



GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

GAUTENG PROVINCIAL ENVIRONMENTAL MANAGEMENT FRAMEWORK

November 2014

Zone 1: Urban development zone

Intention

The intention with Zone 1 is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the Gauteng Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.

Composition

The management zone is composed out of the following control areas within the area covered by the GSDF (see GPEMF document for more detail):

- LC01: Urban existing developed land;
- LC02: Urban development priority;
- LC03: Rural development priority;
- LC04: Rural and urban development priority.
- ISM01: Conservation and agricultural priorities;
- ISM02: Conservation and urban development priorities;
- ISM03: Conservation, urban development and rural development priorities;
- ISM04: Agriculture and urban development priorities;
- ISM05: Agriculture, conservation and rural development priorities;
- ISM06: Agriculture, conservation and urban development priorities;
- ISM07: Agriculture, conservation, urban development and rural development priorities; and
- ISM08: Agriculture, rural and urban development priorities.

The boundary of this zone is the effective equivalent of an “urban edge” as envisaged by the Gauteng Spatial Development Framework and incorporated in the GPEMF. It should be used as such for the purposed of interpreting the EIA Regulations (current and future).

Conditions

- Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and stormwater loads as a result of increased densities;
- Existing open spaces and urban parks should be retained as open space to cater for the open space needs of the foreseen increased densities; and

- Stormwater drainage must be in accordance with the Water Research Commission Report, 2012 and the South African Guidelines for Sustainable Drainage Systems.

Land use in this zone

Land uses that are compatible with the intention of this zone

- Urban agriculture.
- Forest cultural / spiritual use.
- Cultural and historical conservation of sites, features and precincts.
- Accommodation establishments / temporary or transient formal residential.
- Multiple residential.
- Single residential.
- Transitional residential settlement area.
- Dispersed residential.
- Living accommodation for domestic workers.
- Holiday housing.
- Roads.
- Water network.
- Railways.
- Sanitation network.
- Electricity network.
- Telecommunication.
- Transport.
- Place of refreshment.
- Hospitality industry.
- Sports.
- Urban open space.
- Medical and health care services.
- Child care centre / facility.
- Institution.
- Place of assembly.
- Place of public worship.
- Educational / place of education / place of instruction.
- Protection services.
- Post offices.
- Law courts.
- Offices.
- Financial services.
- Personal services.
- Retail.
- Motor vehicle business.

Land uses that are conditionally compatible with the intention of this zone

- Cultivation of virgin soil.
- Subsistence forest use (small scale forest use).
- Forestry research & education.
- Forest resource use (natural indigenous).
- Forest recreation & tourism.
- Life style estates.
- Solid waste.
- Holiday resorts, camps, loges and cottage hospitality.
- Domestic service industry.
- Light industry / service industry.
- Cemetery / crematoria.

Land uses that are undesirable in this zone

- Crop production (excluding existing crop production).
- Animal production (free range).
- Battery farming (poultry, feedlots, etc.).
- Aquaculture (off stream).
- Production forestry.
- Agroforestry.
- Protected areas.
- Conservation areas.
- Farm worker accommodation.
- Rural residential development nodes (not dispersed residential).
- Noxious industry.
- Vehicle service related industry.
- Warehousing /distribution and storage.
- Agricultural industry.
- Reconnaissance.
- Active mining.
- Ore extraction & beneficiation.
- Disposal.

Guidelines

Water utilisation

- Water utilisation from the surface natural hydrological system in this zone should be kept to an absolute minimum. Preservation of the water systems in its most natural state possible is desired as rivers and streams form the most important links with natural areas in other zones. No additional damming of rivers and streams should be allowed in this zone.

- Water abstraction from karst aquifers (aquifers occurring in dolomite) in this zone should be prohibited except in places where it forms part of the management of Acid Mine Drainage (AMD) as authorised by the Department of Water and Sanitation (DWS).

Water quality and stormwater management

- The water quality of all rivers in this zone is unacceptable and should not be allowed to deteriorate any further due to any kind of development. Legislation to protect water quality and prevent pollution should be strictly enforced and policed.
- The management of stormwater to prevent flooding must be done in accordance with the requirements of the relevant municipal engineer, and in accordance with DWS requirements, which must ensure that additional runoff water is stored and released at a rate that will not impact negatively (not be more than before the development activity) on the natural flow capacity of rivers and streams. Caution must be exercised in dolomitic areas where stormwater retention methods and structures should be approved by the South African Council for Geosciences. Special caution must also be exercised in instances where additional runoff is released on granitic soils, especially in the presence of shallow perched water tables underlain by a hard plintic (hard ferrous or “oukclip”) layer.
- Stormwater retention facilities should ideally incorporate an additional 15% to 20% capacity to cater for potential higher runoff events that are likely to occur as a result of climate change.
- The use of impermeable surface in new developments should be kept to the minimum and SuDS components should be included to the extent possible.
- Stormwater management must be based on the following principles:
 - The need to protect the health, welfare and safety of the public, and to protect property from flood hazards by safely routing and discharging stormwater from developments;
 - the quest to improve the quality of life of affected communities;
 - the opportunity to conserve water and make it available to the public for beneficial uses;
 - the responsibility to preserve the natural environment;
 - the need to strive for a sustainable environment while pursuing economic development; and
 - the desire to provide the optimum methods of controlling runoff in such a way that the main beneficiaries pay in accordance with their potential benefits.
- The following guidelines must be applied to all development activities in this zone in a manner that will satisfy these principles:
 - Water Research Commission Report, 2012. The South African Guidelines for Sustainable Drainage Systems.
 - CSIR, 2000. Guidelines for Human Settlement Planning and Design, Volume 2, Chapter 6: Stormwater Management.

- Stormwater and sewage drainage must remain separate at all times.

Waste water treatment and disposal

- No new development of whatever kind should be allowed in this zone unless there is adequate existing capacity for waste water transport (maintained pipes, pumps, etc.) and treatment to the required standard. In the light of the current state of affairs where many waste water treatment plants are not up to standard, this crucial requirement may become a major obstacle to development unless it is urgently addressed by the responsible authorities. Municipal SDFs must incorporate water catchment management plans that cater for anticipated future increased runoff and sewage.
- No untreated sewage may be disposed of into natural rivers and streams or stormwater systems.
- The upgrade, modernisation or expansion of existing waste water treatment plants is preferred to new waste water treatment plants in this zone.

Solid waste management and disposal

- New development activities must comply with legislation that governs waste management in all instances.
- The General Waste Minimisation Plan for Gauteng, 2009, must be consulted in respect to the implementation of the identified waste minimisation options.
- For all new development activities the following recyclable materials must be separated from general waste and be recycled :
 - Paper, including: K4 (cardboard), flat news (newspaper), Kraft paper (brown paper), HL-1 (Photostat and printing paper) and Tetra Pak (juice and milk cartons);
 - Plastic, including: PET (cold drink and mineral water bottles), HDPE (milk bottles), PVC (water pipes), LDPE (clear and coloured plastic bags, shrink wrap), PP (ice cream and yogurt tubs, cold drink bottle caps), PS (polystyrene packaging and food containers);
 - Metal (ferrous and non-ferrous cans); and
 - Glass (bottles – no toughened glass).
- Garden and vegetative food waste should be composted and re-used in gardens whenever possible. Care must be taken that it is not contaminated by pet faeces, which should be removed daily and be disposed of in the sewage system.
- General (non-recyclable) solid waste generated must be removed by the relevant local authority or service provider to an appropriate class landfill site.

Housing / Residential

- All new housing developments must comply with the energy efficiency requirements of the National Building Regulations through the application of South African National Standard SANS 10400 Part XA: Energy usage in buildings (See Appendix : Guidance on how to comply with Regulation XA).
- Green roofs and other source control methods should be incorporated into existing and new developments.
- Water recycling and the use of grey water should be included in design.
- The use of coal products for cooking and space heating must be prohibited in all new development activities.
- Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings.
- Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.
- LP Gas or natural gas should be considered as an alternative energy source to electricity for cooking, space heating and water heating (often very effective if combined with solar water heating).
- The Department of Public Works Guideline, Appropriate Development of Infrastructure on Dolomite: Guideline for Consultants, 2003, as well as the requirements of the Council for Geoscience as reflected in the South African National Standards (SANS) , must also be taken into account and be adhered to when development is envisaged on dolomites .
- Residential development in this zone should focus (there should be a bias/preference) on medium-density mixed housing in order to attain the desired higher density for the zone . Residential development should also be planned to make maximum use of public transport (existing and future).
- Retail development should be planned to be efficient in terms of location in respect to customers (residential and places of work).
- Low density residential development, including new natural urban open space, in this zone should be located on land that is not suitable for medium to high density residential purposes due to geological constraints.
- Gardens and parks should be regarded as an important part of the “green infrastructure” of Gauteng and should be incorporated in the planning of all new development in this zone. It

should also be designed to assist with SuDS goals. Food gardens should also be incorporated in design where possible and appropriate.

- Existing indigenous trees should not be removed in new developments and the developments should be designed around such trees.
- At least 5% of development budgets should be allocated to gardens and parks for all new development activities in this zone and be designed to maximise their green infrastructure value .
- High energy and maintenance facilities such as swimming pools should preferably be incorporated into communal facilities instead of private facilities.
- “Water-wise” gardens and parks are preferred in this zone.
- The use of vegetation that is endemic (local indigenous vegetation) to the area in gardens and parks is encouraged in order to contribute to the value of the wider Gauteng eco-system.

Business and retail

- All new business and retail developments must comply with the energy efficiency requirements of the National Building Regulations (SANS 10400-1990) and in particular SANS 10400 Part X: Environmental sustainability and SANS 10400 Part XA: Energy usage in buildings.
- Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings. Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.
- The large roof areas of businesses and retail facilities including covered parking lots provide ideal surfaces for mass installation of solar energy panels and should be considered as an option in every new development.
- Green roofs and roof gardens should also be prioritised as this would change the urban heat environment and can add to open space and outdoor recreation space.
- Rain water tanks and other source control measures must be incorporated into the designs of buildings.
- Rain gardens should be incorporated.
- Open parking areas should adhere to principles of SuDS and include permeable paving, swales and bio-retention areas.
- Water recycling and use of grey water should be included in design.

- Existing indigenous trees should not be removed in new developments and the developments should be designed around such trees.

Urban open space

- The design and development of new urban open space should contribute to the following at every scale:
 - Ecosystem services that include:
 - Climatic amelioration/regulation;
 - Water and air purification;
 - Water supply regulation;
 - Erosion and sediment control;
 - Hazard mitigation;
 - Waste treatment;
 - Noise screening;
 - Stormwater management;
 - Prevent habitat fragmentation; and
 - Provision of habitats for indigenous plants and animals.
 - Social functions that include:
 - Provision of space for leisure and recreation;
 - Facilitating social contact and communication;
 - Allowing access to nature;
 - Providing space for, and allowing access to community (food) gardens;
 - Reduction of social inequality,
 - Promoting access to public open space, and
 - Influencing human health and well-being.
 - Structural and symbolic functions including:
 - Articulating, dividing and linking areas of the urban fabric;
 - Improving the legibility of the urban landscape;
 - Establish as sense of place; and
 - Provide identity, meaning and values.

Industry and commercial

- New industrial and commercial developments should only be allowed in this zone if there is no suitable alternative location available in zone 5. Any such location of commercial and industrial developments must take the guidelines applicable to Zone 1 into account.

- Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings. Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.

Mining

- Existing legal mining operations should be allowed to continue in this zone provided that it meets the relevant legal requirements in terms of emissions, effluent and noise.
- No new mining development should be allowed in this zone.
- All new and existing mining development in this zone must have a rehabilitation and closure plan that will ensure that the mine will be rehabilitated to a condition that is compatible to the preferred land uses of the zone.

Energy

- The preferred energy sources for new and existing development in this zone are (in order of preference):
 - Renewable energy (solar, wind and biogas);
 - Natural gas;
 - LP gas; and
 - Electricity from the national grid.
- The following energy sources may not be used in new development activities in this zone:
 - Coal (all types and grades);
 - Charcoal;
 - Wood;
 - Burning of used tyres;
 - Burning of oil; and
 - Burning of paraffin.
- LP gas is the preferred fuel for “braais” and barbeques and must be used for new development activities in this zone.
- Green roofs and green building design should be used to reduce energy requirements for lighting, heating and cooling.

Air quality (transportation)

- All new development activities in this zone must encourage “work from home” whenever possible where such work does not impact on the residential nature (e.g. no advertisements or signage) of the area and does not generate noise, additional traffic, effluents, emissions and solid waste that are of an industrial nature.

- All new development activities in this zone must encourage clean transport which is reflected in the provision of transport infrastructure, with preference to (in order of preference):
 - Pedestrian;
 - Cycling;
 - Gautrain;
 - Metrorail;
 - Bus rapid transit;
 - Bus;
 - Taxi; and
 - Motor vehicles.

Transportation infrastructure

- In order to achieve the potential of Gauteng as the regional logistics and distribution centre of Southern Africa, the development of primary and secondary roads as well as railway systems are the highest priority development priorities in this zone and any conflicts in respect to this infrastructure development should be resolved in a fast track process between all the relevant authorities.
- Parking areas should adhere to the principle of SuDS and include permeable paving, swales and bio-retention areas.
- Road networks should use the principles of sustainable streets, using green infrastructure (bio-swales, street trees, permeable paving) where at all possible to reduce the impact of road infrastructure and vehicles on pollution, stormwater, etc.

Nature conservation

- ***Municipal SDFs must establish ecological linkages and corridors with Zone 2: High Control Zone (within the urban development zone) by incorporating municipal Bioregional Plans in the SDFs where such plans exist or by using the Ecological Support Areas (ESAs) as defined in C-Plan 3.3 where there is no municipal Bioregional Plans¹.***
- New extensive agriculture should not be encouraged in this zone. Existing farming may continue as long as it remains viable in the urban development context.
- Small scale niche market agriculture may be appropriate as part of other development initiatives. The feasibility and desirability of such initiatives should be evaluated as part of the town/development planning process in this zone.
- Vegetable gardens and fruit trees within the urban development structure should be encouraged in this zone, especially if it makes extensive use of rainwater runoff.

¹ The establishment of spatial linkages and corridors that form part of the green and ecological infrastructure of the envisaged future urban area can only be achieved in the spatial planning process. It is not feasible to achieve a functional outcome through the EIA process that focus on individual applications.

Game and cattle farming

- Game and cattle farming should not be encouraged in this zone. Existing game (with the necessary permits) and cattle farming may continue as long as it remains viable in the urban development context.