

HERITAGE IMPACT ASSESSMENT DOOR DE KRAAL Erf 39170

February 2012



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CONTENTS

	EXECUTIVE SUMMARY.....	pg.3
1	SECTION ONE: INTRODUCTION	
1.1	Terms of reference.....	pg.4
1.2	Site location and description.....	pg.4
1.3	Legal requirements.....	pg.5
1.4	Methodology.....	pg.5
1.5	Assumptions and limitations.....	pg.5
2	SECTION TWO: HISTORICAL OVERVIEW.....	pg.6
3	SECTION THREE: STATEMENT OF HERITAGE SIGNIFICANCE.....	pg.8
4	SECTION FOUR: FORMULATION OF HERITAGE INDICATORS.....	pg.10
5	SECTION FIVE: THE URBAN DESIGN CONCEPT.....	pg.12
6	SECTION SIX: VISUAL IMPACT ASSESSMENT.....	pg.19
7	SECTION SEVEN: PUBLIC PARTICIPATION PROCESS.....	pg.102
8	SECTION EIGHT: THE HERITAGE IMPACT ASSESSMENT.....	pg.103
8.1	Impact on place character; transformation from agricultural to an urban landscape.....	pg.103
8.2	Impact on agricultural soils.....	pg.105
8.3	Impact on Majik Forest, Vink se Bos and traditional patterns of access.....	pg.105
8.4	Socio-Economic Impact.....	pg.105
8.5	Archaeological Impact.....	pg.106
8.6	Paleontological Impact.....	pg.106
9	SECTION NINE: CONCLUSIONS AND RECOMMENDATIONS.....	pg.107
	REFERENCES.....	pg.109

LIST OF FIGURES

1.	Sub-regional Site Context.....	pg.4
2.	Local Site Context.....	pg.4
3.	Historic context of Door De Kraal.....	pg.7
4.	Heritage Resources diagram.....	pg.9
5:	Spatialization of heritage indicators.....	pg.11
6.	Conceptual ideas 1 – 4.....	pg.13
7.	The Preferred Alternative.....	pg.14
8.	Site Plan Revision Z.....	pg.107

APPENDICES

1. HWC ROD 14 December 2011
2. Archaeological Impact Assessment
3. Urban Design Guidelines
4. Agricultural Soils Report
5. Poster Presentation at Open House
6. Letter from CoCT re amendment of urban structure plan, PSDF Urban Edge. Northern Metro Urban Edge, Rezoning and Subdivision
7. Paleaontological Study

EXECUTIVE SUMMARY

The development proposal is for a mixed use development on a portion of erf 39170 Bellville, known as Door de Kraal. As NEMA is triggered the HIA is submitted in terms of Section 38(8) of the NHR Act.

The site is located at the northern end of Jip De Jager Drive between a tributary of the Elsieskraal River and the associated Majik Forest and the office park known as the Vineyards Office Estate. It is intended to subdivide 4.4 ha of the 28.8 ha property currently used for vineyards for a mixed use development and to establish a Stabilization Fund to underpin the long term viability of the balance of the property for agriculture. Heritage issues relate to loss of agricultural land, farmed since the late seventeenth century, the loss of the scenic and experiential quality related to the green agricultural edge to the existing built form, and the possible impacts on the social historical and recreational significance of the Majik Forest and the associated arboretum known as Vink se Bos.

The agricultural potential of the affected portion of the property is low, with a substantially lower yield than the portion to the west to be reserved for agricultural purposes. The Department of Agriculture has supported the proposal to alienate a portion of the farm for development purposes and to establish a Stabilization Fund. The portion of land affected is located at the lower end of a gentle slope, adjacent to a major thoroughfare. The ridge line to the west which is contiguous to the historical farm Altydgedacht will not be affected. The sense of a green container will thus not be affected. The adjustment of the urban edge line to correspond with the adjacent office park is regarded as a “rounding off” of the existing urban edge and a form of infill related to the adjacent office park. The Spatial Planning Department of the City of Cape Town has assessed the proposal and agreed that the siting, located at a unique confluence of significance road and open space systems will have minimal environmental impacts and represents a logical infill on the edge of the existing urban development. The amendment of the Urban Structure Plan and finalization of the urban edge is thus supported by the CoCT.

This HIA concludes that the impact on the identified heritage resources will be minimal. It recommends that the development proposal be supported by HWC and that conditions of approval should include a height limitation of two to three storeys and that visual corridors between Jip De Jager Drive and the vineyards to the west be incorporated into the design layout.

Nicolas Baumann D.Phil
February 2012

SECTION ONE: INTRODUCTION

1.1 Terms of Reference

Nicolas Baumann Urban Conservation and Planning has been appointed by D’Aria Vineyards (Pty) Ltd to conduct an HIA related to the proposed development of a 4.4 ha portion of the property Erf 39170, Bellville. More specifically the brief required the HIA to address the following decision by HWC in response to the Notification of Intent to Develop dated 14 December 2011.

“Since there is reason to believe that heritage resources will be impacted upon, HWC requires an HIA in terms of Section 38 (3) (sic) of the NHRA (Act 25 of 1999) assessing the impacts on the following heritage resources which it has identified: archaeology, palaeontology, cultural landscape and a visual impact assessment with an integrated set of recommendations.”

1.2 Site Location and Description

The site is located at the northern end of Jip de Jager Drive. It is bound by the office park, the Vineyards Office Estate, immediately to the north and suburban development to the east and south. The western boundary is formed by vineyards on the remaining 24.4ha. of the farm Door De Kraal. Altydegedacht is located immediately to the west. The regional and sub-regional location of the site is illustrated in Figure 1.

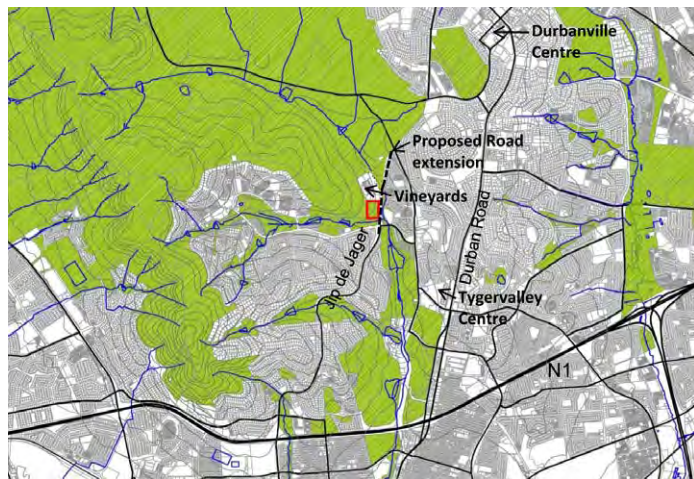


Fig 1: Sub Regional Context (OvP)

The land slopes gently from a ridge line to the west to the lower lying portion located adjacent to Jip de Jager Drive. Although the whole site is presently used for agriculture there is a noticeable difference in the quality of the vineyards with the bush vines associated with poorer quality agricultural soils located on the lower portions of the site.

A significant visual, social and recreational resource is the Majik Forest and associated Vink se Bos immediately to the south related to the tributary which feeds the Elsieskraal River which runs in a north-south direction to the east of Jip de Jager Drive. A substantial and extensive mounting-biking and walking-trail traverses the Majik Forest and links to a network of trails through the farmlands to the west. These public trails criss-cross the agricultural land formed by Door de Kraal and it is intended that public access to the mountain-bike and hiking trail will be continued.

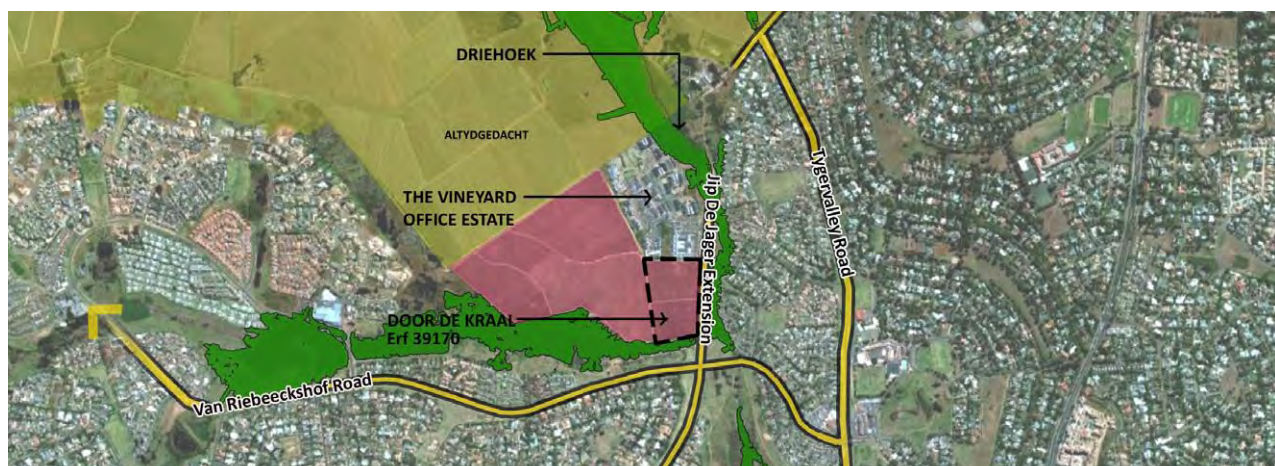


Fig 2: Site Location

1.3 Legal requirements

The National Environmental Management Act (NEMA) is triggered by the proposed amendment of the Urban Structure Plan and thus section 38(8) of the NHR Act applies. The application is for the amendment of the Urban Structure Plan and realignment of the existing urban edge and the rezoning of a portion of Erf 39170 from an undetermined to sub-divisional area and for site development-plan approval. A LUPO application was submitted in May 2011 and the public participation process associated with the LUPO application was completed in September 2011. A NID was submitted to HWC on 25 November 2011 and a response, requiring archaeological, palaeontological and cultural landscape analysis, and an integrated set of recommendations was received from HWC on the 14th December 2011.

1.4 Methodology

To address the requirements contained in HWC's response to the NID the following steps were undertaken:

- A site visit and meetings with the planning team and the environmental practitioner.
- An Archaeological Impact Assessment (AIA) (Hugo Pinto and Kathryn Smuts of CRM Archaeological Services), (Appendix 2).
- A Palaeontological Impact Assessment (Dr Graham Avery, Iziko Museums), (Appendix 8).
- A Visual Impact Assessment (VIA) (David Gibbs of Gibbs Saintpol Landscape Architects)
- Scrutiny of reports and findings compiled by the Department of Agriculture related to soils potential and the Spatial Planning Branch of the City of Cape Town related to the adjustment of the urban edge line.
- Scrutiny of the public participation process and the issues raised, particularly related to heritage and possible implications on site character.
- A statement of heritage significance on the basis of the studies mentioned, the site visit and the understanding of the significance of the site in its sub-regional and local context.
- A series of heritage indicators and their spatialization to provide a framework for assessment.
- The assessment of the potential impacts related to the loss of agricultural land, scenic quality and place character, and archaeology and palaeontology.
- Conclusions and recommendations as to the comment HWC should make as to whether or not the development should be allowed to proceed and what mitigation measures should be applied.

1.5 Assumptions and Limitations

This HIA assumes that the information referred to the reports identified above is correct and that there are no fatal flaws in the application process.

SECTION TWO: HISTORICAL OVERVIEW

A historical overview, contained in the AIA, compiled by Hugo Pinto of CRM Archaeological Services, is included in Appendix 2. An overview is provided hereunder.

The Tygerberg Hills were first occupied by Early Stone Age and Middle Stone Age communities from as early as 700 000 years BP (Deacon and Deacon 1999). Farm land in the area was granted to European settlers from the late seventeenth century. Erf 39170 is located on the historic freehold farm Door De Kraal, also known as Doodedraal, granted in 1698 as Farm No. 283 and later recorded as Erf 11615. The original extent of Door de Kraal and the extent to which it has been engulfed by suburban development over time is indicated in Figure 3 on the following page. An earlier AIA compiled by Wurz and Deacon in 2005 provides the following transaction history.

Doodekraal was granted by Simon van der Stel to the widow of Gysbert Verwey, Tryntie Theunisse in 1698 (Fagan 1994). The farm sustained a large number of cattle and the land was cultivated with vines, rye and wheat.

There are historical references to the presence of a group of Khoekhoen living in close proximity to the European farmers during the late seventeenth century and early eighteenth century with a reference from that period to Doodekraal as 'de oude Kraal'. Cumulative pressures on these indigenous groups in the form of smallpox epidemics, land expropriation and economic and military subjugation by the European population throughout the eighteenth century resulted in only a fraction of the original Khoekhoen population surviving. Doodekraal Farm exchanged hands over eighteen times by 1838, with the De Villiers family buying the farm in the late nineteenth century. The property was subdivided repeatedly after 1924 and particularly with the establishment of the suburb of Kenridge in 1948 and other portions being sold off or appropriated, Doodekraal as an identifiable entity began to disappear.

A survey undertaken in 1978 of the Doodekraal farmstead recorded a T-shaped house, stable and a granary. Architectural features indicated a circa late seventeenth century date for the construction of the original dwelling (Fagan 1994). The homestead no longer exists.

Since the 1700's the main agricultural activities in the Tygerberg area were grain and grape cultivation. Common ancillary produce came from farming dairy cattle, vegetables and fruit. In the latter half of the twentieth century production shifted almost entirely to the wine industry. Only Altydgedacht Farm, bordering Doodekraal to the north-west, is preserved practically in its entirety as agricultural land, and currently operates as a wine estate. The neighbouring farms of Onrust and Welgemoed to the west and south-west; and Vygeboom and Ellersdal to the east and south-east have, like Doodekraal, been almost completely encroached by urban development.

These suburban encroachments have resulted in a significant impact on the landscape. The social structure of traditional farmer and farm-worker communities, and the link between those communities and the landscape, with links between those communities and specific parcels of land have largely been lost.

(after Wurz and Deacon, 2005 pg 5-6).

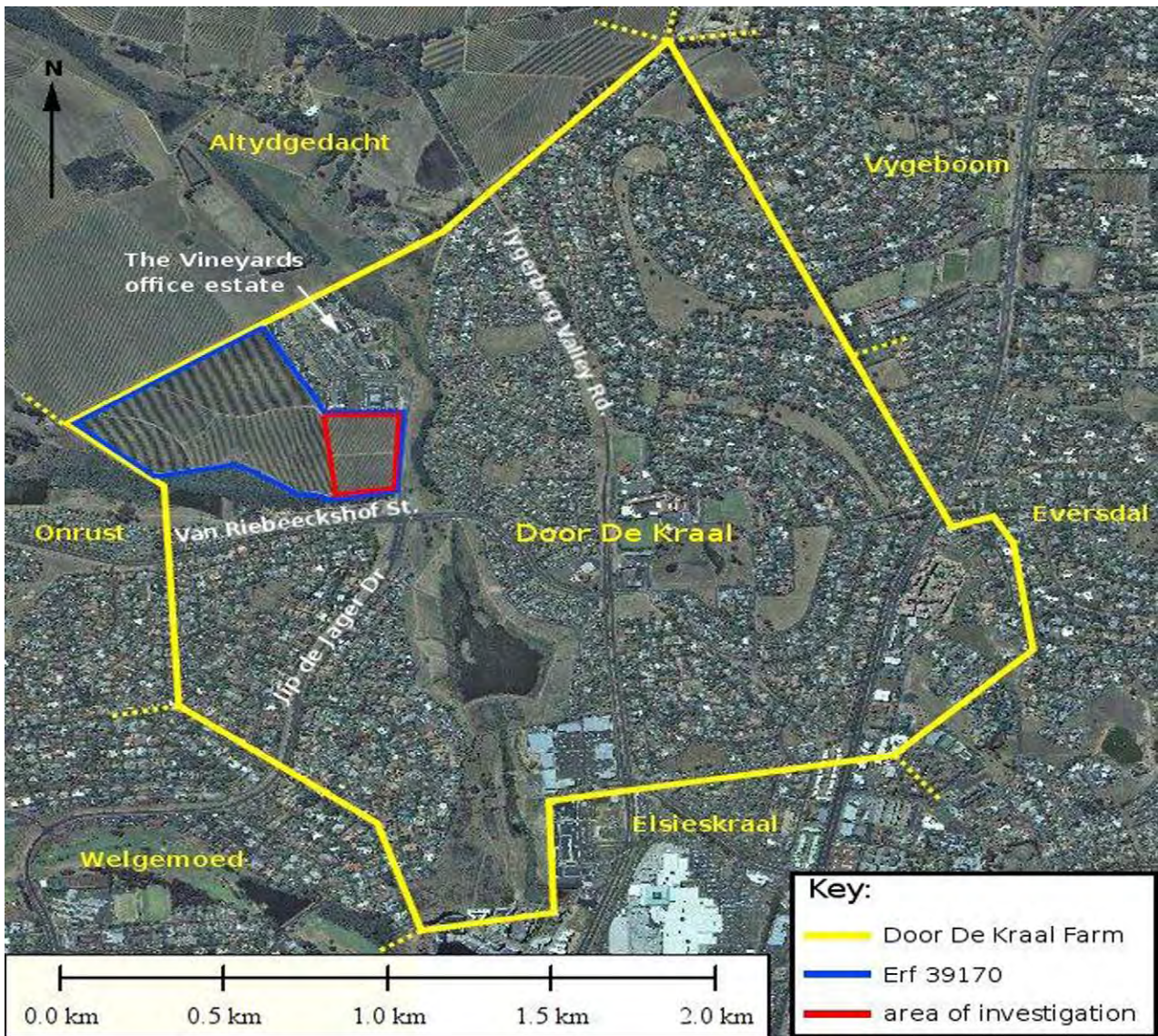


Fig 3: Historic context of Door De Kraal (from Fig. 2 in AIA)

SECTION THREE: STATEMENT OF HERITAGE SIGNIFICANCE

Significance relates to the historic enduring agricultural role of the site and its role in providing a green edge and green container to the suburban development of northern Bellville. There are no structures of historical cultural significance on the site. More specifically:

3.1 Historical significance

The enduring and continuing use of the site since the late seventeenth century for agricultural purposes. Vineyards are the agricultural use most associated with the historical use of the property.

3.2 Visual, scenic and experiential significance

The site presently forms a green edge to the suburban development of Bellville. The site area gradually slopes down to the east and south, ranging in height between 160m and 120m above sea level. It is situated on the south-east facing slope of a hill with a summit at a height of approximately 270m located approximately 1.4km west by north-west of the site. In terms of the valley cross-section it is these upper slopes which are regarded as being most significant in creating a uniform and consistent edge. The proposed development is located on the lower portions of the site and does not extend above the 155m contour line.

3.3 Social recreational significance







The adjacent Majik Forest and the arboretum known as Vink se Bos, has considerable local and sub-regional significance in terms of its social and recreational role in providing a network of mountain biking and hiking trails. The heavily treed forest related to the tributary to the Elsie's Kraal also has aesthetic and some scientific significance.

3.4 Archaeology and palaeontology

The attached reports indicate the area has low significance in terms of archaeology and palaeontology.



Fig 4: Heritage Resources

-  Vineyards have both historical and visual significance
-  Majik forest and arboretum provides visitors with recreational space of historical significance
-  Walking and cycling trails
-  Existing Urban Edge
-  Proposed Urban Edge
-  Elsieskraal River

Contours @ 5m spacing

SECTION FOUR: FORMULATION OF HERITAGE INDICATORS

The formulation heritage indicators is derived from the statement of heritage significance above and is intended to provide a broad framework for the assessment of heritage significance in Section Eight below.

4.1 Retain and enhance the green container and the contribution of the vineyards to place character

More specifically:

- 4.1.1 Ensure that the green edge is continuous, contiguous and aligned to the existing extensive farmland to the west and north-west, associated with the historical property Altydgedacht.
- 4.1.2 Avoid jagged and inconsistent edge lines which are difficult to maintain and which result in a sense of visual disturbance.
- 4.1.3 Avoid ridge lines
- 4.1.4 Develop mechanisms to ensure that any development which could be accommodated makes a contribution to the long term sustainability of the agricultural use.
- 4.1.5 Ensure soft transitions between urban and agricultural edges i.e. avoid high boundary walls.

4.2 Avoid good agricultural soils

Development should only be considered on soils which have low agricultural potential and which have been identified as such by the Department of Agriculture.

4.3 Ensure the retention and enhancement of the social and recreational significance of the adjacent Majik Forest and Vink se Bos and existing patterns of public access

- 4.3.1 There should be no encroachment on existing rights of way with regard to public open space associated with the Majik forest and Vink se bos arboretum.
- 4.3.2 There should be a positive interface at the transition zone between the proposed development and the starting point to the network of mountain-biking and hiking trails in the south-east corner of the property. This should be in the form of increased surveillance over the area which would contribute to addressing some of the anti-social behaviour patterns which are evident. A land use with a semi-public component, preferably related to a public place such as an urban square would be preferable and could contribute substantially to a place of urban quality, related strongly to place character, in an area characterised by suburbia.

4.4 Avoid suburban creep

- 4.4.1 There should be no intrusion into the higher, more visually exposed slopes which provide a sense of green container to the northern suburbs of Bellville and which are spatially and visually integrated with the Altydgedacht farmlands.

4.4.2 Existing developments in the immediate vicinity should be “rounded off” to mitigate the isolated and somewhat anomalous nature of the existing office block to the north. There should be a spatial and functional integration between the two developments to reinforce a broader spatial structure and to avoid isolated and ad hoc development patterns.

4.4.3 There should be a consistency in terms of massing, scale and form with development in the immediate vicinity. This relates particularly to height. Character should, however, be urban, rather than suburban, in terms of densities and the creation of urban spaces and public places.

4.5 Enhance the potential role of Jip de Jager Drive as a Boulevard

While the proposed extension of Jip de Jager Drive to Tygerberg Valley Road has yet to be clarified, it does have the potential to function as a scenic route and an integral component of a scenic route network, particularly in terms of its location in relation to the Elsies Kraal River and the views afforded over the vineyards, the essential structuring and formative elements which contribute to the character of the area.

4.5.1 Ensure appropriately landscaped edge treatment to any development facing onto Jip de Jager Drive and a positive interface.

4.5.2 Provide visual links between Jip de Jager Drive and the vineyards to the west adjacent to the Majik Forest, at the point of entry into the proposed development and adjacent to the existing office park development.

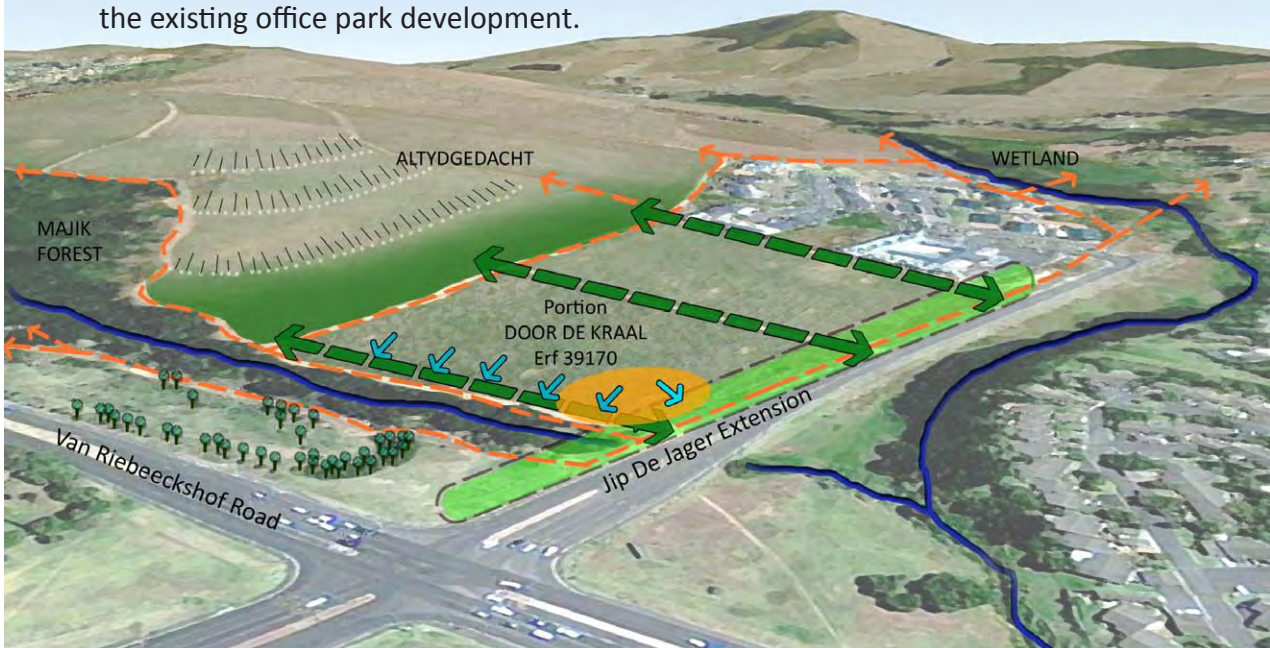










Fig 5: Spatialization of heritage indicators

-  'Green fingers' provide green visual and movement connections through the development
-  Maintain and improve access to walking and cycling trails
-  Village node
-  Public surveillance (active edge to proposed development)
-  Elsieskraal River
-  Vink se bos arboretum and Majik Forest
-  Enhance the potential role of Jip de Jager Drive as a scenic route
-  Continuous green edge 'rounded off'

SECTION FIVE: THE URBAN DESIGN CONCEPT

It should be noted that the urban design concept deals with two proposals, Door de Kraal Plein and Driehoek Residential. In response to the NID application submitted in December 2011, HWC noted that no further heritage analysis was required related to the Driehoek proposal and it is thus not included in this HIA. The urban design concept compiled by OVP Associates upon which this assessment is based is included below. The concept involves a number of urban design principles which constitute the development vision.

They include:

- Integrated mixed-use development.
- Establishing an appropriate urban edge.
- Positive outdoor space.
- Human-scaled development.
- Active edges.

The preferred alternative incorporates the following:

- Bringing the green into Door de Kraal by creating a large triangular open space opening onto the Majik Forest.
- Creating an urban public space on the south-eastern corner of Door de Kraal Plein which relates to the open space, and the Majik Forest and which forms a visual gateway to the development.
- Creating a pedestrian street which extends from the existing office park into Door de Kraal.
- Having a residential component of Door de Kraal overlooking the open space and as a component of some of the buildings around the square.
- A cycle route that starts in Door de Kraal.

The land use proposal consists of 70 residential apartments, 22700m² offices, 1000m² retail and a 800m² conference facility.

It should be noted that largely due to public concerns raised during the public participation process that the residential component has been removed and replaced with additional office bulk. Although not strictly a heritage issue, it is suggested that the removal of the residential component would have an adverse impact on the mixed-use, urban integrated concept envisaged in the urban design vision and should thus be reconsidered. This is further dealt with in Section Eight below.

THE URBAN DESIGN CONCEPT

OVP Landscape Architects



Concept 1



Concept 2



Concept 3

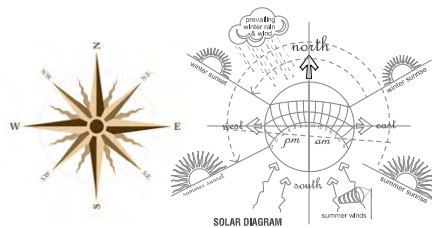
The urban-design analysis concludes that the proposed development has a number of positive aspects:

- A strong edge to discourage further urban sprawl;
- A more continuous development which will ameliorate the existing development's visual impact;
- A mix of uses which will provide amenities for the surrounding communities; and
- Sustainable design principles can be applied.



Concept 4 , Preferred Concept (OVP)

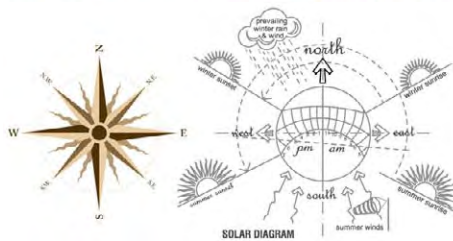
THE PREFERRED ALTERNATIVE L1



<p>D'ARIA</p>	<p>CLIENT</p>	<p>PROJECT</p> <p>DOOR DE KRAAL PLEIN Ptn A ERF 39170 - 4.58ha</p> <p>FOR INFORMATION</p>	<p>CAPE TOWN 14, The... 2011-2012</p> <p>PRETORIA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 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997, 998, 999, 1000</p>	<p>BOOGERTMAN + PARTNERS ARCHITECTS</p>	<p>DRAWING</p> <p>Conceptual SITE PLAN</p> <p>SCALE 1:1000</p> <p>DATE: 15 04 2011 PROJECT NO: 11155 DRAWING NO: 1 0 2 K</p>
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ANNEXURE L1

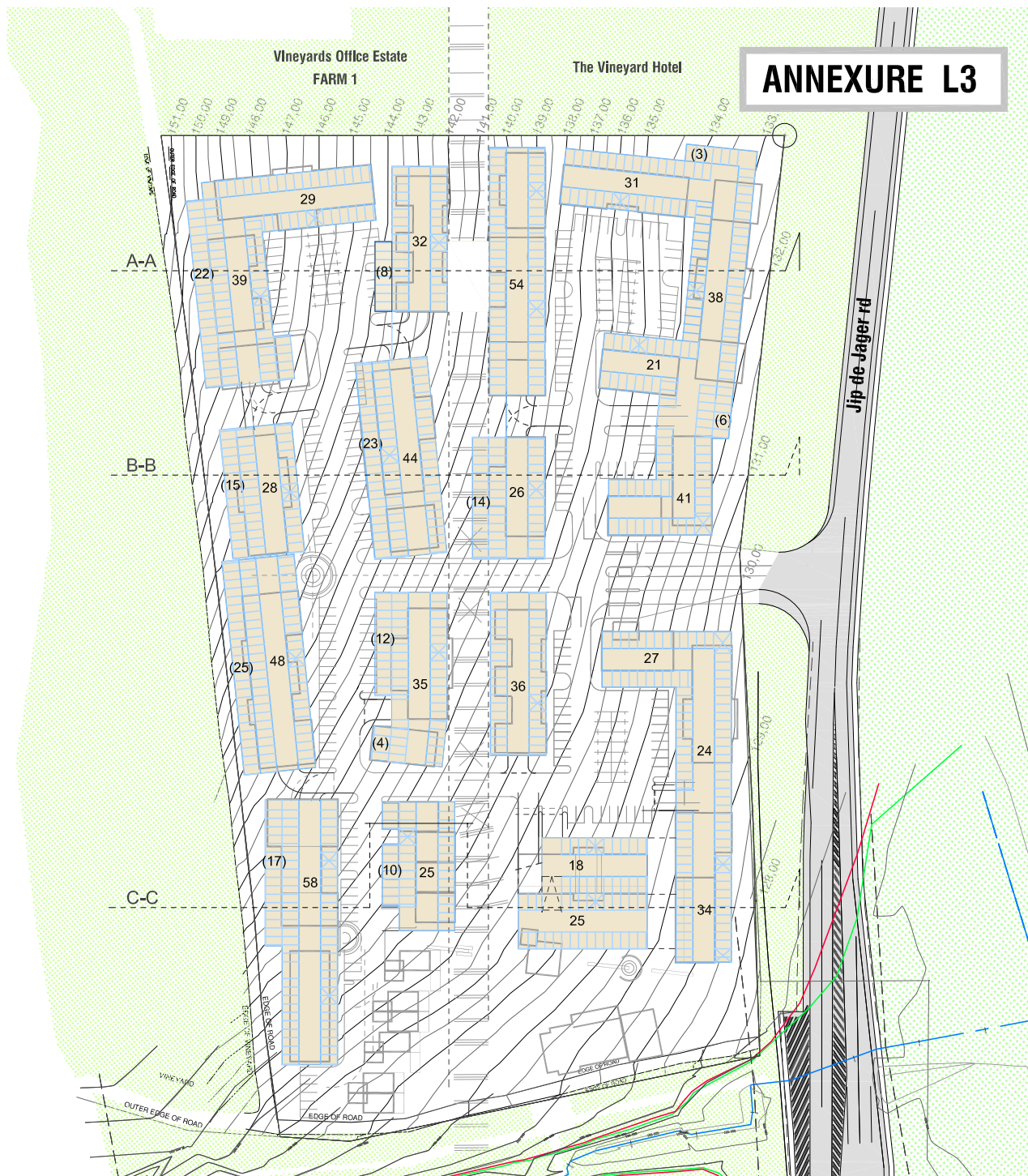
THE PREFERRED ALTERNATIVE L2



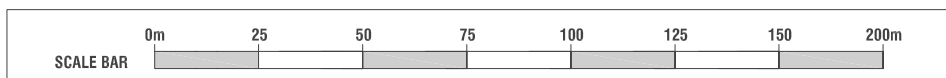
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<p>FOR INFORMATION</p>						

ANNEXURE L2

THE PREFERRED ALTERNATIVE L3



ANNEXURE L3



CLIENT

D'ARIA

PROJECT

VINEYARDS

VIERHOEK ONTWIKKELING
Ptn A ERF 39170 - 4.58ha

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+ PARTNERS**
ARCHITECTS

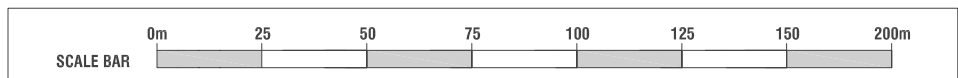
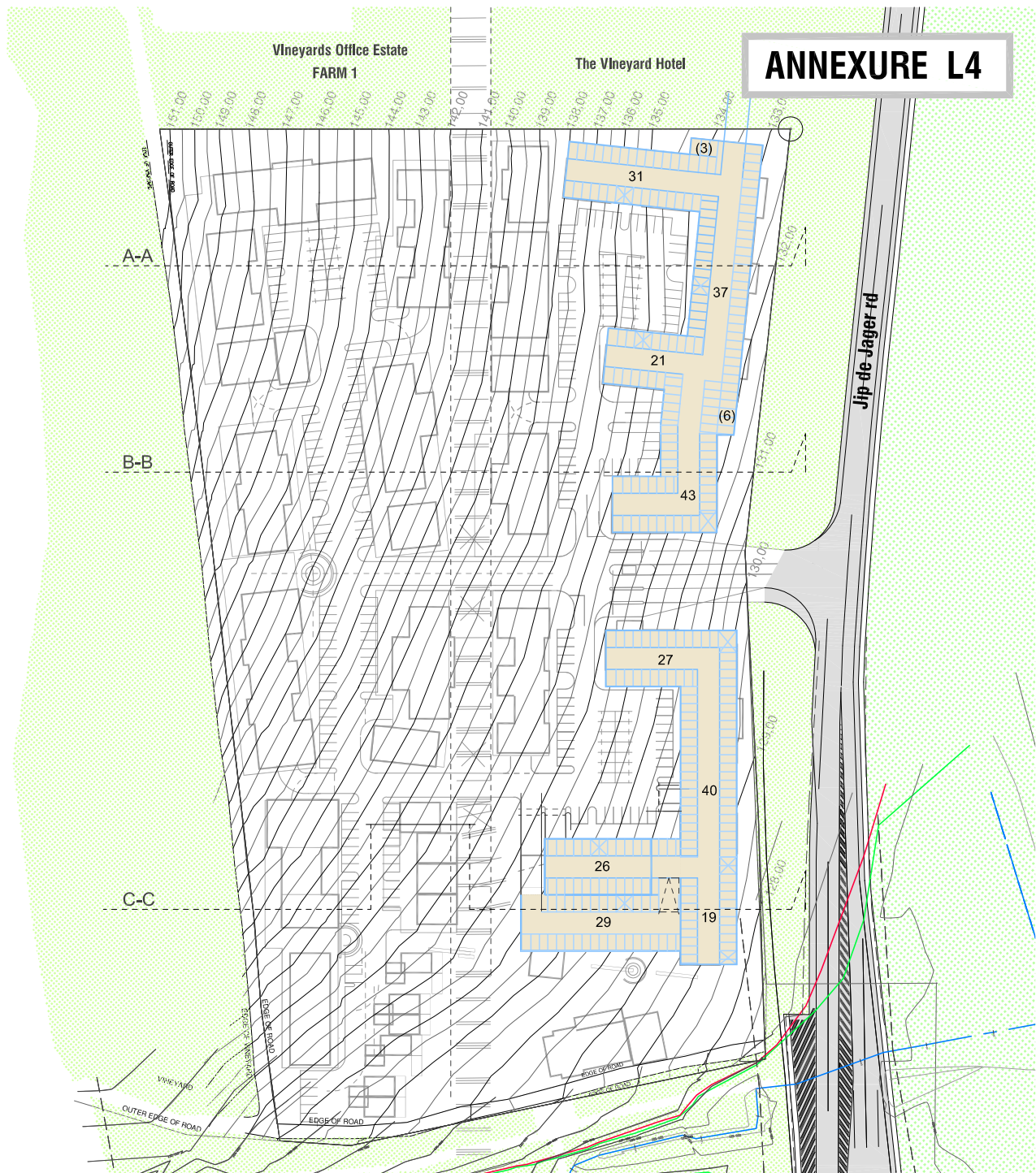
DRAWING

**BASEMENT LEVEL 1
- UPPER BASEMENT**

SCALE 1 : 1500

DATE	15 04 2011	PROJECT No.	11155	DRAWING No.	103	REVISION	K
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THE PREFERRED ALTERNATIVE L4



PROJECT

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Ptn A ERF 39170 - 4.58ha

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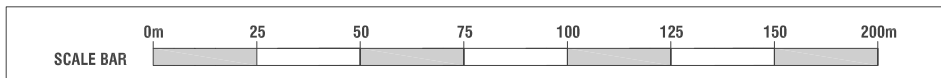
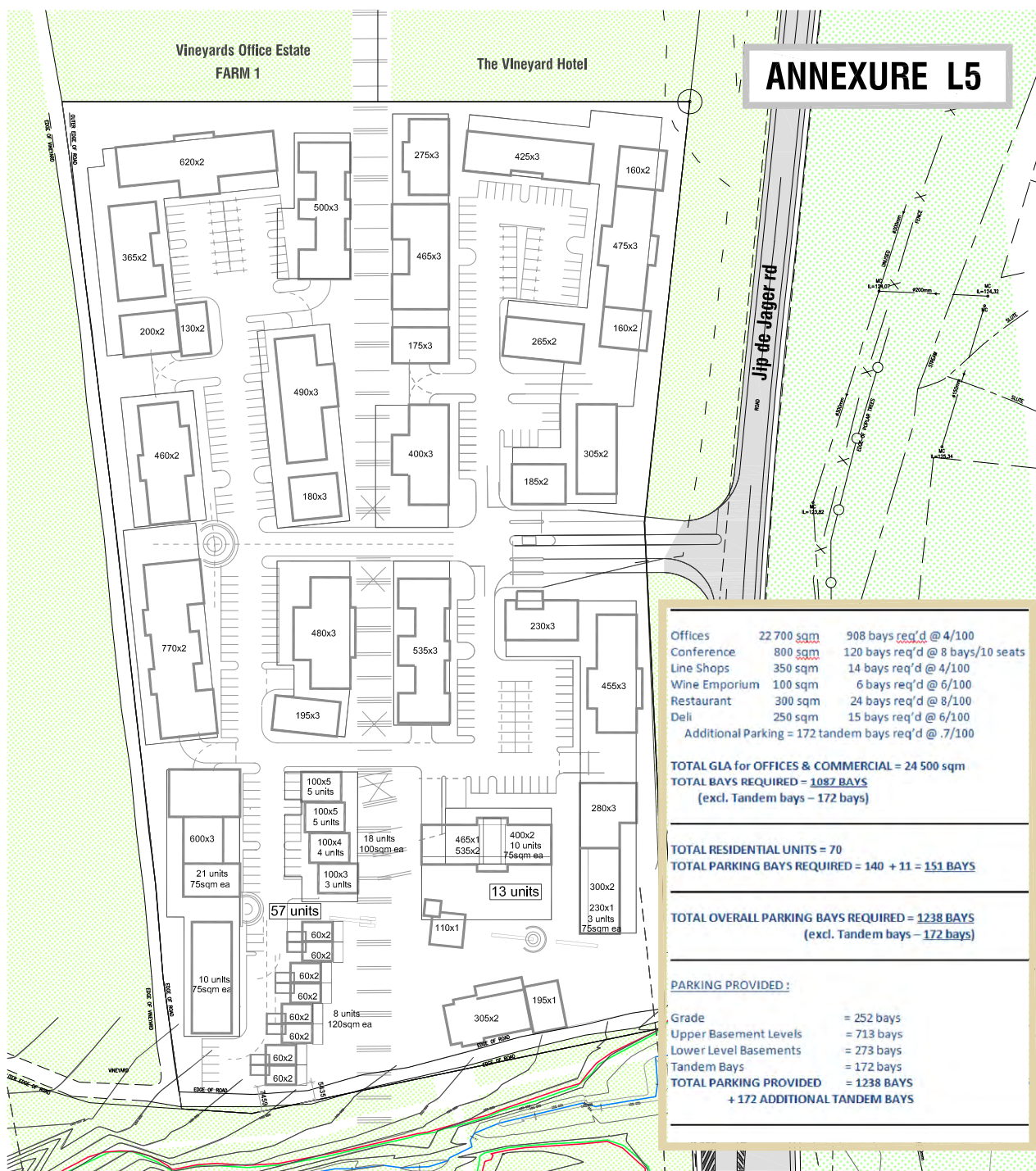
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**BASEMENT LEVEL 2
- LOWER BASEMENT**

SCALE 1 : 1500

DATE	15 04 2011	PROJECT NO.	11155	DRAWING NO.	1 0 4	REVISION	K
DRAWN		CHECKED					

THE PREFERRED ALTERNATIVE L5



 D'ARIA	CLIENT VINEYARDS VIERHOEK ONTWIKKELING Ptn A ERF 39170 - 4.58ha	CAPE TOWN 1800 400 0000 021 461 4000 Fax: 021 461 4001 Email: info@boogertman.com Web: www.boogertman.com	 BOOGERTMAN + PARTNERS ARCHITECTS	DRAWING AREAS : BULK & GLA Number of Residential Units PARKING FIGURES SCALE 1 : 1500
	FOR INFORMATION	PRETORIA Tel: 011 551 8888 Fax: 011 551 8887		DATE: 15 04 2011 PROJECT No.: 11155 DRAWING No.: 1 0 5 REVISION: K

SECTION SIX: VISUAL IMPACT ASSESSMENT

In response to the NID application, HWC required that a Visual Impact Assessment (VIA) for the proposed development be conducted and integrated into the HIA process. The VIA compiled by Gibbs Saintpol Landscape Architects is included below. As indicated above, only the VIA for the Vierhoek (Door de Kraal Plein) is of relevance to this HIA. HWC has deemed that the Driehoek development need not be subject to further heritage analysis.

The VIA identifies several features of visual and heritage resource value. They include:

- The Altydgedacht farmstead and historic werf is an important heritage resource in the immediate context. Although the werf is not visible from the site due to mature vegetation (poplar trees) planted at the werf, the surrounding vineyards are associated with the farmstead and contribute to the scenic amenity of the area.
- The Majik Forest is a continuous green corridor which connects into the broader public open space system. It is valued by local residents for recreational purposes, including walking, jogging and cycling. Adjacent to this is an informal Arboretum.
- The Elsiekraal River corridor is planted with a continuous belt of poplar trees which provide visual screening between Erf 39170 and Die Bron. This corridor is also continuous with the public open space system, and it is also used for pedestrian access, jogging and dog walking.

In terms of visual impact the VIA concludes that the immediate change will become less apparent as vegetation matures and surfaces weather. From a distance the Door de Kraal development will be perceived as an infill development largely congruent with the adjacent existing built-form. The foreground intrusion of built-form (where visible) will be more noticeable to the immediate neighbours, though visibility is reduced by existing vegetation and mature trees. Views through the development towards the remaining vineyards beyond must be maintained. The integrity and connectivity of the public open-space systems must be retained.

Thus from the broader context, the development may become absorbed without significantly altering the visual status of the environment. From a more localised perspective, the transformation from an agricultural to an urban landscape is more significant. The visual (and physical) permeability of the development proposal (especially the boundary treatment) will be crucial to ensure congruence with the existing context.



The Vineyards

Proposed Residential and Mixed-Use Development of the 'Driehoek' (Driehoek Residential) and 'Vierhoek' (Door de Kraal Plein) - portions of erven 39169 and 39170, adjacent to the existing Vineyards Office Estate, Bellville

Visual Impact Assessment prepared by
Gibbs Saint Pol Landscape Architects

for **Barinor Management Services (Pty) Ltd**,
PO Box 3556, Tyger Valley, 7536 (Driehoek)

and **D'Aria Vineyards (Pty) Ltd**,
PO Box 3556, Tyger Valley, 7536, (Vierhoek)

The Vineyards Development Proposal (Revision 4)
(image source: OvP Associates & Spacescapes)



Visual Impact Assessment

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TABLE OF CONTENTS

TABLE OF CONTENTS	3
1. INTRODUCTION	5
1.1 Background and Approach to the Study.....	5
1.2 Terms of Reference.....	7
1.3 Methodology	9
1.4 Assumptions and Limitations	9
1.5 Information Sources	10
2. THE PROPOSED DEVELOPMENT	11
2.1 Site Location.....	11
2.2 Development Description	12
2.2.1 Prior to development:.....	16
2.2.2 Construction phase:	17
2.2.3 Operational phase	17
2.2.4 Layout Alternatives.....	18
3. RECEIVING ENVIRONMENT	20
3.1 Description of the Affected Area and the Scenic Resources	20
3.1.1 Landscape types.....	20
3.1.2 Topography and Landforms.....	20
3.1.3 Landscape Cover/Vegetation.....	20
3.1.4 Settlement Patterns	20
3.1.5 Views & View Corridors	21
3.1.6 Landscape Character	44
3.1.6.1 Landscape Character Sensitivity.....	44
3.1.7 Visual Absorption Capacity	44
3.1.8 Synthesis	44
4. IDENTIFICATION OF VISUAL ISSUES.....	45
4.1 Permit Requirements	45
4.2 Visual Heritage Resources	44
5. VISUAL IMPACT ASSESSMENT OF THE PROPOSED DEVELOPMENT.....	45
5.1 Impact Assessment Criteria.....	45
5.1.1 Extent of the Impact	45
5.1.2 Duration of the Project	45
5.1.3 Probability of the Impact.....	45
5.1.4 Intensity of the Impact	46
5.1.5 Visual Impact Significance.....	46

5.2 Impact Assessment and Mitigation Measures	48
5.2.1 Visibility (View Catchment and Zone of Visual Influence (ZVI)).....	47
5.2.1.1 View Catchment	47
5.2.1.2 Zone of Visual Influence	54
5.2.2 Visual Sensitivity of Area	55
5.2.3 Visual Sensitivity of Receptors	55
5.2.4 Visual Exposure	55
5.2.5 Visual Absorption Capacity (VAC).....	55
5.2.6 Visual Intrusion	56
5.2.7 Photomontages (unmitigated).....	57
5.3 Visual Impacts	64
5.3.1 Construction Phases	64
5.3.2 Operational Phases	64
5.3.3 Broader Context.....	64
5.3.4 Local Context.....	64
5.3.5 Edge Conditions	65
5.3.6 Height and scale of Buildings.....	65
5.3.7 Landmark buildings and Focal Points.....	65
5.3.8 Extension of Jip de Jager Drive	65
5.3.9 Cumulative Impacts - Change in Landscape Character	66
Table 1: Summary of impacts during construction phase:	67
Table 2: Summary of impacts during operational phase:	69
Table 3: Summary of visual criteria:	71
5.4 Mitigation Measures & Management Actions	73
5.4.1 Construction phase	73
5.4.2 Operational phase	73
5.4.3 Jip de Jager Road Extension.....	73
5.4.4 Photomontages (mitigated)	74
6. CONCLUSIONS AND RECOMMENDATIONS	81
7. REFERENCE DOCUMENTS	82
8. APPENDICES	83
Details of Specialist and Declaration of Interest	84

1. INTRODUCTION

1.1 Background and Approach to the Study

The Developers (Barinor and D’Aria) propose to develop portions of two erven adjacent to the existing Vineyards Office Estate, in Bellville, at the current termination of Jip de Jager Drive. The City of Cape Town has planned Jip De Jager Drive for future northward extension to connect with Tygerberg Valley Road. The proposed developments would both lie westwards of the extended Road.

Driehoek:

Barinor’s development proposal includes the ‘Driehoek’ site (a portion of Erf 39169) beyond the northern boundary of the existing Vineyards Office Estate, planned for residential purposes and termed ‘Driehoek Residential’.

Vierhoek:

D’Aria’s development proposal includes the ‘Vierhoek’ site (portions 18 and 19 of Erf 39170 of the farm ‘Door de Kraal’) beyond the southern boundary of the existing Vineyards Office Estate. This site, planned for mixed-use purposes, is termed ‘Door De Kraal Plein’.

The two sites are located on the Bellville urban edge, adjacent ‘Die Bron’ residential area, surrounded by existing farmland and low density suburban development. The Elsieskraal River originates in the wetland seep area of the ‘Driehoek’ site, and flows southwards, within the continuous public open space system. The ‘Majik Forest’, which forms part of the public walkway system, edges the southern Boundary of the Vierhoek site.

By agreement with the landowners, public recreational use of the vineyard access roads (for walking and mountain biking) is currently permitted on Erf 31970. These pathways are accessible via the ‘Majik Forest’ and Jip de Jager Drive.

The services of Planners, Landscape Architects, Urban Designers, Architects and Engineers have been engaged for the evolution of the development plan; and in parallel, Environmental, Heritage and Visual specialists have participated in the monitoring, auditing and guiding the proposals.

The practice GIBBS SAINT POL Landscape Architects cc (GSP) was appointed by Barinor and D’Aria to undertake the Visual Impact Assessment (VIA) of the proposed development. This report serves to assess the potential visual impacts of the proposed development onto the receiving environment, as well as to document the process of engagement with the project team.

The Driehoek and Vierhoek sites are spatially discrete, planned for different purposes and are treated as separate applications for local authority submission processes. However, as both sites flank the existing Vineyards Office Estate, a cumulative visual impact will manifest. The two erven will be described and assessed individually and collectively, however many aspects of the investigation are common to both sites. The Visual Impact Assessment is therefore documented and presented as one report.

The Department of Environmental Affairs and Development Planning (DEA&DP) *Guidelines for Visual Specialists* (Oberholzer, 2005), recommend that a visual impact assessment consider the following specific concepts:

- *Awareness that 'visual' implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment that contribute to an area's sense of place.*
- *The considerations of both the natural and cultural landscape, and their interrelatedness in spatial terms.*
- *The identification of all scenic resources, protected areas and sites of special interest, together with their relative importance in the region.*
- *An understanding of the landscape processes, including geological, vegetation and settlement patterns, which give the landscape its particular character or scenic attributes and amenity value.*
- *The need to include both quantitative criteria, such as 'visibility', and qualitative criteria, such as aesthetic value or sense of place.*
- *The need to include visual input as an integral part of the project planning and design process, so that the findings and recommended mitigation measures can inform the final design, as well as the quality of the project.*
- *The need to determine the value of visual/aesthetic resources through public involvement.*

These principles have underpinned the approach to this project and have been applied in the evaluation of the potential visual impacts of the proposals.

1.2 Terms of Reference

Medium-density, predominantly double-storey residential development is proposed for the 'Driehoek' site, whereas multi-storey mixed-used development, inclusive of basement parking, retail, office and residential components is proposed for the 'Vierhoek' site.

Collectively this is identified by the DEA&DP Guidelines (Oberholzer, 2005) as **Category 5** development. Due to the scale and extent of the proposal within the context of its receiving environment, (and the sensitivity of the adjacent residential neighbourhoods) visual impact is highly likely to occur. Thus the highest level of assessment is required, (namely **Level 4 Assessment**).

The specific objectives of this report, according to a Level 4 Assessment, will be to:

- Identify issues and values relating to visual, aesthetic and scenic resources that arose during public participation and/or planning processes, and site visits.
- Describe the proposed project, including technical data, layout, bulk, heights, boundary treatment, access roads, etc.
- Describe the receiving environment, identifying landscape types, landscape character and sense of place based on geology, landforms, vegetation cover and land-use patterns.
- Identify the view-sheds, view catchment area and zone of visual influence, generally based on topography (and GIS land form modelling).
- Identify important viewpoints and view corridors within the affected environment including sensitive receptors.
- Provide an indication of distance radii from the proposed project to the various view points and receptors.
- Determine the visual absorption capacity (VAC) of the landscape, usually based on topography, vegetation cover or urban fabric in the area.
- Determine the relative visibility, or visual intrusion, of the proposed project.
- Determine the relative compatibility or conflict with the surroundings.
- Compare the existing situation with the probable effect of the proposed project, through visual simulation, generally using photo-montages.
- Identify potential visual impacts and cumulative impacts using established criteria.
- Provide mitigation measures and recommend management actions.

Due to the high likelihood of concerns being raised by interested and affected parties in respect of the potential visual impact of the proposed development, specialist visual impact assessment has formed part of the Basic Assessment process.

Further terms of reference (for specialist visual investigation) were drafted by AVDS Environmental Consultants; the environmental practitioners appointed to undertake the Basic Assessment Process (in accordance with the 2010 National Environmental Management Act (NEMA) (No. 107 of 1998) EIA Regulations).

Used as a point of departure, these were as follows:

- Undertake a site visit to the study area (28 March 2011)
- Collate all available spatial data for at least a 5 km radius around the study area. Data to include the following vector layers: farms, road, rivers, wetlands, informal settlements, urban development, land-use data and elevation and the following raster data: topographic maps and aerial photos;
- Develop a 3D model of the study area using available aerial photos and 5 m contour data; *(assisted by Garth Stephenson, GIS & Remote Sensing Specialist - Centre for Geographical Analysis, University of Stellenbosch)*
- Use of visual assessment tools to create a view shed analysis of the proposed development. The increase in view area to be calculated and shown;
- Identify farms/neighbouring properties affected by the new view-sheds and provision of outputs in Excel spread-sheets;
- Identify sensitive receptors in the view-sheds including residences, lodges, tourist routes etc.;
- Determine of the visual absorption capacity by means of graphic representation (photomontages) of the proposed development on 2D photographs taken from key locations;
- Provide a brief description and assessment of the significance of the visual impacts (including cumulative impacts) of the proposed project (on a nominal scale of neutral, very low, low, medium, and high). This should include localized impacts and well as impacts on the area within a 5km radius of the site;
- A description of measures to mitigate any impacts and an indication of whether or not the measure (if implemented) would change the significance of the impact, for the construction phase and the operational phase of the project.
- Identify all relevant legislation, permits and standards that would apply to the development.

1.3 Methodology

In addition to meetings and workshops with the team of professional consultants, (in order to input into the design process), the method followed to produce this report has been to:

- a) Collect and review existing information:
- b) Field survey (undertaken on 28 March 2010), allowing the opportunity to:
 - Determine the actual or practical extent of potential visibility of the proposed development, by assessing the screening effect of landscape features;
 - Conduct a photographic survey of the landscape surrounding the development;
 - Select photographs for use in photomontage images; and
 - Identify sensitive landscape and visual receptors.
- c) Undertake desk-top GIS mapping exercises to establish the scenic character, extent of visibility, visual exposure to viewpoints and inherent visual sensitivity of the site.
- d) Prepare photomontages of the proposed development viewed from critical points.
- e) Assess the proposal against the visual impact criteria (visibility, visual exposure, sensitivity of site and receptors, visual absorption capacity and visual intrusion).
- f) Assess impacts based on a synthesis of criteria (nature of impact, extent, duration, intensity, probability and significance).
- g) Make mitigation recommendations.

1.4 Assumptions and Limitations

- This report assumes that the information provided by others is correct, and that there are no fatal flaws apparent within the application process.
- The report relies on a combination of 1:500 000, 1:250 000 and 1:50 000 Topo-cadastral and Geological maps, Google Earth maps and GIS information.
- The digital generation of the view-sheds relies on topographical landform, and does not indicate the potential screening effect of vegetation and buildings (this is ascertained from site photographs and observation at grade)
- Within the view-shed analysis, the development is recorded as being visible from a certain viewpoint even if only a portion of the development is visible from that viewpoint. This is a limitation as it does not describe the *degree* of visual exposure.

1.5 Information Sources

Information used for the preparation of this report is sourced variously - from the project professional team, government departments and academic centres - as follows:

Client Representative:

Gerald Boshoff (CEO: Barinor Holdings Ltd)

- *Development vision, Background Documents*

Planning Consultants:

Gerhard Erasmus (Planning Services): DRIEHOEK RESIDENTIAL - ERF 39169

Hannes Krynauw (Integrated Development Solutions): DOORDEKRAAL PLEIN - ERF 39170

- *Application Documents and planning reports*

Landscape Architectural, Urban Design and Architectural Consultants:

Johan van Papendorp (OvP Associates)

Bronwen Jillings (Spacescapes)

Catherine Sidebottom (Boogertman and Partners)

- *Development proposal layout plans and 3d digital model*

Environmental Consultants:

Ross Holland (AVDS Environmental Consultants)

- *Terms of Reference for Visual Impact Assessment*

Heritage Consultants:

Ashley Lillie - Heritage Specialist

- *Criteria for Visual Heritage indicators*

South African National Government -

Department of Land Affairs: Mapping and Survey:

- *Topo-cadastral information and GIS shape files*

Western Cape Provincial Government,

Department of Environmental Affairs & Development Planning:

EIA Guidelines series

University of Stellenbosch, Centre for Geographical Analysis

Garth Stephenson (GIS and Remote Sensing Specialist)

- *Digital View-shed analysis*

2. THE PROPOSED DEVELOPMENT

2.1 Site Location

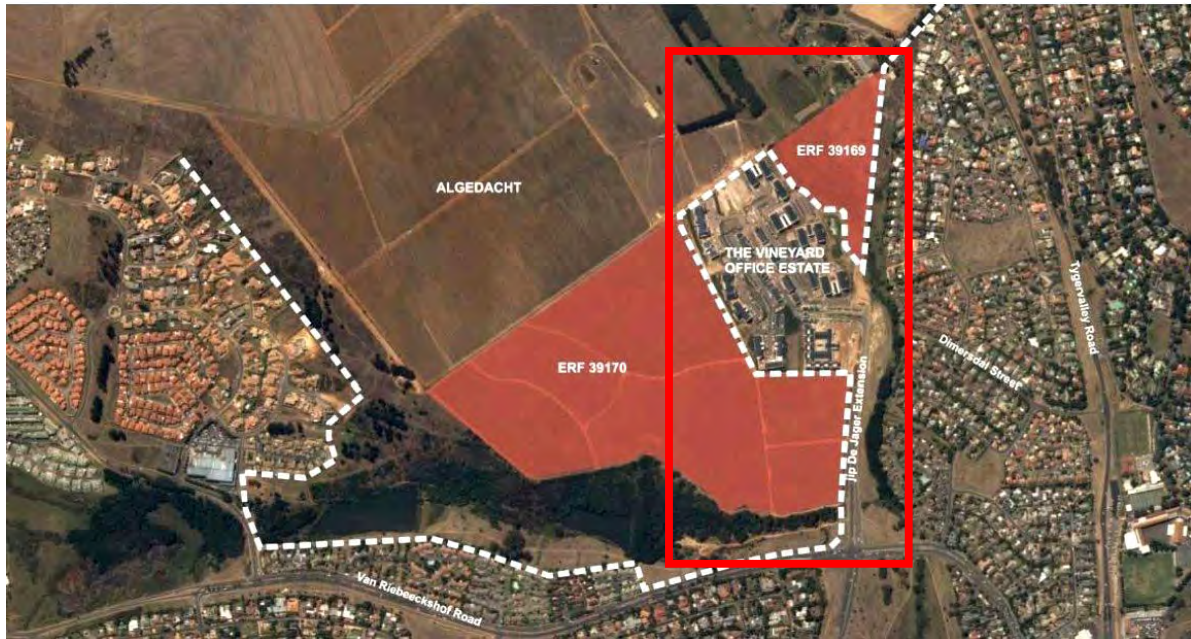


Image: the study area with respect to current urban edge position



Image: the development proposals within the immediate context

2.2 Development Description

Driehoek:



Image: Driehoek Residential - 'Sketch-up' Model (source: Boogertman and Partners)

The proposed 'Driehoek' development will entail the construction of 40 residential units on the 2.4Ha site (inclusive of: 13 apartments with semi-basement parking and 2 levels, 9 townhouses with 2 levels, 12 townhouses with semi basement and two levels, a 6 free-standing houses with two levels). The Architect's layout drawings also indicate internal access roads as well as parking courts and service infrastructure (water, sewer, electrical connections and stormwater).

The development will also contribute to the establishment of a stabilization fund which will be used to ensure the sustainability of the adjacent vineyards for the next 20 years, as a means of perpetuating and supporting the agricultural activity adjacent.

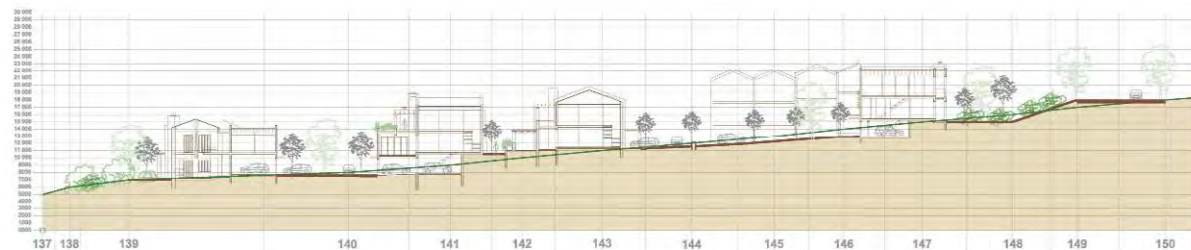


Image: Driehoek Residential - Site Section (source: Boogertman and Partners)

An agreement has been reached with the City of Cape Town Roads Department, whereby the developer of the Driehoek site will undertake the construction of the extension of Jip de Jager Drive - between the existing end point of Jip de Jager and Tygerberg Valley Road - on behalf of the City.

This public road extension will facilitate access to the proposed residential development as well as the Valley Primary School, which is situated on the northern boundary of the property. The school is currently accessed via Altydgedacht Farm, at the courtesy of the farm owners. The Road extension is envisaged in two phases: initially a single carriage way (short-term) and ultimately a dual carriage long term, as per the diagrams provided by ITS Engineers. (Refer to images on page 14 overleaf)

Vierhoek:



Image: Door de Kraal Plein 'Sketch-up' Model (source: Boogertman and Partners)

The proposed development and associated infrastructure envisaged for the 'Vierhoek' site (Door de Kraal Plein) entails the construction of a mixed use development, consisting of the following components: office, commercial and residential accommodation. These components will be supported by municipal service infrastructure for the provision of potable water and electricity, the discharge of storm-water and the disposal of sewerage and solid waste. The internal vehicular circulation will be a private road system. The internal pedestrian circulation includes a dedicated and appropriately landscaped pedestrian walkway system that will connect into the broader public open space system, and a pedestrian street is proposed to connect into the existing Vineyards office estate. The Vierhoek proposal also includes the creation of a public square - identified by a landmark building: in this case, a proposed chapel with bell-tower.



Images: Door de Kraal Plein - Site Sections A-A, B-B, and C-C (source: Boogertman and Partners)

The diagrams below indicate the short and long term road extension proposals concerning Jip de Jager Drive, as intended by the City of Cape Town - Road & Stormwater Directorate



Short-Term proposal (single carriageway) and Long-Term proposal (dual carriageway):
Extension of Jip de Jager Drive: (image source: ITS Engineers)

The diagram below indicates the development proposals holistically, inclusive of the long-term road extension of Jip de Jager Drive.



Driehoek Residential, Door de Kraal Plein and Jip de Jager extension in context (Image source: OVP Associates)

2.2.1 Prior to development:



The existing Vineyards Office Park set against an agricultural background
(Image source: OvP Associates)

The existing Vineyards Office Estate sits somewhat self-consciously within its agricultural setting, with fairly large buildings rising vertically out of the adjacent vines. There is a lack of transition from the agricultural to the urban, resulting in the sharp juxtaposition of landscape typologies. However, the buildings are located within the lower slopes of the hill, and do not interrupt the profile of the ridge-line above.

Driehoek:

The Driehoek site (to the north) is currently vacant and underutilized, having not been actively farmed in recent years. A sizeable portion of the Driehoek site constitutes a 'wetland' or valley 'seep' area (the entire south-western section), contributing to the Elsieskraal stream flowing south wards.

As the site is located down in a valley, and due to the lack of public roads and pathways servicing the site, it is currently very difficult to access the Driehoek, physically or visually. (The proposed extension of Jip de Jager Drive will alter this situation significantly). Although several residential properties within 'Die Bron' neighbourhood do border onto the site, the Driehoek is almost entirely invisible from public areas.

Vierhoek:

The Vierhoek site (constituting a small portion of Erf 39170) portion is currently used for wine grape cultivation. These vineyards currently extend from the crest of the hill down to Jip de Jager Drive, producing a fairly dramatic agricultural vista. This is interrupted by the existing Vineyards office Estate to the north. The vines are however exhausted, being of little productive value, as confirmed by independent agricultural potential and feasibility reports: '*Agricultural Potential of Erf 39169 and Erf 39170, Bellville*', compiled by Francis Knight of Agri Informatics in December 2010, and '*Feasibility Study: Doordekraal*' compiled by Franco le Roux of VinPro for Cape Wine Producers, in September 2009.

2.2.2 Construction phase:

Driehoek:

Due to environmental considerations (and flood line constraints), the wetland area of the Driehoek is not considered for development - and will remain as green open space. However, the north-eastern section of the site (closest to 'Die Bron' residential neighbourhood) will require clearing and earth shaping.

Vierhoek:

Only the lower section of Erf 39170 (closest to Jip de Jager), which is continuous with the existing Vineyards Office estate, is considered for development. The existing vines (as described above) although of little agricultural value nonetheless contribute to the rural ambiance and farmland patterning of the surroundings. These will be lost as development will necessitate clearing of the site.

During the construction phases associated with both the Driehoek and Vierhoek, site clearing and removal of existing vegetation (whether natural/indigenous, non-invasive exotic, alien-invasive, or agricultural) will result in visual scarring of the landscape during the short term. Exposed soil is susceptible to erosion and (in high wind conditions) dust pollution could become a factor. Construction phase visual impacts will also include the erection of temporary fencing and hoarding lines, site camp facilities, the establishment of vehicular access roads, the storage of stock-piled and delivered building materials, as well as activity (and associated noise) of construction vehicles, machinery and workers.

2.2.3 Operational phase:

Driehoek:

The Driehoek Residential proposal is considered a medium-density development measured against the gross area of the Driehoek site. However, as most of the development is clustered within the north-eastern section of the site (leaving the wetland area to the south-west open) the net area development is actually of significantly higher density. This low-rise (none of the buildings proposed exceed two stories and partial basement) high-density development will differ in terms of urban form from the existing low-density 'sub-urban' neighbourhood adjacent, however their use and functionality is compatible. Thus the Driehoek Residential could well be perceived as an infill development - the natural extension of 'Die Bron'. The manifestation of new residential buildings will have an immediate foreground impact on the residents of 'Die Bron' (provided the neighbours have overlooking views) as well as on the tenants of the Vineyards office estate.

Vierhoek:

The mixed-use development proposed for the Vierhoek site differs from the surrounding residential neighbourhoods in form and intention, though the scale and massing of its buildings will be similar to the existing Vineyards Office Estate. Thus Door de Kraal Plein could well be perceived as the natural extension of the existing office park. The Vierhoek site is far more visible to a greater number of receptors than the Driehoek site, and its more 'public' designation seems consistent with this situation. With the extension of Jip de Jager Drive, the entire development could be seen as a 'gateway' to the Durbanville Winelands.

2.2.4 Layout Alternatives

As the development proposal has already undergone several design revisions, (typically in response to environmental and visual considerations) the current layout is considered the preferred and most appropriate option.

The design has progressed as per the sequence below, though the visual impact assessment considers only the current layout in great detail and depth. This is because the current layout (the preferred option) is the most spatially resolved. It displays a more compact urban form than earlier proposals, as well as reduced bulk and building foot-prints.

Further revisions to the current layout are on-going - though these are more concerned with building heights and roof-scape. Architectural detailing as not formed part of this phase of design, though guidelines for both the landscape and architectural treatment have been written.

(images supplied by OVP Associates & Spacescapes)



Design development Revision 1



Design development Revision 2



Design development Revision 3



Design development Revision 4 (current) Preferred Option

3. RECEIVING ENVIRONMENT

3.1 Description of the Affected Area and the Scenic Resources

This section describes the existing visual environment that will be affected by the proposed development. It involves the identification of landscape types, landscape character and sense of place - generally based on geology, landforms, vegetation cover and land use patterns.

3.1.1 Landscape types

Within a 5km radius of the site, the following landscape types are encountered:

Beyond the urban edge:

an ordered agricultural landscape, characterized by a regular pattern of vineyards, gravel farm roads, tree planting along stream corridors and shelterbelts. The historic farmstead Altydgedacht lies northeast of the Driehoek site, but is screened from view by existing vegetation. The Valley Primary school is located north of the Driehoek site.

Within the urban edge:

a sprawling suburban landscape, characterized by low-density individual free-standing houses with gardens and boundary walls; though there are also small residential estates at slightly higher densities. Roadways are typically engineered with conventional kerbs and stormwater channels. There are occasional commercial nodes associated with larger intersections.

3.1.2 Topography and Landforms

Framed by distant 'mountain' views (including Tygerberg Hill and Kanonkop) the topography of the study area constitutes gently undulating hills and narrow stream valleys, with associated riparian zones and wetland or seep areas.

3.1.3 Landscape Cover/Vegetation

Virtually no indigenous veldt types are present in either pristine or remnant states. Vegetation is largely given over to agricultural use beyond the urban edge, with vineyards and (occasionally) fallow fields, edged by tree shelterbelts (pine, eucalyptus or poplar) and tree avenues (oak). Some exotic and invasive alien plant species have colonized the derelict farmland adjacent the Driehoek site. Within the urban edge, ornamental trees of various species are planted within private garden spaces and road reserves.

3.1.4 Settlement Patterns

As described, a low-density suburban residential settlement pattern predominates within the urban edge. (Neighbourhoods within the broader study area are inclusive of: Welgemoed, Protea Vallei; Kenridge and Die Bron). Beyond the urban edge, the historic Altydgedacht farm 'werf' nearby constitutes a rural Cape vernacular of important heritage value.

3.1.5 Views & View Corridors

Within the broader context, views and view corridors within the 5km study area radius are identified (and photographed) as follows:

Jip de Jager Drive (M16) approaches the sites from the south: Due to landform and road alignment, views towards the Vierhoek site are discontinuous as the road turns and dips, and as existing trees provide partial screening. (Refer to photographs: 1, 2, 3, 4, 5, and 6), whereas the Driehoek is currently invisible from Jip de Jager Drive.

Tygerberg Valley Road (M31), running in a north-south direction, parallel to the sites at a distance of approximately 500 metres; affords middle distance views towards the Vierhoek site, with Die Bron in the immediate foreground. (Refer to photographs: 31, 32). Beyond the urban edge, middle distance glimpses of the site are visible beyond the fields within the foreground; however these views are generally filtered or partially screened by trees. (Refer to site photographs: 27, 28, and 29). This portion of the road is an important visual resource. It is shaded by an avenue of mature oak trees and affords rural - countryside' vistas. Tygerberg Valley Road terminates in Durbanville Road, which extends westwards. Although the sites are visible from the elevated slopes of the hills north of Durbanville Road, they are not visible from the road itself. These slopes are primarily cultivated vineyards beyond the urban edge and publically inaccessible.

Van Riebeekshof Road intersects with Jip de Jager drive southwards of the sites. Some views of the Vierhoek site are apparent from the summit of the road, however, progressing further down the valley (and closer to the intersection) existing mature trees begin to obscure the site from view. (Refer to photographs: 33, 34, 35, 36, and 37).

At a more localized level, views looking towards the sites from within 250 metres of the site boundaries were considered. These included views from the residential streets and neighbourhood parks within Die Bron, as well as from the Elsieskraal River Corridor (public open space) and Altydgedacht farm werf.

Views included: Lobenstijn Street (Refer to photograph: 14); the neighbourhood park - corner of Lobenstijn & Platteklouf Streets - (Refer to photographs: 15, 16, 17); Phesantekraal Street (Refer to photographs: 18, 19, 20); Ongegund Street (Refer to photograph: 21); Vrymansfontein Street (Refer to photograph: 22); the neighbourhood park - corner of Kuiperskraal Street and Hooheberg Crescent (Refer to photographs: 23, 24,); and a vacant plot on Meerendal Street (Refer to photograph: 25).

Typically, mature trees screen (at least partially) the sites from the closest potential views, as these are located lower down in the valley (as visibility decreases). In addition, many of the houses located along the Elsieskraal river corridor are turned away from the sites. Erf 39169 is almost entirely invisible from the public roads, due to vegetation cover.

Private farm roads divide Erf 30170 (Door de Kraal) into various portions of vineyards. With the land-owners' permission, these gravel-surface roads are currently used by members of the public for recreational purposes - such as mountain biking and dog walking. Views from the gravel road dividing portion 17 from portions 18 and 19 are also included. (Refer to photographs: 7, 8, 9, 10, 11, 12, and 13).



Position of views photographed along Jip de Jager Drive (M16) and Van Riebeeckshof Road (Base Image: Google Earth)



Position of views photographed along Tygerberg Valley Road (M31), within Die Bron and on site (Base Image: Google Earth)



1: View looking northwards to the VIERHOEK, approaching via Jip de Jager Drive - refer to photomontages 1A (un-mitigated) and 1B (mitigated)



2: Along Jip de Jager Drive, site views become discontinuous due to landform and road alignment.



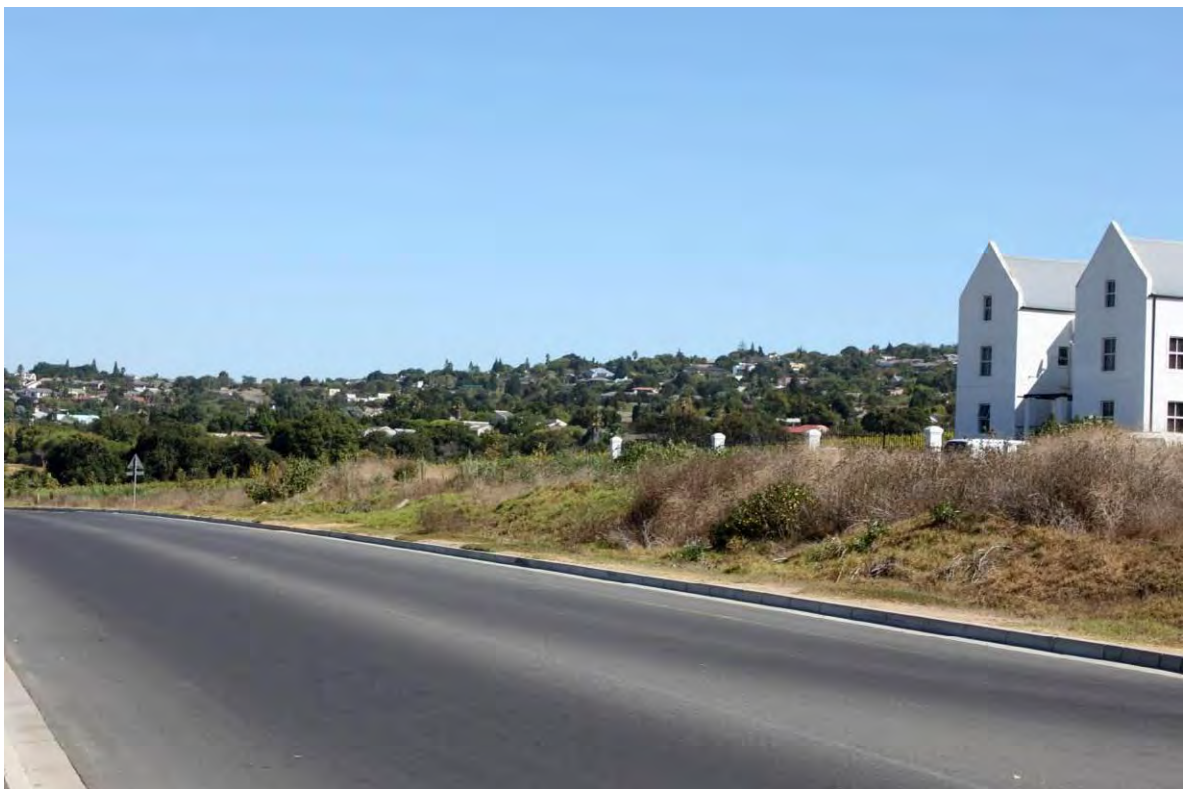
3: Approaching intersection of Jip de Jager Drive and Van Riebeeekshof Road



4: Existing Vineyards Office Park (view looking northwards) with VIERHOEK in foreground - refer to photomontages 4A (un-mitigated) and 4B (mitigated)



5: VIERHOEK: Erf 39170 - portions 18 and 19 (foreground) currently under vines



6: Jip de Jager Drive - looking southwards to Protea Vallei
- refer to photomontages 6A (un-mitigated) and 6B (mitigated)



7: VIERHOEK: Erf 39170, looking northwards to Vineyards Office Estate - refer to photomontage 7A



8: Erf 39170 (foreground), Elsieskraal River corridor (middle distance), 'Die Bron' (background)



9: Erf 39170, looking eastwards towards 'Die Bron' residential neighbourhood (background)



10: Erf 39170 looking eastwards to 'Die Bron'; Jip de Jager Drive partially visible



11: Erf 39170 looking south-eastwards, 'Majik Forest' bordering southern boundary of the site



12: Erf 39170 looking southwards to 'Majik Forest' (middle distance), Bellville (background)



13: Erf 39170 looking southwards to 'Majik Forest'; recreational use of existing farm roads



14: Lobenstijn Street, 'Die Bron', view looking westwards to Erf 39170 (suburban context)



15: View from 'Die Bron' looking north-westwards to Vineyards Office Estate



16: View from 'Die Bron' looking westwards to VIERHOEK Erf 39170 - refer to photomontage 16A (un-mitigated) and 16B (mitigated)



17: View from 'Die Bron' looking south-westwards to Jip de Jager Drive



**18: Phesantekraal Street, 'Die Bron', view westwards to Erf 39170
- refer to photomontages 18A (un-mitigated) and 18B (mitigated)**



19: View from 'Die Bron' looking-westwards to Vineyards Office Estate



20: View from 'Die Bron' looking-westwards to Elsieskraal River corridor and Erf 39170 beyond



21: Elsieskraal River corridor view looking-westwards to Erf 39170
- refer to photomontages 21A (unmitigated) and 21B (mitigated)



22: Vrymansfontein Street, 'Die Bron' looking-westwards to Vineyards Office Estate



23: Kuiperskraal Street, 'Die Bron', looking south-westwards to Protea Vallei



24: View from 'Die Bron' looking-south-westwards to Erf 39170 - refer to photomontages 24A (un-mitigated) and 24B (mitigated)



25: Meerendal Street, 'Die Bron', looking westwards Erf 39169 and to Vineyards Office Estate



26: View from Altydgedacht (historic farm werf) to Erf 39169 (Driehoek) - screened by vegetation



27: Tygerberg Valley Road looking westwards to Erf 39169 (site obscured by vegetation)



28: Tygerberg Valley Road looking westwards to Erf 39169 - site obscured by vegetation



29: Tygerberg Valley Road looking westwards to Erf 39169 - site obscured by vegetation



30: Altydgedacht access road to Valley Primary School - westwards to Erf 39169



31: View from Tygerberg Valley Road looking westwards - suburban foreground



32: Tygerberg Valley Road looking westwards - suburban foreground
- refer to photomontage 32A (un-mitigated) and 32B (mitigated)



33: Intersection of Van Riebeeckshof Road and Jip de Jager Drive looking northwards
- refer to photomontages 33A (un-mitigated) and 33B (mitigated)



34: View from Van Riebeeekshof Road looking eastwards - suburban background



35: Van Riebeeekshof Road looking north-eastwards (Majik Forest -foreground) - refer to photomontage 35A (un-mitigated) and 35B (mitigated)



36: View from Van Riebeeekshof Road looking northwards (Erf 39170 partially screened)



37: View from Van Riebeeekshof Road (arboretum) looking northwards

3.1.6 Landscape Character

Concerning the broader environment, the sites are surrounded by vineyards towards the west, and low density suburban neighbourhoods towards the east. The landscape character is thus entirely transformed either by agriculture or housing.

3.1.6.1 Landscape Character Sensitivity

The neighbourhood 'Die Bron' is considered highly sensitive to visual impact, as the westernmost portions are currently bordered by open farmland. Theoretically, built form intrusions into this foreground would constitute a marked change. However, for approximately 300metres (along the Elsiekraal River corridor) large trees (grey poplars) screen the sites entirely from the view of the closest houses. In addition, many of the houses do not have overlooking features (windows / doors etc.) in the direction of the proposed develop. Further away from the sites, and at higher up towards the eastern edge of Die Bron, the sites are more visible, though the foreground is already sub-urbanized from these perspectives.

3.1.7 Visual Absorption Capacity

As indicated by the digital view-shed analysis, the undulating topography already serves to reduce serves the view catchment within the 5km study area radius. Generally, the sites are not visible from more than 3km distance.

As indicated by the photographs, existing buildings, tree avenues and shelterbelts further contribute to visual screening. The landscape is thus considered to have a moderate to high visual absorption capacity, depending on viewing distance.

3.1.8 Synthesis

The context within which the development proposals are located is a landscape transformed by human settlement and activity. Whereas the proximity of existing agricultural land gives the impression of a more rural setting, the landscape is actually more accurately described as sub-urban.

Due to the landform, topography, existing built form and vegetation cover, carefully-designed infill development could be absorbed successfully into this transformed landscape without damaging the overall quality of the visual environment.

4. IDENTIFICATION OF VISUAL ISSUES and RESOURCES

4.1 Permit Requirements

There is no indication that any relevant permits or licenses are required for the visual aspects of this proposed development.

4.2 Visual Heritage Resources

Within the vicinity of the proposed development sites are several features of visual and heritage resource value. These are as follows:

The Altydgedacht farmstead and historic werf (part of the Durbanville Wine Route) is an important heritage resource adjacent Erf 39169. Although the werf area is not visible from either of the sites - due to mature vegetation (poplar trees) planted at the werf, - the surrounding vineyards are associated with the farmstead and contribute to the scenic amenity of the area.

The Majik Forest, bordering Erf 39170 towards the site is a continuous green corridor which connects into the broader public open space system. It is valued by local residents for recreational purposes - including walking, jogging and cycling. Adjacent to this is an informal Arboretum, or collection of planted trees, which is something of a local curiosity.

The Elsieskraal River corridor is planted with a continuous belt of Poplar trees which provide significant visual screening between Erf 39170 and Die Bron. This corridor is also continuous with the public open space system, and is also used for pedestrian access, jogging and dog-walking.

Tygerberg Valley Road, as it extends beyond the urban edge, becomes a country avenue, lined with mature oak trees. It affords delightful vistas across farmland and vineyards, with mountain views in the background.

5. VISUAL IMPACT ASSESSMENT OF THE PROPOSED DEVELOPMENT

Visual impacts should be assessed based on a synthesis of criteria as defined by the National Environmental Management Act (NEMA) regulations (Oberholzer, 2005). These are as follows:

5.1 Impact Assessment Criteria

5.1.1 Extent of the Visual Impact

The spatial or geographic area of influence of the visual impact, i.e.:

- *Site-related - extending only as far as the activity;*
- *Local - limited to the immediate surroundings;*
- *Regional - affecting a larger metropolitan or regional area;*
- *National - affecting large parts of the country;*
- *International - affecting areas across international boundaries.*

Driehoek: The extent of the visual impacts of Driehoek Residential (including construction and operational phases) will be limited to the immediate **site-related** area; whereas

Vierhoek: The extent of the visual impacts of Door De Kraal Plein (including both construction and operational phases) will be limited to a **local** area not exceeding a 3km distance from site.

5.1.2 Duration of the Project

The predicted life-span of the visual impact:

- *Short term - duration of the construction phase;*
- *Medium term - duration for screening vegetation to mature;*
- *Long term - lifespan of the project;*
- *Permanent - where the visual impact is irreversible.*

The **construction phase** visual impacts associated with both Driehoek and Vierhoek proposals are anticipated to last only for a **short-term** duration; whereas

the **operational phase** visual impacts associated with both Driehoek and Vierhoek proposals are likely to last into the **long-term**. (However, the severity of the impact will reduce over time).

5.1.3 Probability of the Visual Impact

The degree of possibility of the visual impact occurring:

- *Improbable - the possibility of the impact occurring is very low;*
- *Probable - there is a distinct possibility that the impact will occur;*
- *Highly probable - it is most likely that the impact will occur; or*
- *Definite - the impact will occur regardless of any prevention measures.*

The probability of the visual impact occurring for both Driehoek Residential and Door de Kraal Plein is **definite**, however the impacts are not necessarily negative. Both developments are examples of compact urban - a more sustainable typology.

5.1.4 Intensity of the Visual Impact

The magnitude of the impact on views, scenic or cultural resources

- *Low -* where visual and scenic resources are not affected;
- *Medium -* where visual and scenic resources are affected to a limited extent;
- *High -* where scenic and cultural resources are significantly affected.

Driehoek: the visual impacts associated with the Driehoek Residential are likely to have **low** intensity, not affecting visual and scenic resources; whereas

Vierhoek: the Door de Kraal Plein proposal is likely to have **medium** intensity visual impacts, where visual and scenic resources (in this case the portion 18 & 19 vineyards) are affected to a limited effect.

5.1.5 Significance of the Visual Impact

The significance of impacts can be determined through a synthesis of the aspects produced in terms of their duration, intensity, and extent and be described as:

- *Low -* will not have an influence on the authority decision;
- *Medium -* should have an influence on the authority decision and (in the case of negative impacts) requires management actions to avoid or mitigate the impacts; or
- *High -* would have an influence on the authority decision and (in the case of negative impacts) requires management actions to avoid or mitigate the impacts.

The significance of the **construction phase** visual impacts associated with both Driehoek and Vierhoek sites (Driehoek Residential and Door de Kraal Plein proposals) is considered to be **low**, as these are short-term impacts.

Driehoek: the significance of the **operational phase** visual impacts of Driehoek Residential (when building work is complete) is **low**, as there will be few receptors affected under current conditions; whereas

Vierhoek: the significance of the **operational phase** visual impacts of Door de Kraal Plein are **high**, as there will be a significant change to the current status quo. However, this could have positive implications (potentially) if the development is to become a good example of compact urban form.

The City of Cape Town, in terms of its urban densification policies, strongly advocates such a typology of design, and both the Driehoek and Vierhoek proposals exemplify these principles.

5.2 Impact Assessment and Mitigation Measures

Key criteria will be assessed to identify and indicate the nature of visual impact on the landscape and on receptors. These criteria include **visibility** (View Catchment Area and Zone of Visual Influence (ZVI)), **view receptors** and their sensitivity, **visual exposure** and **visual intrusion**.

5.2.1 Visibility (View Catchment and Zone of Visual Influence (ZVI))

5.2.1.1 View Catchment

The geographic area defined by the context's topography, from which the project will be visible

As evidenced by the digital view shed analysis supplied by the University of Stellenbosch Centre for Geographical analysis, the view catchment is entirely contained within the 5km radius of the study area.

The view catchment follows an arc traceable above Durbanville Road (beyond the urban edge - with visibility increasing with elevation; along Tygerberg Valley Road (between the neighbourhoods Die Bron, Kenridge and Kenridge Heights); and intersected by the northern extremity of Jip de Jager Drive and van Riebeeekshof Road (beyond Welgemoed, but entering Protea Vallei residential area).

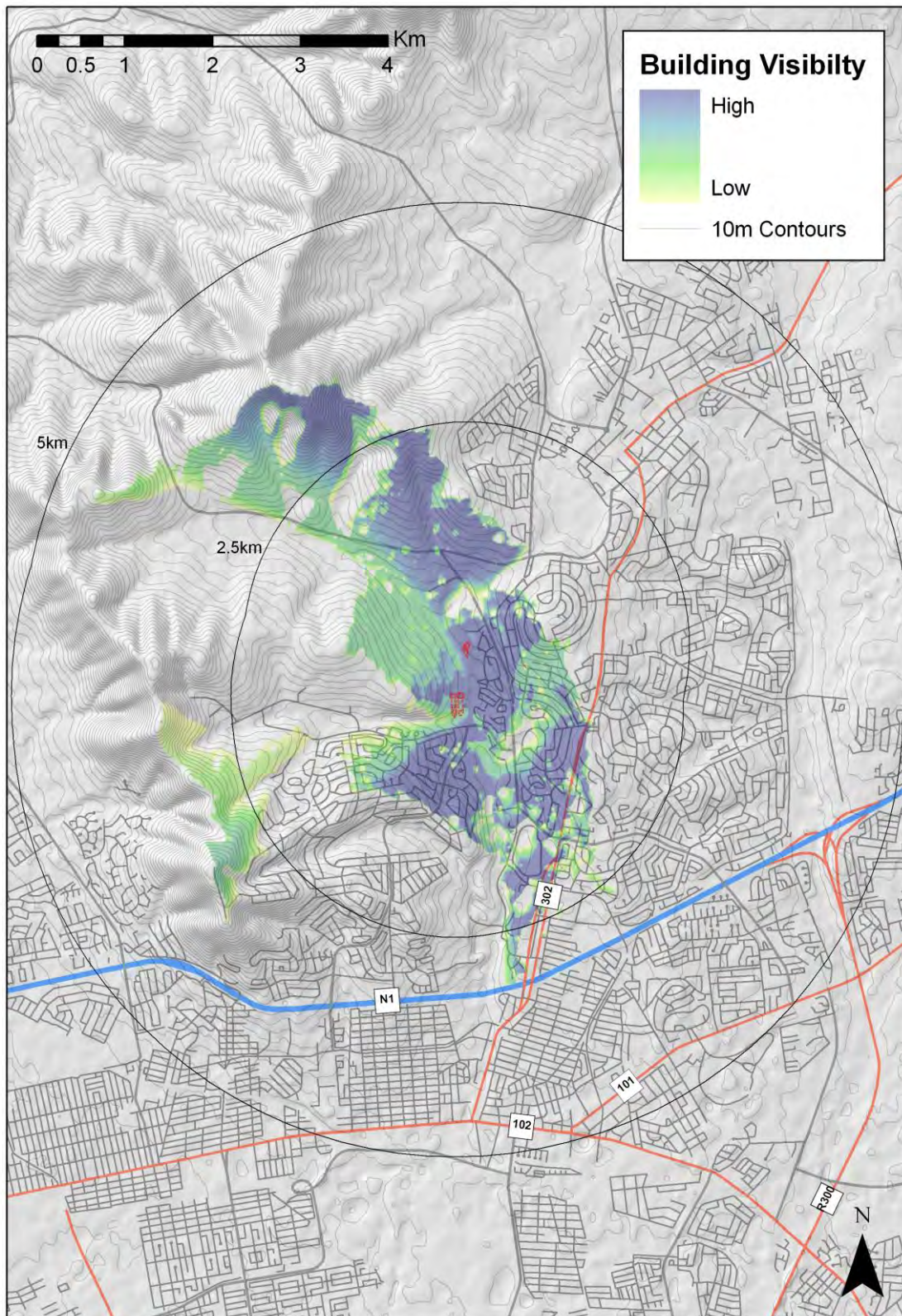
(Refer to building visibility diagrams that follow)

The visual analysis is based on an elevation model (i.e. one that only considers the surface of the earth) and not a surface (texture) model (i.e. one that includes building and vegetation heights). This has provided the maximum view catchment area as derived from topography (landform). The view shed analysis diagrams were generated using digitized building footprints with assigned heights - based on the 'sketch up' model provided by the architects (Boogertman and Partners). The view-shed was calculated with a 5m Digital Elevation Model (DEM) interpolated from 5m contours.

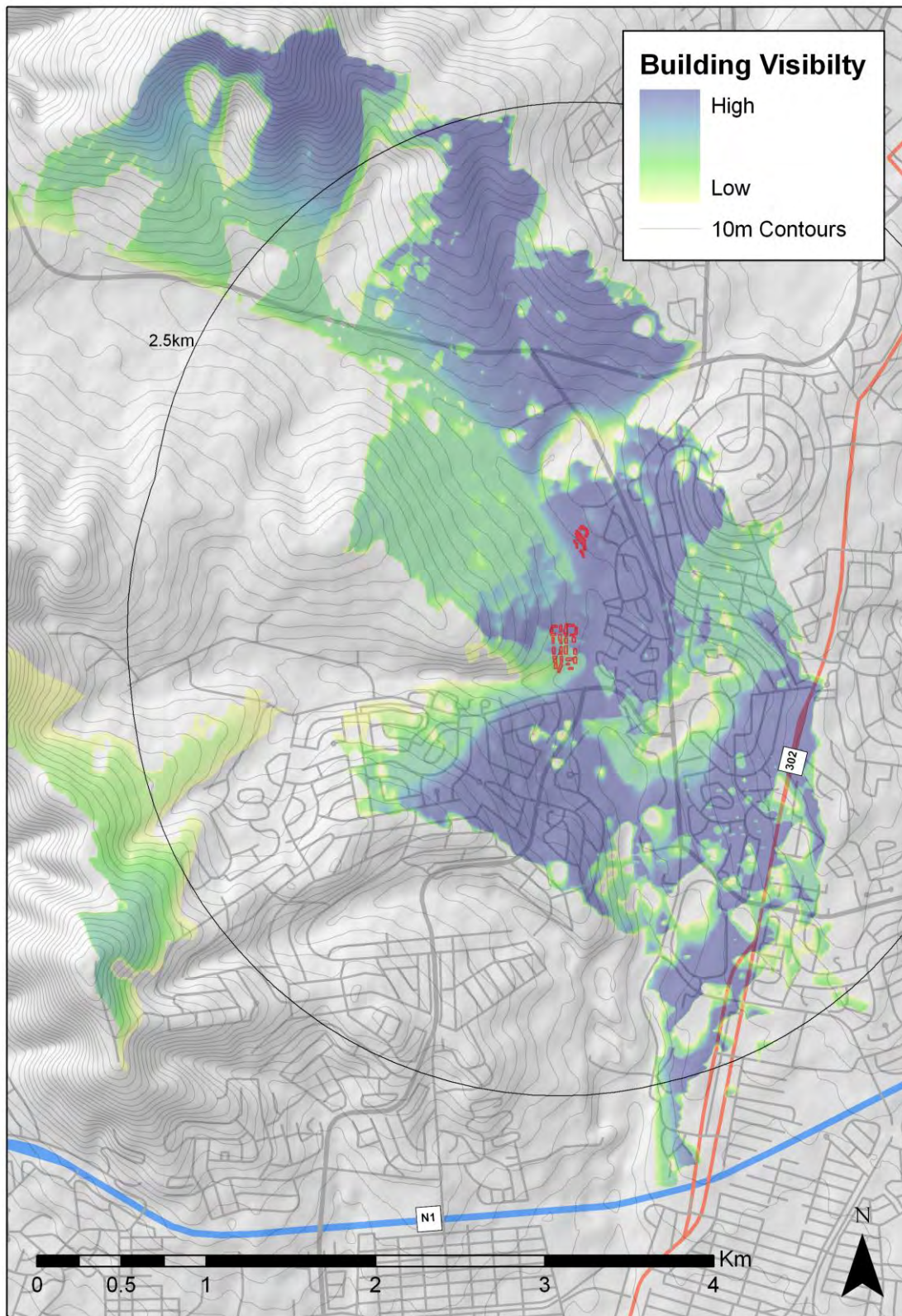
The diagram indicates the theoretical severity of the view-shed impact, which (roughly translated) equates to the number of buildings visible at one point, with 'blue' representing high visibility, and 'yellow' representing low visibility. The first diagram indicates the 5km radius buffer - as stipulated by the terms of reference - , whereas the second diagram indicates the affected area at a larger scale - mostly within a 2,5km radius of the site.

The resulting diagrams indicate a 'worst-case' scenario; considering the development proposals imposed upon a landscape devoid of vegetation or buildings. Given the screening effects of landform and elevation, however, the real additional screening effects of buildings and vegetation significantly reduces the actual zone of visual influence.

(This is further illustrated in the site photographs and photomontages).



Digital View-shed Analysis - indicating 5km radius
(Image source: University of Stellenbosch - Centre for Geographic Analysis)



Digital View-shed Analysis - indicating 2,5km radius
(Image source: University of Stellenbosch - Centre for Geographic Analysis)

The Methodology followed by the GIS specialist for the generation of the digital view shed analysis is described as follows:

The basic view shed is created using an observer point and a surface model, where each cell of the resulting raster image answers the question:

"is the observer point visible from this location on the surface model?" or alternately: "what of the surface model is visible from the observation point?".

When there is more than one observation point, the question changes to "how many observation points can be seen from a given location on the surface model?" calculated for every location on the surface model i.e. every image pixel.

With polygon-based structures, such as building footprints, the observation points are by necessity the vertices of each polygon. In the case of this study, each structure was digitized as a rectangle - i.e. every building has four observation points, roughly at the corners of the building (though several adjacent buildings were merged for clarity). Therefore there are 228 observation points (57 "buildings" x 4 corners). These observation points were attributed with the rough heights of the building attained from the Google 'Sketch-up' model, and the view-shed was calculated accordingly.

In terms of a more quantitative analysis, the associated attribute table (spread-sheet) of the view-shed represents the visual data numerically. Interpreting the attribute table is as follows: the field VALUE indicates the number of building vertices visible from a given point, while the field COUNT indicates the number of pixels attributed to that VALUE. AREA is COUNT multiplied by 25sqm (each pixel is 5x5m).

From the attribute table, it would appear that 92.88% of the area shows no visibility to any of the buildings. However, in the case of the Vierhoek site, the proposal will be very clearly visible from the remaining 7.12% of the area.

(Garth Stephenson, Centre for Geographic Analysis, University of Stellenbosch)

Digital View-shed analysis: Attribute table.

Data source: University of Stellenbosch: Centre for Geographic Analysis

*VALUE is the number of visible building corner vertices,
COUNT is the number of pixels that can see VALUE number of building corner vertices, and AREA is
COUNT multiplied by 25sqm (pixel size is 5x5m).*

VALUE	COUNT	AREA_SQM	VALUE	COUNT	AREA_SQM	VALUE	COUNT	AREA_SQM
0	3025154	75628850	39	1416	35400	78	1060	26500
1	3612	90300	40	1485	37125	79	1098	27450
2	5704	142600	41	1154	28850	80	869	21725
3	2433	60825	42	2355	58875	81	1198	29950
4	2761	69025	43	1094	27350	82	1491	37275
5	1963	49075	44	2638	65950	83	1107	27675
6	1916	47900	45	1340	33500	84	1165	29125
7	1817	45425	46	1923	48075	85	1093	27325
8	1790	44750	47	1616	40400	86	1186	29650
9	1595	39875	48	1425	35625	87	1330	33250
10	2155	53875	49	1099	27475	88	1159	28975
11	1330	33250	50	1588	39700	89	1408	35200
12	1933	48325	51	1558	38950	90	1466	36650
13	1109	27725	52	1264	31600	91	1209	30225
14	1327	33175	53	1045	26125	92	1265	31625
15	1168	29200	54	2479	61975	93	1225	30625
16	1075	26875	55	843	21075	94	1040	26000
17	1034	25850	56	703	17575	95	1139	28475
18	1034	25850	57	1017	25425	96	959	23975
19	1177	29425	58	1548	38700	97	1145	28625
20	972	24300	59	844	21100	98	1188	29700
21	1103	27575	60	845	21125	99	972	24300
22	1100	27500	61	762	19050	100	1201	30025
23	942	23550	62	762	19050	101	995	24875
24	984	24600	63	814	20350	102	1284	32100
25	964	24100	64	825	20625	103	1278	31950
26	983	24575	65	939	23475	104	1345	33625
27	1128	28200	66	1306	32650	105	1169	29225
28	1068	26700	67	890	22250	106	1456	36400
29	1327	33175	68	940	23500	107	1664	41600
30	1154	28850	69	979	24475	108	49927	1248175
31	1007	25175	70	777	19425	109	2284	57100
32	1172	29300	71	763	19075	110	1587	39675
33	1056	26400	72	841	21025	111	1663	41575
34	1037	25925	73	915	22875	112	1869	46725
35	1142	28550	74	930	23250	113	1542	38550
36	1914	47850	75	962	24050	114	2424	60600
37	1105	27625	76	904	22600	115	1449	36225
38	1201	30025	77	831	20775	116	3398	84950

Digital View-shed analysis: Attribute table (continued).

Data source: University of Stellenbosch: Centre for Geographic Analysis

*VALUE is the number of visible building corner vertices,
COUNT is the number of pixels that can see VALUE number of building corner vertices, and AREA is
COUNT multiplied by 25sqm (pixel size is 5x5m).*

VALUE	COUNT	AREA_SQM	VALUE	COUNT	AREA_SQM	VALUE	COUNT	AREA_SQM
117	1559	38975	156	785	19625	195	858	21450
118	2785	69625	157	745	18625	196	787	19675
119	1974	49350	158	715	17875	197	864	21600
120	29330	733250	159	934	23350	198	1139	28475
121	1060	26500	160	634	15850	199	1447	36175
122	2269	56725	161	695	17375	200	1896	47400
123	1277	31925	162	805	20125	201	1645	41125
124	946	23650	163	762	19050	202	1132	28300
125	781	19525	164	741	18525	203	997	24925
126	728	18200	165	709	17725	204	1122	28050
127	692	17300	166	647	16175	205	1166	29150
128	764	19100	167	790	19750	206	2174	54350
129	846	21150	168	758	18950	207	1123	28075
130	692	17300	169	633	15825	208	4500	112500
131	644	16100	170	825	20625	209	1810	45250
132	769	19225	171	818	20450	210	1728	43200
133	752	18800	172	711	17775	211	1664	41600
134	662	16550	173	895	22375	212	2171	54275
135	593	14825	174	773	19325	213	1899	47475
136	604	15100	175	848	21200	214	1746	43650
137	625	15625	176	868	21700	215	1596	39900
138	562	14050	177	863	21575	216	2352	58800
139	709	17725	178	855	21375	217	2998	74950
140	1146	28650	179	909	22725	218	1647	41175
141	765	19125	180	1145	28625	219	2327	58175
142	714	17850	181	1711	42775	220	3471	86775
143	692	17300	182	1469	36725	221	1334	33350
144	824	20600	183	1813	45325	222	2228	55700
145	751	18775	184	2046	51150	223	2135	53375
146	614	15350	185	1070	26750	224	17662	441550
147	729	18225	186	1090	27250	225	3125	78125
148	672	16800	187	851	21275	226	7322	183050
149	660	16500	188	1018	25450	227	3042	76050
150	659	16475	189	885	22125	228	103267	2581675
151	747	18675	190	790	19750			
152	591	14775	191	1016	25400			
153	629	15725	192	961	24025			
154	731	18275	193	1272	31800			
155	802	20050	194	1416	35400			

5.2.1.2 Zone of Visual Influence

The actual zone of visual influence of the project may be smaller because of screening by existing trees and buildings. This also relates to the number of receptors:

- *High visibility:* visible from a large area (e.g. several square kilometres)
- *Moderate visibility:* visible from an intermediate area (e.g. several hectares)
- *Low visibility:* visible from a small area around the project site.

Due to the screening effect of existing vegetation and mature trees that will remain intact (including the 'Majik Forest' and Elsieskraal River corridor) as well as the existing buildings and surrounding suburban development; the actual zone of visual influence will reduce to that of more **moderate** visibility.

This is further illustrated in the visual simulations that follow in section 5.2.7 (Photomontages - unmitigated) and section 5.4.4 (Photomontages - mitigated).

5.2.2 Visual Sensitivity of Area

The level of visual impact considered acceptable is dependent on the type of receptors.

- *High visual sensitivity* - highly visible and potentially sensitive areas in the landscape;
- *Moderate sensitivity* - moderately visible areas in the landscape;
- *Low visual sensitivity* - minimally visible areas in the landscape.

Driehoek: Driehoek Residential is deemed to have **low** visual sensitivity, being virtually invisible from public areas, whereas

Vierhoek: Door de Kraal Plein is deemed to have **moderate** visual sensitivity, being inclusive of residential neighbourhoods.

5.2.3 Visual Sensitivity of Receptors

The level of visual impact considered acceptable is dependent on the type of receptors.

- *High sensitivity* - residential areas, nature reserves and scenic routes or trails;
- *Moderate sensitivity* - sporting or recreational areas, or places of work;
- *Low sensitivity* - industrial or degraded areas.

For both the Driehoek and Vierhoek sites, the types of receptors associated within the study area are considered to have **high** visual sensitivity, being inclusive of residential neighbourhoods and scenic routes.

5.2.4 Visual Exposure

This is based on distance from the project to selected viewpoints. Exposure or visual impact tends to diminish exponentially with distance.

- *High exposure - dominant or clearly noticeable;*
- *Moderate exposure - recognizable to the viewer;*
- *Low exposure - not particularly noticeable to the viewer;*

Driehoek: Being virtually invisible, Driehoek Residential has **low** visual exposure to all public areas, whereas

Vierhoek: depending on the particular point within the view catchment, Door de Kraal Plein will range from **moderate** to **high** visual exposure; being recognizable and noticeable.

5.2.5 Visual Absorption Capacity (VAC) of Area

The potential of the landscape to conceal the proposed project, i.e.

- *High VAC - effective screening by topography and vegetation;*
- *Moderate VAC - partial screening by topography and vegetation;*
- *Low VAC - little screening by topography or vegetation.*

Driehoek: The Driehoek site by virtue of its siting and vegetation cover has **high** visual absorption capacity, whereas

Vierhoek:

Considering all factors, the Door de Kraal Plein landscape is deemed to have **moderate** visual absorption capacity - though this may continue to increase as vegetation matures.

5.2.6 Visual Intrusion

The level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'; This is related to the idea of context and maintaining the integrity of the landscape or townscape.

- *High visual intrusion - noticeable change or is discordant with the surroundings;*
- *Moderate visual intrusion - partially fits into the surroundings, but clearly noticeable;*
- *Low visual intrusion - minimal change or blends in well with the surroundings.*

Driehoek: Driehoek residential is likely to cause minimal change to the surroundings, thereby producing **low** visual intrusion (considering all factors); whereas

Vierhoek: Door de Kraal Plein is likely to result in **moderate** visual intrusion - partially fitting into the surroundings, but being noticeable (though not necessarily dominant).

The Door de Kraal Plein development may in fact help the existing Vineyards Office Estate to fit into its surroundings more comfortably, and would seem necessary to improve the current visual status.

5.2.7 Photomontages (un-mitigated)

The following images have been generated using some of the more critical views looking towards the sites from various perspectives, and inserting the three-dimensional 'Sketch-up' model sourced from the architects Boogertman and Partners.

Typically these montages indicate the degree to which existing trees and buildings provide visual screening to the development proposals, thereby the reducing the zone of visual influence from the full extent indicated in the view catchment diagram.

Driehoek Residential has proved extremely difficult to model from publically accessible viewpoints, as the site is so well-screened by vegetation. Overlooking views from the existing Vineyards Office Estate towards the Driehoek may be considered, though these of cause are not perceived by the general public.

The simulated views are presented here first unmitigated i.e. building forms are represented as 'blocks' without architectural detail (e.g. fenestration, planted pergolas, muted colours / earth tones) and landscaping is not shown initially.

Some of the more critical views are then represented with mitigation measures applied (architectural detailing, landscape treatment, street-tree planting, etc.) - refer to section 5.4.4 (Photomontages -mitigated)



1A: Simulation: view approaching via Jip de Jager Drive.



4A: Simulation: view looking northwards, Jip de Jager Drive.



6A: Simulation: view southwards to Protea Valle



7A: Simulation: Erf 39170 (portions 18 and 19), looking northwards



16A: Simulation: 'Die Bron' looking westwards to Erf 30170



18A: Simulation: Phesantekraal Street, 'Die Bron', view westwards to Erf 39170



21A: Simulation: Elsiekraal River corridor view looking-westwards to Erf 39170



24A: Simulation: View from 'Die Bron' looking-south-westwards to Erf 39170 (REPLACE)



30A: Altygedacht access road - Erf 39169 entirely obscured by vegetation



32A: Simulation: Tygerberg Valley Road looking westwards



33A: Intersection of Van Riebeeckshof Road and Jip de Jager Drive looking northwards



35A: Simulation: Van Riebeeckshof Road looking north-eastwards (Majik Forest -foreground)



Additional Image: Source: Boogertman and Partners



Additional Image: Source: Boogertman and Partners.
(Based on these, the decision was taken to reduce the 6-storey block by one storey)

5.3 Visual Impacts

Both the construction and operational phases associated the development proposals will cause visual impacts, which will manifest as change in visual character:

5.3.1 Construction Phases

During the construction phases - as the sites are cleared and graded - visual scarring will occur, due to removal of vegetation. This, coupled with the exposure of bare soil during earth shaping will cause a predominantly 'green' site landscape to change drastically, and incur the loss of the farmland aesthetic. Construction workers and machinery, with associated noise and dust, will impact upon the current 'tranquillity' of the area.

5.3.2 Operational Phases

During the operational phases, the immediate change will become less apparent as vegetation matures and surfaces weather. From a distance, Both Driehoek Residential and Door de Kraal Plein will be perceived as infill developments, largely congruent with existing built-fabric conditions adjacent. The foreground intrusion of built form (where visible) will be more noticeable to the immediate neighbours, though visibility is reduced by existing vegetation and mature trees. Views through the developments towards the remaining vineyard beyond must be maintained. The integrity and connectivity of the public open space systems must be retained.

The development proposals should be considered from the broader context as well as from the more immediate context:

5.3.3 Broader Context

From the broader context, the developments may become absorbed without significantly altering the visual status of the environment. Driehoek Residential may be perceived as a continuation of Die Bron neighbourhood, whereas Door de Kraal Plein may be perceived as a continuation of the Vineyards Office Estate, and could become a positive urban node serving the adjacent neighbourhoods.

5.3.4 Local Context

From a more localised perspective, the transformation from agricultural to urban landscape is more significant. The visual (and physical) permeability of the development proposals (especially the boundary treatment) will be crucial to ensure their congruence with the existing context.

Architectural detailing and articulation of the building facades will further reduce the apparent impact of the simulated images. Fenestration will serve to 'fragment' the current planar surfaces into a more faceted texture. Shade provided by street tree planting will cast dappled shadows onto the wall surfaces, helping to 'soften' the visual impact at a detailed level of perception.

5.3.5 Edge Conditions

Specific attention and careful controls should be paid to the design of the boundary treatment. A solid, continuous wall would be entirely inappropriate. The development should not have the appearance of a gated security estate, as these are characterised by sterile (even hostile) in active edges.

Boundary walls and fences, as well as plinths to buildings, should be articulated and discontinuous to fragment the visual impact of the vertical edge. In addition, substantial tree planting together with vines planted on trellises and pergolas will be necessary to ensure increased visual absorption capacity of the sites, and to visually 'anchor' the developments into the landscape.

On the western boundaries and where the developments border onto vineyards, the boundary edges should be as transparent as possible.

5.3.5 Electrical Lighting

In addition to street lightings, the light emanation from buildings will be clearly noticeable and constitute a significant change to the status quo. Streetlight should illuminate the ground only- and not be open to the sky (this would cause light pollution). The office buildings should not be fully illuminated at night - conservation of energy must be prioritized.

5.3.6 Height and scale of buildings

Within the Door De Kraal Plein proposal, some fairly large scale buildings are proposed. However cognisance of the landform has been resulted in the buildings being placed lower down the slope - i.e. well below the ridgeline. The proposal also steps down in scale and function towards certain edges (e.g. the Majik Forest), which helps to reduce the sharp contrast.

5.3.7 Landmark buildings and Focal points

The proposal for Door de Kraal Plein includes a plaza space associated with a proposed chapel with bell tower. This vertical element will act as a landmark or visual anchor, lending a certain 'presence' to the development.

The extension to Jip de Jager Drive is likely to have a more significant visual and spatial impact than any of the proposed buildings, viewed either individually or cumulatively.

5.3.8 Extension of Jip de Jager Drive

Considering especially the long term (dual carriageway) proposal, and the mitigation necessary for large scale of the proposed road; substantial and generous tree planting -within the median and along the road reserves - will be required, and is imperative. Pedestrian crossings must be facilitated to ensure a comfortable human environment is achieved. This road has the potential to become a 'gateway' to the Durbanville Wine Route, and should be considered as a scenic drive.

Considered holistically, both positive and negative impacts are anticipated

5.3.9 Cumulative Impacts - Change in Landscape Character

Negative aspects include the loss of farm land, as even though they are not agriculturally viable, the vineyards currently planted on portions 18 and 19 of Erf 39170 do add to the character of place. Additionally, the increase of buildings into the foreground may be viewed by receptors as significant visual intrusion, interrupting and foreshortening the agricultural vista. Further, the proposed road extension to Jip de Jager Drive will introduce a through flow of traffic, which does not currently occur.

Contrastingly, **Positive: aspects** include the creation of positive urban places with compact urban form - providing an alternative to the ubiquity of suburban sprawl, the inclusion of mixed-use into a previously mono-functional environment; the visual interest created by considered buildings well-integrated with landscape (in terms of the urban design and landscape frame work planning), the inclusion of a landmark building (the proposed Chapel) which is congruent with historic patterns of village place-making, the scaling down and anchoring effect the development proposals will have on the existing Vineyards Office Estate adjacent; (which sits somewhat precariously on its own; and the provision of access to Valley Primary School, the provision of pedestrian pathways and cycles routes, the greening effect of substantial tree planting and landscape interventions.

Table 1A: Driehoek: Summary of impacts during construction phase:

Inclusive of scarring and dust resulting from vegetation clearing for access road and related infrastructure (services, control rooms, temporary site camps and storage yards) and the impact of construction workers, machinery, and equipment (cranes, and vehicles)

DRIEHOEK RESIDENTIAL

Extent of Construction Phase Impacts	international	national	regional	local	SITE
Duration of Construction Phase Impact	permanent	long	medium	short	SHORT
Probability of Construction Phase Impact	DEFINITE	highly probable	probable	improbable	
Intensity of Construction Phase Impact	high	medium	low	very low	LOW
Level of Significance of Construction Phase Impacts	high	medium	low	very low	LOW
Status of Construction Phase Impacts	NEGATIVE (considering noise, dust, loss of vineyards, scarring etc.)		positive		
Degree of Confidence	HIGH		low		
Mitigation Recommended	Dust suppression measures to be put in place (e.g. ‘dustex’, watering soil/gravel areas, speed limits) if dust impacts exceed South African air quality standards. Locate construction yard in a visually discreet area				
Significance after Mitigation	high		LOW		

Table 1B: Vierhoek: Summary of impacts during construction phase:

Inclusive of scarring and dust resulting from vegetation clearing for access road and related infrastructure (services, control rooms, temporary site camps and storage yards) and the impact of construction workers, machinery, and equipment (cranes, and vehicles)

DOOR DE KRAAL PLEIN

Extent of Construction Phase Impacts	international	national	regional	LOCAL	site
Duration of Construction Phase Impact	permanent	long	medium	SHORT	
Probability of Construction Phase Impact	DEFINITE	highly probable	probable	improbable	
Intensity of Construction Phase Impact	high	MEDIUM	MEDIUM	low	
Level of Significance of Construction Phase Impacts	high	MEDIUM	MEDIUM	low	
Status of Construction Phase Impacts	NEGATIVE (considering noise, dust, loss of vineyards, scarring etc.)		positive		
Degree of Confidence	HIGH		low		
Mitigation Recommended	Dust suppression measures to be put in place (e.g. 'dustex', watering soil/gravel areas, speed limits) if dust impacts exceed South African air quality standards. Locate construction yard in a visually discreet area				
Significance after Mitigation	high		LOW		

Table 2A: Driehoek: Summary of impacts during operational phase:

Inclusive of the impacts of proposed developments on the Landscape Character, associated with the loss of agricultural farmland and views of vineyards, the addition of residential and mixed-use buildings into the landscape; and the of extension of Jip de Jager drive.

DRIEHOEK RESIDENTIAL

Extent of Operational Phase Impacts	international	national	regional	local	SITE
Duration of Operational Phase Impacts	permanent	long	medium	short	
Probability of Operational Phase Impacts	DEFINITE	highly probable	probable	improbable	
Intensity of Operational Phase Impacts		high	medium	LOW	
Level of Significance of Operational Phase Impacts		high	medium	LOW	
Status of Operational Phase Impacts	negative	POSITIVE (place-making, landscape and architectural interest)			
Degree of Confidence	HIGH	low			
Mitigation Recommended	Landscape Architectural treatment - extensive tree planting with appropriate species, incorporation of pergolas, trellis with vines, active edges, transparent and fragmented boundary treatment (no continuous wall)				
Significance after Mitigation		high	LOW		

Table 2B: Vierhoek: Summary of impacts during operational phase:

Inclusive of the impacts of proposed developments on the Landscape Character, associated with the loss of agricultural farmland and views of vineyards, the addition of residential and mixed-use buildings into the landscape; and the of extension of Jip de Jager drive.

DOOR DE KRAAL PLEIN

Extent of Operational Phase Impacts	international	national	regional	LOCAL	site
Duration of Operational Phase Impacts	permanent	long	medium	short	
Probability of Operational Phase Impacts	DEFINITE	highly probable	probable	improbable	
Intensity of Operational Phase Impacts		high	MODERATE	low	
Level of Significance of Operational Phase Impacts		HIGH	medium	low	
Status of Operational Phase Impacts	negative	POSITIVE (place-making, landscape and architectural interest)			
Degree of Confidence	HIGH	low			
Mitigation Recommended	Landscape Architectural treatment - extensive tree planting with appropriate species, incorporation of pergolas, trellis with vines, active edges, transparent and fragmented boundary treatment (no continuous wall)				
Significance after Mitigation		high	LOW		

Table 3A: Driehoek: Summary of key Visual Criteria assessed:

DRIEHOEK RESIDENTIAL

Visibility: View Catchment	5km radius	2,5km radius	1km Radius
Visibility: Zone of Visual Influence	high visibility	moderate visibility	LOW visibility
Area (Visual Sensitivity)	high sensitivity	moderate sensitivity	LOW sensitivity
Receptors (Visual Sensitivity)	HIGH sensitivity	moderate sensitivity	low sensitivity
Visual Exposure	high exposure	moderate exposure	LOW exposure
Visual Absorption Capacity	low VAC	moderate VAC	HIGH VAC
Visual Intrusion	high visual intrusion	moderate Visual intrusion	LOW visual intrusion

Table 3B: Vierhoek: Summary of key Visual Criteria assessed:

DOOR DE KRAAL PLEIN

Visibility: View Catchment	5km radius	2,5km radius	1km Radius
Visibility: Zone of Visual Influence	high visibility	MODERATE visibility	low visibility
Area (Visual Sensitivity)	high sensitivity	MODERATE sensitivity	low sensitivity
Receptors (Visual Sensitivity)	HIGH sensitivity	moderate sensitivity	low sensitivity
Visual Exposure	high exposure	MODERATE exposure	low exposure
Visual Absorption Capacity	low VAC	MODERATE VAC	high VAC
Visual Intrusion	high visual intrusion	MODERATE Visual intrusion	low visual intrusion

5.4 Mitigation Measures (& Management Directives)

5.4.1 Construction phase:

Environmental Management plans should be written and enforced to ensure compliance. An Environmental Control Officer should be appointed to monitor progress. Specific attention should be paid to the care and maintenance of significant trees and shelterbelts and riparian vegetation.

Flattening and grading of the site is to be kept to a minimum - and as far as possible the natural profile and slope of the site is to be maintained. Natural drainage should be allowed to continue, and erosion control measure must be put in place.

5.4.2 Operational phase:

Architectural and Landscape Architectural guidelines should be adopted as policy documents used to control detail design. Boundary walls and security fences are to be discrete and non-dominant. They are also to be articulated and non-continuous, allowing for maximum transparency and visual permeability.

Specific allowance should be made for on-going landscape maintenance - to allow the site vegetation to mature sufficiently for increased visual absorption capacity of the environment.

Street tree and additional screen planting, using appropriate species, congruent with the rural agricultural landscape will reduce the visibility of the proposed developments. Tree planting (in clusters) could also be introduced to underplay the harsh geometries of site boundaries.

Within the wetland and riparian portions, indigenous vegetation should be allowed to colonize the site. A landscape rehabilitation plan should be included in the detail design of the sites.

External lights should be shielded to cast light only upon the area required to be illuminated. Naked light sources should not be visible from beyond the sites, and no light should be emitted into the sky.

5.4.3 Jip de Jager Road Extension:

Significant tree planting will be required to mitigate the size and scale of the road. Tree planting proposals must take cognizance of the future widening (long term) dual carriageway. Provisional for safe pedestrian and cyclist access must be ensured.

5.4.4 Final Photomontages (Mitigated)

The following images have been reworked - following the presentation of the draft visual impact assessment report to the design team. It was agreed to reduce the height of the tallest building proposed for Door de Kraal Plein from 6 to 5 storeys, additional street tree planting and screen planting has been indicated, and building façades are articulated to a certain degree. At this stage, the architecture is indicative rather than explicit.



1B: Simulation: view approaching via Jip de Jager Drive - tree planting to provide screening.



4B: Simulation: view looking northwards. Street tree planting along Jip de Jager Drive



6B: Simulation: view southwards to Protea Vallei. Street tree planting along Jip de Jager Drive



16B: Simulation: 'Die Bron' looking westwards to Erf 30170 (reduced height building)



18B: Simulation: Phesantekraal Street, 'Die Bron', view westwards to Erf 39170



21B: Simulation: Elsiekraal River corridor view looking-westwards to Erf 39170



24B: Mitigation - maximum height of building reduced.



32B: Simulation: Tygerberg Valley Road looking westwards - building height reduced



33B: Intersection of Van Riebeeckshof Road and Jip de Jager Drive looking northwards



35B: Simulation: Van Riebeeckshof Road looking north-eastwards (Majik Forest -foreground)

6. CONCLUSIONS AND RECOMMENDATIONS

From the evidence, it is clear that visual considerations have played a significant role in the evolution of the of the design proposals. The visual specialist has been able to interface with the professional design team timeously to provide comment.

Both the 'Driehoek' and 'Vierhoek' sites have been imagined in their immediate and broader contexts. This is evidenced in the form, scale and massing of the building proposed, as well as in their placement and the spaces created between buildings, view corridors allowed through portions of the development proposals and the attention to pedestrian access and permeability of the sites.

Although detailed architectural and landscape architectural proposals have not yet been required, the augmentation of landscape and architectural guidelines documents will assist in further visual criteria being met (articulation of boundary walls, appropriate plant species, etc.)

The loss agricultural land is regrettable; though compensation is afforded through the creation of the stabilization fund (to ensure protection of the remaining vineyards). With appropriate tree planting and vine-creeper planting (on pergolas and trellises), the 'vineyard' notion may be perpetuation in the urban context. This would allow the entire complex (inclusive of eth existing Vineyards Office Estate) to sit comfortably within the agricultural context, rather than being imposed upon it.

The urban morphology of the proposals tends towards the more desirable (and sustainable) modes i.e. compact form, higher density, and limited rise. From a Visual and Aesthetic Impact Assessment perspective, there are no fatal flaws apparent in the development proposals. Therefore approvals should not be withheld on visual criteria.

End Notes:

Following the first draft presentation of the visual impact assessment, it was agreed by the project team to reduce in height the proposed 6-storey building (Door de Kraal Plein) to a 5-storey height. This particular building seemed out of place in the initial (unmitigated) simulations, and has been reduced in the later images. This improves the overall cohesion of the overall massing, and lends greater visual prominence to the bell tower of the proposed chapel, thereby creating a more comfortable built profile. This is exemplary of the integration of visual considerations into the design process.

7. REFERENCE DOCUMENTS

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Guideline for involving Visual and Aesthetic Specialists in EIA processes:
Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa,
Provincial Government of the Western Cape,
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SECTION SEVEN: PUBLIC PARTICIPATION PROCESS

A public participation process was conducted as part of the LUPO process and prior to the submission of the NID to HWC and prior to the appointment of this heritage consultant.

A summary of the process and the response to the objections is included in Appendix Four.

A number of community based organizations supported the development. They include the Valley Committee, an umbrella organisation of residents' organizations covering Protea Valley, Welgedacht, Kanonberg, Van Riebeeckshof and Oude Westhof, reportedly representing about 2500 home owners.

The committee is the primary caretaker involved in the Majik Forest.

Heritage issues raised inter alia by this Durbanville Heritage Society during the process related to both procedural and substantive issues.

The absence of NEMA and NHRA processes was questioned. It had been agreed with the local authority that the LUPO application would be compiled initially and that the NEMA and NHRA process should progress based on the LUPO application. While the sequential nature of this process can be questioned, the NEMA and NHRA process has been initiated. It is envisaged that future public participation processes will be incorporated into the NEMA process.

Other issues raised were to the adjustment of the urban edge, the risks of urban sprawl, the setting of precedent for further development of farm land and the overall impact on the character of the area.

At a site specific level, concerns were expressed regarding the overall density of the development, the five storey height of some of the structures and the mixed-use nature of the proposal which would impact on existing community facilities. As a result of these concerns the development team proposed a reduction in the scale of the proposal by some 26% and the imposition of a three storey height limit. This revised proposal is the subject of this HIA. The concerns raised above are addressed in the impact assessment section below.

SECTION EIGHT: THE HERITAGE IMPACT ASSESSMENT

The impact of the proposed development on the heritage resources identified is assessed in terms of the following broad groupings:

- Impact on place character; green edge and the related shift of the urban edge;
- Impact on agricultural soils;
- Impact on Majik Forest, Vink se Bos and traditional patterns of access;
- Socio-economic impact; and
- Archaeological and paleontological impact.

8.1 Impact on place character; transformation from an agricultural to an urban landscape

The transformation of the site from an agricultural to an urban landscape and the concomitant adjustment of the urban edge are regarded as the most significant potential impact. The following considerations apply:

- 8.1.1 A relatively small portion of the host property (4.4ha.) is affected and is located on the lowest and least visible portion of the site, adjacent to the confluence of the two main corridors, Jip de Jager Drive and the Elsieskraal riverine corridor and the open space system related to the Majik Forest, Vink se Bos and the associated tributary.
- 8.1.2 The establishment of a Stabilization Fund to ensure the continued use of the upper more visible portion of the property for agriculture.
- 8.1.3 The logical rounding off of the urban edge along the alignment of the adjacent office park development which will mitigate its present isolated nature and which will establish a more continuous logical urban edge line which would be more likely to resist the threat of suburban intrusion than the present line.
- 8.1.4 The conclusion contained in the VIA that from the broader context, the development will become absorbed without significantly altering the visual status of the environment.
- 8.1.5 The decision of Spatial Planning and Urban Design Branch of the City of Cape Town to support the amended edge. As the analysis and conclusions contained in the relevant report, which are supported by this consultant, are fundamental to the assessment of the adjustment of the urban edge, they are identified in some detail below.

In the report dated 7 September 2011 it is noted that although the affected portions are shown as agriculture on the Cape Peninsula Urban Structure Plan, the property is zoned 'undetermined' (and not 'agriculture') in terms of the applicable zoning scheme. The site is also exempt from the requirements of the subdivision of Agricultural Land Act (70 of 1970) because it is located within the Urban Structure Plan's area. The City's memorandum states that the above factors indicated an underlying incongruity with the designation 'agriculture'.

The report states that the proposed development is located on a rectangular site with minimal environmental constraints and can be considered to be 'a unique and logical infill on the edge of the urban area'.

The report sets out in detail (Appendix 7) the procedures for consistency with the Provincial Spatial Development Framework (PSDF) urban edge and the deviation of the Northern Metro urban edge. The proposal is assessed in terms of the 'Guidelines' for the review of the urban edge (UE) line in terms of the PSDF, Northern Edge Study and the CTSDF.

Factors identified in support of the adjustment of the urban edge line to accommodate the proposed development and which are relevant to this assessment include the following:

- The site is located in a unique position, forming a wedge between the Vineyards office estate, an agricultural area, the critical open space link (of Majik Forest) and Jip de Jager Drive and is located in close proximity to the intersection of Jip de Jager and Van Riebeeekshof Street. The proposal take the form of infill development and the amendment of the line can be considered to be one of rationalisation rather than being intrusive to the edge.
- Amending the edge line to incorporate the proposal development would rationalise the line (achieving a coherent pattern of urban development) and, depending on the scale of development, moderate what is now an uneasy juxtaposition between the out of scale Vineyards Office Estate and the adjacent agricultural land.
- The proposals for the interface between the development and the river include an open space linkage to Majik Forest which will provide visual, pedestrian and cycle public access to the forest from Erf 39170. The inclusion of the open space connection to the Majik Forest is considered to be a positive contribution to the setting.
- The views of agricultural fields from Jip de Jager Drive (looking northwards) and from the scenic route of Tygervalley Road (looking westwards) which contribute to the scenic amenity of the area need to be protected. The protection of these views should cover both the skyline plus a section below the skyline in order to ensure that the view has material value.

It should be noted that the original proposal was for five to six storey structures. This has subsequently been reduced to two or three storeys and the concerns identified above have thus been addressed.

- The agricultural study (referred to below) has indicated that the poorest terrain is located in the south-eastern corner of Erf 39170 where the proposed development is planned to be built.
- The applicant has committed to the establishment of a stabilization fund which will use the proceeds from the proposed development to fund shortfalls experienced in farming operations and therefore promote the sustainability and continuity of farming on the rest of the farm.
- The site is considered to be a unique and once off situation and thus a precedent would not be set.

The above assessment by the Spatial Planning and Urban Design Branch of the CoCT provides the basis for the City's support for the amendment of the urban edge line.

The assessment contains a number of heritage related issues and there are no other heritage issues which would impact on the assessment. The assessment and the support for the amendment of the urban edge from a heritage perspective is thus supported.

8.2 Impact on agricultural soils

The Report on the Agricultural Potential of Erf 39170 prepared by Agri Informatics (December 2010) (Appendix 5) states that the potential is medium to medium-low. In the assessment of the impact of the development proposal on agricultural potential the report states that including a portion of erf 39170 into the urban edge will shorten the edge and result in a slightly better defined boundary between urban and agricultural land. It will also lead to better “absorption” of the Vineyard Office Estate within the urban edge thereby reducing its intrusive character into the agricultural landscape.

The subdivision and rezoning does not introduce any leap-frogging into agricultural properties. In terms of loss of productive land the report argues that the viability of even the best agricultural land use is marginal to unviable under present market conditions.

In a letter to the City of Cape Town by the Department of Agriculture: Western Cape (DOA: WC) (dated 24 October 2011) (Annexure 5) the following agreement was noted between the applicant and the DoA : WC:

- That the remainder (± 24.4 ha.) be reserved for continued Agricultural Zone 1 purposes by means of:
 - o The rezoning of the remainder of Erf 39170 (± 24.4 ha.) to Agricultural Zone 1.
 - o The endorsement of the Title Deed with a condition in favour of the DoA : WC with regard to the remainder of Erf 39170, stating: SUBJECT to the following condition in favour of the DoA : WC namely “The Remainder of Erf 39710, Bellville, shall be used solely for agricultural purposes. This condition may not be removed without the written consent of the DoA : WC or their successors in title.”
- That the applicant commits themselves to the long term vine cultivation on 85% (± 24.4 ha.) of the property by means of establishing a “Stabilization Fund” to compensate for the difference between income and operational expenditure. This fund will also make provision for the replanting of vineyards to the extent of ± 24.4 ha after approximately 20 years.

The DoA : WC thus supports the application for the amendment of the Guide Plan (also known as the Cape Peninsula Structure Plan), the amendment of the PSDF Urban Edge, and the rezoning, subdivisions and departures for the subdivided portion of (± 4.4 ha.) of Erf 39170.

8.3 Impact on Majik Forest, Vink se Bos and traditional patterns of access

There will be no impact on Majik Forest, Vink se Bos and on traditional patterns of access across the farmland. The development proposals indicated in Figure 7 indicate a positive interface with this significant social recreational resource in the form of a public square. Surveillance will thus be increased and the impact is thus regarded as positive. The Tygerberg Mountain Bike Club, with 1600 members, has been involved in the process and has indicated its support for the proposal.

8.4 Socio-Economic Impact

The independent economist, Dr Hugo Van Zyl, concluded in an Economic Specialist Study for the NEMA process dated 26 August 2011 that the development could result in significant economic spin-offs and opportunities. It was calculated that more than R400 million would be spent during the construction phase, creating approximately 348600 working days direct employment with an estimated R155 million to be paid out in direct wages and salaries.

8.5 Archaeological Impact

The AIA conducted by Hugo Pinto of CRM Archaeological Services concluded that no significant archaeological remains were evident on the site. The recorded isolated stone artefacts are of low archaeological significance. The logging of their location and the description presented in the report (Appendix 2) are regarded as an adequate mitigation of the resource.

8.6 Palaeontological Impact

To be inserted.

SECTION NINE: CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the development proposal will have a low heritage impact.

It is thus recommended that the HWC should comment that the development proposal illustrated in Figure 8 should be approved and that the following conditions of approval should apply:

- 9.1 That a three storey height limit should be imposed.
- 9.2 That visual links should be established to provide visual connectivity between Jip de Jager Drive and the vineyards to the east at the interface with the Majik Forest, at the proposed point of entry and at the interface with the Vineyards Office Park.
- 9.3 That appropriate tree and screen planting (on pergolas and trellises) be established at the interface with the agricultural hinterland and adjacent to Jip de Jager Drive.
- 9.4 That a plan of action be put in place in the event that subsurface archaeological remains (such as graves or refuse dumps) are uncovered in the course of development.

Although not strictly a heritage issue, the proposal to remove the residential component has been reconsidered and the plan has been amended (see Figure 8). A mixed use urban development would mitigate the negative impacts associated with mono-functional suburban office-park developments.

Nicolas Baumann
February 2012

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APPENDIX 1
HWC ROD 14 December 2011

APPENDIX 2

Archaeological Impact Assessment

APPENDIX 3

Urban and Landscape Design Framework

APPENDIX 4

Agricultural Soils Report

APPENDIX 5

Poster Presentation at Open House

APPENDIX 6

Letter from CoCT re amendment of urban structure plan, PSDF Urban Edge. Northern Metro Urban Edge, Rezoning and Subdivision

APPENDIX 7

Palaeontological Study