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Stormwater Management By-laws

The Municipal Manager of the City of Johannesburg Metropolitan Municipality hereby, in terms of Section 13(a) of the Local Government: Municipal Systems Act, 2000 (Act No 32 of 2000), publishes the Storm water By-laws for the City of Johannesburg Metropolitan Municipality as approved by its Council set out here-under.

Chapter 1 Interpretation, purpose and appucaton and responsibility for complying with by-laws

1. Definitions

In these By-laws, unless the context otherwise indicates -

"adjacent property" means a property which has one or more common boundaries with another property regardless of whether such properties have separate owners, were acquired in ownership at different times, are situated in different catchments areas or municipal areas or are separated from each other by a private road or private right-of-way;

"Agency" means the Johannesburg Roads Agency (Pty) Ltd., established by the Council as a service provider fulfilling a responsibility under these By-laws which responsibility has been assigned to It in terms of section 81(2) of the Local Government: Municipal Systems Act, 2000 (Act No 32 of 2000), and in relation to a situation where there is no Agency or other service provider contemplated in that section, means the Council;

"attenuation facility" means any drainage facility designed to store stormwater for gradual release of that stormwater by infiltration into the soil or into an existing drainage system;

"authorised official" means any official of the Council or the Agency who has been authorised by the Council or the Agency, as the case may be, to administer, implement¹ and enforce the provisions of these By-laws, acting within the scope of such authorisation;

"Best management practice" means any physical, structural or managerial practice that, when used singly or in combination with any other such practice, prevents or reduces pollution of stormwater, erosion or sedimentation which may be caused by stormwater, and which has been approved by the Council;

"bio-filtration facility" means a stormwater filtration system based on an appropriate best management practice which freats stormwater by filtration through vegetation, and includes any grassed or vegetated marshy area and any land through which stormwater is filtered by means of vegetation;

"Buffer" means an area or strip of land on a development site or property, which is to be, or is utilised for the management of stormwater or conservation of the riparian habitat as defined in section 1 of the National Water Act, 1998 (Act No 36 of 1998);

"catchment area" means an area of land in its natural state, from which stormwater runoff originates;

"Catchment area plan" means a plan and all implementing rules and procedures relating to such plan, including land use management for managing surface water and stormwater quality, any facility for managing the quantity of such water and any drainage feature within a catchment area;

"certificate of occupancy" means a certificate issued in terms of section 14 of the National Building and Building Standards Act, 1977 (Act No 103 of 1977);

"clearing" means the removal of vegetation from the surface of any property or a portion of a property;

"closed depression," means any low-lying area of land, either natural or man-made, which receives stormwater;

"Completion certificate" means the written acknowledgement by the Agency of the satisfactory completion of all work on a construction site approved by the Council, including any work shown on the approved building plans or approved plans of a township concerning the provision of municipal infrastructure, and any revision of such plans and field change approved by the Council;

"comprehensive drainage plan" means a plan for a catchment area adopted by the Agency containing a detailed analysis, which deals with-

- (a) the capacity of any stormwater drainage system and the need to embellish that capacity due to various combinations of development, land use and available structural and non-structural stormwater management possibilities;
- (b) the form, location and extent of stormwater quantity and quality control measure which would satisfy the requirements of the National Water Act, 1998, and any other applicable law;
- (c) stormwater quality standards; and
- (d) the funding requirements for the implementation of such plan.

"construction" means -

- (a) in relation to a township, the construction or provision by the developer of a township of any municipal infrastructure or service; and
- (b) in relation to a property, other than a township, the erection of any immovable structure on a property, excluding the erection of a boundary wall,

and "construct" has a corresponding meaning;

"Council" means -

- (a) the Metropolitan Municipal of the City of Johannesburg established by Provincial Notice No 6766 of 2000 dated 1 October 2000, as amended, exercising its legislative and executive authority through its municipal Council; or
- (b) its successor in title; or
- (c) A structure or person exercising a delegated power or carrying out an instruction where any power in these By-laws has been delegated or sub-delegated, or an instruction given, as contemplated in section 59 of the Local Government: Municipal Systems Act, 2000 (Act No 32 of 2000),

as the case may be;

"critical drainage area" means an area contemplated in Chapter 7;

"design storm event," means a theoretical storm event which generates stormwater, of a given frequency interval and duration, used in the analysis and design of a stormwater facility;

"detention facility" means a stormwater facility designed to store stormwater, gradually releasing it at a pre-determined controlled rate, and includes any appurtenance associated with its designed function, maintenance or security;

"developed property" means the condition of a property following completion of a development, or if a property is developed in phases, any phase of development on that property;

"developer" means any person undertaking or proposing to undertake a development and includes a developer of a township;

"development" means any construction or proposed construction as contemplated in paragraph (a) and (b) of the definition of "construction" and "develop" has a corresponding meaning;

"Development site" means the whole or a portion of any property or township, which it is proposed to develop or is in the process of being developed;

"diversion" means the routing of stormwater in a direction other than its natural discharge direction and "divert" has a corresponding meaning;

"floodplain" means an area of land adjacent to a watercourse, or water body, with a catchment area exceeding 30 ha that will be inundated by floodwater on average once in a 100 years as determined by a professional engineer, on the basis that the minimum width of a floodplain is 32m on each side of the centre line of the water course or water body;

"geotechnical engineer" means a practising professional engineer who has at least four years of professional experience in geotechnical and landslide evaluation;

"geotechnical report" means a written report prepared by a geotechnical engineer based on a study of the effects of. stormwater drainage and drainage facilities on soil characteristics, geology and groundwater;

"grading" means any excavation, filling or embankment building with earth materials on any property;

"grubbing" means the removal from any property, or portion of a property, of subsurface vegetative matter including sods, stumps, roots, buried logs, or other debris, and the incidental removal of topsoil to a depth not exceeding 300 mm;

"hydrograph" means a graph indicating stormwater runoff rate, inflow rate and discharge rate of stormwater, past a specific point over a time period;

"hydrograph method" means a method of estimating a hydrograph, using a mathematical simulation;

"impervious surface" means -

- (a) a hard surface area on a property which prevents or retards the entry of stormwater into the soil; and
- (b) a hard surface area on a property which causes stormwater to run off its surface a greater quantity or at an increased rate of flow, compared to the pre-development condition of that property,

And includes any roof, walkway, patio, driveway, parking lot, storage area, concrete or asphalt paving, gravel road with compacted sub-grade, compacted earth material, naturally compacted earth surface such as a path or swept garden, an oiled or macadamised surface and any other surface which may similarly impede the natural infiltration of stormwater, and any open uncovered attenuation or detention facility;

"land disturbing activity" means any activity on a property that results in a change in the existing soil cover, vegetative or non-vegetative, or both, or the existing soil topography and includes demolition, construction, paving, clearing, grading and grubbing;

"maintenance" means any activity which is necessary to keep a stormwater facility in good working order so as to function as designed and includes

- (a) complete reconstruction of a stormwater facility if reconstruction is needed in order to return the facility to good working order; and
- (b) The correction of any problem on the property concerned which may directly impact the functioning of a stormwater facility;

"maintenance manual" means a manual adopted by the Agency in terms of section 51;

"major development" means any development which results in -

- (a) the creation or cumulative addition of 500 m² or greater of impervious surface; or
- (b) land disturbing activity of 4000 m² and greater; or
- (c) grading involving the movement of 5,000 m³ or more of earth material;

"manual" means the stormwater design manual contemplated in section 3(3)(a), adopted by the Council, as amended or substituted from time to time;

"minor development" means any development, which results in -

- (a) the creation or addition of less than 500 m² of new impervious surface area; or
- (b) land disturbing activity of less than 4 000 m²; or
- (c) grading involving the movement of less than 5 000 m³ of earth material;

"oil/water separator" means a structure or device used to remove suspended, floating or dispersed oil and greasy solids from stormwater;

"Operation and maintenance manual" means a written manual contemplated in section 49(f), containing a description of operation and maintenance procedures for a specific stormwater facility, for use by operation and maintenance personnel of the Agency;

"owner" means in relation to -

- (a) immovable property, subject to paragraph (b), the person registered as the owner or holder thereof and includes the trustee in an insolvent estate, or judicial manager of a company or a close corporation which is an owner, and the executor of any owner who has died or the representative recognised by law of any owner who is a minor or of unsound mind or is otherwise under disability, provided such trustee, liquidator, executor or legal representative is acting within the authority conferred on him or her by law;
- (b) immovable property -
 - (i) which is in the name of both spouses in a marriage in community of property, either one or both of the spouses;
 - (ii) which is registered in the name of only one spouse and which forms part of the joint estate of both spouses in a marriage in community of property, either one or both of the spouses;
 - (iii) which is registered under section 17 of the Deeds Registries Act, 1937 (Act No 47 of 1937), in the name of both spouses in a marriage in community of property to which the provisions of Chapter III of the Matrimonial Property Act, 1984 (Act No 88 of 1984), are not applicable, the husband;
 - (iv) which is registered in the name of only one spouse and which forms part of the joint estate of both spouses in a marriage in community of property

to which the provisions of Chapter III of the Matrimonial Property Act, 1984, are not applicable, the husband; and

(c) a township, the township owner,

and includes an owner of land or a unit under a sectional title deed or a deed of transfer as contemplated in the Sectional Titles Act, 1986 (Act No 95 of 1986);

"permit" means a site development activity permit contemplated in sections 7 and 8(4);

"pollution" means contamination, or other alteration of the physical, chemical, or biological properties, of surface water or stormwater and includes any change in temperature, taste, colour, turbidity or odour of the water and the discharge of any liquid, gaseous, solid, radioactive or other substance into any watercourse or stormwater system, and "pollute" and "pollutant" have corresponding meanings;

"post-development condition" means the condition of any property after the conclusion of development thereon and "post development" has a corresponding meaning;

"Pre-development condition" means the condition of any property or portion of a property as it existed in its unaltered natural state prior to any development on that property and "pre-development" has a corresponding meaning;

"professional engineer" means any person who is registered with the Engineering Council of South Africa as a professional engineer or a professional engineering technologist, who is qualified in the engineering field concerned and who is considered competent by the Agency and who has been approved by it;

"property" means any land registered as a separate entity of land in the Deeds Office and includes any township and any land or unit contemplated in the Sectional Titles Act, 1986;

"public road" means a road, street or thoroughfare or any other right of way to which the public or a section of the public has a right of access or which is commonly used by the public or a section of the public and includes any portion of a public road between the road edge and the boundary of the land reserved for such road including a sidewalk;

"retention facility" means a stormwater facility designed to store stormwater runoff for an indefinite period with the volume of stored water being reduced by evaporation, infiltration or pumped out for the irrigation of land, and which may be combined with a detention facility;

"site development activity" means any land disturbing activity associated with the preparation of a property or portion of a property, for development;

"site development activity plan" means a plan contemplated in section 10, depicting all site development activities which it is proposed to implement on a development

site;

"stabilise" means the application of a best management practice, sufficient to protect soil from the erosive force of raindrop impact and flowing stormwater and includes the establishment of vegetation, mulching, plastic covering, the application of a compacted gravel base and the protection of any channel or ditch conveying stormwater or outlet for stormwater so as to prevent any sedimentation resulting from stormwater from leaving a development site and "stabilisation" has a corresponding meaning;

"stormwater" means the surface stormwater runoff that results from any natural form of precipitation of water or moisture in any form;

"stormwater drainage facility" means any facility installed or constructed for the purpose of the conveyance or retention of stormwater;

"stormwater drainage feature" means any natural or man-made structure, facility, conveyance or topographic feature which has the potential to concentrate, convey, detain, retain, infiltrate or affect the flow rate of stormwater;

"stormwater drainage system" means every stormwater drainage facility and stormwater drainage feature forming part of a system that combines to lead stormwater from a higher lying area;

"stormwater facility" means a component of a man-made drainage feature for dealing with stormwater, designed or constructed to perform a particular function or multiple functions, and includes any pipe, marshy area, ditch, culvert, street gutter, detention facility, attenuation facility, wetpond, constructed wetland, infiltration device, catch basin, oil/water separator and sediment basin, but excludes any building gutter, downspout and stormwater drain serving one single family residence, or such residence and one or two additional residential units permitted by an applicable town planning scheme or other applicable law, on the same property;

"stormwater quality control" means the control of the introduction of any pollutant into stormwater and the process of separating any pollutant from stormwater, and includes any source control, biofiltration facility, wetpond, wetland, litter trap, oil/water separator, constructed wetland and any facility to control erosion or sedimentation;

"Stormwater quantity control" means the control of the rate and volume of stormwater released from a development site, and includes any attenuation, detention and retention facility;

"stormwater system" means any natural or man-made system which functions independently or together with another such system to collect, convey, store, purify, infiltrate and discharge stormwater, including any stormwater facility and water course;

"township" means a township approved in terms of the Town-planning and Townships Ordinance, 1986 (Ordinance No 15 of 1966) or any other law;

"watercourse" means -

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermittently;
- (c) a wetland, lake or dam into which, or from which, water flows; and
- (d) any collection of water which the Minister concerned may, in terms of the National Water Act, 1998 by notice in the Government Gazette, declare to be a watercourse,

and a reference to a watercourse includes, where relevant, its bed and banks;

"water quality sensitive- area" means any area that is sensitive to a change in water quality and includes any lake, ground water management area, aquifer as defined in the National Water Act, 1998, and a closed depression;

"wetland" means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil, and any area where the soil shows evidence of water-logging, and includes the flood plain of any watercourse and any area which is defined as a wetland by any law, irrespective of whether such conditions exist naturally or are man-made;

"wetpond" means a natural or man-made basin for the receipt of stormwater with the intention of maintaining a permanent quantity of stormwater.

2. Purpose of By-laws

The purpose of these By-laws is to manage, control and regulate the quantity, quality, flow and velocity of stormwater runoff from any property which it is proposed to develop or is in the process of being developed or is fully developed, in order to prevent or mitigate -

- (a) Erosion and degradation of watercourses;
- (b) sedimentation in ponds and watercourses;
- (c) degradation of water quality and fish habitat; and
- (d) excess stormwater runoff onto a public road which may pose a danger to life or property or both.

3. Application of By-laws and manual

- (1) Subject to the provisions of subsection 2, these By-laws do not apply in respect of any activity, structure, matter or thing on a property, which has been authorised by the approval of building plans in terms of the National Building Regulations and Building

Standards Act, 1977, or authorised under the National Water Act, 1998;

- (2) The provisions of subsection (1) are not applicable in respect of any structure, matter or thing appearing on an approved building plan, if that structure, matter or thing did not require approval under the National Building Regulations and Building Standards Act, 1977, and any regulations made thereunder.
- (3)
 - (a) In order to ensure that the latest and best technology is utilised in the area of jurisdiction of the Council, these By-laws must be read with the manual, the provisions of which must be complied with.
 - (b) if an irreconcilable conflict arises between any provision of these By-laws and any provision of the manual, the provision of the By-laws prevails.

4. Responsibility for complying with By-laws

- (1) A developer who proposes to undertake or undertakes any work or action contemplated in these By-laws, is responsible for compliance, and for ensuring compliance, with any provision of these By-laws relating to such work or action.
- (2) A contractor or agent appointed by a developer to carry out any work or action contemplated in these By-laws is jointly and severally responsible with that developer for compliance, and for ensuring compliance, with any provision of these By-laws relating to such work or action.
- (3) An owner of property which has been developed, is responsible for compliance, and for ensuring compliance, with any provision of these By-laws which is applicable in respect of that property after conclusion of that development.

Chapter 2

Site development activity permits

5. Permits required

A permit is required for any of the following site development activities:

- (a) Any site development activity in respect of a major development;
- (b) any site development activity that will require connection to the Council's stormwater drainage system;
- (c) any grading activity that will result in the movement of 100m³ or more of earth;
- (d) any grading activity that will result in a temporary or permanent slope with a steepness exceeding 3m horizontal to 1 m vertical and with a total slope height, measured vertically from bottom to top of the slope, exceeding 1,5 m;
- (e) any grading activity that will include the construction of an embankment or berm which will result in the impoundment of water to a depth exceeding 450 mm or

with a maximum volume exceeding 50 m³ of water;

- (f) any grading activity that will result in the diversion of any existing stormwater drainage feature from its natural point of entry to or exit from a development site;
- (g) any clearing or grading on a slope steeper than 3 m horizontal to 1 m vertical; and
- (h) any clearing within a floodplain.

6. Exceptions to permit requirements

- (1) the provisions of section 5 do not apply -
 - (a) in respect of any property used for commercial agriculture unless it is wholly or partially situated in a floodplain;
 - (b) to any of the following grading activities:
 - (i) The excavation for any Council services or tunnel authorised under any law;
 - (ii) any excavation for a basement or footing for a building, retaining wall or other structure authorised by an excavation permit issued under the National Building Regulations made under the National Building Regulations, and Building Standards Act, 1977, or any other law :
Provided that the provisions of this paragraph do not apply in respect of -
 - (aa) the placement of any fill material removed from such excavation; and
 - (bb) any excavation beyond the limits of a basement or footing for a building;
 - (iii) Agricultural crop management outside any critical drainage area but limited to the preparation of soil by turning, discing, or other means approved by the Agency;
 - (iv) excavation for graves, provided the excavated material is placed on the uphill side of the grave on any slope exceeding 100 m horizontal and 3 m vertical;
 - (v) landscape installation if fill is confined to less than 250 mm of topsoil and land disturbing activity is limited to less than 500 m²; and
 - (vi) any exploratory excavation for soil investigation or for determining the location of any service relating to infrastructure for the public benefit.

7. Applications for permits

- (1) No person may commence any site development activity specified in section 5, on any property unless a site development activity permit has been issued for that activity by

the Agency.

- (2) Application for the issue of a permit must be made by the developer concerned on a form prescribed by the Agency.
- (3) An application in terms of subsection (2) must be accompanied by -
 - (a) if the developer is not the owner of the property concerned, an authorisation in writing by the owner to the developer to lodge the application;
 - (b) a site development activity plan prepared in terms of section 10;
 - (c) a stormwater drainage plan prepared in terms of section 11;
 - (d) the documents required by sections 11,12,13,14,31 and 37(3) to the extent that those sections are applicable to the application concerned; and
 - (e) The fee prescribed by the Council.
- (4) The Agency must within a reasonable time, consider an application in terms of subsection (2) and may refuse or grant it and the applicant must forthwith in writing be notified of the decision and be furnished with reasons for a refusal of an application.
- (5) Upon the granting of a permit in terms of subsection (4), a permit must be issued by the Agency subject to site development standards specified in the manual and applicable at the time of the issue of a permit.
- (6) Approval for the issue of a permit in terms of this section also signifies approval by the Agency of all plans and other documentation submitted in terms of subsection (3).
- (7) A developer must at all times display and maintain an easily legible permit notice in a form prescribed by the Agency at a conspicuous place on the development site concerned, until completion of the site development activities contemplated in the permit concerned.

8. Expiry of permits

- (1) An expiry date, not exceeding three years, or in the case of a permit for grading not exceeding six months, from the date of issue of a permit, must be specified in every permit.
- (2) A permit expires upon the issue of a certificate contemplated in section B2(1)(b)(ii)(cc) of the Town-planning and Townships Ordinance, 1986, or a certificate of occupancy, as the case may be, in respect of the development concerned or upon the expiry date specified in terms of subsection (1), whichever is the earlier.
- (3) If a permit expires prior to the completion of construction on the development site concerned, all site development activities contemplated in that permit, must, subject to the provisions of subsection (6), cease immediately until such permit is renewed.
- (4) Application for the renewal of a permit may be made by a developer on a form

prescribed by the Agency, at any time from a date 30 days prior to the expiry of the permit and must be accompanied by a new storm water drainage plan as contemplated in section 11 and such other documentation and information as may be required in writing by an authorised official.

- (5) The Agency must within 30 days of receipt of an application in terms of subsection (3) consider the application and may either refuse or grant it and the applicant must forthwith in writing be notified of the decision and be furnished with reasons for a refusal of an application
- (6) If construction on a development site concerned has commenced but is not completed when a permit expires, the developer must, within seven days after such expiry submit a plan for approval by the Agency, temporarily to stabilise the site from stormwater damage or sediment runoff until the permit is renewed and must within seven days of the approval of the plan by the Agency, implement that plan.

9. Professional engineer required

Any document contemplated in section 7(3)(b), (c) and (d) must be prepared by a professional engineer, if any of the following conditions exists:

- (a) The proposed development on the property concerned constitutes a major development;
- (b) if the site development activity incorporates any stormwater facility or other improvement relating to stormwater in a public road for which facility or improvement the Agency will assume responsibility for maintenance;
- (c) if a site development activity is to take place within a floodplain or within 100 m of the centre line of any water course;
- (d) If a site development activity is to take place on a property shown by a 1:50 000 scale geological map to be underlain by, or within 500m of, dolomitic geology; or
- (e) in respect of any other site development activity, if the Agency considers it to be in the public interest to require that the documents concerned be prepared by a professional engineer.

10. Site development activity plan

A developer must in respect of any development site in respect of which a permit is required in terms of section 7, prepare a site development activity plan.

11. Stormwater drainage plan

- (1) A developer must in respect of any development site for which a permit is required in terms of section 7, prepare a stormwater drainage plan.

- (2) A plan contemplated in subsection (1), must relate to the collection, transportation, treatment and discharge of stormwater from the development site concerned and must include a profile view of the property concerned and construction details and notes relevant to such plan.
- (3)
 - (a) A plan contemplated in subsection (1) must contain an analysis of the impact of stormwater quantity up to 500 m or a greater distance required by a notice in writing by an authorised official served on the developer concerned, downstream from the property on which the development site concerned is situated, which may result from the proposed development on that site and must contain features to mitigate such impact.
 - (b) For the purposes of paragraph (a), any existing and potential impact of stormwater, including -
 - (i) increased sedimentation and streambank erosion and discharge;
 - (ii) flooding;
 - (iii) overcharging of any existing closed stormwater conveyance facility;
 - (iv) discharge to a closed depression;
 - (v) discharge to an existing off-site stormwater runoff control facility;
 - (vi) infiltration to groundwater or any area of land with the ability to contribute or recharge, ground water;
 - (vii) deterioration of stormwater quality; and
 - (viii) any spill and discharge of a pollutant into stormwater,must be evaluated and mitigated.

12. Off-site stormwater drainage analyses

- (1) For the purposes of an application for a permit in terms of section 7 a written off-site stormwater drainage analysis must be prepared by a professional engineer, based on a study of the existing and predicted impact of stormwater runoff from the development site concerned on to any property and on a field investigation at the development site concerned, relating to any drainage area from which stormwater is received from any adjacent property and any other area contributing to stormwater being discharged on to any such property.
- (2) The extent of the analysis contemplated in subsection (1), is limited to information that can be supplied by the Agency or can be obtained from ground level by opening manhole covers giving access to any stormwater drainage system, which can be opened manually, other than such covers that can only be opened by using mechanical lifting equipment.

13. Geotechnical reports

- (1) The Agency may require a geotechnical report prepared by a geotechnical engineer, to accompany an application for a permit in terms of section 7 in respect of a development if-
 - (a) grading or the provision of any attenuation facility, detention facility or other stormwater facility is proposed within 50 m of a slope steeper than 3 m horizontal to 1 m vertical; or
 - (b) the development site is underlain by, or within 500 m of dolomitic geology shown on a 1:50 000 scale geological map; or
 - (c) an authorised official considers that the proposed development on the property concerned poses a potential stormwater hazard due to its proximity to a slope in the topography on that property either natural or man-made.
- (2) The report required in terms of subsection (1) must include the effects of groundwater interception and infiltration, seepage, potential slip planes, changes in soil bearing strength and any other factor required by an authorised official.

14. Soils Investigations reports

For the purposes of an application for a permit in terms of section 7, if section 9 applies in respect of that application, a soils investigation report must be prepared by a geotechnical engineer or an employee employed and supervised by such engineer, if -

- (a) the soils underlying the proposed development have not been mapped;
- (b) existing soils maps of soils contemplated in paragraph (a), are inconsistent; or
- (c) an authorised official considers that existing soils maps are not of sufficient resolution to allow proper engineering analysis.

15. Permit modifications

- (1) A developer may on a form prescribed by the Agency; apply for a modification of a permit contemplated in sections 7 or 8(5), issued to him or her.
- (2) An application in terms of subsection (1) must be accompanied by the fee prescribed by the Council.
- (3) For the purpose of considering an application in terms of subsection (1), an authorised official may require the applicant to furnish any document and information.
- (4) The Agency must consider an application in terms of subsection (1) and may refuse or grant it and the applicant must forthwith in writing be notified of the decision and be furnished with reasons for a refusal of an application.

Chapter 3 Erosion and sediment control

Part 1 - Minor developments

16. Control for minor developments

In respect of any minor development, erosion and sedimentation must be controlled during construction and any soil exposed or disturbed during construction must be permanently stabilised in compliance with the provisions of section 17.

17. Requirements for minor developments

- (1) Access to a development site for vehicles must, if reasonably possible, be limited to one route.
- (2) Any access route contemplated in subsection (1) must be stabilised with crusher dust, quarry spell or crushed rock to minimise the depositing of soil and other debris onto any public road.
- (3)
 - (a) Any exposed loose soil on a development site must be stabilised by utilising an appropriate best management practice and be maintained in accordance with the manual,
 - (b) During any period from 1 October to 30 April, no soil contemplated in paragraph may remain unstabilised for more than two days and during any period from 1 May to 30 September, for more than seven days.
 - (c) Sufficient material, equipment and labour must at all times be available on a development site to stabilise any exposed soil within 12 hours, if continuous rainy weather or any other occurrence necessitates it.
- (4) Any adjacent property must be protected from Sediment deposition by the use of a vegetated buffer, sediment barrier or filter, dike or mulching, or by a combination of these measures or by utilising any other appropriate best management practice.
- (5) Any adverse effect of increased stormwater runoff resulting from any land disturbing activity or land development activity, on a development site must be controlled by the application of an appropriate best management practice.
- (6) Any measure taken in terms of this section must be inspected daily and maintained to ensure continued effective performance of its intended function.

Part 2 - Major developments

18. Provisions applicable to major developments

If a proposed development on any property constitutes a major development, the

requirements of sections 19 to 30 inclusive, apply, in respect of the development site concerned.

19. Stormwater control measures for major developments

- (1)
 - (a) Any soil which is exposed or disturbed during construction and any material stockpile on a development site must be stabilised utilising an appropriate best management practice and be maintained in accordance with the manual.
 - (b) During any period from 1 October to 30 April, no soil or material stockpile contemplated in paragraph (a) may remain unstable for more than two days and during any period from 1 May to 30 September for more than seven days.
 - (c) Sufficient materials, equipment and labour must at all times be available on a development site to stabilise any exposed soil or material stockpile within twelve hours, if continuous rainy weather or other occurrence necessitates it.
- (2)
 - (a) Any clearing limit, setback, buffer and other area sensitive to stormwater, such as a steep slope, wetland or riparian corridor, on a development site determined by an environmental impact assessment in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998), or any regulation made thereunder, must be clearly marked on the development site by visible pegs or other effective means and may at any time be inspected by an authorised official.
 - (b) For the purpose of this subsection -
 - (i) "clearing limit" means that portion of a development site cleared from vegetation or on which any structure has been demolished to prepare the site for a proposed development; and
 - (ii) "setback" means any portion of a development site where the erection of building is prohibited by the determination of building lines in terms of an applicable town planning scheme or any other law.
- (3) Any property adjacent to a development site must be protected from sediment deposition by the use of a vegetated buffer, sediment barrier, or fitter, dike or mulching, or by a combination of these measures or by utilising an appropriate best management practice.
- (4) Any measure contemplated in subsection (3), must be effected prior to the commencement of any grading, and must be functional before any other land disturbing activity takes place, on a development site.
- (5) Every structure such as a dam, dike or diversion, whether temporary or permanent, must be stabilised in terms of subsection (1).
- (6)
 - (a) Any cut and fill slope resulting from an excavation on a development site must be stabilised in accordance with subsection (1), and must be constructed with a

roughened soil surface instead of a smooth surface, in a manner that will minimise erosion.

- (b) A storm water drainage facility to regulate stormwater flow must be constructed at the top of a slope 3m horizontal to 1 m vertical or steeper, which has an area above it that contributes to stormwater runoff.
- (c) Concentrated stormwater must not be allowed to flow down the face of a cut and slope unless contained within a channel or pipe, adequate to deal with the volume of water.
- (d) If a cut and till slope face crosses a water seepage plane, a drainage or other erosion protection facility to deal adequately with the volume of stormwater, must be provided.

20. Control of off-site erosion

Any property and watercourse downstream from a development site must be protected from erosion due to an increase in the volume, velocity, and peak flow rate of stormwater from that site by the utilisation of an appropriate best management practice to minimise any adverse downstream stormwater impact.

21. Stabilisation of temporary conveyance channels and outlets

- (1) Any temporary on-site stormwater conveyance channel on a development site must be designed, constructed and stabilised to prevent erosion from an expected flow velocity from a 2-year frequency design storm event of any duration, for the post-development condition.
- (2) Stabilisation in terms of subsection (1) must be adequate to prevent erosion of any outlet, adjacent stream-bank, slope and downstream area and must be provided at the outlet of every stormwater drainage system.

22. Stormwater drain inlet protection

- (1) Any stormwater drain inlet made operable during construction on a development site must be protected so that stormwater runoff does not enter a municipal stormwater drainage system without first being filtered, or otherwise treated effectively to remove sediment.
- (2)
 - (a) Subject to a developer lodging an application on a form prescribed by the Agency, the requirement of subsection (1) may be waived by an authorised official if any stormwater drainage system downstream of the inlet referred to in subsection (1), discharges to an on-site sediment control facility based on an appropriate best management practice, including but not limited to, a sediment pond or trap;
 - (b) A drainage system contemplated in paragraph (a) must be adequately cleaned :

the conclusion of the development concerned so that it operates to its best potential.

23. Trenches for municipal services

- (1) The construction of any trench for municipal services on a development site must be limited, if practically possible, to no more than 100 m of open trench at any one time.
- (2) If consistent with safety and space considerations, material excavated from a trench contemplated in subsection (1), must, if practically possible, be placed on the uphill side of the trench.
- (3) Any device for pumping water out of a trench contemplated in subsection (1), must discharge to an effective sediment trap or pond, and the velocity of such water must be sufficiently lowered prior to its leaving a development site so as to prevent erosion and sedimentation.

24. Constructed access routes

- (1) if any vehicle access route to a development site intersects a paved road, either public or private, steps must be taken to minimise the deposit of matter such as mud and other debris onto such road by utilising an appropriate best management practice such as a stabilised entrance to the site.
- (2) If matter is deposited onto the surface of a road contemplated in subsection (1), the road must be thoroughly cleaned, at least at the end of each working day.
- (3) Matter deposited on a road contemplated in subsection (1), must be removed from such road by shovelling or sweeping and be deposited in a disposal area on the development site capable of accommodating the quantity concerned, or at a municipal solid waste disposal site.
- (4) Washing of a road contemplated in subsection (1), may only be done after any matter deposited thereon has been removed in the manner required in terms of subsection (3).

25. Removal of temporary facilities

- (1) Any temporary stormwater facility for erosion and sediment control relating to a development site must be removed within 30 days after the date of issue of a completion certificate in respect of the development concerned or after any such facility is no longer required, whichever is the earlier.
- (2) Sediment trapped by a facility contemplated in subsection (1), must be removed from or stabilised on the development site concerned.
- (3) Any disturbed soil area resulting from the removal of any facility contemplated in subsection (1), must be permanently stabilised,

- (4) An authorised official may in writing, exempt a developer from any requirement of subsection (2) in respect of a specified development site.

26. Dewatering of development sites

Any stormwater facility on a development site transporting stormwater from that site, must discharge into an appropriate sediment trap or sediment pond designed to accept the discharge of stormwater which must be preceded by a measure to reduce the velocity of stormwater to not more than 3 m per second before it leaves that site.

27. Control of pollution other than sediment

- (1) Any pollutant, other than sediment, that occurs on a development site due to construction and related activities, must be disposed of in a manner that prevents pollution of any surface water or underground stormwater system.
- (2) Pollutants contemplated in subsection (1), include any lubricant, solvent, concrete by-product, construction material, and organic debris from clearing and grubbing on a development site.

28. Maintenance of erosion and sediment control facilities

- (1) Any temporary or permanent stormwater facility for erosion and sediment control must be maintained and repaired by the owner of the property concerned to ensure its continued effective performance of its intended function.
- (2) Any maintenance and repair in terms of subsection (1) must be conducted in accordance with the manual.
- (3) If any stormwater facility contemplated in subsection (1), is damaged during any flood, storm or other adverse weather condition, it must forthwith be returned to its normal operating condition by the owner of the property concerned.

29. Erosion control design storm event

Any stormwater facility designed for the control of erosion and sediment, must be designed for a 2-year recurrence interval design storm event of any duration from 0.25 hours to seven days.

30. Installation of rain meter

For the purpose of ensuring compliance with the relevant provisions of this Part, an authorised official may, by notice in writing, require a developer to install and maintain a rain meter, of a kind required by that official, on a development site and to furnish the Agency with a written statement within two days after the conclusion of every week, specifying the quantity of rainfall that fell on that site during the previous week.

Chapter 4 Grading

31. Grading plans

- (1)
 - (a) a grading plan in respect of any proposed grading on a development site must, subject to the provisions of section 9, be prepared.
 - (b) A plan contemplated in paragraph (a), must incorporate a plan of every retaining structure which is greater than 1,5m in height which is to hold graded soil in place, if such structure has not been included in building plans approved under the National Building Regulations and Building Standards Act, 1977.
- (2) A grading plan contemplated in subsection (1), must -
 - (a) indicate both temporary and permanent erosion and sedimentation stormwater control facilities on the development site concerned for a period from the commencement of site development activities, continuing without interruption to the completion of the development on that site;
 - (b) specify the construction sequence for the establishment of every such facility; and
 - (c) conform to every applicable requirement and standard for erosion' and sedimentation control specified in Chapter 3.

32. Drainage

- (1) The requirements of Chapter 5 relating to stormwater management must be complied with prior to the commencement of any grading on a development site.
- (2) The characteristics of all stormwater from a development site with regard to quality, flow rate, velocity and frequency must be the same as the stormwater runoff which would have flowed from the development site in its natural condition prior to commencement of any site development activity.
- (3) Any stormwater runoff which would have flowed onto a development site naturally, must be accepted onto that site, and must be discharged from that site to a natural watercourse or a municipal stormwater drainage system.

33. Change in topography of development site

- (1) The maximum surface gradient resulting from any grading activity on a development site may not exceed 3 m horizontal to 1 m vertical: Provided that such gradient may be exceeded, subject to the prior approval in writing by an authorised official if he or she is satisfied on the basis of engineering calculations prepared by a professional engineer, that surface erosion on the development site concerned can be controlled to an erosion rate equal to a stabilised gradient under the same conditions as those existing on the development site in its predevelopment condition.

- (2) (a) Any property, public road or other municipal infrastructure, which is adjacent to a development site, must be protected from storm water damage occurring during grading operations.
- (b) If any damage contemplated in paragraph (a) occurs, an authorised official may, by written notice served on the developer concerned, require him or her to take the steps specified in the notice to restore such damage within a time so specified and to prevent a recurrence of such damage.
- (c) Any damage contemplated in paragraph (a), must irrespective of whether a notice has been served in terms of paragraph (b), forthwith be restored by the developer concerned at his or her own cost.
- (d) If there is a failure to comply with paragraph (b) or (c), the Council may take the steps necessary to restore the damage and may recover the cost thereof from the developer concerned.

34. Maintenance

Any erosion and sediment control, and stormwater facility and drainage facility relating to grading, must be maintained in good operating condition at all times, as required by section 28.

Chapter 5 Stormwater management

Part 1 - Major developments

35. Application

If a proposed development on any property constitutes a major development, the requirements of this Part apply in respect of the development site concerned.

36. Development activities

- (1) If one or more of the following conditions exist on a development site, the requirements of this Part apply to the maximum extent practically possible in respect of that site, and in respect of any adjacent property which is part of the development:
- (a) a development site greater than 4000 m² in area in size with 40 per cent or more impervious surface, prior to commencement of the development;
- (b) A development site from which stormwater is discharged to a watercourse or water body which has a water quality problem documented in the records of the Council or the Agency, and includes, but is not limited to, a watercourse and water body -

- (i) listed in a report required under the National Water Act, 1996, and designated as not being beneficially used; or
- (ii) listed under the National Water Act, 1998, as not expected to meet water quality standards or water quality goals contemplated in that Act; and
- (c) a development site in respect of which the need for stormwater control measures additional to those applicable to that site has been identified by an authorised official.

37. Approved hydrological methods for design

- (1) For the purposes of any estimation of peak stormwater runoff rate used in the design of any stormwater quantity control facility, a hydrograph method of analysis approved by the Agency must be utilised.
- (2) Any storage facility that forms a part of a storm water quality control facility must be designed by using a method approved by the Agency.
- (3) Any calculation method used for a design contemplated in subsection (1), must be described, the value of any parameter and variable must be stated, and the reason for selecting a specific range of values must be set out in a design report for a proposed storm water management strategy for the property concerned, prepared on behalf of a developer and such report must be submitted to the Agency for approval.

38. Stormwater quantity control

- (1) Subject to the provisions of subsection (2), the following requirements for stormwater quantity control apply:
 - (a)
 - (i) All stormwater entering a development site in its predevelopment state from a depression or conduit must be received on that site at a naturally occurring or otherwise legally existing location;
 - (ii) all stormwater leaving a development site must at all times during and after development, be discharged at a naturally occurring or otherwise legally existing discharge location so as not to be diverted onto or away from any adjacent downstream property: Provided that a diversion which will correct an existing downstream stormwater problem, may, on written application by a developer on a form prescribed by the Agency, be permitted in writing by an authorised official;
 - (iii) for the purpose of this paragraph "naturally occurring location" means the location of any watercourse, channel, depression or marshy area existing as an established system, identifiable on a topographic representation of the property in the records of the Council, either from a map, photograph, site inspection, decision of a court of law or other means approved in writing by the Agency;

- (b) the post-development peak stormwater discharge rate from a development site for a 5- to 25-year recurrence interval design storm event of any duration from 0.25 to 24 hours, or any other design storm event stipulated by the Agency up to and including a 50-year design storm event, may not at any time exceed the pre-development peak stormwater runoff rate from that site for the same design storm event;
- (c) any closed depression which receives stormwater discharge from a development site must be analysed using a hydrograph method for routing stormwater, and infiltration relating to such depression must be addressed, if relevant;
- (d) If a proposed development will result in a discharge of stormwater to a closed natural depression that has a water surface area greater than 500 m² at overflow elevation, the following requirements must be complied with for the purpose of an analysis contemplated in paragraph (c):
 - (i) the stormwater runoff hydrograph from a 100-year design storm event, of duration from 24 hours to seven days from the pre-development catchment area draining to a closed depression contemplated in paragraph (c), must be routed into that depression using only infiltration as outflow from the depression;
 - (ii) if a portion of such closed depression is located off the development site concerned, the impact of stormwater on any adjacent property must be taken into account;
 - (iii) if overflow of such closed depression occurs, the closed depression must be analysed as a detention or infiltration pond, to determine whether the depression can safely cope with the expected quantity of stormwater;
 - (iv) no discharge from a closed depression may exceed the discharge rate from that depression immediately prior to the development, resulting from a 2, 10, 25 and 100-year design storm event of any duration from 0.25 hours to seven days and a control structure to regulate outflow from such depression, an emergency overflow spillway and an access road must be provided and other design criteria required in writing by the Agency must be complied with;
 - (v) If a closed depression will be maintained by the Agency, a servitude in respect thereof must, subject to the provisions of section 43(1), be registered in favour of the Council to protect the Council's rights; and
 - (vi) if a development will create a stormwater runoff from the property concerned to a closed depression located off the development site, the volume of runoff discharged may not be increased beyond the effect of a 2, 10, 25 and 100-year design storm event of any duration from 0.25 hours to seven days;
- (e) any stormwater quantity control facility to be provided, must be designed to

meet, as a minimum performance standard, the requirements of this section, unless -

- (i) stormwater from a development site will discharge to a Council stormwater system approved by an authorised official to receive stormwater from that site; or
 - (ii) stormwater from a development site discharges to a receiving body of water and it can be demonstrated by the developer, to the satisfaction of an authorised official, that stormwater quantity control is not warranted;
 - (f) if the conditions downstream from a development site are determined by an authorised official to be exceptionally sensitive to potential stormwater discharges from that site compared to the situation immediately prior to the development, that official may, by notice in writing, require a factor of safety to be applied in respect of the total storage volume of any attenuation and detention facility and a reduction of the stormwater released from the site concerned;
 - (g) no attenuation facility or open stormwater quantity control facility may be located -
 - (i) in a public road;
 - (ii) on any land zoned as public open space under an applicable town planning scheme, without written approval of the Council;
 - (iii) in any floodplain below the 50-year floodline; or
 - (iv) in any wetland without approval of the Department of Water Affairs and Forestry;
 - (h) reasonable access to any stormwater facility to enable ease of maintenance, as determined by an authorised official, must be provided;
 - (i) if conditions on a development site are appropriate for infiltration of stormwater and ground water quality on that site is protected, streambank erosion control must be implemented, utilising infiltration to the fullest extent practicable; and
 - (j) any quantity control facility contemplated in paragraph (g), must be selected, designed and maintained according to the manual, and may not be built within a vegetated buffer, except for a stormwater conveyance system approved in writing by an authorised official and subject to the provisions of the National Environmental Management Act, 1998 (Act No 107 of 1998).
- (2) The Agency may, if it considers that circumstances relating to stormwater management in respect of any development so requires, by notice in writing, require the developer concerned to comply with any additional requirement relating to control of the peak discharge or quantity of stormwater, specified in the notice.

- (3) No person may do anything, which may interfere with the proper functioning and the ease of maintenance of any structure or facility contemplated in this section.

39. Combination of quality and quantity control facilities

Any quality control stormwater facility may be incorporated into the design of a stormwater quantity control facility if such combination will facilitate water quality control.

40. Quality control requirements

- (1) Subject to the provisions of subsection (2), the following requirements for storm water quality control apply:
- (a) A best management practice concerning stormwater quality control must be utilised in respect of any stormwater facility relating to stormwater quality in respect of a development site, to the maximum extent practically possible;
 - (b) a stormwater facility for any treatment relating to the quality of stormwater must be of a size sufficient to hold and treat stormwater runoff from a 2-year recurrence interval design storm event of any duration;
 - (c) no structure relating to stormwater quality control may be built within a vegetated buffer, other than a conveyance system approved in writing by an authorised official;
 - (d)
 - (i) Treatment of stormwater discharge must be provided by utilising a wetpond or biofiltration or both, based on a best management practice: Provided that another best management practice may be utilised subject to the granting of a deviation or exemption from the provisions of the manual in terms of section 61;
 - (ii) a wetpond is required for a development site on which an impervious surface greater than 2 ha for use by motor vehicles, will be created by the development from which stormwater will discharge -
 - (aa) directly to a municipal or private regional stormwater facility or closed depression without providing stormwater quantity control on the development site concerned; or
 - (bb) directly or indirectly to a water course or wetland within 1 km downstream of the development site concerned;
 - (e) all stormwater must, prior to its discharge to a stormwater facility based on an appropriate best management practice and designed to utilise infiltration, pass through a stormwater treatment facility designed to remove suspended solids; and
 - (f) All stormwater from a development site on which heavy construction equipment

used, maintained or stored or on which any petroleum product is stored or transferred to such equipment or any vehicle, and from any vehicle washing bay, must be treated by an oil/water separator of a size effectively to prevent pollution of such stormwater.

- (2) The Agency may, if it considers that circumstances relating to stormwater quality control in respect of any development so require, or that the requirements of subsection (1) do not afford adequate protection for any water quality sensitive area on site or within the catchment area where the property concerned is situated, by notice in writing, require the developer concerned to comply with any additional requirement, relevant to such control, specified in that notice.

Part 2 - Major and minor developments

41. Application

If a proposed development on any property constitutes a major or minor development, the requirements of this part apply in respect of the development site concerned.

42. Stormwater drainage facilities

- (1) An on-site stormwater drainage facility must be provided on every development site and must be of sufficient capacity to convey -
- (a) stormwater without flooding or otherwise damaging any existing or proposed structure;
 - (b) any post-development peak stormwater runoff from a development site resulting from a 5-year recurrence interval design storm event, of any duration from 0.25 to 24 hours; and
 - (c) any existing stormwater runoff upstream from a development site that will be conveyed through that site, taking potential development upstream from the site into account.
- (2) (a) in estimating a peak stormwater runoff rate used in the design of a stormwater drainage facility contemplated in subsection (1), either the rational method as described in the manual, or a hydrograph method of analysis approved by the Agency in writing, must be used.
- (b) The selection method, and all parameters or variables used in estimation in term of paragraph (a), must be stated and explained in a design report contemplated in section 37(3).
- (3) (a) Any existing storm water facility and any other conveyance facility up to 500 m downstream from a development site that falls within the downstream portion of an off-site stormwater drainage analysis, contemplated in section 12 must have sufficient capacity to convey, without flooding or otherwise damaging any

existing or proposed structure, on or off site, a post-development peak stormwater discharge contemplated in subsection (1)(b).

- (b) Any pipe stormwater drainage system must have capacity to convey stormwater runoff from a 5-year recurrence interval design storm event of any duration and any such system that conveys stormwater on the surface of land must be capable of conveying the runoff from a 25-year recurrence interval design storm event of any duration.
- (4) No stormwater drainage facility utilising a closed conveyance structure such as pipes, may discharge directly onto the surface of a public road.

43. Servitudes

- (1) If the Agency at any time decides to accept responsibility for the maintenance of any stormwater conveyance system, on any development site or property, the owner of that site or property must, prior to commencement of such maintenance, register a servitude acceptable to and in favour of the Council for the protection of the Council's rights of inspection and maintenance of and its right of access to such system.
- (2) Any stormwater facility that is to be maintained by the Agency and any vehicular access to such facility must be located in a servitude contemplated in subsection (1), in favour of the Council, or located in any open space on Council property designated by the Agency in consultation with the Council.
- (3) Any conveyance pipe for storm water that is to be maintained by the Agency must be located within a servitude contemplated in subsection (1), and an access structure to such pipe must be positioned in a public road reserve so that it can be accessed for purposes of inspection, without entering the property on which such pipe is situated.

44. Wetlands

- (1) The following requirements must, in addition to the requirements of section 38, be complied with if stormwater from any development site discharges directly, or indirectly across any intervening property, into a wetland:

The quantity and velocity of any stormwater discharge must be controlled and treated to the extent that such discharge attains a quality in compliance with the requirements of the National Water Act, 1998, the National Environmental Management Act, 1998 and any other applicable law;

a stormwater discharge must maintain the frequency and flow of pre-development conditions, to the extent necessary to protect the characteristic functions of the wetland;

Prior to discharging to a wetland, any alternative discharge location and any natural water storage infiltration opportunity outside the wetland, must be evaluated by a professional engineer and utilised for the stormwater discharge if reasonably

practically possible;

- (2) A man-made wetland, which is intended to mitigate for the loss of a natural wetland area, may, subject to the provisions of paragraph (e), be designed and used to treat stormwater;
- (3) An authorised official may, after consideration of an evaluation in terms of subsection (1)(c) in writing allow a wetland, contemplated in subsection (2) to be constructed and utilised for the discharge of stormwater, provided it is -

Constructed in an area which is not designated as a wetland or wetland buffer under the National Environmental Management Act, 1998 or any other law; and utilised in an area where it will not detrimentally affect any such designated wetland or buffer;

(4) if a wetland contemplated in subsection (3), is not maintained in accordance with the manual for a period of three years, its status as a wetland terminates; and no stormwater facility relating to the discharge of stormwater to a wetland may be constructed within a naturally vegetated buffer, unless that facility has been approved in writing by an authorised official.

The Agency may, if it considers that in any particular case the provisions of subsections (1) to (5) do not afford adequate protection in respect of wetlands and buffers contemplated in that subsection, by notice in writing, require the developer concerned to comply with any additional requirement relevant to such wetland or buffer, specified in that notice,

45. Regional storm water facilities

- (1) If the Agency considers that the public would benefit by the establishment of a regional stormwater facility which would serve as an alternative to the construction of separate on-site stormwater drainage facilities on various properties, it may construct such facility to provide stormwater quantity and quality control for more than one development.
- (2) A regional stormwater facility must be located outside the 50-year floodline of any watercourse.
- (3) A developer of a property who agrees in writing to such property being served by a regional stormwater facility must prior to the time of issue of a permit in respect of such property, contribute a reasonable pro rata amount determined by an authorised official, based on the contribution to stormwater runoff from the development site or property concerned to the regional stormwater facility in relation to the total stormwater discharge to that facility, taking into account the cost of the land purchased for, and the design and construction of such facility to, the Council.
- (4) If a proposed regional stormwater facility is not in operation at the time of completion of a development on a property that is to be served by that facility, temporary stormwater quantity and quality control facilities must be constructed to the

satisfaction of an authorised official.

- (5) Any temporary quantity and quality control facilities contemplated in subsection (4) must be subject to the terms and conditions of a written agreement on a form prescribed by the Agency, entered into between the Agency and the owners of the properties to be served by a regional stormwater facility established in terms of subsection (1).

46. Planning of catchment areas

- (1) A policy, adopted by the Council concerning the management of stormwater in any catchment area, must be used by the Agency to develop requirements for a catchment area for the control at source of stormwater, stormwater treatment and erosion control at any water course and requirements relating to any wetland or other water quality sensitive area.
- (2) The Agency may for the purposes of subsection (1), on the basis of a policy contemplated in that subsection, by written notice served on a developer or owner of property, require him or her to comply with any requirement stipulated in that notice, in addition to any requirement of these By-laws.
- (3) Any requirement of a policy contemplated in subsection (1), may by notice in terms of subsection (2), be made applicable to the owner of a property on which a development was completed prior to date of commencement of these By-laws, if any stormwater facility or other measure to manage stormwater or to prevent pollution at the time of that development, did not comply with Part D - Urban Stormwater Management of the Guidelines for the Provision of Engineering Services in Residential Townships issued by the national Department of Community Development in 1983, commonly referred to as the Blue Book.

Chapter 6 Operation and maintenance

47. Application

The provisions of this Chapter apply in respect of any storm water drainage facility in existence at the date of commencement of these By laws and any such facility constructed after that date.

48. Duty to maintain storm water facilities

- (1) Any owner of a property on which any stormwater drainage facility or other measure based on a best management practice has been constructed or provided, before or after the date of commencement of these By-laws, is responsible for the continual effective operation, maintenance and repair of such facility or measure, in accordance with the provisions of these By-laws and the manual.

- (2) The provisions of subsection (1) do not apply in respect of any property to the extent that the responsibility to maintain any stormwater drainage facility has been taken over by the Agency in terms of section 49 or 50.
- (3) An authorised official may, if he or she considers it appropriate, provide any owner of property contemplated in subsection (1), with a maintenance manual, setting out the duty of the owner to maintain as contemplated in subsection (1), and the steps to be taken by the owner to comply with that duty.

49. Acceptance by Agency of duty to maintain new stormwater facilities

The Agency may in writing accept the responsibility for the maintenance of the stormwater drainage facilities on any property zoned residential 1,2 or 3 under any applicable town planning scheme, in respect of which a permit had been issued in terms of section 7, or otherwise approved by the Council or the Agency, subject to the following requirements:

- (a) At least 80 percent of the construction must have been completed on the development site concerned, unless an authorised official waives this requirement in writing;
- (b) every stormwater drainage facility must have been inspected and approved in writing by an authorised official and must have been in operation for at least one year to the satisfaction of such official;
- (c) every stormwater drainage facility reconstructed during the maintenance period contemplated in the contract of construction concerned, must have been approved by an authorised official;
- (d) every stormwater drainage facility, as designed and constructed, must conform with the provisions of these By-laws;
- (e) Written proof of registration of any servitude required in terms of section 43 must have been furnished to the Council and the Agency;
- (f) in respect of any stormwater drainage facility purpose-designed for a specific situation in respect of which requirements for maintenance are not specified in the manual, an operation and maintenance manual and a maintenance schedule prepared by a professional engineer, containing a description of the operation and maintenance procedures for every stormwater drainage facility concerned, must have been submitted to, and approved by, the Agency; and
- (g) A complete and accurate set of record drawings capable of being reproduced, relating to every stormwater drainage facility concerned, must have been furnished to the Agency.

50. Agency acceptance of duty to maintain existing stormwater drainage facilities

The Agency may on receipt of a written petition signed by at least fifty percent of the owners of properties in the area which is the subject of such petition, accept responsibility for the maintenance of the stormwater drainage facilities on any property in that area zoned residential 1, 2 or 3 under an applicable town planning scheme, which was in existence on the date of commencement of these By-laws, subject to the following requirements:

- (a) At least 80 percent of the construction must have been completed on the development site concerned;
- (b) every stormwater drainage facility must have been inspected by an authorised official and found to be functioning as designed;
- (c) every stormwater drainage facility must, in the opinion of an authorised official, have had at least one year of satisfactory operation and maintenance, unless this requirement is waived by that official in writing;
- (d) written proof of registration of any servitude required in terms of section 43 must have been furnished by the petitioners contemplated in this section, to the Council and the Agency; and
- (e) every stormwater drainage facility under consideration, must have been inspected for defects by an authorised official and the owner concerned or in the case of a sectional title development, the body corporate, must have satisfied an authorised official that any defect revealed by such inspection has been effectively remedied.

51. Inspections of privately maintained stormwater facilities

- (1) The Agency must for the purpose of ensuring that stormwater facilities are being properly maintained, that stormwater quality control is not detrimentally affected and that pollution is curtailed, develop and adopt a maintenance manual applicable to all stormwater facilities which must be maintained by the owner of the property concerned.
- (2) A manual contemplated in subsection (1), must contain requirements relating to -
 - (a) the frequency of inspections;
 - (b) what has to be checked in carrying out an inspection; and
 - (c) what action needs to be taken to properly maintain stormwater facilities.
- (3) An authorised official may, if he or she is satisfied that any requirement of a manual contemplated in subsection (1), has not been complied with, by written notice served on the owner of the property concerned require such owner to take the steps specified in that notice within a period so specified.

52. inspection schedule

- (1) The Agency must for the purpose of ensuring regular and effective inspection of storm water facilities by an authorised official, adopt an inspection schedule in respect of stormwater facilities which are not maintained by it, dealing with the frequency and extent of inspections.
- (2) Any authorised official must comply with the requirements of the schedule adopted in terms of subsection (1).

Chapter 7

Critical drainage areas

53. Additional requirements

- (1) In order to mitigate or eliminate any potential stormwater -related impact on any critical drainage area, the Agency may by notice in writing served on a developer or owner of property, require any stormwater drainage facility in excess of those required in terms of these By-laws, to be provided by that developer or owner.
- (2) For the purposes of subsection (1), "critical drainage area" means -
 - (a) any area underlain by, or shown on a 1:50 000 scale geological map to be within 500 m of any dolomitic geology;
 - (b) land with a slope of 3 m horizontal to 1 m vertical or greater, as determined -
 - (i) from a topographic survey of the site prepared by a qualified land surveyor;
 - (ii) from a topographic map maintained by the Council, if other topographic survey information is not available;
 - (iii) from a contour map generated from a 25 m grid digital elevation data obtainable from the Chief Director: Surveys and Mapping appointed in terms of section 2A of the Land Survey Act, 1997 (Act No 8 of 1997); or
 - (iv) by an authorised official based on a field investigation of the area concerned;
 - (c) any geologic area hazardous to life or property, historically documented as an unstable slope in the records of the Council or the Agency;
 - (d) Land within 50 m of the high water mark of any body of water where fish spawn which contains a rearing habitat for fish, reflected in the records of the Council or the Agency;
 - (e) land designated a critical drainage area in a comprehensive stormwater drainage plan adopted by the Agency;
 - (f) any refuse disposal site or land fill site of the Council;
 - (g) land which is a wetland for the purpose of any National or Provincial legislation

policy;

- (h) land in respect of which requirements for the management of ground water or an aquifer as defined in the National Water Act, 1998, or sole source ground water aquifer exist under the National Environmental Management Act, 1998, or any other law;
 - (i) land which drains to a natural closed depression;
 - (j) land used for the protection of wildlife habitat and designated by the Council as a critical drainage area;
 - (k) land designated by or under any law as a conservation or protected area, a natural reserve or a protected environment; and
 - (l) land determined by the Agency to have a high potential for stormwater drainage, and stormwater quality, problems, or to be sensitive to the effects of stormwater runoff.
- (3) (a) If, for the purpose of considering the applicability of subsection (2) to any land, a conflict is found to exist between a map and any other available source of information contemplated in that subsection, the decision as to whether or not land is a critical drainage area must be made by the Agency.
- (b) For the purposes of paragraph (a), an authorised official may by written notice require a developer or owner of property to furnish him or her with a site inspection survey and any other topographic data specified in that notice.

Chapter 8

Stormwater pollution

54. Prohibition of pollution

- (1) No person may -
- (a) discharge any substance other than unpolluted stormwater runoff and other unpolluted natural surface water runoff into a stormwater system or on to a public road or other area from which such substance will be conveyed to a stormwater system;
 - (b) make or allow any connection to be made to a stormwater system which could result in the discharge to it of any pollutant; or
 - (c) make any connection to a stormwater system from the interior of any building or other structure,

55. Maintenance of pollution control device

Any owner or user of an oil/water separator, wet pond, bio-filtration facility, erosion and

sediment stormwater control facility, filtration system and any other device to control pollution of stormwater, must operate and maintain such device to ensure that the performance thereof meets the level of pollutant removal intended by the manufacturer, in accordance with the maintenance schedule for such device supplied by the manufacturer.

56. Exemptions

The following discharges are exempt from the provisions of section 54:

- (a) Regulated effluent from any commercial or municipal facility if the discharge of effluent is authorised in terms of the National Water Act, 1998 or any other law;
- (b) any discharge resultant upon an act of God or natural occurrence not compounded by human negligence;
- (c) any discharge from a properly operating on-site domestic sewage system approved by the Department of Water Affairs and Forestry and the Council; and
- (d) any discharge from land on which agricultural chemicals and materials have been applied.

57. Test procedures

If for the purposes of this Chapter the quality of stormwater is tested, the test procedures specified in the South African Water Quality Guidelines, volumes 1 to 5 inclusive, issued by the Department of Water Affairs and Forestry in 1996, as amended or substituted from time to time, must be complied with.

56. Storm water quality: not addressed

In any circumstances or conditions relating to stormwater quality which are not specifically addressed in Chapter 5 and this Chapter, the preferred method for selection, design, and implementation of any stormwater best management practice, must be in accordance with the manual.

Chapter 9 Miscellaneous

59. Experimental best management practices

- (1) If no appropriate best management practice which must be utilised for the purpose of complying with any relevant provision of these By-laws is contained in the manual, an experimental best management practice may be prepared by a developer and submitted to the Agency for approval.
- (2) An experimental best management practice approved in terms of subsection (1) may

be utilised by the developer concerned.

- (3) The Agency may, by notice in writing addressed to a developer contemplated in subsection (1), require the operation of an approved experimental best management practice to be monitored by that developer for a period specified in that notice, in order to ascertain the effectiveness of its operation with a view to the future use of such practice.
- (4) A developer must during the period specified in a notice in terms of subsection (3) submit a written report to the Agency on the effectiveness of the operation of the experimental best management practice concerned at the intervals specified in that notice.

60. Deviations and exemptions from By-laws

- (1) The Agency may, on written application by the owner or a developer of a property, permit a deviation, or grant an exemption, from any provision of these By-laws concerning the requirements for storm water facilities.
- (2) The Agency may on receipt of an application in terms of subsection (1), by written notice, require the applicant to furnish the Agency with any documentation and other information relevant to the application.
- (3) The Agency must within a reasonable time grant an application received in terms of subsection (1), subject to any condition which it considers appropriate or refuse it, and the applicant must forthwith in writing be notified of the decision and be furnished with reasons for a refusal of an application.
- (4) In granting an application in terms of subsection (3), the Agency must ensure that -
 - (a) The granting of the application will not produce a result which is contrary to the purpose of these By-laws as specified in section 2; and
 - (b) the granting of the application will meet the objectives of safety, function, appearance, environmental protection and maintainability based on sound engineering judgment.

61. Deviations and exemptions from manual

- (1) An authorised official may on written application from an owner or developer of a property, in writing permit a deviation, or grant an exemption, from any requirement contained in the manual.
- (2) The provisions of sections 60(2) and (3), read with the necessary changes, apply to an application in terms of subsection (1).
- (3) In granting an application in terms of subsection (1) the authorised official concerned must ensure that. -

- (a) no contravention of any provision of these By-laws will result;
- (b) no non-compliance with any provision of, or any condition relating to the development of the property concerned imposed in terms of, an applicable town planning scheme or any other law will result;
- (c) the granting of the application will not produce a result which is contrary to the purpose of these By-laws as specified in section 2; and
- (d) the granting of the application will meet objectives of safety, function, appearance, environmental protection and maintainability based on sound engineering judgment.

62. Progress of work

- (1) Any work required or permitted to be done under these By-laws, must proceed in an expeditious manner and continuously to its completion: Provided that an authorised official may on written application by an owner or developer of property, in writing grant authority that such work may be interrupted for a period specified in that notice.
- (2) Notwithstanding the provisions of subsection (1), work contemplated in that subsection may be interrupted due to inclement weather or an act of God or the need to co-ordinate such work with construction activities on the development site concerned.

63. Compliance notices

- (1) An authorised official who becomes aware that any provision of these By-laws has been contravened or not complied with may, on a form prescribed by the Agency, issue a compliance notice to an owner, developer or other person who is in contravention of or has not complied with such provision.
- (2) A compliance notice issued in terms of subsection (1) must set out -
 - (a) the provision which has been contravened or not complied with;
 - (b) details of the nature and extent of the contravention or noncompliance;
 - (c) any stops that are required to be taken to remedy the contravention or non-compliance and the period within which those steps must be taken; and
 - (d) The provisions of section 67 to the extent relevant to the contravention or non-compliance.
- (3) An authorised official who is satisfied that the person to whom a compliance notice was addressed has complied with the terms of that compliance notice, must issue a compliance certificate to that effect to that person on a form prescribed by the Agency.
- (4) A compliance notice issued in terms of subsection (1) remains in force until an

authorised official has issued a compliance certificate in respect of that notice, in terms of subsection (2).

- (5) If any person fails to comply with a compliance notice within the period contemplated in subsection (2)(c), the Agency may, if in the opinion of an authorised official, such non-compliance may result in a danger to life or property, after having served a written notice of its intention on the person to whom the compliance notice was addressed, enter the property concerned, do any work that is necessary to prevent such danger and recover the cost thereof from that person.

64. Stop work orders

- (1) If an authorised official reasonably believes that there has been a contravention of or failure to comply with any provision of these Bylaws, he or she may by notice on a form prescribed by the Agency, served on an owner or developer concerned, instruct that owner or developer, immediately to cease all site development activities on the property concerned, except for erosion' and sedimentation control activities authorised in writing by such an official, until further notice.
- (2) A notice in terms of subsection (1) -
 - (a) must contain the particulars specified In section 63(2)(a) and (b); and
 - (b) may be tssued in conjunction with a compliance order in terms of section 63(1).

65. Serving of notices

Any notice that is required to, or may, be served, delivered or given in terms of, or for the purposes of these By-laws, must be served in any of the following ways:

- (a) By handing a copy of the notice at the person to whom it is addressed;
- (b) by leaving a copy of the notice at the person's place of residence or business wi any other person who is apparently at least 16 years old and in charge of the premises at the time;
- (c) by faxing a copy of the notice to the person, if the person has in writing furnisher fax number to the Agency or an authorised official;
- (d) by handing a copy of the notice to any representative authorised in witting to acc service on behalf of the person concerned;
- (e) if the person concerned has chosen an address or fax number for service, by leaving a copy of the notice at that address or by faxing it to that fax number;
- (f) by sending a copy of the notice by prepaid registered or certified post to the last known address of the person concerned, and, unless the contrary is proved, it is deemed that service was effected on the seventh day following the day on which the document was posted;

- (g) If the person is a company or other body corporate, by serving a copy of the not on an employee of the company or body corporate at its registered office or its place of business or, if there is no employee willing to accept service, by affixing a copy of the document to the main door of the office or place of business;
- (h) if the person is a partnership, firm or voluntary association, by serving a copy of notice on a person who at the time of service is apparently in charge of the premises and apparently at least 16 years of age, at the place of business of such partnership, firm or association or if such partnership, firm or association has no place of businesses, by serving a copy of the notice on a partner, the owner of the firm or the chairman or secretary of the managing or other controlling body of such association, as the case may be.

66. Inspections

- (1) In addition to any power of inspection which an authorised official may have in terms of these By-laws, he or she may for any purpose relating to the implementation and enforcement of these By-laws, between 8:00 and 17:00, enter any property and carry out an inspection for the purposes of these By-laws.
- (2) An authorised official must, before the commencement of, or during an inspection in terms of subsection (1) or other provision of these Bylaws, at the request of the owner or developer concerned or any other person involved with the development on the property concerned, produce written confirmation of his or her appointment as an authorised official empowered to carry out inspections for the purposes of these By-laws.
- (3) An authorised official carrying out an inspection in terms of these Bylaws, must conduct himself or herself with strict regard to decency and orderliness and with due regard to any person's rights contained in the Bill of Rights set out in Chapter 2 of the Constitution of the Republic of South Africa, 1996 (Act No 108 of 1996).

67. Appeals

- (1) Any person whose rights are affected by a decision by an authorised official or any other employee of the Agency, in terms of or for the purposes of these By-laws, may appeal against that decision to the Agency by lodging written notice of appeal to the Chief Executive Officer of the Agency, within 21 days of the date on which he or she was notified of that decision.
- (2) The Agency, or a committee appointed by the Agency, must within 30 days of the lodging of an appeal in terms of subsection (1), commence consideration thereof and must within a reasonable time, take any decision in respect of the appeal which it considers appropriate.
- (3) The Chief Executive Officer referred to in subsection (1), must forthwith after a

decision has been taken in terms of subsection (2), in writing notify the appellant thereof and furnish the applicant with reasons for the decision.

68. Offences and penalties

Any person who -

- (a) contravenes or fails to comply with any provision of these Bylaws;
- (b) refuses or fails to comply with any notice addressed to him or her in terms of or the purposes of these By-laws;
- (c) refuses or fails to comply with the terms or conditions of any permit issued in terms of section 7;
- (d) obstructs, hinders or interferes with an authorised official in the exercise of any power or the performance of any duty under these By-laws;
- (e) fails or refuses to furnish to an authorised official with any documentation or information required for the purposes of these By-laws or furnishes a false or misleading document or false or misleading information;
- (f) Fails or refuses to comply with any instruction given for the purposes of these By-laws;
- (g) pretends to be an authorised official,

is guilty of an Offence and -

- (i) liable on conviction to a fine or in default of payment to imprisonment for a period not exceeding 36 months;
- (ii) In the case of a continuing offence, to a further fine not exceeding R3 000, or in default of payment to imprisonment not exceeding one day for every day during the continuance of such offence after a written notice has been served on him or her by the Agency requiring the discontinuance of such offence.

69. Short title

These By-laws are referred to as the Stormwater Management By-laws.