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**APPENDIX 7: CONFIRMATION OF ZONING/SERVICES (EMFULENI LOCAL MUNICIPALITY)**

Our ref: P 1549-02-01



## STORMWATER MANAGEMENT PLAN FOR PORTION 1/238 OF FARM LEEUWKUIL 596 IQ

Date: 17 May 2018

**Prepared for:**  
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## 1 BACKGROUND

SCIP Engineering Group (Pty) Ltd was appointed by Urban Dynamics to prepare a stormwater management plan for a portion of land that is owned by ABInBev (South African Breweries (SAB (Pty) Ltd), called Portion 238 of Farm Leeuwkuil 596 IQ, Vereeniging.

The proposed development consists of an industrial plant which will form part of the company's supply chain.

The plant is planned for a portion of portion 238 of Farm Leeuwkuil 596 IQ. A sub-division application of Portion 238 of Farm Leeuwkuil 596 IQ is submitted by the town planners. The layout of the plant is shown in Annexure A.

This report addresses the stormwater management within the study area. The purpose of this report is to:

- Indicate the catchment areas and minor systems affecting the proposed development;
- Establish if the proposed development is adversely affected by external stormwater runoff; and
- Propose methods to accommodate the generated stormwater.

## 2 GENERAL DESCRIPTION

### 2.1 LOCATION

The industrial plant will be located on the western side of the Vereeniging CBD on Portion 1/238 of Farm Leeuwkuil 596 IQ in the jurisdiction of the Emfuleni Local Municipality. The development is parallel to the R28 (Boy Louw Road) and the R59 next to the existing SAB Vereeniging Depot. The Figure 1 indicates the location of the proposed development.

### 2.2 TOPOGRAPHY

The site has a slope of  $\pm 3\%$  in a south-easterly direction and is covered with grass vegetation. The site covers an area of about 30 hectares and there are no registered servitudes within the site. The site is currently accessed from Pilsner Close. The Figure 2 indicates the contours on and around the site with the lowest point towards the south-eastern side of the site.

### 2.3 LANDUSE

The land is owned by SAB since 1983. It currently is vacant land with grassland cover. The site's current land use is vacant/agriculture and will be rezoned to "Industrial 2". The current land uses around the proposed development is show in Annexure B.

It consists of the following: Correctional Services, Prison & Correctional services Housing, Telkom and Open Serve, Department of Roads and Transport, SAB depot, a Substation, Vereeniging Fresh Produce Market, Residential Areas and Vacant land.

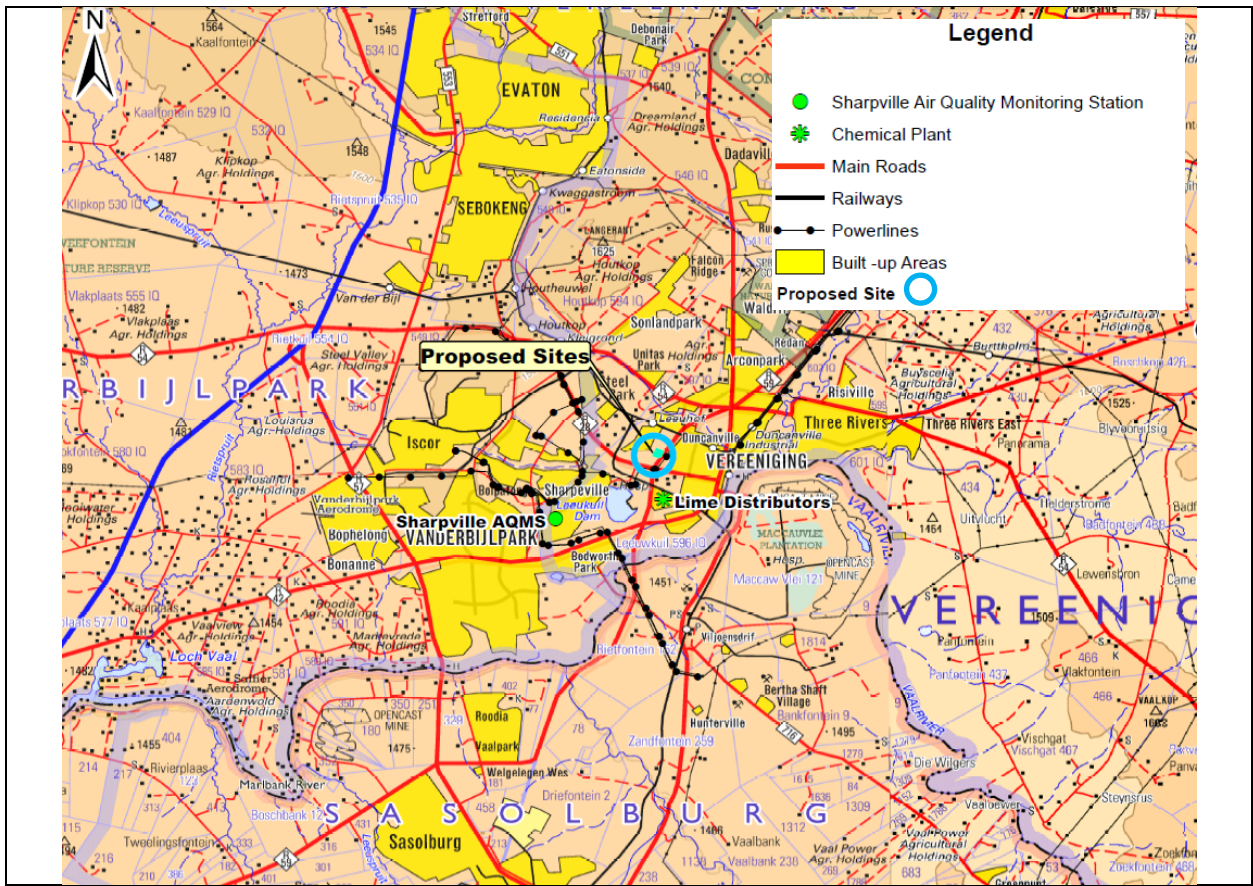


FIGURE 1: LOCALITY OF THE ISANTI SITE



FIGURE 2: TOPOGRAPHY OF THE ISANTI SITE

## 2.4 GEOLOGY

A geotechnical investigation was done by SLR Consulting in February 2018. The investigation was done primarily for industrial development planning process. A stage 2 Geotechnical investigation needs to be done when construction starts to verify the conditions on site. The most significant findings of the stage 1 geotechnical investigation are listed below:

- The geology of the site consists of shale, sandstone, coal and mudstone of the Ecca Group (part of the Karoo Supergroup). The soils are classified as “soft excavation to average depth of between 3.5m and 4m below the surface”. For excavation deeper than 4m, hard rock excavation will be required.
- The Karoo sediments are underlain by dolomites of the Malmani Sub-group of the Chunie Group, Transvaal Supergroup. The dolomite is expected to be encountered at variable depths. For the preliminary dolomite risk assessment, the site was found to falls in a Blue zone which is considered a low risk class 1 risk and is suitable for the construction of the required industrial infrastructure (See Figure 3). This information This information is subject to verification.



FIGURE 3: GEOTECHNICAL ZONES OF THE SITE

- No groundwater seepage was encountered and is expected. However, general water precautionary measure outlined in SANS 1936-1 and SANS 1936-3 should be adhered to.

- The analysis of the Residual Quarzitic Sandstone found the bearing capacity range between 100 and 150 kPa. For structures heavier than this, further investigations must be done for probable raft or pile foundation designs.

## 2.5 HYDROLOGY AND FLOOD RISK

A number of manmade soil channels are visible on this site. A manmade concrete lined channel also runs on the southern and eastern side of the site. This channel currently conveys the stormwater to the Vaal Tributary via culverts crossing under the R28 (Boy Louw). Figure 4 indicates the soil- and lined channels as well as the position of the Vaal Tributary and the culvert under the R28.

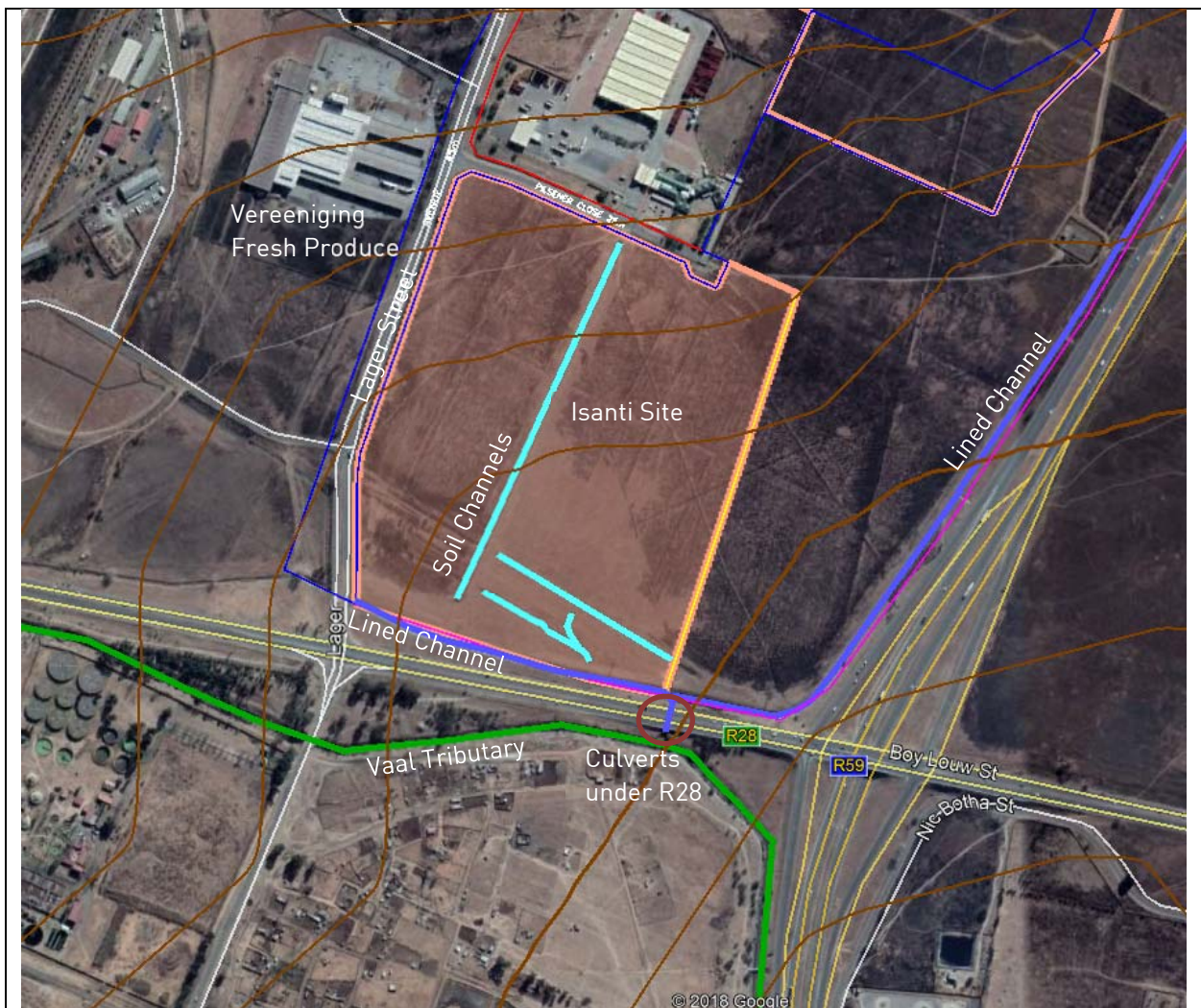


FIGURE 4: HYDRAULIC FEATURES OF THE SITE

The excavated/man-made concrete lined drainage channel was constructed due to ponding at the surface during and after rainfall events. The concrete lined channel runs parallel on the western side of the R59 and on the Northern side of the R28 (Boy Louw).



## 2.6 DEVELOPMENT CONSTRAINTS

With reference to Figure 5 below, the following constraints will affect the development of the industrial plant on this site:

- An existing soil channel conveys the stormwater from the higher elevated SAB depot to the concrete lined channel and ultimately the Vaal Tributary to the south. Therefore, this channel will have to be diverted to accommodate any stormwater from the SAB depot.
- There are a few places on and around the Isanti site where ponding occasionally occurs and this will be addressed by sloping of the natural ground level when developing the site.
- There are no natural drainage features on site and therefore the site is not affected by any water courses and therefore no floodline needs to be considered.

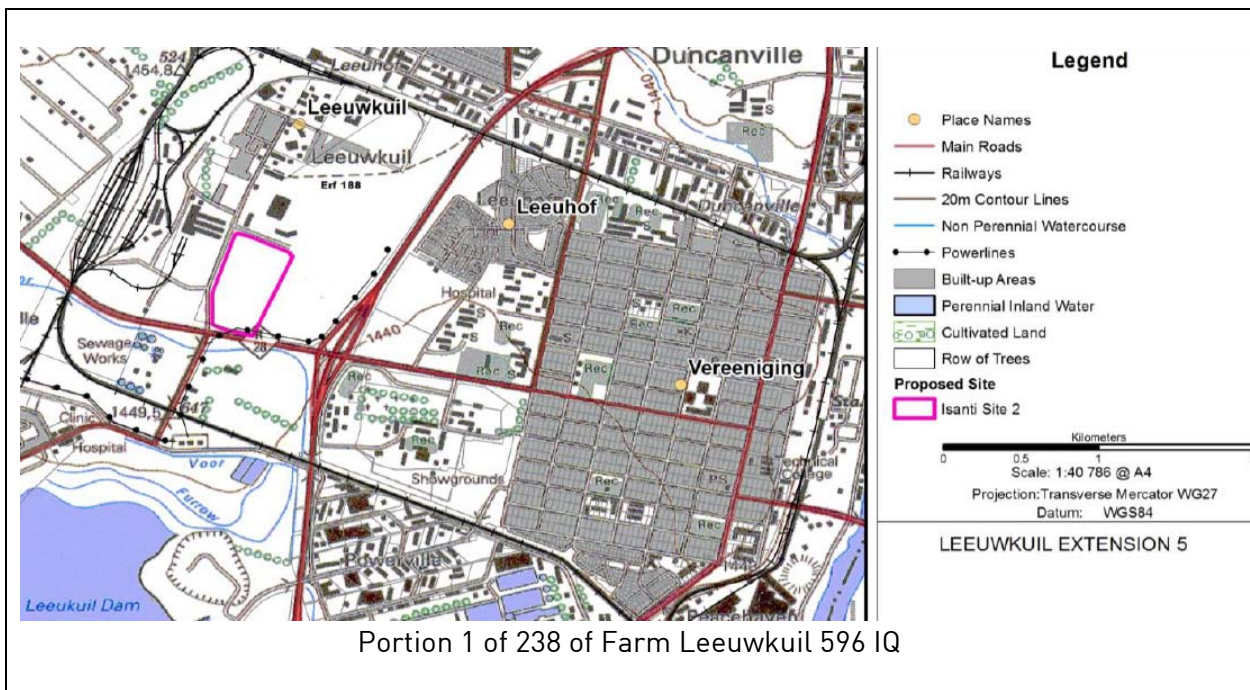


FIGURE 5: ENVIRONMENTAL FEATURES OF THE SITE

### 3 INTRODUCTION TO STORMWATER MANAGEMENT

In stormwater management a distinction can be made between two types of storms, namely storms of low and high severity. For storms of low severity, which occur frequently, a pipe or channel system may be provided to avoid the frequent problems resulting from overland flow. This system has been termed the minor system.

By considering the effects of the less frequent storms, a major system can be identified which supports the minor system. The major system may include larger conduits and natural or artificial channels. The major system would frequently make use of the road system to convey excess water to suitable points of discharge.

A Stormwater Management Plan (SMP) is predominantly concerned with the minor system and storms of low severity but high frequency.

It is good practise in Stormwater Management for all developments exceeding 8500m<sup>2</sup> to be subject to stormwater attenuation on site and the preferred means of attenuation is on the surface. The stormwater run-off generated from the development catchment areas can mainly be conveyed to the attenuation ponds with one or a combination of the following methods:

- Sheet flow: Stormwater is allowed to flow undisturbed;
- Pipe: Stormwater is conveyed by means of an underground pipe system;
- Roads: Stormwater is conveyed using the roads; and
- Open channels: Stormwater is conveyed using open channels.

### 4 EXISTING BULK STORMWATER INFRASTRUCTURE

The SAB depot is adjacent to the proposed site. The ground level of depot has been elevated to ensure that flooding does not occur during high intensity rain storm event. The stormwater from the SAB site are conveyed through a storm water pipe that discharges into a soil channel that runs through the proposed site in the direction of the Vaal Tributary. See Figure 6 below for picture of the channel on site. A few other channels run perpendicular to this channel toward the east of the site.



FIGURE 6: EXISTING SOIL STORMWATER CHANNEL

A concrete lined stormwater channel has been constructed on the eastern side of the development along the R59 and on the northern side of the R28 to convey the surface water to the Vaal Tributary, just south of the R28 (Boy Louw Street). See Figure 7 below for pictures of the concrete lined channel close to the site.



**FIGURE 7: EXISTING CONCRETE LINED STORMWATER CHANNEL**

Figure 4, previously discussed, schematically indicates the position of the existing channels, the culverts and the Vaal Tributary of the proposed site.

Lager street (see Figure 4), to the west of the proposed development, is elevated and can be used as a catchment boundary. Therefore, all the stormwater generated due to the Fresh Produce Market on the western side of Lager street, will not be conveyed onto the proposed site, but will be conveyed to the Vaal Tributary via the concrete lined channel from the west.

There are 2 culverts, each 1.5m wide, that run under the R28 (Boy Louw Street).

## 5 STORMWATER MANAGEMENT

The proposed Industrial plant is divided into different catchment areas due to the topographical layout of the plant. The catchment areas for the plant together with areas outside the site that affects the stormwater, can be seen in Annexure C.

All effluent from the plant will be conveyed through the sewer system and all necessary precautions will be implemented in order to ensure that no plant effluent will drain into the storm water system. Stormwater drainage will be managed on the ground surface, where after an underground piped drainage system not smaller than 450mmØ will be installed for the 1:5 years return period storm. The accumulated run-off from each catchment area will be conveyed by means of the underground pipeline system and a proposed channel. This channel will then discharge into a new attenuation pond. The existing storm water channel running through the site will be diverted and directed along the northern perimeter of the site. The stormwater from this channel will be discharged into the new proposed attenuation pond.

After attenuating the stormwater it will be discharged into the existing concrete lined channel which will take the stormwater through the culverts under the R28 towards the Vaal Tributary.

Refer to Annexure D for the stormwater management plan showing the following:

- the proposed surface flow;
- the proposed pipe flow;
- the proposed channel flow;
- the proposed attenuation pond;
- the existing storm water channel to be diverted
- the existing concrete lined channel; and
- the Vaal tributary.

### 5.1 STORMWATER RUN-OFF CALCULATIONS

The Rational method is used to determine the pre- and post-development run-off for the catchment areas. A Mean Annual Rainfall (MAR) of 691mm has been determined by the "Design Rainfall estimation in South Africa" program and is used throughout the flood calculations for the proposed development. Refer to Annexure E for the design rainfall estimation.

### 5.2 ATTENUATION POND

Attenuation ponds are designed to absorb the difference in flow between the pre-development and post-development storm water run-off, for the 1:5 and 1:25 year return period storms respectively. Therefore, the pond will allow for the 1:5 year pre-development flood to flow through the pond. The final pond size will accommodate a volume of 350m<sup>3</sup>/ha or the 1:25 year post-development run-off accumulated by the site, whichever is the greatest. The attenuation pond overflow will accommodate the 1:50 year flood.

When using 350m<sup>3</sup>/ha the pond will cover an area of 12500m<sup>2</sup> with a maximum depth of 1m. The more conservative pond volume of 12410m<sup>3</sup> will be attenuated then by the attenuation pond.

The Table 1 below indicates the outcomes of the attenuation pond sizing calculations and the volume of the pond when considering the 1:25 year post-development flood. This method indicates the necessity of an attenuation pond with a volume of 17800 m<sup>3</sup>.

**TABLE 1: ATTENUATION POND SIZING**

Catchment Area	Catchment Size (m <sup>2</sup> )	Inflow Data		Outflow Data			Performance		Pond Design Volume (m <sup>3</sup> )
		Inflow Volume (m <sup>3</sup> )	Max Inflow Rate (m <sup>3</sup> /s)	Outflow Volume (m <sup>3</sup> )	Max Outflow Rate (m <sup>3</sup> /s)	Max Storage Required (m <sup>3</sup> )	Max Water Depth (m)	Flow Attenuation	
1	0.006887	-	-	-	-	-	-	-	-
2	0.00117	-	-	-	-	-	-	-	-
3	0.019954	-	-	-	-	-	-	-	-
4	0.022552	5488.3	4.0	660.7	4.6	5488.3	1.0	100%	5488.3
5	0.065849								
6	0.018839								
7	0.009828								
8	0.136372	12273.0	6.5	1477.5	6.5	12273.0	1.0	100%	12273.0
9	0.011144								
10	0.114272								
11	0.041146	-	-	-	-	-	-	-	-
12	0.037748	-	-	-	-	-	-	-	-

\*Please note that detailed calculation will be done during the final design and the pond size will be amended accordingly.

A servitude will be registered for the area in which the attenuation pond is located and will be taken over by the municipality after the proposed development is established.

## 6 DESIGN CONSIDERATION

The following design standards are in line with the Emfuleni Municipal standards and should be considered/adhered to during the design of the pipe stormwater network, the proposed channel and the attenuation pond:

- Size stormwater pipes for the 1: 5 year pre-development flood;
- Piped system should have 450mm diameter as minimum pipe diameter and should be placed within the road reserves;
- All pipes to be concrete pipes with SABS 677 specification;
- Maximum stormwater velocity in pipelines should be 4.5m/s and 3m/s on the roads;
- Minimum stormwater velocity in pipelines should be at least 0.8m/s and a minimum gradient of 0.5% should be maintained;
- The minimum kerb inlet length should be 1800mm;
- Channels should be designed for gradually varied flow (adjusting the dimensions, velocity and slope of the channel accordingly);

- Energy dissipation should be considered during design to protect the existing environment in and around channels as well as at the outlet structures of pipes and ponds;
- Attenuation pond capacity should not less than 350m<sup>3</sup>/ha and should be able to hold the 1: 25 year post-development flood;
- The overflow at the attenuation pond should be able to handle the 1:50 year flood;
- Attenuation ponds should be grassed (side slopes 1:3) and fenced off;
- Attenuation ponds should not be deeper than 1.5m if possible;
- All services will be in accordance with the Guidelines for Human Settlement Planning and Design (Red Book); and

The SANS 1200 series of National Standardized Specifications for Engineering Construction will be used to control quality of workmanship during installation of services.

## 7 CONCLUSION

This report has been compiled to facilitate the route planning and locating of stormwater drainage system elements in relation to the proposed layout plan of the industrial plant and the physical characteristics of the site.

The stormwater drainage will consist of surface flow, a piped stormwater network, a new concrete lined channel and a new attenuation pond.

This report serves as the basis for the detail designs of the stormwater drainage system that will serve the proposed industrial plant.

We trust that you find the above in order and should you require any additional information it will be provided with pleasure.

Sincerely,

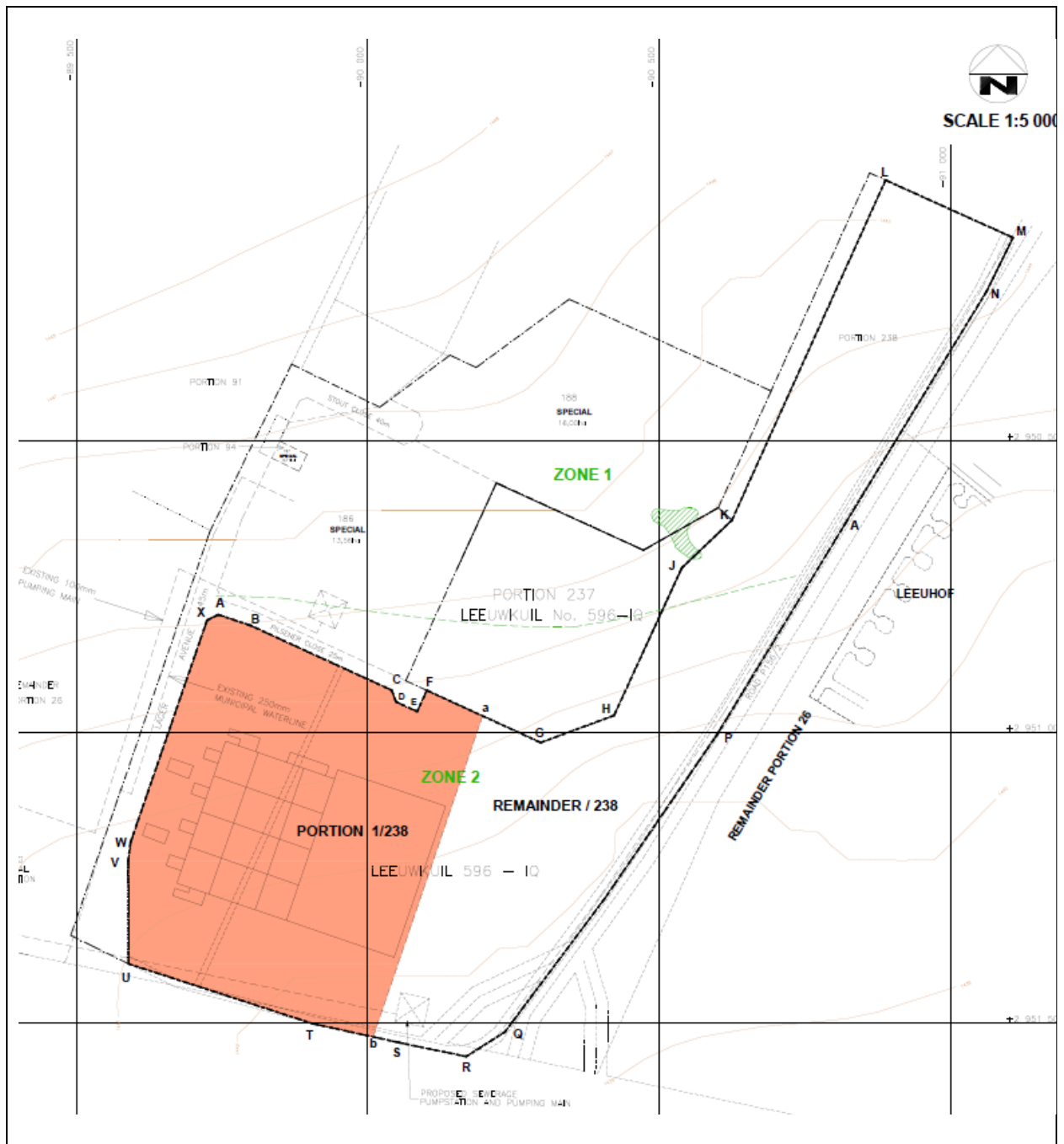


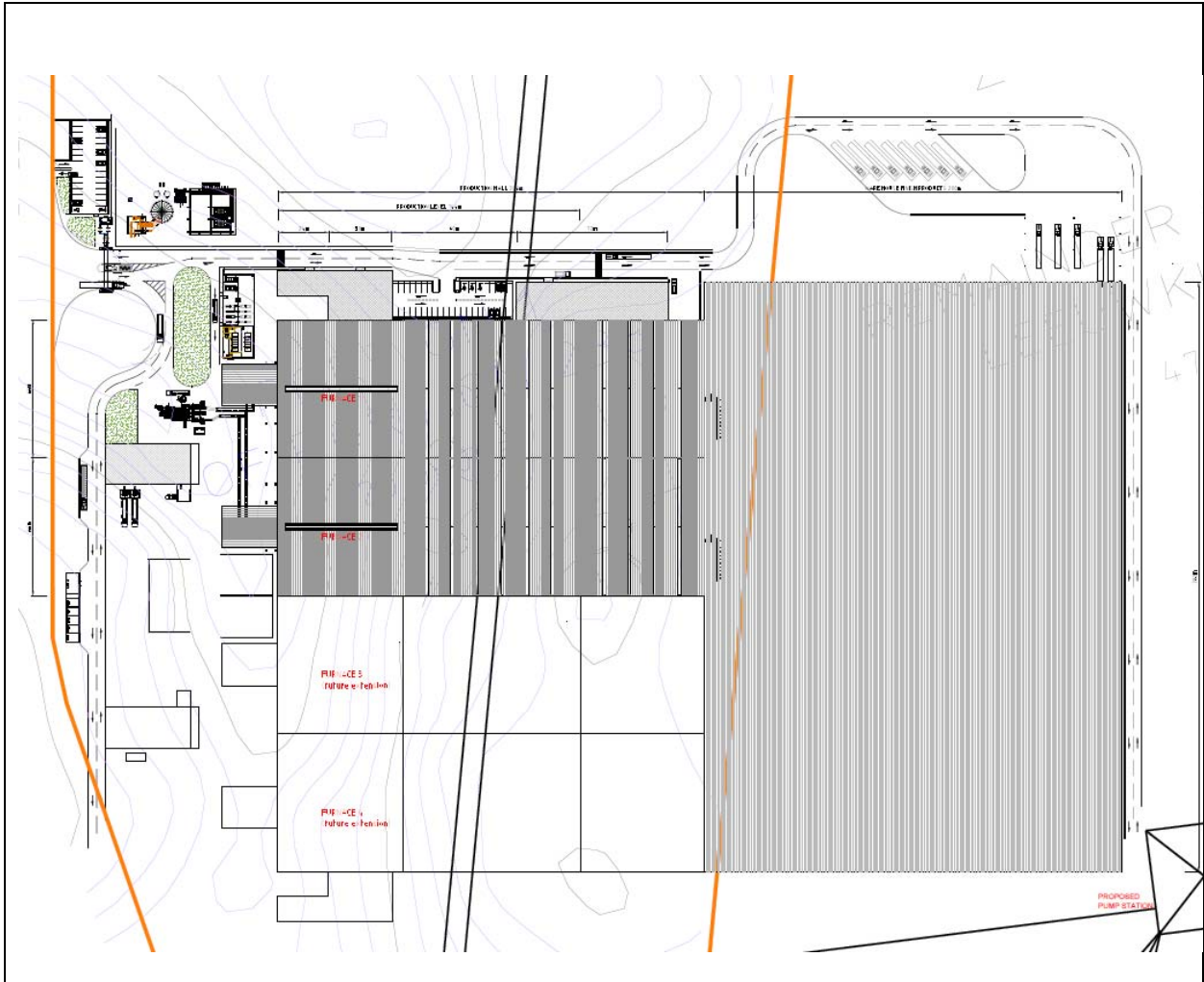
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Civil Engineer (Pr.Ing)  
SCIP Engineering Group

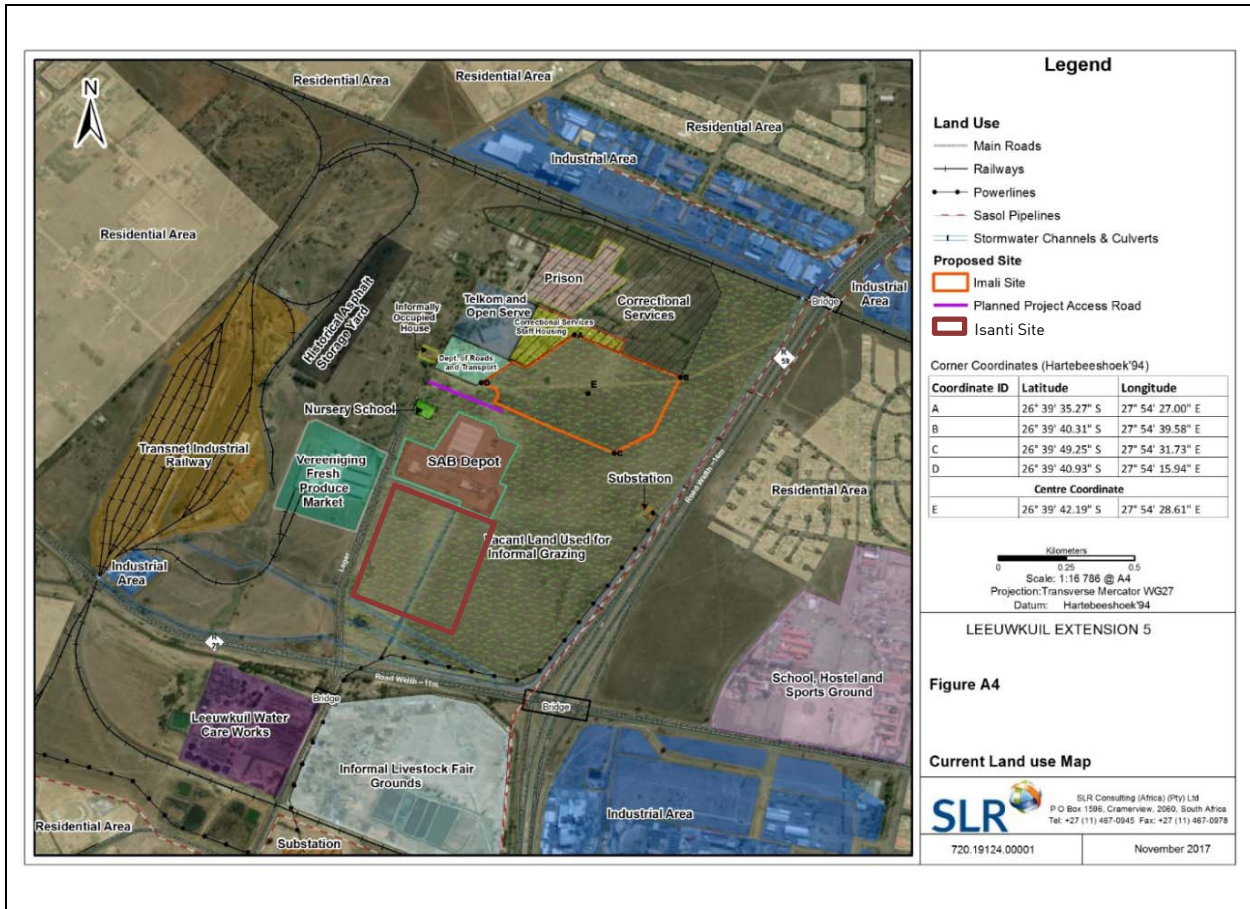
ANNEXURE A: LAYOUT PLAN







ANNEXURE B: CURRENT SURROUNDING LAND USE



## ANNEXURE C: CATCHMENT AREAS

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APPROVED	
CITY ENGINEER	HEAD OF SECTION

NOTES:

LEGEND:

	PROPOSED STORMWATER PIPE
	PROPOSED STORMWATER CHANNEL
	EXISTING STORMWATER CHANNEL
	PROPOSED INLET STRUCTURE
	PROPOSED MANHOLE
	PROPOSED GRID INLET
	PROPOSED CHANNEL WITH GRID
	OUTLET STRUCTURE
	EXISTING CULVERT

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 WITBANK

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CLIENT  
**SOUTH AFRICAN BREWERIES**

PROJECT  
**PORTION 238 OF FARM LEEUKUIL 596 IQ**

DESCRIPTION  
**PORTION 1/238 STORMWATER CATCHMENT LAYOUT**

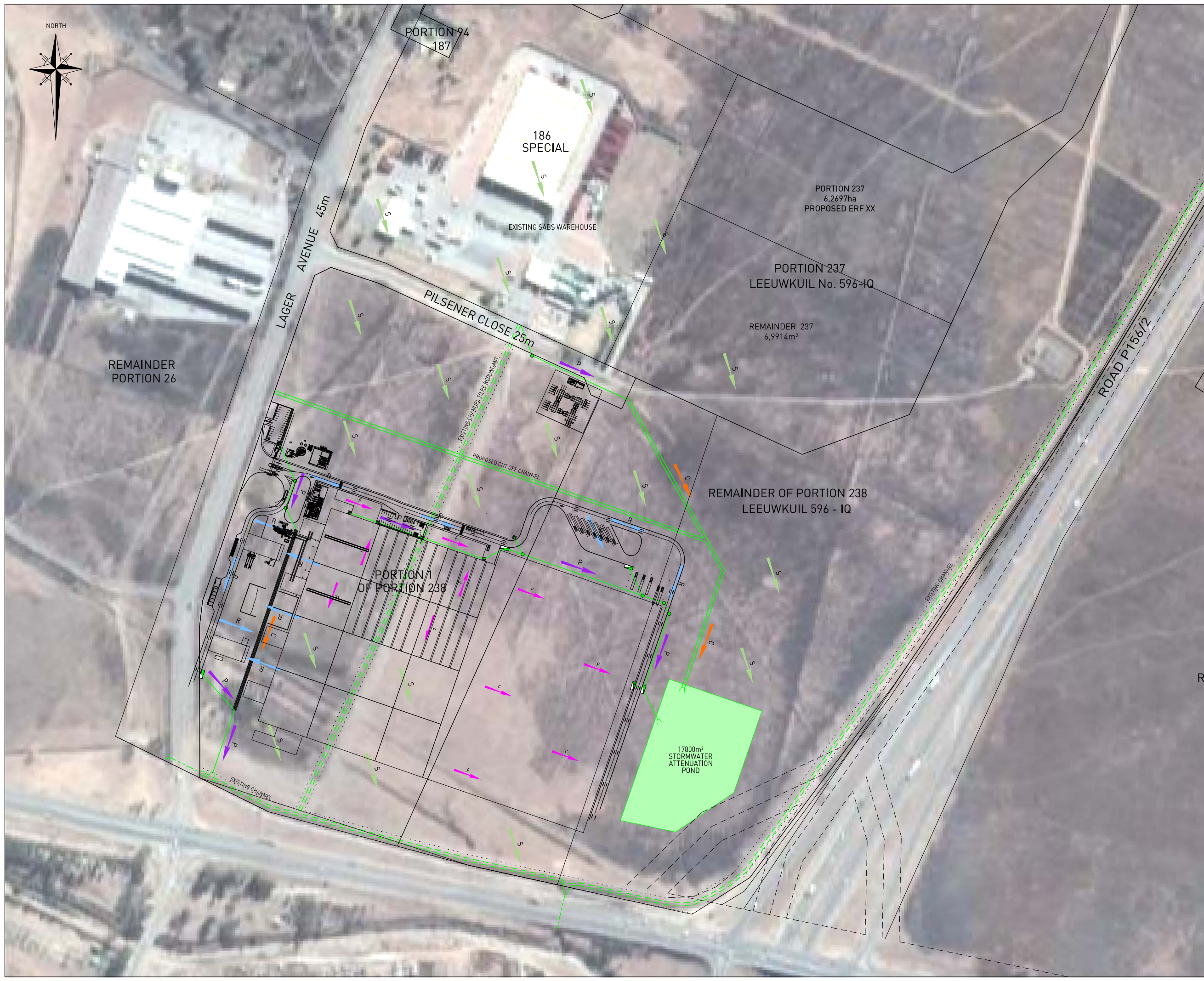
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DRAWN	AC	DATE	MARCH 2018
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CHECKED	AR	DRAWING STATUS	

DRAWING No. **1549/02-04**

REVISION				
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**ANNEXURE D: STORMWATER MANAGEMENT PLAN**

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APPROVED	
CITY ENGINEER	HEAD OF SECTION

NOTES:

LEGEND:

	PIPE FLOW
	SHEET FLOW
	ROAD FLOW
	CHANNEL FLOW
	ROOF FLOW
	PROPOSED STORMWATER PIPE
	PROPOSED STORMWATER CHANNEL
	EXISTING STORMWATER CHANNEL
	PROPOSED INLET STRUCTURE
	PROPOSED MANHOLE
	PROPOSED GRID INLET
	PROPOSED CHANNEL WITH GRID
	OUTLET STRUCTURE
	EXISTING CULVERT

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**SOUTH AFRICAN BREWERIES**

**SAB**  
The South African Breweries Limited

PROJECT **PORTION 238 OF FARM LEEUKUIL 596 IQ**

DESCRIPTION **PORTION 1/238 STORMWATER MANAGEMENT PLAN**

DESIGNED	MG	SCALE	N.T.S.
DRAWN	AC	DATE	MARCH 2018
DRAWING OFFICE	HSO	<input checked="" type="radio"/> CONCEPT DRAWING <input type="radio"/> TENDER DRAWING <input type="radio"/> CONSTRUCTION DRAWING <input type="radio"/> AS BUILT DRAWING	
CHECKED	AR	DRAWING STATUS	
DRAWING No.	1549/02-02		
REVISION			

**ANNEXURE E: DESIGN RAINFALL ESTIMATION**

Pre-development Flood Calculations:

Leeuwkuil Ext5							
PRE-DEVELOPMENT FLOOD CALCULATIONS: RATIONAL METHOD							
					Date:	02 May 2018	
Description of Catchment:	Imali (erf 188)						
Calculated by:	Marietjie Griffioen						
Comments:	Latitude: S 26.66347 Longitude: E 27.908094						
PHYSICAL CHARACTERISTICS							
Size of catchment (A)	0.23	km <sup>2</sup>	Rainfall Region		Inland		
Longest watercourse (L)	0.62	km					
Average slope (S <sub>av</sub> )	0.03	m/m	Area distribution factors				
Dolomite area (D <sub>%</sub> )	5	%	Rural (α)		Urban (β)		Lakes (γ)
Mean annual rainfall (MAR) Figure 3.7	691	mm	1		0		0
RURAL (C1) Table 3C.1				URBAN (C2) Table 3C.2			
Surface slope	%	Factor	Cs	Description	%	Factor	C <sub>2</sub>
Vleis and pans (<3%)	0%	0.03	0	Lawns	0%		
Flat areas (3 to 10%)	100%	0.08	0.08	Sandy, flat (<2%)	0%	0.10	0
Hilly (10 to 30%)	0%	0.16	0	Sandy, steep (>7%)	0%		0
Steep areas (>30%)	0%	0.26	0	Heavy soil, flat (<2%)	0%	0.17	0
				Heavy soil, steep (>7%)	0%		0
Total	100%	-	0.08				
Permeability	%	Factor	Cp	Residential areas	0%		
Very permeable		0.04	0	Houses	0%	0.50	0
Permeable	90%	0.08	0.072	Flats	0%		0
Semi-permeable	10%	0.16	0.016	Industry	0%		
Impermeable		0.26	0	Light industry	0%		0
				Heavy industry	0%		0
Total	100%	-	0.088				
Vegetation	%	Factor	Cv	Business	0%		
Thick bush and plantation	5%	0.04	0.002	City centre	0%		0
Light bush and farm-lands	5%	0.11	0.0055	Suburban	0%		0
Grasslands	90%	0.21	0.189	Streets	0%	0.95	0
No vegetation	0%	0.28	0	Maximum flood	0%	1.00	0
Total	100%	-	0.1965	Total (C <sub>2</sub> )	0%		0

Pre-development Flood Calculations Continue...									
Time of concentration (Tc)						Notes:			
Overland flow Table 3C.3			Defined watercourse			<i>The Overland flow formula is considered in order to calculate Tc for pre-development.</i>			
$T_c = 0.604 \left( \frac{rL}{\sqrt{S_{av}}} \right)^{0.467}$			$T_c = \left( \frac{0.87L^2}{1000S_{av}} \right)^{0.385}$						
Surface:	Medium grass cover								
r =	0.4								
0.7902824 hours			0.209228619 hours			<b>Tc=</b>	0.7902824		
RUN-OFF COEFFICIENT									
Return period (years), T	2	5	10	20	50	100	Max		
Run-off coefficient, C <sub>1</sub> (= C <sub>s</sub> + C <sub>p</sub> + C <sub>v</sub> )	0.365	0.365	0.365	0.365	0.365	0.365	0.680		
Adjusted for dolomitic areas, C <sub>1D</sub> (= C <sub>1</sub> (1-D%) + C <sub>1D%</sub> (∑[D <sub>factor</sub> × C <sub>s%</sub> ]))	0.365	0.365	0.365	0.365	0.365	0.365	0.680		
Table 3C.4 Dolomite:	0%								
Adj. factor for initial saturation, F <sub>t</sub>	0.500	0.550	0.600	0.670	0.830	1.000	1.000		
Table 3C.5	Flat and permeable area								
Adjusted run-off coefficient, C <sub>1T</sub> (= C <sub>1D</sub> × F <sub>t</sub> )	0.182	0.200	0.219	0.244	0.303	0.365	0.680		
Combined run-off coefficient, C <sub>T</sub> (= αC <sub>1T</sub> + βC <sub>2</sub> + γC <sub>3</sub> )	0.182	0.200	0.219	0.244	0.303	0.365	0.680		
RAINFALL									
Return period (years), T	2	5	10	20	50	100	Max		
Point rainfall (mm), P <sub>T</sub> Figure 3.6	55.200	76.300	92.200	109.100	133.800	154.500	181.200		
Point intensity (mm/hour), P <sub>IT</sub> (= P <sub>T</sub> /T <sub>c</sub> )	69.848	96.548	116.667	138.052	169.307	195.500	229.285		
Area reduction factor (%), ARF <sub>T</sub> Figure 3.20 or 3.21	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Average intensity (mm/hour), I <sub>T</sub> (= P <sub>IT</sub> × ARF <sub>T</sub> )	69.848	96.548	116.667	138.052	169.307	195.500	229.285		
Return period (years), T	2	5	10	20	50	100	Max		
Peak flow (m <sup>3</sup> /s), $Q_T = \frac{C_T I_T A}{3.6}$	1.025	1.559	2.055	2.716	4.126	5.740	12.560		

Post-development Flood Calculations:

Leeuwkuil Ext5							
POST DEVELOPMENT FLOOD CALCULATIONS : RATIONAL METHOD							
					Date:	02 May 2018	
Description of Catchment:	Imali (erf 188)						
Calculated by:	Marietjie Griffioen						
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Longest watercourse (L)	0.62	km					
Average slope (S <sub>av</sub> )	0.03	m/m	Area distribution factors				
Dolomite area (D%)	5	%	Rural (α)	Urban (β)	Lakes (γ)		
Mean annual rainfall (MAR) Figure 3.7	691	mm	0	1	0		
RURAL (C1) Table 3C.1				URBAN (C2) Table 3C.2			
Surface slope	%	Factor	Cs	Description	%	Factor	C <sub>2</sub>
Vleis and pans (<3%)	0%	0.03	0	Lawns	10%		
Flat areas (3 to 10%)	0%	0.08	0	Sandy, flat (<2%)	30%	0.10	0.003
Hilly (10 to 30%)		0.16	0	Sandy, steep (>7%)	20%		0
Steep areas (>30%)		0.26	0	Heavy soil, flat (<2%)	30%	0.17	0.0051
Total	0%	-	0	Heavy soil, steep (>7%)	20%		0
Permeability	%	Factor	Cp	Residential areas	0%		
Very permeable		0.04	0	Houses	0%	0.50	0
Permeable	0%	0.08	0	Flats	0%	0.70	0
Semi-permeable	0%	0.16	0	Industry	70%		
Impermeable		0.26	0	Light industry	100%	0.75	0.525
Total	0%	-	0	Heavy industry	0%	0.85	0
Vegetation	%	Factor	Cv	Business	20%		
Thick bush and plantation		0.04	0	City centre	0%	0.95	0
Light bush and farm-lands	0%	0.11	0	Suburban	0%	0.60	0
Grasslands	0%	0.21	0	Streets	100%	0.95	0.19
No vegetation		0.28	0	Maximum flood	0%	1.00	0
Total	0%	-	0	Total (C <sub>2</sub> )	100%		0.7231



Post-development Flood Calculations Continue...									
Time of concentration (Tc)						Notes:			
Overland flow Table 3C.3			Defined watercourse			The defined watercourse formula is considered in order to calculate Tc for post development			
$T_c = 0.604 \left( \frac{rL}{\sqrt{S_{av}}} \right)^{0.467}$			$T_c = \left( \frac{0.87L^2}{1000S_{av}} \right)^{0.385}$						
Surface:	Paved areas								
r =	0.02								
0.195074859 hours			0.209228619 hours			Tc=	0.209228619		
RUN-OFF COEFFICIENT									
Return period (years), T	2	5	10	20	50	100	Max		
Run-off coefficient, C <sub>1</sub> (= C <sub>s</sub> + C <sub>p</sub> + C <sub>v</sub> )	0.000	0.000	0.000	0.000	0.000	0.000	0.600		
Adjusted for dolomitic areas, C <sub>1D</sub> (= C <sub>1</sub> (1-D%) + C <sub>1D%</sub> (∑[D <sub>factor</sub> X C <sub>s%</sub> ])) Table 3C.4 % Dolomite: 5%	0.000	0.000	0.000	0.000	0.000	0.000	0.600		
Adj. factor for initial saturation, F <sub>t</sub> Table 3C.5 Flat and permeable area	0.500	0.550	0.600	0.670	0.830	1.000	1.000		
Adjusted run-off coefficient, C <sub>1T</sub> (= C <sub>1D</sub> X F <sub>t</sub> )	0.000	0.000	0.000	0.000	0.000	0.000	0.600		
Combined run-off coefficient, C <sub>T</sub> (= αC <sub>1T</sub> + βC <sub>2</sub> + γC <sub>3</sub> )	0.723	0.723	0.723	0.723	0.723	0.723	1.000		
RAINFALL									
Return period (years), T	2	5	10	20	50	100	Max		
Point rainfall (mm), P <sub>T</sub> Figure 3.6	55.200	76.300	92.200	109.100	133.800	154.500	181.200		
Point intensity (mm/hour), P <sub>IT</sub> (= P <sub>T</sub> /T <sub>c</sub> )	220.800	305.200	368.800	436.400	535.200	618.000	724.800		
Area reduction factor (%), ARF <sub>T</sub> Figure 3.20 or 3.21	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Average intensity (mm/hour), I <sub>T</sub> (= P <sub>IT</sub> X ARF <sub>T</sub> )	220.800	305.200	368.800	436.400	535.200	618.000	724.800		
Return period (years), T	2	5	10	20	50	100	Max		
Peak flow (m <sup>3</sup> /s), $Q_T = \frac{C_T I_T A}{3.6}$	12.862	17.778	21.482	25.420	31.175	35.998	58.387		



Vaal River City, the Cradle of Human Rights

**DEPARTMENT: LAND USE MANAGEMENT**

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**DEPUTY MUNICIPAL MANAGER: ECONOMIC DEVELOPMENT PLANNING**

File: Ptn 238 (a ptn of ptn 149) of the  
(Farm Leeukuil 596 IQ)  
Ref: A Mojapelo, Z. Maranjana  
Date: 13 August 2018

Your ref:  
Urban Dynamics  
129 Patricia Road, 4<sup>th</sup> Floor  
Sandown  
Sandton  
2196

Sir

**APPLICATION FOR SUBDIVISION OF PORTION 238 (A PORTION OF PORTION 149) OF  
THE FARM LEEUWKUIL NO 596 IQ.**

You are herewith informed that the Council has approved the proposed subdivision regarding the abovementioned, Portion 238 (a portion of portion 149) of the Farm Leeuwkuil No 596 IQ, subject to the following conditions:

**1. Water and Sewer:**

**THE FOLLOWING SANITATION AND WATER CONDITIONS/REQUIREMENTS MUST BE COMPLIED WITH:**

1. No Bulk Water and Sewer Services are currently available for this development.
2. An essential services agreement required for the provision and installation of Engineering Services, with regard to the water and sanitation services and be entered into by and between the township developer and the Emfuleni Local Municipality.
3. An outline Scheme report was submitted by the appointed Consulting Engineer and comments on this report is attached.
4. The township developer be responsible for the cost for the design and installation of all link and internal water and sanitation services or as otherwise agreed in the services agreement.
5. The developer can provide alternative Bulk Sanitation (Package Waste Water Treatment Plant) at its own costs, and written approval of COUNCIL and DWS if such Bulk Sewer upgrades are not completed by time of completion of internal and link sewer services.

Placement of such Package Plants will only be determined and approved after consultation with and written approval of COUNCIL and DWS.

6. As built and design drawings must be submitted in hard copy as well as electronic captured drawings (shape file format or CAD) and shall be forwarded to the Manager Planning, Assets and Projects on completion of the installation of Alternative Sanitation System/Bulk Sewer upgrades.
7. The developer can alternatively contribute to said upgrades to the bulk sanitation infrastructure. Upgrades required will be determined and approved by the existing appointed Consultant of the SRSS:TSC.
8. The COUNCIL shall not take-over any such alternative approved Sanitation System and such Plant must be operated and maintained by the developer for a minimum period of 5 years after commissioning. The Developer enters into a 5 year maintenance/operational agreement with an DWS accredited and approved service provider.
9. As-built film as well as electronic captured drawings be forwarded to the Manager: Planning & Projects after completion of the work.
10. Please note that in terms of the Asset Management Policy there is procedures that must be adhered to when creating new assets:
  - Completion certificates must be signed-off for all assets created by Sector Department Ops and Planning, Monitoring and evaluation, Engineer and contractor. Capitalisation certificate must be submitted by sector department top Assets when service is signed-off as in 2 above, with the following info:
    - Full Bill Of Quantities and Proof of all payments made to create that specific service.
    - All Professional Fees cost relating to the creation of that service.
    - As build drawings in pdf, Shape file and drawing format, which must include, Plan, Sections and details of manholes etc created. These must tie in to the Master Plan detail for that sections replaced.
    - Close out report by the service provider.
11. The applicant appoints a qualified plumber/contractor to do the said connection, under supervision of Council at cost of the applicant.
12. A Water and Sanitation contribution Charges must be paid in accordance with the existing Council Policy.
13. A full Water Services Plan be submitted for approval indicating the following:
  - a. All fire fighting equipment required by the Fire Department indicated and comments by said department attached, in order to determine the size of the water connection to be installed, at cost of the owner/applicant.
  - b. Main municipal sewer, all internal sewers and connection to main municipal sewer be indicated.
  - c. Proof of agreement entered into with Council for a water and sewer connection be attached.
  - d. Proof of payment of Water and Sanitation Services Contribution Charges be attached.

## 2. Roads and Stormwater:

Roads and Stormwater infrastructure to be provided in accordance with the approval of the Outline Scheme Report dated 7 August 2018 with reference LCOM033-18jps.

The reports have been assessed and is supported for with following conditions:

1. All conditions submitted for SWMP is also applicable to this report (See attached and LCOM030-18)
2. Discharge of runoff onto Provincial Road P156(R42) and K178 (R28 Boy Louw) must be approved by Gautrans
3. TIA submitted with report is noted
  - a. Comments on TIA will be discussed with WSP directly.
  - b. Issues raised needs to be resolved before any development plans area approved
4. Guarantees to be provided for all external upgrades before SDP will be approved (Roads/Traffic and Stormwater)
  - a. To Clarify, external stormwater services is all services that will be located in servitudes as discussed in SWMP comments below. (point 3).

## 3. Electrical:

### Internal Electrical Department

See attached annexure "A"

## 4. Land-Use Management

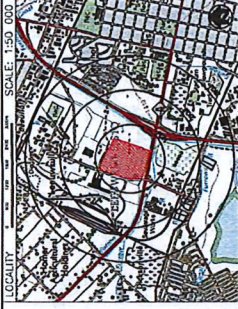
The approval of the subdivision is supported subject to the approval of Amendment scheme N1206, all bulk contributions must be adhered to before Regulation 38 is issued.

- All GAUTRANS applicable conditions must be adhered to.
- External comments must be complied with.

Yours faithfully

  
L M MOTAPANE  
MANAGER  
LAND USE MANAGEMENT  
(SUBDIVISION ON PORTION 238 (A PORTION OF PORTION 149) OF THE FARM LEEUWKUIL NO 596 IQ)

**PROPOSED SUBDIVISION OF  
PORTION 238 (A PTN OF PTN 149)  
OF THE FARM LEEUWKUIL 596 IQ**



- PORTION 238**
- PROPOSED SUBDIVISION BOUNDARY
  - SERVITUDE
  - STORMWATER SERVITUDE
  - SEWER SERVITUDE
  - FLOODLINE

THE FIGURE ABCDEFGHJKLMNPQRSTUWXYZ REPRESENTS PORTION 238 (A PTN OF PTN 149) OF LEEUWKUIL 596 I.Q., MEASURING APPROXIMATELY 67.2640ha IN EXTENT, WHICH IS PROPOSED TO BE SUBDIVIDED INTO 2 PORTIONS AS DETAILED BELOW:

PROPOSED PORTION	SIZE ha
PORTION 295 ABCDEFGHIJKLMNPQRSTUWXYZ	29,2305ha
REMAINDER/238 EFGHJKLMNPQRSTU	38,0335ha

**FLOODWATER**  
It is hereby certified that in accordance with section 144 of the national water act (Act 36 of 1998) the township is not affected by a 1:100 year floodline.

**CONSULTING ENGINEER**  
I.O. Roodt, 2018.04.13

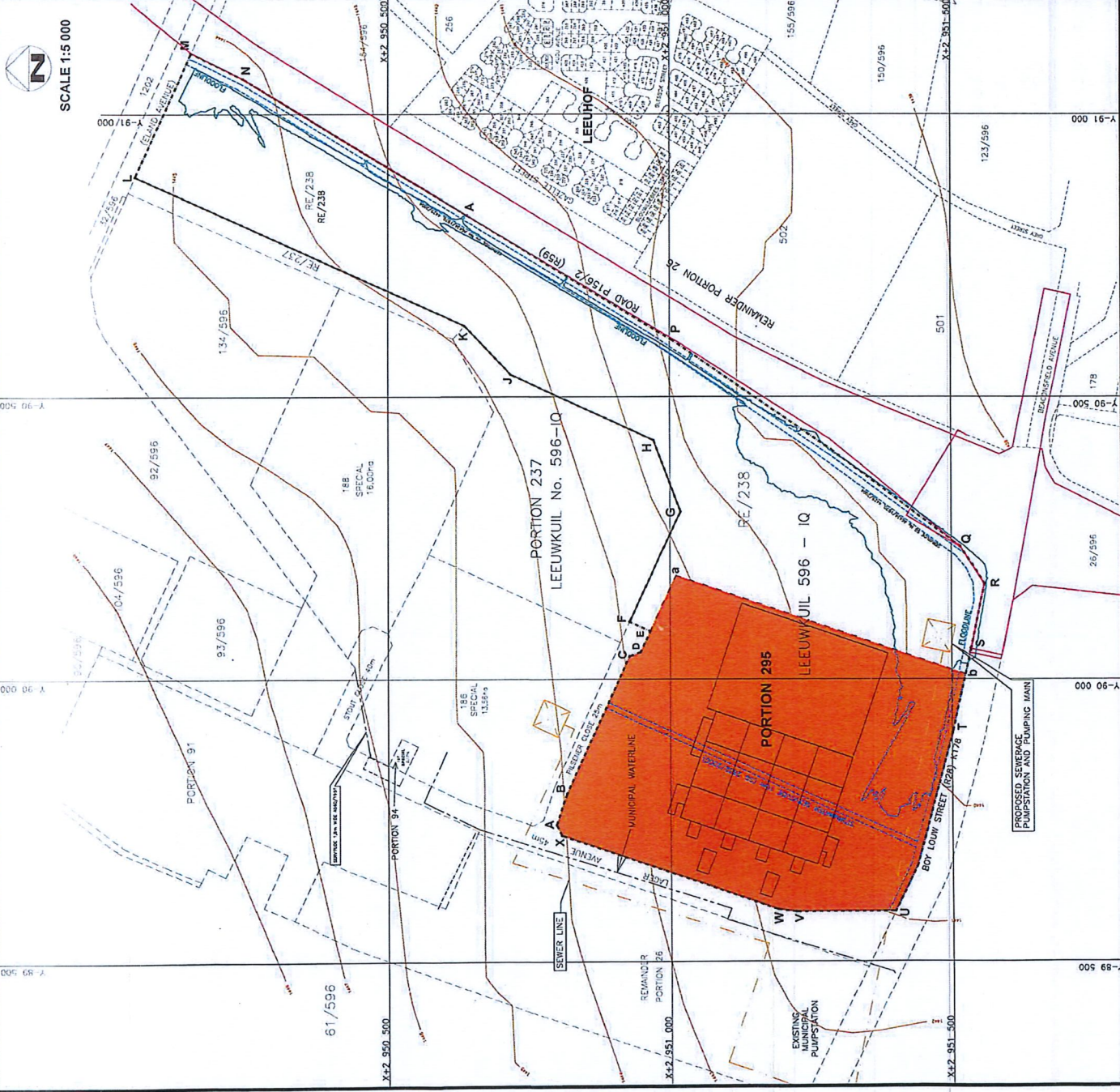


PLAN No.	ISANTI SUB	DATE
1.		2018.04.04
		2018.04.13

**DIMENSION AND SIZES**  
All dimensions shown on the plan are approximate, scaled in meters and subject to final survey.



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Vaal River City, the Cradle of Human Rights

**DEPARTMENT: LAND USE MANAGEMENT**

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C/o Pres Kruger & Eric Louw Streets  
P.O. Box 3  
Vanderbijlpark 1900

Web: www.emfuleni.gov.za

File : N1206  
Ref:  
Date: 2 September 2018

Your ref : SM13506JB  
(295 (a Ptn of Ptn 238) & Ptn of Ptn 149) Leeuwkuil 596 I.Q)

Messrs Urban Dynamics  
P O Box 291803  
MELVILLE  
2109

Sir/Madam

**REZONING IN TERMS OF SECTION 56 OF THE TOWN PLANNING AND TOWNSHIPS ORDINANCE, 1986 (ORDINANCE 15 OF 1986), READ WITH THE RELEVANT PROVISIONS OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013: PORTION 295 (A PORTION OF PORTION 238)(PREVIOUSLY KNOWN AS PTN 238(A PTN OF PTN 149)OF THE FARM LEEUWKUIL NO 596 IQ: VEREENIGING AMENDMENT SCHEME N1206**

With reference to the above-mentioned, we wish to inform you that on 27 September 2018, Emfuleni Local Municipality inter alia resolved as follows:

"That in terms of Section 56 of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986):Amendment of the Vereeniging Town Planning Scheme, 1992: Vereeniging Amendment Scheme N1205: Portion 295 (a portion of Portion 238) of the farm Leeuwkuil No 596 IQ, the Council hereby grants approval for the rezoning of Portion 295 (a portion of Portion 238) of the farm Leeuwkuil No 596 IQ from "Agricultural" to "Industrial 1" subject to the following conditions:

1. The following development controls be applicable:
  - 1.1 Coverage: 50%
  - 1.2 Height: As per approved SDP
  - 1.3 FAR: 0.5
  - 1.4 Parking: As per Vereeniging Town Planning Scheme,1992
  - 1.5 Building line: A building line of 6m will be applicable along the street boundaries only provided that building lines may be relaxed by the Local Authority with approval of a building line relaxation.

-A 16m Building Line will apply along the K178 Boy Louw Street.

-Other building lines from GAUTRANS

2. Compliance with the provisions of the Council's by-laws and the Vereeniging Town Planning Scheme, 1992 and Building Regulations, where applicable.
3. No activity or act of any nature which the Local Authority may consider to constitute unreasonable interference with the amenities of the neighborhood, shall take place on the Erf or in the immediate environment, provided that the Local Authority may, if it is considered that the relevant activity or act or any other impediment whatsoever, causes unreasonable interference with the amenities of the neighborhood, call upon the owners to address and resolve the issue of the Local Authority.
4. A detailed Site Development Plan (SDP) be submitted to, and approved by Council, prior to the approval of the building plan by Council and/or the commencement of construction/renovations. The SDP should contain the parking layout, ingress and egress, internal road layout, loading facilities etc. plus dimension relating thereto.
5. All applicable Town Planning and Legal requirements be complied with.
6. No permanent structures be erected or big shrubs and trees planted over the underground municipal services or within 2 meters from the said servitudes. Unrestricted 24-hour access be available for Council's employees or contractors to the underground municipal services or registered servitudes for maintenance work, inspectors and any other work the council may deem necessary.
7. Any cost that might or need to be incurred to affect the development as approved, be for the cost of the development/owner/successor in title
8. Council not be held liable for any cost to repair damages or to place damaged plants or shrubs or any other cost incurred as a result from maintenance or other work done by the council.
9. Water and Sanitation Engineering Services to be provided in accordance with the comments Leeuwkuil – 321 dated 8 August 2018 by Metsi-a-Lekoa as well as the unreferenced comments provided on the Outline Scheme Report dated 8 August 2018. The following conditions be complied with:
  - No Bulk Water and Sewer Services are currently available for this development; therefore, an essential services agreement is required for the provision and installation of Engineering Services with regard to the water and sanitation services and be entered into by and between the township developer and the Emfuleni Local Municipality.
  - The township developer will be responsible for the cost for the design and installation of all link and internal water and sanitation services or as otherwise agreed in the services agreement.
  - The developer can provide alternative Bulk Sanitation (Package Waste Water Treatment Plant) at its own costs, and written approval of COUNCIL and DWS if such Bulk Sewer upgrades are not completed by time of completion of internal and link sewer services. Placement of such Package Plants will only be determined and approved after consultation with and written approval of COUNCIL and DWS.
  - As built and design drawings must be submitted in hard copy as well as electronic captured drawings (shape file format or CAD) and shall be forwarded to the Manager Planning, Assets and Projects on completion of the installation of Alternative Sanitation System/Bulk Sewer upgrades.

## PLANNING TRIBUNAL

2018-03- 6, 7 & 8  
(Minutes)

- 
- ITEM 1 PRPOSED TOWNSHIP: SUNNINGDALE EXT 13  
(AMENDMENT SCHEME 08-14205)
- ITEM 2 PRPOSED TOWNSHIP: SUNNINGDALE EXT 14  
(AMENDMENT SCHEME 08-14206)
- ITEM 3 PRPOSED TOWNSHIP: SUNNINGDALE EXT 15  
(AMENDMENT SCHEME 08-14207)
- ITEM 4 PRPOSED TOWNSHIP: SUNNINGDALE EXT 16  
(AMENDMENT SCHEME 08-14208)
- ITEM 5 PRPOSED TOWNSHIP: SUNNINGDALE EXT 17  
(AMENDMENT SCHEME 08-14209)
- ITEM 6 PRPOSED TOWNSHIP: SUNNINGDALE EXT 18  
(AMENDMENT SCHEME 08-14210)
- ITEM 7 PRPOSED TOWNSHIP: SUNNINGDALE EXT 19  
(AMENDMENT SCHEME 08-14211)
- ITEM 8 PRPOSED TOWNSHIP: SUNNINGDALE EXT 20  
(AMENDMENT SCHEME 08-14212)

The items were dealt with simultaneously.

The site-inspection was done on the 6<sup>th</sup> March 2018.

At the hearing Advocate A. Liversage SC, acting on behalf of Rand Aid Association and RA Development Trust, indicated that they are withdrawing their objection in relation to Extension 15 and 20 as they had a settlement agreement with the Developers. **(Copy attached as Exhibit A).**

The applicants' representatives, Mr J Busser and Mr A Venter, addressed the committee and tabled supplementary memoranda **(copies attached as Exhibit B).**

The Traffic Engineer, Mr P Kruger, also addressed the committee and tabled a supplementary memorandum **(copy attached as Annexure C).**

The objectors, representative, Mr L Druce, acting on behalf of the South African Hellenic Education and Technical Institute (Saheti ) School, addressed the committee and tabled a supplementary memorandum. **(copy attached as Exhibit D).**



- The developer can alternatively contribute to said upgrades to the bulk sanitation infrastructure.
- Upgrades required will be determined and approved by the existing appointed Consultant of the SRSS:TSC.
- The COUNCIL shall not take-over any such alternative approved Sanitation System and such Plant must be operated and maintained by the developer for a minimum period of 5 years after commissioning. The Developer enters into a 5-year maintenance/operational agreement with an DWS accredited and approved service provider.
- As-built film as well as electronic captured drawings be forwarded to the Manager: Planning & Projects after completion of the work.
- In terms of the Asset Management Policy must be adhered to when creating new assets:
  - Completion certificates must be signed-off for all assets created by Sector Department Ops and Planning, Monitoring and evaluation, Engineer and contractor. Capitalisation certificate must be submitted by sector department top Assets when service is signed-off as in 2 above, with the following info:
    - Full Bill of Quantities and Proof of all payments made to create that specific service.
    - All Professional Fees cost relating to the creation of that service.
    - As build drawings in pdf, Shape file and drawing format, which must include Plan, Sections and details of manholes etc created. These must tie in to the Master Plan detail for that sections replaced.
    - Close out report by the service provider.
- The applicant appoints a qualified plumber/contractor to do the said connection, under supervision of Council at cost of the applicant.
- Water and Sanitation contribution charges must be paid in accordance with the existing Council Policy.
- A full Water Services Plan be submitted for approval indicating the following:
  - All firefighting equipment required by the Fire Department indicated and comments by said department attached, in order to determine the size of the water connection to be installed, at cost of the owner/applicant.
  - Main municipal sewer, all internal sewers and connection to main municipal sewer be indicated.
  - Proof of agreement entered into with Council for a water and sewer connection be attached.
  - Proof of payment of Water and Sanitation Services Contribution Charges be attached.

10. Roads and Stormwater infrastructure to be provided in accordance with the approval of the Outline Scheme Report dated 7 August 2018 with reference LCOM033-18jps and comments on the Stormwater Management Plan dated 6 July 2018 with reference LCOM030-18jps:

- A. All conditions submitted for SWMP is also applicable to this report (See attached and LCOM030-18)
- B. Discharge of runoff onto Provincial Road P156(R42) and K178 (R28 Boy Louw) must be approved by Gautrans
- C. TIA submitted with report is noted
  - \* Comments on TIA will be discussed with WSP directly.
  - \* Issues raised needs to be resolved before any development plans area approved
- D. Guarantees to be provided for all external upgrades before SDP will be approved (Roads/Traffic and Stormwater).
  - a. Stormwater discharge onto Provincial Road P156(R42) and K178 (R28 Boy Louw) must

be approved by Gautrans

- b. Guarantees t be provided for external upgrades before SDP will be approved
- c. External Stormwater Services to be accommodated in Servitudes as per LCOM030-18

11. The applicant familiarizes himself with the position of any underground municipal services and servitudes which cross the property and take steps to the satisfaction of the Deputy Municipal Manager: Basic Services to protect such municipal services. No permanent structures be erected or big shrubs and trees planted over the underground municipal services. Unrestricted 24 hours access be available for Council's employees.
12. All applicable Town Planning and legal requirements be complied with.
13. Before any development takes place, a full site development plan (SDP) be submitted and supported by the Manager: Roads & Storm Water after which it must be approved by the Manager: Land Use Management.
14. The Applicant familiarizes himself with all services crossing the stand.
15. The cost to allocate, relocate or protect existing or planned services via the registration of servitudes be for the cost of the applicant/ owner/successor in title.
16. Wayleaves be obtained before any work is done within any road reserve.
17. Any cost that might or need to be incurred to effect the development as approved, be for the cost of the developer/owner/successor in title.
18. No development be allowed within the 1: 100 flood line. Indicate floodline, certified by a qualified person.
19. Capital contributions are payable according to the Council policy. The applicant will be notified in accordance with the Town Planning Ordinance of the basic service contributions payable.
20. Ingress and egress (access) arrangements be approved by the Manager: Roads & Storm Water and the Manager: Public Safety. Access spacing and layout to be in accordance with RAM document.
21. A traffic management plan must be submitted and approved by the Roads Department, indicating the following:
  - 21.1. Detailed geometric layout of the entrance/exit.
  - 21.2. Vehicle movement on site showing appropriate radii for largest size vehicle to enter the stand (including delivery vehicles).
  - 21.3. Proposed position of building.
  - 21.4. Proposed usage of floor area.
  - 21.5. Dimensioned parking layout.
22. Proposed on-site parking to be provided according to the following.
23. Physical barriers be placed on stand boundary to prevent direct access to properties other than the access provided.
24. Boulevard kerbs be installed on road edge parallel to stand boundary to prevent illegal access/parking on the sidewalks from the roadway.

25. Any existing pipes be exposed and if found to be handpacked/un-reinforced, be replaced with SABS 677 spun concrete pipes.
26. Storm water management plan done by a professional person be submitted and approved as part of SDP. The following to be indicated:
  - 26.1. Runoff must be attenuated to pre-development conditions
  - 26.2. Storm water flow direction by means of contours or by providing levels on the plan.
  - 26.3. Discharge points. Stormwater may not be concentrated on the road reserve or adjacent stands. If connection is not required or possible, erosion protection to be provided on the sidewalk or adjacent stands.
  - 26.4. Storm water to be connected to municipal system and/or attenuated on site if post development flow is more than pre-development flow.
  - 26.5. Capacity of existing system must be analyzed to determine connect ability and amount of attenuation needed.
  - 26.6. If storm water cannot drain into the road reserve or municipal storm water system, the following will apply:
    - 26.6.1. Run-off must be attenuated on stand to reduce post development flow to the pre-development flow
    - 26.6.2. If attenuation is not done, it must be indicated how the stormwater will be drained over the lower lying stand/stands up to a point where it can drain into a municipal road or system
    - 26.6.3. The owner of the lower lying stand must be notified in writing (including stormwater impact report and layout plan) of the intended flow of stormwater over his property, where after his approval with reference to the impact report and layout plan must be obtained in writing
    - 26.6.4. Any systems needed to sensibly drain the storm water over the lower lying stand and subsequent connection to the municipal system if required will be the responsibility of the applicant.
    - 26.6.5. Servitude must be registered over such a system in favor of the higher lying stand
  - 26.7. Provide longitudinal section of connecting storm water system in road reserve with manhole details, etc.
- 28 Land Use Management must provide this Department with a copy of the approval letter and zoning information. This Department must also be notified at least 14 days in advance of the date of Proclamation in order to send notices for bulk services contributions in accordance with legislation.
- 28 Electrification of the site to be in accordance with Emfuleni Electricity Department comments dated 12 April 2018 on a Three Phase 17,5 MV Electrical Connection subject to conditions contained in letter "596PTN238 Leeuwkuil":
  - The owner/developer shall be responsible for the supply and installation of the internal electricity network as well as low voltage connections
  - The calculation of capital contributions, the cost of infrastructure and the offset thereof is reflected in letter 596PTN238 Leeuwkuil dated 12 April 2018
  - Documentation for the payment of electrical contributions must be obtained from the Planning Division, Electricity Department
  - The owner/developer shall be responsible for the total cost to supply and install external

medium voltage electrical cables, 11kV switchgear, a substation building and necessary equipment as well as an 11kV consumer substation to accommodate 11kV consumer switchgear and transformer

- Only one electrical connection will be allowed in the stand
- As Built drawings must be submitted to the Electricity Department showing the layout of the underground cables and positions of new substation and cable joints. The municipality will take over, operate and maintain the substation
- The connections will only be energized after a Certificate of Compliance, relevant Test Certificates and operation manuals as well as as-built plans have been issued and submitted to the Electricity Department.

29. Part of Portion 238 a portion of portion 149 Leeuwkuil Farm 596 IQ has no electricity connection with a design load of 0kVA which is not altered at this stage. If the connection is to be changed in future a capital contribution will be payable to the Municipality for any additional capacity that might be required at the rate that is set out below. The rate differs for various voltages at which a connection can be made available and will only be valid for a period of three months from the date of this letter. The actual amount payable will be determined in accordance with the ruling rates at the time of receiving an official application, the approval and payment thereof, whichever is the latest.

The current rates for capital contribution are

- |  |                   |
|--|-------------------|
| • At an 88kV intake station                | R 48.40 per kVA   |
| • At 11kV at an 88/11kV station            | R 1074.22 per kVA |
| • At 11kV downstream of an 88/11kV station | R 1945.41 per kVA |
| • At low voltage                           | R 2907.48 per kVA |

These amounts exclude VAT and are revised annually on 1 July. The developer will also be responsible for any cost related to the extension of the electricity network which might be required for this development.

30. The availability of any additional loading will however be subject to the spare capacity on the electricity network at the time of development and the applicant is therefore advised to contact the Electricity Department before any final plans are made. Failure to do so could lead to a situation that electricity might not be available or that long lead times might be encountered in the provision of the required electricity connection.
31. Only one electrical connection per stand will be allowed after the approval of the application. The actual connection cost can only be determined upon receipt of an official application for each connection.
32. The developer must consult with the Electricity Department before building plans are submitted for approval to enable us to make arrangements for the additional load and extensions on the electrical network.
33. See Annexure K for minimum requirements for Electrical connection.
34. The applicant must adhere to all relevant Health Legislation (Acts, Regulation and By- laws).
35. The ambient noise levels must not rise above the designated zone level or if no zone level has been designated, the typical rating levels for ambient noise in districts, indicated in table 2 of SANS 0103.
36. All comments from Public Safety must be complied with.

37. All conditions from GAUTRANS must be complied with.
38. The municipal account must be up to date prior to any development taking place.
39. All conditions and requirements from GDARD must be complied with and the subsequent EIA processes must be finalised and all conditions resulting from that must be complied with prior to any development taking place.
40. All outstanding external and internal comments must be submitted and complied with prior to development taking place.
41. All cost pertaining to this application and the adherence to the conditions will be for the account of the owner/developer.
42. A certificate from the Chief Health officer and Environmental Department stating that all noxious aspects have been eliminated in a way acceptable to the Municipality be submitted prior to any rights being exercised.
43. All conditions of Health and Environment to be complied with."

Attached hereto is the map and scheme clauses on which is indicated to what extent the documentation must be amended.

You are requested to take note that the sheet of paper must be on A4 size (210 x 297mm), with a margin of 25mm from the top side and a 5mm margin from all other sides.

Kindly submit the Council with 5 paper copies of the amended map together with five copies each of the scheme clauses.

Your attention is drawn to the fact that the rights cannot be exercised before the Scheme is promulgated in the Official Gazette.

To prevent any delays you are requested to submit the above documentation to Development Planning: Land Use, within 30 days.

Yours faithfully

pp

  
**MR L M MOTAPANE**  
**MANAGER**  
**LAND USE MANAGEMENT**

Annexure:



Vaal River City, the Cradle of Human Rights

**CLUSTER: BASIC SERVICES  
OFFICE OF THE MANAGER: ROADS AND STORMWATER**

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1900

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6 July 2018

SCIP ENG  
PO BOX 48550  
ROOSEVELT PARK  
2129

Refer to: Mr J P Squirra  
Our Reference: LCOM030-18/jps  
Your Ref: P1549-02-01

**STORMWATER MANAGEMENT PLAN – LEEUWKUIL STANDS 188,237 AND 238 PTN 1**

The Stormwater management plans for above properties ref P1549-02-01 dated 21 May 2018 refers

The Reports have been assessed and is supported with following conditions:

1. Attenuation to be done for 1:5 to 1:50 year storms
2. Attenuation dam details to be shown on final construction drawings (SDP stage)
3. Attenuation ponds and systems leading to the dam that is located in other properties must be contained in servitudes in favor of higher lying properties
  - a. Servitudes must be to such an extent that it allows for access by maintenance vehicles to manholes (hydro blasting/vacuum tankers)
  - b. Manholes to be max 60m apart
  - c. Details of systems to be shown at SDP stage
  - d. Where possible, the systems and consequently the servitudes must follow stand boundaries
4. The accommodation of runoff from Cul de Sac in Stout close was not show in report. This must be addressed with final drawings at SDP stage

Prepared by:

  
\_\_\_\_\_  
J P SQUIRRA  
Snr Eng Technician (Planning)

Date:

6/7/2018