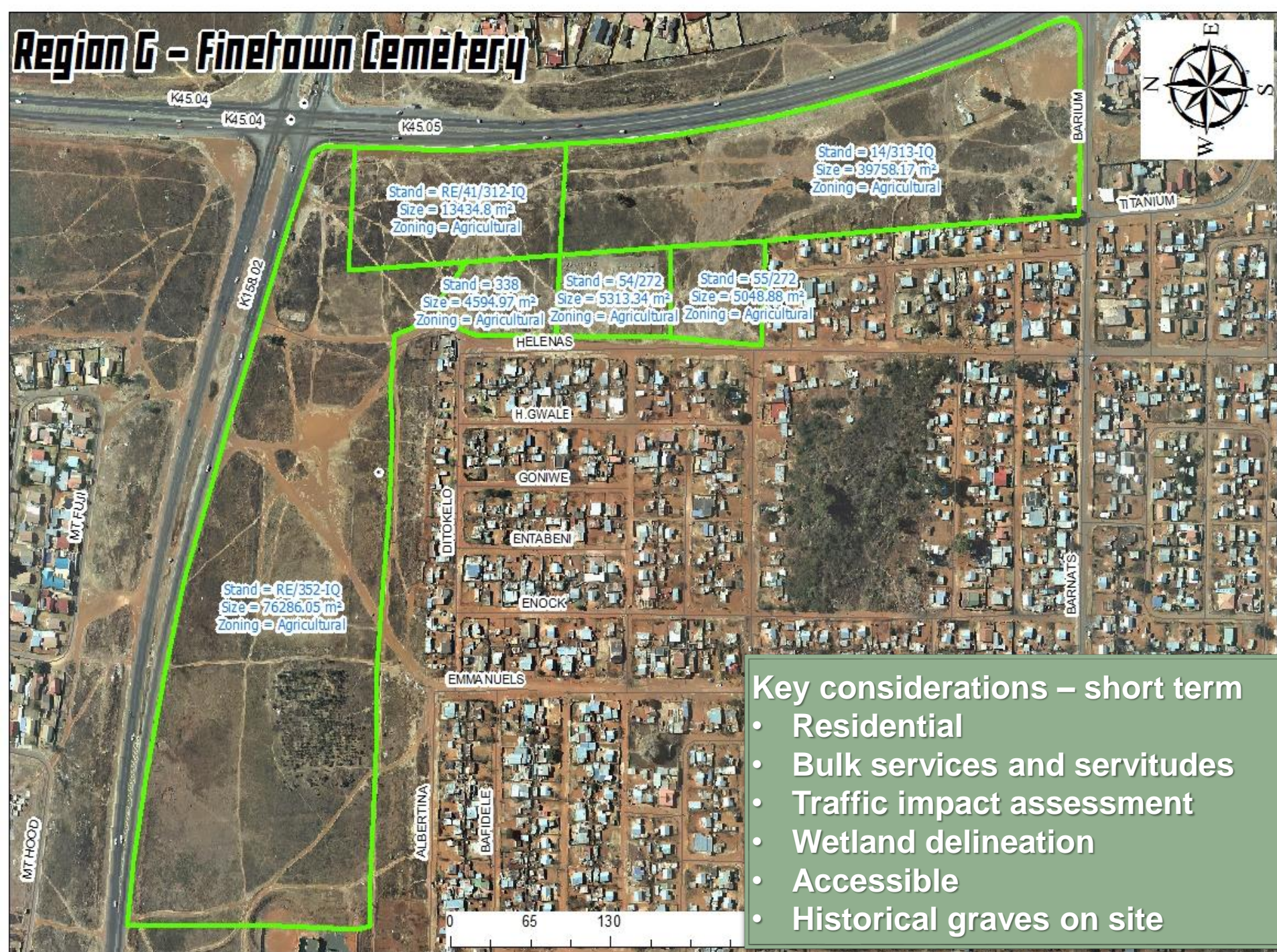
Size = 237859.71 m²

Zoning = Demarcated Mining Land

Key considerations – short term

- Completed underground mining
- Previous authorization – lapsed
- Accessible and residential/industrial land uses
- Transferred to city council
- Mine closure and EMP

Region G - Finetown Cemetery



Region G - Elandsfontein Cemetery



Stand = 26/308-1Q
Size = 170717.07 m²
Zoning = Undetermined

Stand = 44/308-1Q
Size = 75879.38 m²
Zoning = Undetermined

Key considerations – medium term

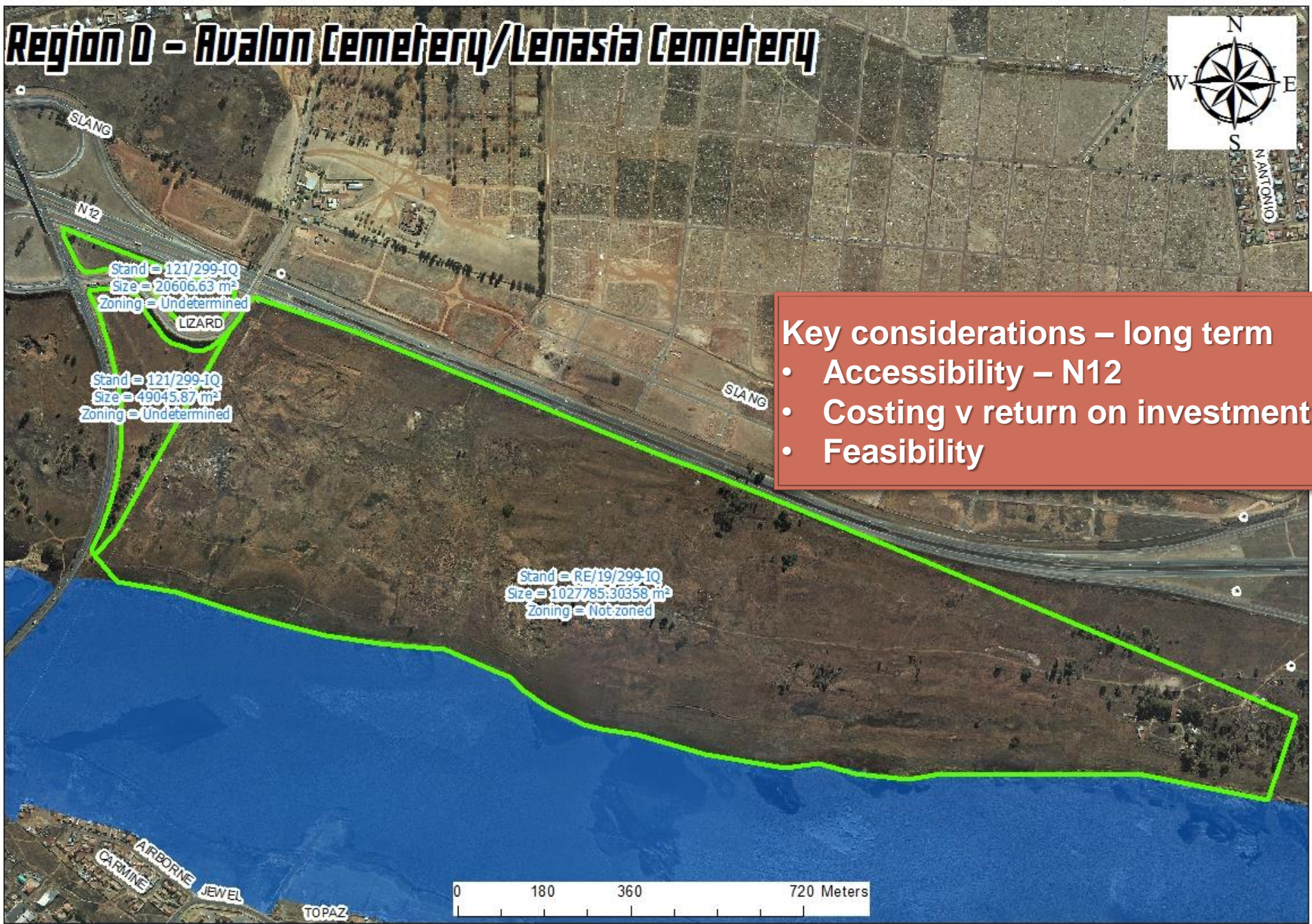
- Acquisition
- Private ownership
- Agricultural land

140 280 Meters

Region D - Avalon Cemetery/Lenasia Cemetery



- Key considerations – long term
- Accessibility – N12
 - Costing v return on investment
 - Feasibility



Doornkop Cemetery



Legend

- Doornkop Cemetery
- Stormwater Pipes

Key considerations – short term

- Stormwater management
- Reengineering
- Existing and active cemetery
- Wetland study
- Slope and drainage

Region G - Eikenhof Cemetery (Proposed)



Stand = 59/323-1Q
Size = 103784.43 m²
Zoning = Special Residential

Stand = 81/323-1Q
Size = 234799.75 m²
Zoning = Special Residential

Stand = 50/323-1Q
Size = 12833.62 m²
Zoning = Special

Stand = 24/323-1Q
Size = 187927.61 m²
Zoning = Special Residential

Stand = 95/323-1Q
Size = 149124.83 m²
Zoning = Government

Stand = 60/323-1Q
Size = 104166.41 m²
Zoning = Special Residential

Stand = RE/20/323-1Q
Size = 48125.48 m²
Zoning = Special Residential

Stand = 89/323-1Q
Size = 167847.78 m²
Zoning = Special Residential

Stand = 92/323-1Q
Size = 30467.69 m²
Zoning = Special Residential

Key considerations – long term

- Critical biodiversity site
- Dolomitic zones
- Informal settlement
- Private ownership
- Integrated town planning

300 600 Meters

Region B - Riverlea T.C Hesterhuisen Primary

Stand = RE/205/224-1Q

Size = 237859.71 m²

Zoning = Demarcated Mining Land



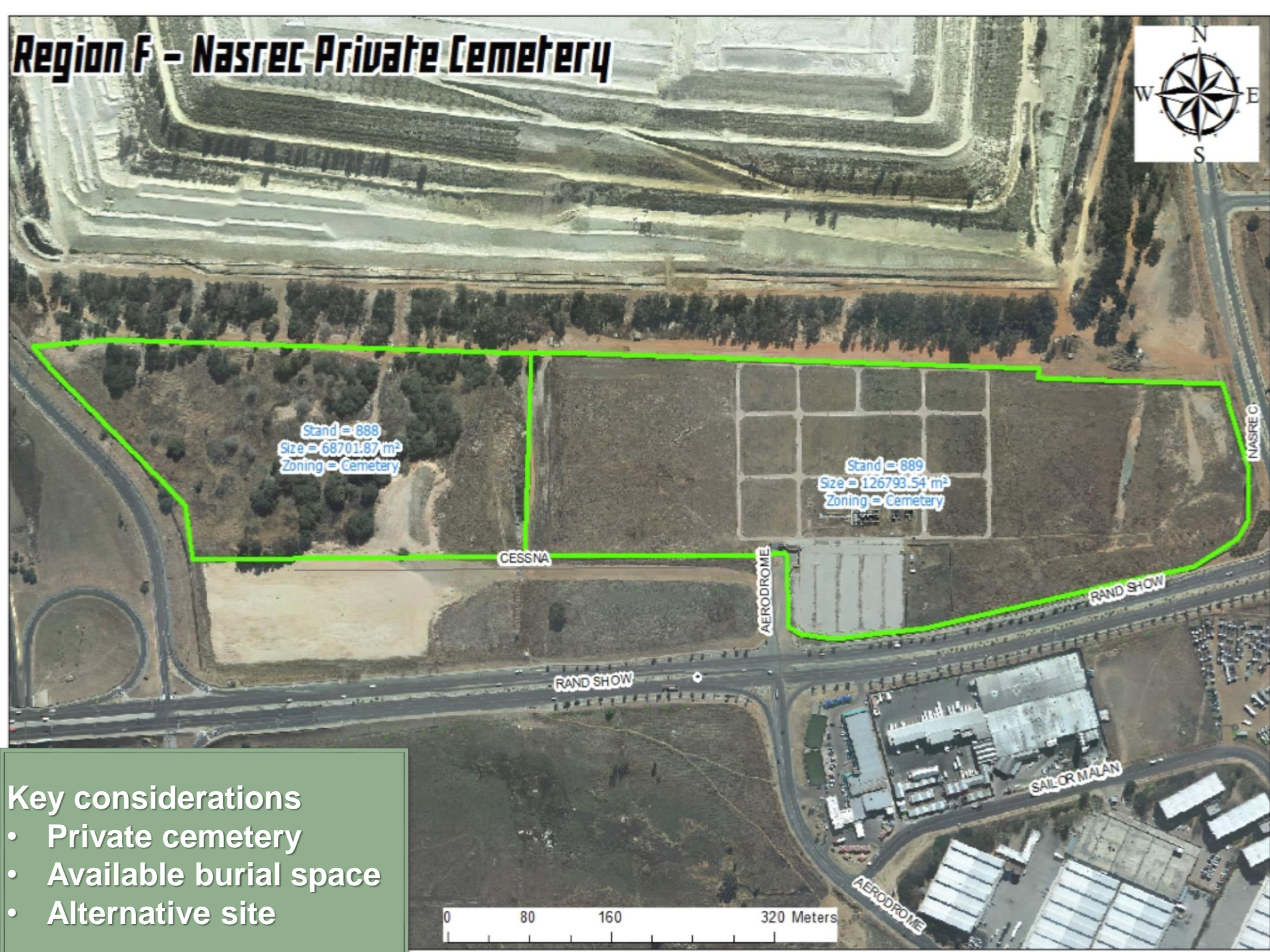
Stand = RE/205/224-1Q
Size = 209230.191 m²
Zoning = Demarcated Mining Land

Key considerations

- Mining land
- Soil profile and berock
- Costing



Region F - Nasrec Private Cemetery



Key considerations

- Private cemetery
- Available burial space
- Alternative site

Region A - Fourways Memorial Park (Private Cemetery)



- Key considerations
- Private cemetery
 - Burial space

Region B - Westpark Cemetery



Key considerations – immediate term

- Land swap
- Jewish Section expansion
- Biodiversity
- Rare grassland
- Research and collaboration with tertiary institution

New burial space contribution



Cemetery	Erf	Size (m²)	Hectares	Available burial space	Total available space
Linbro Park	4	185 790.73	18.6	37 200	37 200
Alexandra	306	8 141.40	0.8	800	800
Riverlea	RE/205/224-IQ	237 859.71	23.8	47 600	47 600
Orange Farm	RE/1/536-IQ	240 4 484.58	240.5	481 000	240.5ha=481 000
Ennerdale	461	4 184.63	0.4	400	1.5ha = 3000
	3915	6 521.28	0.7	700	
	3915	4 254.9	0.4	400	
Eldorado Park	10/299-IQ	39 686.57	3.9	7 800	18.9ha = 37 800
	103/299-IQ	150 623.67	15	30 000	

New burial space contribution



Cemetery	Erf	Size (m²)	Hectares	Available burial space	Total available space
1) Elandsfontein	26/308-IQ	170 717.07	17	34 000	24,6ha = 9 200
	44/308-IQ	75 879.38	7.6	15 200	
1) Eikenhof	RE/20/323-IQ	48 125.48	4.8	9 600	126ha = 253 200
	24/323-IQ	187 927.61	18.7	37 400	
	27/323-IQ	229 389.74	22.9	45 800	
	50/323-IQ	12 833.62	1.2	2 400	
	59/323-IQ	103 784.43	10.4	20 800	
	60/323-IQ	104 166.41	10.4	20 800	
	81/323-IQ	234 799.75	23.5	47 000	
	89/323-IQ	167 847.78	16.8	33 600	
	92/323-IQ	30 467.69	3	6 000	
	95/323-IQ	149 124.83	14.9	29 800	

New burial space contribution



Cemetery	Erf	Size (m²)	Hectares	Available burial space	Total available space
1) Pennyville	186/226-IQ	111 902.36	11.2	22 400	59.9ha = 119 800
	RE/205-IQ	102 008.24	10.2	20 400	
	1/230-IQ	385 285.045	38.5	77 000	
1) Finetown	RE/252-IQ	76 286.05	7.6	15 200	13.6ha = 27 100
	RE/41/312-IQ	13 434	1.3	2 600	
	14/313-IQ	39 758.17	3.9	7 800	
	338	4 594.97	0.5	500	
	54/272	5 313.34	0.5	500	
	55/272	5 048.88	0.5	500	
TOTAL			531		1062000/ 15 000 = 71 years

Project plan and milestones



Aspect	Activity	Action	Timeframes
1. Feasibility	Identification and site assessments of individual cemeteries	Verification and ground-truthing	01 Nov 15 – 30 Jun 16 Completed
		Mapping	
		Vegetation and soil profiling	
		Identified properties consolidation	
2. Planning	Authorities consultation	Request forwarded to Johannesburg Property Company	01 Jul – 30 Sep 15 Completed and responses
		CoJ Environment and Planning departments	
		GDARD	
	Environmental compliance	Preliminary geotechnical assessments	01 Jun – 30 Aug 15 Completed
		Wayleave applications, identification of bulk services and registered servitudes	01 Jul – 30 Sep 15 Finetown completed

Project plan and milestones



2. Planning	Masterplan	Identification of essential infrastructure	01 Jul 15 – 30 Mar 17
	Town planning compliance	Costing and town planner appointment	
		Surveys and registrations	
		Rezoning and user agreements	
	Stakeholder consultation	New councillors list, post – elections Stakeholder consultation	
3. Implementation	Cemeteries construction & Operation	Commencement of burials	01 Jul 17
4. Monitoring	Monitoring	Compliance monitoring and evaluation of scheduled activities	In progress and on-going, pre, during and post construction phases

Way forward

- 1) Project plan and environmental authorizations**
- 2) Operational requirements**
 - 1) Ground water resources
 - 2) Emissions monitoring
 - 3) Safety and security
 - 4) Infrastructure upgrades
- 3) Prioritization of crematoria expansion**
 - 1) North, East and Western regions



THANK YOU