

MONAGHAN FARM



Architectural Rules & Regulations For Units B1 to B38 Only

Revision: January 2024

ARCHITECTURAL AND LANDSCAPING REGULATIONS

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INTRODUCTION

Good architecture and design are an integral part of Monaghan Farm. Established in 2006, Monaghan Farm has long been a showcase of architectural excellence and environmental sustainability in South Africa. From the start, the developers set out to establish a residential environment which stands out from other estates and developments in that it displays a high degree of design & ethical integrity.

The developers at Monaghan Farm believe that exceptional long-term value is achieved by directing the look and feel of the houses through a combination of architectural regulations and an active aesthetics committee. Monaghan Aesthetics Committee (MAC) is made up of a group of experts who are well positioned and qualified to judge each submission's architectural merits. MAC works closely with the SACAP*-registered professional employed by the homeowner in the design development of each home. It is imperative that these professionals inherently understand the sensitive placing of a house in its landscape in response to Gauteng's wonderful yet dramatic weather patterns, pay attention to energy consumption and sustainability, and demonstrate an exceptional level of professionalism in realizing a homeowner's Monaghan Farm dreams.

Please note that MAC requires that the appointed SACAP*-registered professional remains the sole conduit between MAC and the project for the entirety of the project, with the minimum engagement to be no less than one site visit per month of construction.

*SACAP (South African Council for the Architectural Profession).



Part 1: Architectural Rules and Regulations:

SUMMARY OF CONDITIONS OF ESTABLISHMENT FOR EXTENSIONS 8 - 15 (BACH VILLAGE B1 - 38)

All stands at Bach Village (B1 to B38) are subject to the following Conditions of Establishment:

Zoning:	Residential 1.
Uses Permitted:	One Dwelling House.
Uses with Consent:	None.
Uses Not Permitted:	All other uses.
Coverage:	The development footprint shall not exceed 365m ² .
Height:	4.5m (1 storey).
Building Lines:	3m on the southern boundary if the erf has a southern street boundary frontage. 5m on all northern boundaries. 1m on eastern and western boundaries for properties that are not adjacent to a street. A minimum street Building Line of 3m shall be applicable to a garage or carport which provides access perpendicular to the street.

For further detail refer to annexures A and B.

1.1. MINIMUM/MAXIMUM BUILDING SIZES

The minimum permissible house area (including covered patio/s) is 150m², plus an additional 52m² minimum double carport/garage with enclosed storage. The maximum permissible house area including carport/garage with enclosed storage, covered patio/s and any other outbuilding/s is 365m². The outbuilding (excluding the mandatory garage/store-room) may not exceed 60m². The minimum size of an outbuilding is 20m² and any outbuilding dedicated as a staff accommodation must include a bathroom.

1.2. DEVELOPMENT POCKET

A maximum of 75% of a stand (Stands B1 to B38) may be developed. The "Development Pocket" in the Conditions of Establishment consists of all buildings, pool/s, driveways, paths, lawn, gardens and fenced areas. The remaining 25% must consist of only grasses and trees as defined within the Landscaping Regulations.

1.3. BUILDING LINES

A 3m Building Line on the southern boundary (if the erf has a southern street frontage) must be observed. No relaxation of the street-side Building Lines will be considered. A 5m Building Line on the northern boundary of the erf must be observed. No relaxation of the 5m northern building line will be considered. No building or roof overhangs may not encroach over the 1m western and eastern building lines.

1.4. CUT AND FILL

A maximum excavation of 1.5m from natural ground level will be permitted on the site.

1.5. CARPORTS AND GARAGES

The number of vehicles, motorised or non-motorised, and which for the purposes of this clause shall include trailers, caravans, boats, and other wheeled devices of comparable dimension, permanently or regularly housed on any erf, shall not exceed the number of garages or carports erected upon that erf. The garage/carport is a compulsory structure, and can be detached from the house. The carport/garage must be scaled to shelter 2 standard-sized motor vehicles. The street-facing façade of the carport must be designed so as to screen the sides of vehicles from the street frontage. Screening can take the form of a trellis with approved vegetation, or vertical/horizontal cladding matching the style/finish of the house. An enclosed store-room must form part of the garage/carport structure and must be designed and built as part of the garage structure. The storage area can be used for garden tools, UPS/Solar inverter/battery units and sporting equipment. The minimum size of the enclosed storage area is 12m².

1.6. RETAINING BOUNDARY WALLS & FENCING

Boundary walls are only allowed if they serve to retain soil between properties or along the street frontage or eastern and western boundary lines. Boundary walls must be capped with a plain concrete coping (as shown in boundary wall diagrams) and may not be taller than 1.5m from natural ground level to the underside of the concrete coping.

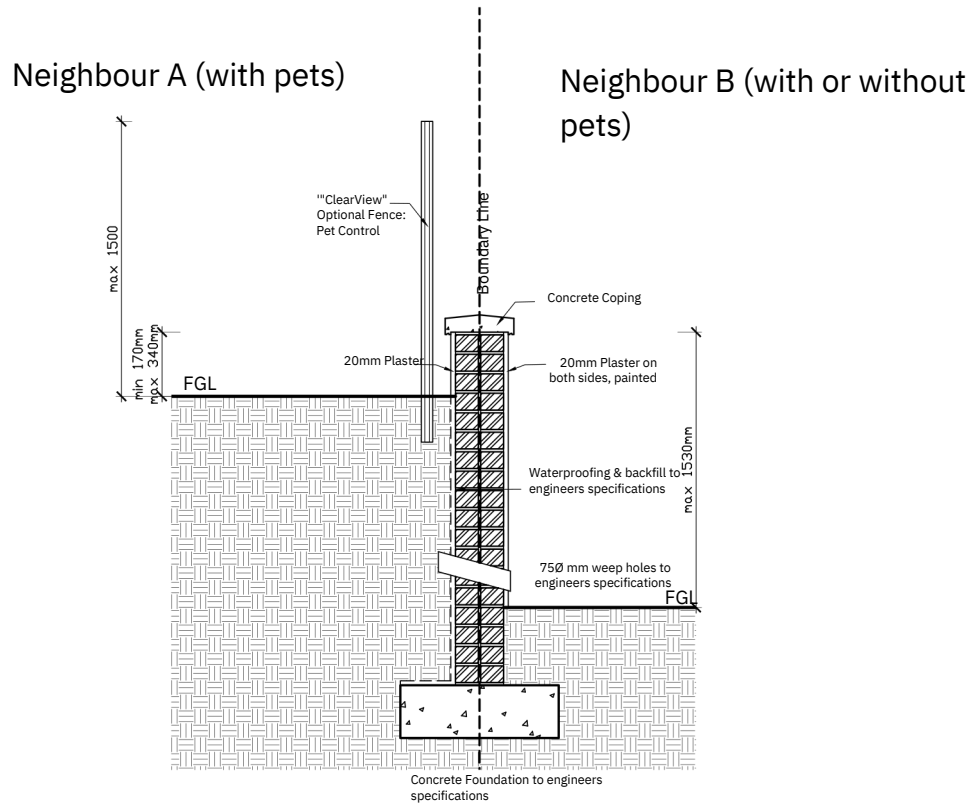
Boundary walls on street facing boundary lines may not exceed a height of 340mm from street-side natural ground level.

Boundary walls facing any street must be finished with the MAC-approved stone cladding (as per gate house stone cladding). Boundary walls on the eastern and western boundaries may be finished in either the MAC-approved stone cladding or bag-washed plaster.

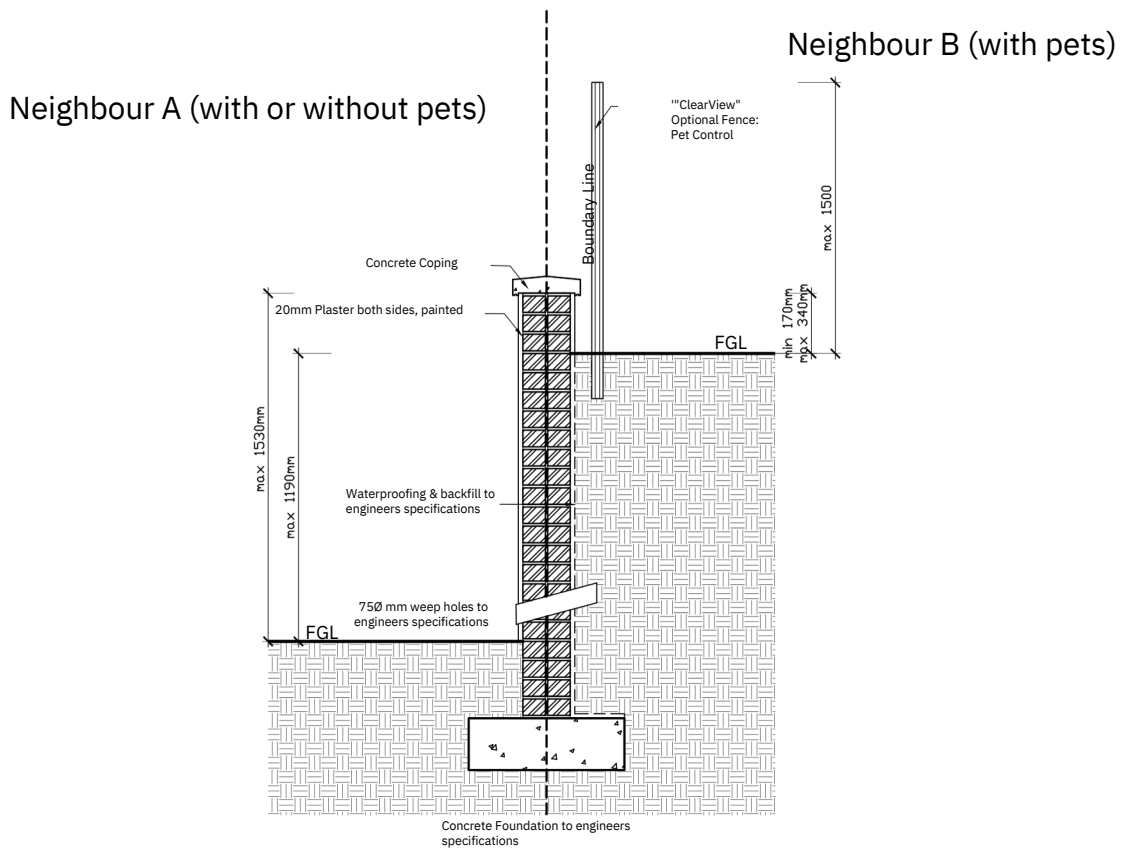
An optional 'Clear-Vu' fence may be installed along the northern, eastern and western Boundary Line for the purpose of creating a pet enclosure. The fence on the highest side of the property may not exceed 1.5m from natural ground level and only one fence per boundary may be installed.

Refer to WALLS & FENCES diagrams for details relating to 'Clear-Vu' Invisible fencing and retaining walls. These diagrams also provide guidance in dealing with changes in level between neighbouring properties and the street-side boundary as well as guidance on the positions and heights of fencing for pets.

BOUNDARY WALL SCENARIOS:



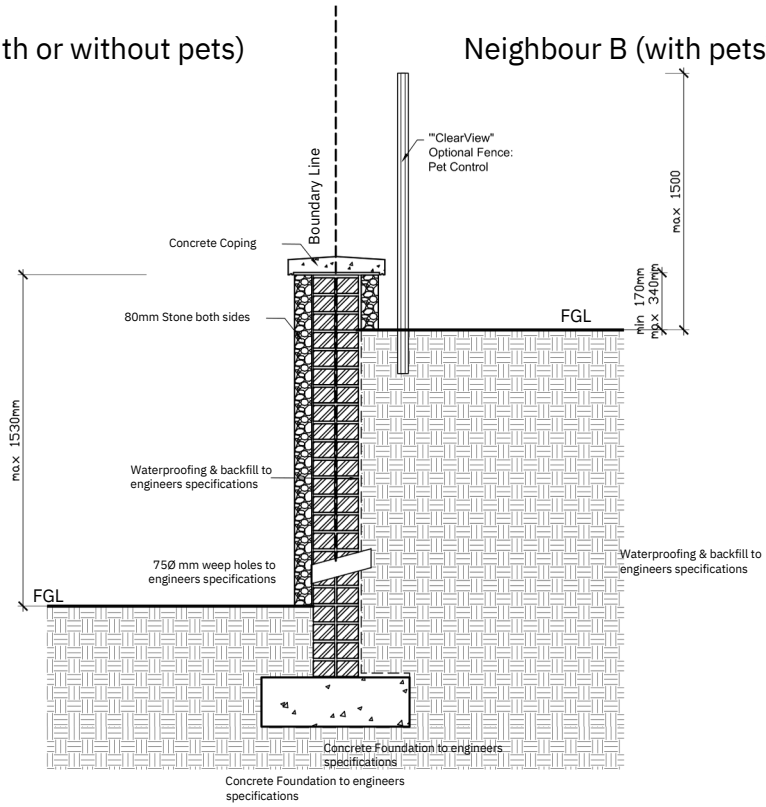
BOUNDARY WALL SCENARIO: A



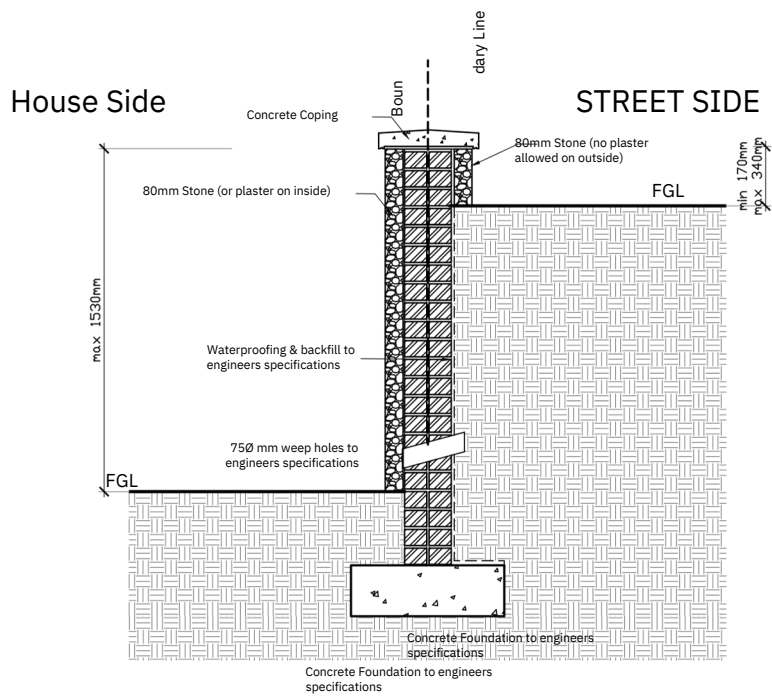
BOUNDARY WALL SCENARIO: B

Neighbour A (with or without pets)

Neighbour B (with pets)



BOUNDARY WALL SCENARIO: C



BOUNDARY WALL SCENARIO: D

1.7. ENERGY-EFFICIENT DESIGN

Orientation, insulation, shading, cross-ventilation and roof overhangs are all examples of passive elements that should be included from the start in the design of the home in order to reduce reliance on electrical energy input.

1.8. ALTERNATIVE RENEWABLE SOURCES

1.8.1. **Solar water heaters:** Where solar geysers are used, the holding tanks (geysers) must be hidden from sight and may not be placed on the roof of the house. Solar hot water tanks can be concealed in the roof void or wall-mounted in a utility closet/enclosure to MAC-approval. Solar water panels may be flush-mounted onto any pitched roof (metal sheet roof @ min 10 degrees). Where solar receptors are to be mounted on flat concrete roofs, SACAP*-registered professionals must supply plans and elevations to show how the proposed installation will affect the house design, as well as the neighbours' views. Solar panel installations must be screened or hidden behind parapet walls. Solar panels may not protrude above the height of a parapet wall. Roof mounted geysers are not permitted on flat roof (or pitched roof) installations.

1.8.2. **Heat exchangers:** Condensers must be hidden/screened from sight and may not be roof mounted.

1.8.3. **Photo Voltaic (PV) panels:** PV panels must be incorporated into the building's design. PV panels may be mounted to any pitched roof (metal sheet roof @ min 10degrees). Where PV panels are mounted onto metal sheet roofs, the panels must follow the slope of the roof. Externally mounted aluminium frames may not be used to alter the direction and/or angle/pitch of the PV panels on corrugated metal roofs. Where PV panels cannot be flush mounted to a pitched roof, SACAP professionals must supply plans and elevations to show how the proposed installation will affect the house design as well as the neighbours' view. PV panels mounted onto flat concrete roofs must be screened or hidden behind parapet walls. Solar panels on flat roofs that are mounted on aluminium frames may not protrude above the height of a parapet wall or screen device.

1.8.4. **Gas:** SANS compliant gas cages and associated safety shut-off valves and signage to be hidden out of sight from the street and neighbours and preferably located within the service yard of the property.

1.8.5. **Evaporate coolers:** SACAP-registered professionals must supply plans and elevations to show how the proposed installation will affect the house design as well as the neighbours' view. Plans, sections and elevations must include the position of the external cooler and external ducting. All external ducting is to be concealed or screened. Once the position is approved, the cooler is to be colour-coded to match either the roof or the wall upon which it is installed. Roof mounted evaporative cooler units may not protrude past the 4.5m height restriction.

1.8.6. **Air-conditioning:** Only eco-friendly inverter air-conditioning units may be installed. External piping, conduits and trunking must be concealed within the walls of the house. Surface mounted ducting and conduits will not be permitted. Condensers must be placed at ground level and must be screened. Condenser units should be positioned so that noise levels do not impact upon neighbouring properties.

1.9. DESIGN PRINCIPLES

1.9.1 SINGLE STOREY

Houses must be single storey with a 4.5 m height restriction from the natural ground level (NGL) to the roof's apex, at any given point on the site (no evaporative cooling, satellite dish, etc. may be above the height restriction). Please note that NGL refers to the original site contours on purchase, i.e. before any construction or earthworks have taken place. No mezzanines will be permitted.

1.9.2 ROOFS

1.9.2.1 . **Roof shape:** Only mono-pitched, minimum 10 degrees and maximum 12 degrees pitch; Flat concrete and/or flat 'soft roofs' (less than 2° fall) with parapets to conceal falls and roof drainage will be permitted.

Dormer windows, saddle roofs, curved or vaulted roofs (with corrugated metal sheet), mansard roofs, loft roofs and hipped roofs are not permitted as they create visual bulk.

1.9.2.2. **Material and colour:** 17.5/18mm corrugated profile Chromadek or Macsteel "Classidek" or "Corrugated" material. Corrugated roof colours: "Charcoal Grey" N130312. Painted 'ordinary' galvanised roof sheeting is not permitted. Roof sheeting must be pre-coated (Chromadek finish).

IBR (inverted box rib), widespan sheeting, double standing seam flat pan sheeting, concealed-fix roofing systems (e.g. Klip-Lok or Saflok) are not permitted.

Waterproofing on flat roofs to be covered by gravel (13mm stone gravel matching the colour of the permitted stone cladding) or painted to MAC specifications. Silver bitumen paint on flat roofs is not permitted as a final coating/finish.

1.9.2.3. **Chimneys:** Chimneys are to be MAC-approved. e.g. a simple stainless steel or matt black flue from a reputable manufacturer with a small, subtle matching cap. Alternatively, a masonry chimney in accordance with the house's design is permitted, subject to MAC-approval. No "bird-shaped" cowls will be allowed. No masonry chimneys may protrude past the 4.5m height restriction.

1.9.3. EXTERNAL MATERIALS

1.9.3.1 **Stone cladding:** Only one stone claddings types are allowed. The wall to Monaghan Gate House's east is an example of approved stone walling. Stone cladding must be in a natural fieldstone pattern (no other patterns will be permitted) and be locally sourced.

1.9.3.2 **Face Brick:** No face brick is permitted.

1.9.3.3 **Plaster and paint:** Only one colour from the pre-approved colour palette is permitted. No two-tone painting is permitted. Clay stock bricks finished with 20mm plaster or bag-washed/brush plastered walls are permitted. For bag-washed/brush plastered walls - all mortar joints in brickwork to be cut flush and smooth and finished with a plaster slurry applied with a block brush. All masonry walls are to be painted as per the Bach Village Colour Palette (refer to Annexure C). Samples are to be submitted on site to MAC for approval before final coats are applied.

1.9.3.5. **Cladding:** Corrugated metal sheet cladding matching the roof sheeting is permitted. Timber cladding is permitted, but must be suitably treated (or pre-treated). Thermory pine is permitted, but must be stained in a very dark colour (Imbuia or Ebony), or left untreated to turn silvery grey. A sample must be submitted to MAC for prior approval.

1.9.3.6. **Window and doors:** Only charcoal grey (N130312) powder-coated aluminium may be used. Timber framed windows must be stained in a very dark colour (Imbuia or Ebony), or left untreated to turn silvery grey. Front doors can be painted a different colour as an accent point. (Refer to Annexure C: Bach Village Colour Palette)

1.9.3.7. **Shipping containers:** Shipping containers may not form part of the visible building/architecture or be a standalone unit at Bach Village.

1.10. WATER COLLECTION

Each house must make provision for a mandatory minimum 5,000 litres JoJo™ rainwater tank in stormy grey, or underground, for rainwater storage for use as garden irrigation water or for integration into the house water system (e.g. for flushing toilets).

Please note that only 5,000 and 10,000 JoJo™ vertical storage tanks may be used. Please ensure all water tank placement is approved by MAC, and consideration must be taken for any disruption of a neighbour's views.

1.11. DRIVEWAYS

Driveway material is to be presented to MAC for approval. Permissible driveway surfacing should be either grass block paving or 100 x 100, smooth charcoal coloured cement cobble paving. A combination will not be approved.

Acceptable driveway surfacing:



A detailed driveway design is required. The swale crossing should be composed of the same material as is used in your driveway.

Stormwater swales are responsible for the discharging of surface water from the roads and must be finished to MAC approval. Driveways must be designed to accommodate all vehicle access to the property without impeding the flow of stormwater, or having vehicles encroach upon the grass verge.

1.12. EXTERNAL ELEMENTS

1.12.1. Alarms: Only silent alarms are allowed. Enquire with estate security to have your alarm linked to the onsite alarm monitoring service.

1.12.2. Artwork (external): MAC approval is required before placing art on the outside of your property. Keep in mind:

- Monaghan Farm's contemporary aesthetic and sustainable ethos.
- The positioning on your property, i.e. strategically placing art to create focal points in order to complement the architecture and landscape.
- The neighbours' line of sight and passing pedestrian and vehicle traffic on street facing facades.
- The Monaghan Farm colour palette, taking into consideration the long-term effects of possible bleaching from the sun.
- The scale, shape and size of the selected artwork.

1.12.3. Cameras: CCTV installations must be painted to match the surface upon which they are placed (wall or roof), and may not face neighbour's properties.

1.12.4. Fences: Only charcoal grey or black ClearVu fencing will be permitted.

No deviation from this is permitted. Fence positions must enhance the property's architecture and not be an afterthought. The fence's position and proximity to the neighbour's house must be carefully considered and must be clearly indicated on the architectural site plan and landscape plan, and be approved by MAC before installation. Fences are for the purpose of containing household pets and, in some cases, swimming pools. Fences may not be taller than 1.5m on either side of a boundary shared by 2 properties. Fences may not be installed on top of a boundary retaining wall. Fences may only be installed on the inside of a boundary line. Where boundary line retaining walls do not exist, fences must be installed 200mm within the property boundary line. Please see boundary wall scenarios (Number 6.1).

1.12.5. House numbers: House numbers are provided by Monaghan Farm. No custom designs are allowed.

1.12.6. Playgrounds: Playgrounds, temporary swimming pools, jungle gyms, trampolines, and the like need to be screened off and not be visible from any angle on the farm. Approval from MAC is required before installation.

1.12.7. Satellite dishes: Satellite dishes must be painted to match the surface upon which they are placed (wall or roof). MAC must approve any satellite dish's position on site.

1.13. SWIMMING POOLS

Pool designs (position, size, shape) must be approved by MAC before construction. All elements of the pool design must be considered including paving, colour, backwash, pool pump/filter housing etc. The pool filtration system and pump must be screened with landscaping. Fibreglass enclosures may not be visible. Pools may not be drained or backwashed into the sewage system.

1.13.1. Pool fences: The pool fence and gate must be charcoal grey or black, and be in accordance with the National Building Regulations (Pool: SANS 10400 Part D; Fence: SANS 1390).

Frameless toughened glass fencing is not permitted.

Charcoal grey or black Clear-Vu 'invisible' fencing up to 1.5m height may be used to enclose a swimming pool, assuming it complies with the fencing rules of Bach Village and complies with the relevant SANS regulations.

1.14. LIGHTING

Monaghan Farm promotes and imposes The Dark Sky Policy - for more information, visit www.darksky.org. To minimise light pollution's harmful effects, lighting should:

- Only be on when needed (occupancy sensors).
- No day/night switches may be used.
- No lit-up trees.
- Only light the area that needs it (to be kept to a minimum).
- Be no brighter than necessary.
- Minimise blue light emissions.
- Be fully shielded. Light sources should not be visible. Only downward facing light installation/fittings may be used.
- External lighting: The maximum height of installation is 1.2m from ground level. External lights can only be switched via motion sensors. Day/night switches are not permitted.
- Avoid the "lantern" effect of high-level, clerestory windows.
- Where in a courtyard, lights may not be higher than the courtyard walls that encloses it.
(The same rule applies with lights shining downwards, ie- light sources may not be visible.)

1.15. ADDITIONS: RENOVATIONS, EXTENSIONS, EXTERNAL ELEMENTS (PV, SOLAR PANELS, PLAY EQUIPMENT ETC.)

No alterations or addition shall be permitted and nothing may be further erected to existing homes whether temporary or permanent, without written application having been made to, and approval granted by MAC, and which restriction shall also apply in respect of external play equipment, jungle gyms, statues, garden sheds, air conditioners, solar devices, embellishments, and their like. Timeline will be subject to MAC review.

1.16. SUBMISSIONS AND APPROVALS

Any exterior renovation or additional build: Structures must be drawn up by a SACAP*- registered professional. Guidelines for additions, alterations, and renovations to match existing:

- Architectural language of existing property.
- Property scale.
- Building materials and finishes to match existing.
- Roofing: angles, size, materials.
- Features.
- The façade's orientation with the major area of the building's glass ideally between 340° and 20° (approximately true north) and the façades facing east, west, and south should be provided with minimum fenestration for compliance with ventilation and lighting.
- External elements, requiring MAC approval include however, are not limited to:
 - Photo voltaic panels and solar hot water panels.
 - Ponds and swimming pools.
 - Air-conditioning and evaporative coolers.
 - Security cameras.
 - Satellite dishes.
 - Any change in materials/and or paint colours.
 - Any landscaping elements.

All approved projects are to be completed within 21 months, recorded from the date upon which work commences on the property.

PART 2: LANDSCAPING RULES AND REGULATIONS FOR BACH VILLAGE B1 – B38

Revision: January 2024

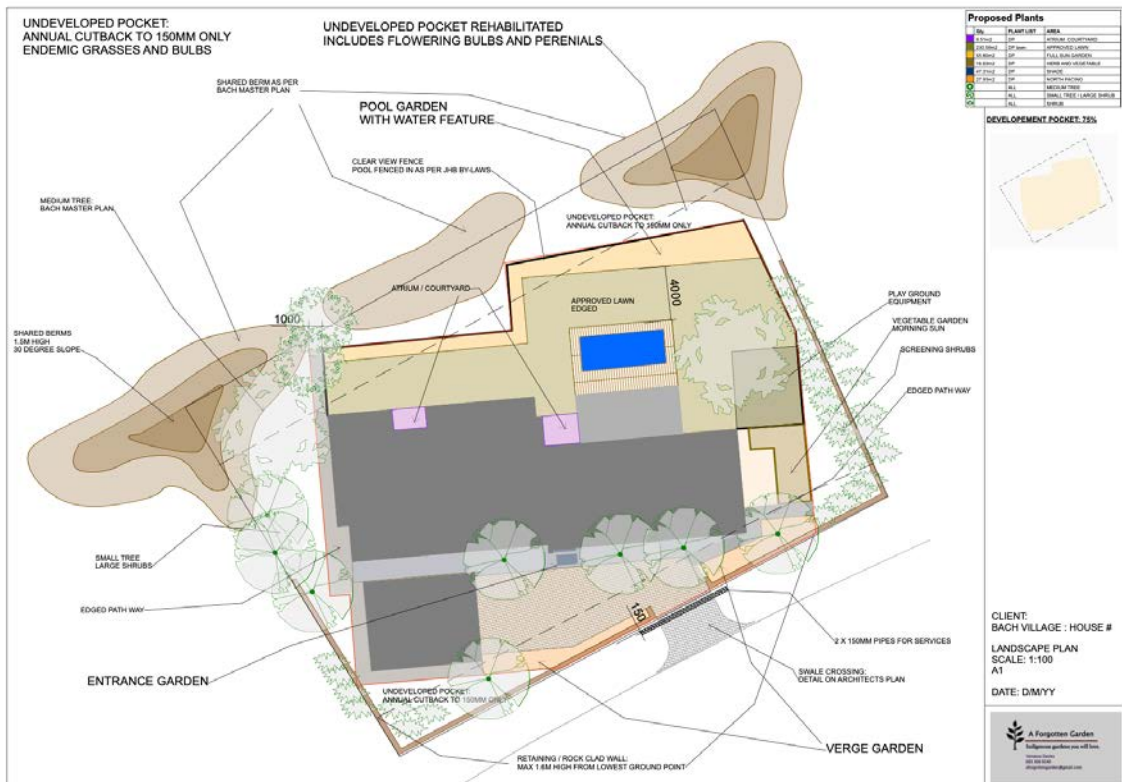
Information collated from: Architectural Rules and Regulations (ARR); Architectural & Landscaping Rules and Regulations (A&LR); Environmental Management Plan (EMP)

INTRODUCTION

These rules take the ethos of landscaping for the whole of Monaghan Farm and adjust them to suit the situation of the Bach Village erven.

The landscaping of Bach should be seen within the context of the Monaghan and its overall aesthetic and conservation philosophy of the Farm, which is to sustainably develop with minimal negative impact on the landscape and natural ecological systems.

It is important to note that Monaghan is in an area of grassland (Egoli Granite Grassland: E.G.G) that is second only to Fynbos in its biodiversity but is considered endangered, due to urbanization, invasive species, and poor land management. To remedy and preserve Monaghan as a grassland, plant choice is limited to those from the Monaghan approved lists of plants only. Bach, due to the size of each stand, increased developments pockets allowed, is further limited due to the consequential microenvironment of each stand.



WE SAY “NO” TO:

- Formal gardens outside of screened courtyards – these may not be visible from main pathways, roads, etc.
- Tropical gardens outside of screened courtyards – these may not be visible from main pathways, roads, etc.
- Grecian urns outside of screened courtyards – these may not be visible from main pathways, roads, etc.
- Visible play areas
- Trendy affectations,
- Water hungry gardens
- Pretentious gardens and water features
- Over-treing the property and changing it from a grassland with thickets and interspersed trees to a forest
- Visible vegetable gardens
- Large expanses of annuals
- Monoculture plant choice
- Aggressive self-seeding plants not on the approved planting list, for example, Gaura

WE SAY “YES” TO:

- Indigenous gardens
- Plants endemic to the E.G.G.
- Subtle planting appropriate to the environment
- Sustainable design & Good gardening practices:

Xeriscaping

Hydro-zoning

Ecological gardening

Correct watering principles

Planning for the future,

Know your plants: their growth patterns, longevity, and water requirements

Know your root systems

Capture water

Redirect water to prevent erosion

We encourage the use of stored rainwater

South African Council for the Architectural Profession

Cadman, M, De Villiers, C, Lechmere-Oertel, R, and McCulloch, D, 2015, Grassland Ecosystem Guidelines: Landscape Interpretations for planners and managers, South African

National Biodiversity Institute (SANBI)

Landscape Plan Requirements:

All erven must have an approved landscape plan. (examples: see annexure E)

A landscape plan for approval must include a site development plan (SDP) of the entire erf showing the built house's footprint, the courtyards or development pocket of the house with paths, pool, walls, water features, the position of trees and bushes, as well as a full list of all plant species.

The following needs to be included in the landscape plan:

- Development pocket
- Berms
- Swale crossings
- Storm water flow between properties
- Lawns
- Courtyard gardens' position
- Courtyard layout and planting
- Edging (of lawns and garden beds)
- Fences
- Retaining walls
- Firepits
- Garden beds (should be in courtyards)
- Grasses (in both developed and undeveloped pockets)
- Pathways
- Plants and trees: Position, diagram and list in the legend all proposed planting, including planting in the courtyards. Tree and shrub number is to be included as found on the approved tree and shrub planting list (see Monaghan EGG Tree and Plant List, Monaghan Tree and Plant Development Pocket List, Monaghan Courtyard Garden List, Wetland Plant List).
- Playgrounds (including jungle gyms, trampolines, and temporary pools)
- Swimming pools (including wetland ponds for natural filtration pools)
- Vegetable gardens
- Screening shrubbery

Reasons for upfront landscape planning:

1. Proper budgeting
2. Efficient planning of trees, gardens, fences, retaining walls, and playground equipment, etc. All additional items not included in Architectural plan submissions.
3. Adequate stormwater management
4. Opportunity for upfront completion of certain landscaping elements, for example, berms can be shaped and seeded, or key screening shrubs and trees can be planted while your house is being constructed.

Note: There might be adjustments to the landscape plan once building is completed. A revised plan must be submitted reflecting any changes.

Landscape plan requirements

2.1. DEVELOPMENT POCKET

Only 75% of the erf may be developed (please see Architectural Regulations). This 75% development pocket consists of all buildings, driveways, paths, lawns, courtyard gardens, pool/s, and fenced area. The remaining 75% is made up of only grasses and trees from our indigenous/endemic plant list—the undeveloped pocket or wild portion.

Mark up the development pocket on your landscape plan, as per the example (see Figure 1 below)

On your property, the development pocket must be demarcated by edging or fencing, to prevent development pocket creep into the undeveloped pocket.

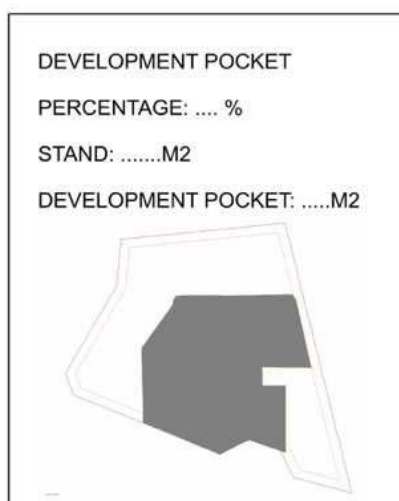


Figure 1: Diagram of the development pocket

2.2. UNDEVELOPED POCKET

The undeveloped pocket/wild portion which falls outside the development pocket, must cover 25% or more of your erf and must be unfenced. This pocket should be populated in a natural manner, with plants endemic to the EGG in an attempt to re-create the biodiversity. Grass may not be cut shorter than 150mm and may only be cut seasonally. This portion should form a fairly consistent connection between erven and the common open ground—it should not consist of a forest of trees. However, trees from the plant list may be positioned to screen neighbours while not blocking views from neighbouring stands.

Alien vegetation control classified invader species must be eradicated and controlled throughout the property according to the Conservation of Agricultural Resources Act, No. 43 of 1983. Owners of individual stands are responsible for the control and eradication of alien vegetation listed in the Act within their property (see Monaghan Plant List, Annexure D).

Natural wildlife corridors should be created, wherever possible. Landscape plans should try to retain small creatures' natural habitats, food plants, and cover to encourage them to live and move about unhindered in your property's wild portion.



2.3. BERMS

These may be used on both pockets but must be naturally shaped with a maximum 30° slope and a maximum 1.5m height. While ensuring the sides are not too steep, erosion prevention measures, such as terracing and planting suitably binding vegetation, should also be implemented soon after the berms are formed.

Berms should be correctly and clearly marked (to scale) on the landscape plan with the width required for the slope to achieve its planned height. The height must be depicted in half-metre contours and the berm width specified to ensure sufficient space is available for the planned berm.

NOTE:

- a) Due to the plot size, berm will be limited but should still adhere to the regulation of a 30-degree slope and maximum of 1.5m high.
- b) Berm should be shared between properties with written agreement between homeowners.
- c) If one homeowner does not wish to have a shared berm on his property, his wish will prevail.
- d) Berms can only be situated where there is sufficient space to have a 1m pathway between buildings and the foot of said berm.
- e) The space available and a 30 degree slope will determine the final height of a berm, with proviso that the berm does not exceed allowed height of 1.5m

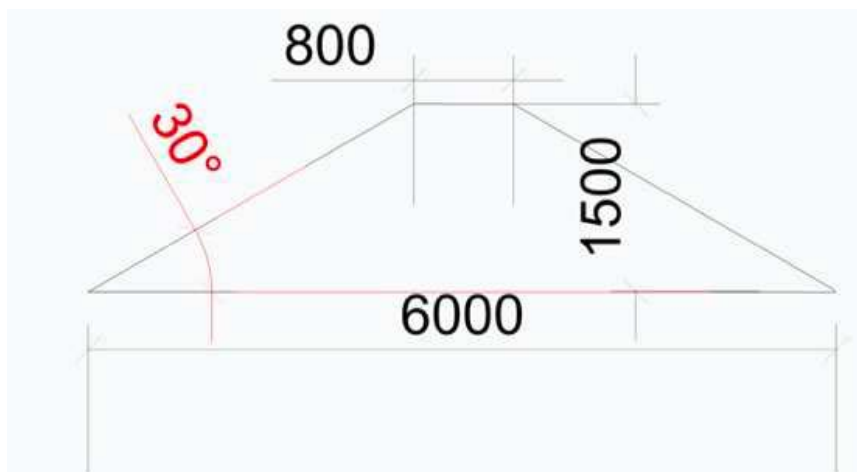


Figure 2: Example of how a berm is represented on a landscape plan

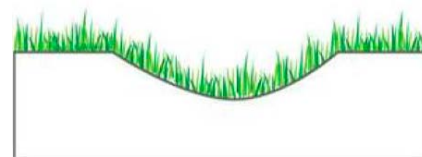
2.4. SWALES (FALLS UNDER, ARCHITECTURAL REGULATIONS)

The swale is the shallow valley that runs alongside the roads in Monaghan, to direct rainwater and prevent flooding. Swales are planted with *Cynodon Dactylon* and are to be kept free from other vegetation and debris.

Your landscaping should not impact on the swales under any circumstances. Penalties for the cost of cleaning the swales will be levelled at transgressors.

Where driveways need to cross the swale, a detailed drawing of this crossing must be submitted on the architectural plans. The crossing should not impact the swale's shape nor the flow of water through it.

The swale crossing is the responsibility of the architect as per the Regulations and should appear on the building plan.



Lawn

Figure 3: Diagram of a swale

2.5. STORMWATER

Storm water from a higher property may flow onto a lower property. However, it must be implemented with consideration of the landscape of the lower property and situation of the buildings, driveways etc there-on.

- a) Redirection with swales, berms and storm water pipes must be included in all landscapes to direct storm water around hardscaping of lower property
- b) These necessary storm water pipes, swales etc must be noted on the landscape plan.
- c) Storm water flow within the property as well as the storm water flow between properties must be noted on landscape plan.

2.6. DRIVEWAYS AND PARKING

(See Bach Architectural Rules and Regulations B1- 38, number 1.11)

The choice of driveway material is to be confirmed by MAC. Examples of permissible driveway surfacing include tarmac, cement-coloured concrete pavers and cobbles, light coloured small gauge 'pink' gravel, and grass blocks. Provision must be made for as many carports and garages as there are cars.

Note: The architect is responsible for supplying correct information and specs for the driveway and parking.

2.7. EDGING

All lawn and garden beds are to be edged. The intention of edging is to prevent plants and root systems from spreading into grassland and to define the manicured area permitted to be cut short.

The following are acceptable edging;

2.7.1. Metal to appropriate depth based on choice of lawn or ground cover (see Figure 4 below).

2.7.2. Cobbles which must be cemented in (see Figure 5 below).

Note: Kikuyu MUST have edging reaching a minimum depth of 150mm below the soil level and/or either a pathway or garden bed between it and the undeveloped pocket.



Figure 4: metal edging



Figure 5: Cobbled edging

2.8. FENCES

(See Bach Architectural Rules and Regulations B1- 38, number 1.6)

No physical barriers may be erected on the erf boundaries except for around the development pocket. The approved height of any fence is anything up to 1.5 m. It's critical that the fence position must be shown on your landscape or architectural site plan.

2.9. FIRE PIT

Fire pits should show an area clear of any vegetation to prevent being a fire hazard as well as a barrier to prevent fires from spreading.

2.10. LAWNS

Lawns must be contained within walls or by means of an edge, for example, metal, to prevent the spread of the grass. Due to the aggressive nature of Kikuyu root systems, Kikuyu is permitted as long as it has edging reaching a minimum depth of 150mm below the soil level and/or has either a garden bed or pathway between it and the undeveloped pocket.

2.11. PLANT CHOICE

All plants must be included and specified on the landscape plan's legend. The tree and shrub number should be included as found on the approved tree and shrub planting list (see annexure D Plant List). The Bach village plant list provides plants for specific situations - developed areas, undeveloped areas, and wetland).

Courtyards may be non-indigenous; however, with regard to trees, only fruit trees or indigenous trees from the approved tree list are permitted within the development pocket (see Monaghan Tree and Plant Development Pocket List).

All plants chosen to be planted outside the confines of a high walled (1.5m minimum) courtyard must be from the approved plant list. Prolific, self-seeding plants not on the plant list can only be planted in a high walled courtyard. However, a garden may consist of indigenous grasses alone. Natural filtration pools may only use plants that are indigenous (see, annexure D).

Note: Careful consideration has gone into the plant lists. Please do not depart from them.

2.13. TREE CHOICE

Trees are limited to small to medium trees due to proximity of homes and stand sizes.

When choosing a tree:

- Overhanging branches and encroaching root systems may negatively affect gutters, sewage systems, shed leaves in the swimming pools or damage fixed structures. For trees near the border of a neighbour's property, the owner must ensure that the border is not affected by overhanging branches, fallen leaves or intruding root
- If branches do encroach on the land of a neighbour and cause a nuisance, the neighbour may request the owner to remove the branches. If the owner fails to remove them within a reasonable time after demand the neighbour may remove the branches himself.
- Trees may not be large trees. Paperbarks are an example of a poor choice of tree and will not be allowed in Bach Village
- The views and privacy of surrounding stand owners must be considered when choosing and positioning trees
- No large-rooted trees shall be planted within the area of a servitude or within 2m thereof.
- Fruit trees are permitted in the development pocket but are the only non-indigenous trees allowed.
- Trees cannot be used to alter the inherent nature of the grassland.

All trees must be drawn to scale on the landscape plan and included in the legend. Scale should be based on their size at maturity to allow long-term planning and to prevent future problems with roots systems, etc. The tree and shrub number must be included as found on the approved tree and shrub planting list (see annexure D).

2.14. PATHS

Paths may be laid through the stand's wild portion but will be calculated as forming part of the development pocket area.

2.15. PLAYGROUNDS

Jungle gyms, trampolines, and temporary swimming pools need to be screened off and may not be visible from any angle on the farm from installation. Large plants must be used to provide instant screening.

2.16. SWIMMING POOLS

NB: It is important that Safety requirements of a pool fence be incorporated in accordance with the relevant by-laws (SANS 10134). This must be included on the Landscape and Architectural plan.

Consider the type of pool to be built, including paving, colour, backwash, etc. A wetland pool is a wonderful way of integrating the environment into your recreational life, the water being so clean and pure you can actually drink it.

Consideration must be given to the impact of a permanent pool fence with a self-closing, self-locking gate perhaps a walled pool with a separate entertainment area is an option?

Pool decks must be in natural timber or wood substitute.

Pool filtration systems and pumps must be screened with either natural stone walling or a masonry wall to match the main house walls to comply with Council regulations and by-laws.

Pools may not be drained or backwashed into the sewerage system (EMP) and thought should be given to the flow of backwash water. Safety requirements must be incorporated into the architecture plan in accordance with the relevant by laws (SANS 10134)

Note: Natural filtration pools must refer to the relevant plant list for permissible plants to be used in the filtration ponds. Only indigenous plants are allowed, see Wetland Plant List.

For further information, see Bach Architectural Rules and Regulations B1- 38, number 1.13.)



2.17. DESIGN POINTS

Avoid straight lined planting along erf boundaries or any planting design that accentuates the artificialness of the erf shapes within a natural setting.

Plant diversity: There's an opportunity to plant and develop diversity throughout the erven and assist in the recovery and protection of the EGG.

Landscaping should be considered in two distinct forms—that which falls within the development pocket and that which falls within the wild portion.

Flower beds: We recognise that many people would like to have a portion of their property with short green grass and perhaps a veggie patch and flowerbeds, but this must be accommodated within courtyards and limited edged garden beds within the development pocket. Style should lean towards the natural—avoid over-formalised garden beds with hedges and symmetrical plantings.

Non-indigenous flower beds should be screened within high (minimum 1.5m) courtyard walls.

The grass in the wild portion and on the berms **should not be cut below 150mm** to ensure the grasses' and the berms' success.

2.18. REHABILITATION

All areas disturbed by berming or building is to be seeded or planted within a month of the build's completion. Start with a Biomosome.Reclamation (Monaghan mix) and combine/or follow with Biomosome. Wildlife mix to begin recuperation and to prevent erosion.

Should completion of the building or the disturbance be outside of the growing season, then planting should be completed by the start of the following September.

Note: Rehabilitation on completion of works

The contractor must clear away and remove from the site all construction materials such as paint, surplus materials, foundations, plumbing and other fixtures, rubbish, and temporary works of every kind. Once the rubble is cleared, all disturbed areas must be graded and scarified to restore the ground to its original profile as near as practicable. Disturbed and compacted areas must be ripped to a depth of 250mm in two directions at right angles. Topsoil and mulch must then be introduced and the area must be fertilised and seeded with an indigenous reclamation mix or Biomosome. Wildlife mixture seed mix. Where necessary, damaged areas should be cordoned off to enhance rehabilitation. Loose branches and cut grass can be laid over rehabilitated areas to retain moisture and prevent wash away.

2.19. COMPLETION OF LANDSCAPING FOR SIGN OFF

To achieve sign off, the following elements must be completed:

- I. Berms should be shaped and seeded. Note: If sign-off is mid-winter and the berm is not planted, the berms must be covered with fabric to prevent erosion and soil blowing away.
- II. Swales completed according to specifications on plan.
- III. Lawn and all edging must be installed.
- IV. Driveways completed.
- V. Any proposed garden beds not confined by a wall (courtyards created by screening shrubs and berms) must be edged and edging must be installed.
- VI. Installation of fences.
- VII. Rehabilitation of all areas affected during building.

2.20. LANDSCAPING TO BE COMPLETED OVER TIME

Planting of beds and trees may be completed in phases but must be in accordance with the approved landscape plans as the position of trees can impact surrounding views.

All changes to the landscape plan must be noted and submitted on a revised landscape plan prior to implementation. This landscape plan will be referred to on the sale of property at which time any debated discrepancies will have to be corrected prior to clearance by the Home Owners' Association (HOA).



TIPS FOR DESIGNING AND MAINTAINING YOUR GARDEN ON MONAGHAN

Introduction and background

Monaghan Farm promotes simple sustainable living in beautiful surroundings on the city's outskirts. Homes are understood within the landscape's context, with consideration for dramatic weather patterns, and sensitive to energy consumption, sustainability, and client needs. The homes must suit the environs and not be slaves to fashion.

- **Colours:**

Tone in with the surrounds

- **Materials:**

Natural, ethically sourced, sympathetic to the surrounds, for example, gravel driveways, grass blocks, rough plastered walls, stone feature walls, and wooden finishes

- **Architectural features:**

Stone walls, plaster, large verandas, and single stories which blend into the landscape

- **Style:**

Unassuming, subtle, without edifice or flash

- **Focal points**

Few focal points, namely trees, and/or pots

- **Vistas**

Open, to enjoy the magnificent views and Highveld sunsets

- **Formality**

Kept to a minimum as over-styled and high maintenance gardens do not belong in Monaghan

Consequently, in this context, landscape planning is core to completing the design. The estate's design will be enhanced if the hardscaping of buildings, their materials, features, and style, is complemented by the appropriate garden style.

The aim of this master plan is to provide guidelines to adjust, enhance, and maintain that which has already been achieved over the past few years and assist new landscapers to create experiences which fall into this philosophy.

The brief must be cognisant of water restrictions and environmental conditions that will complement and enhance Monaghan Farm.

Key concepts in landscape planning

- Hydro-zoning & irrigation
- Appropriate landscaping style
- Ecological gardening
- Plant choice
- Planning for the future
- Tree and plant list: Monaghan EGG Tree and Plant List, Monaghan Tree and Plant Development Pocket List, Monaghan Courtyard Garden List, Wetland Plant List.

Hydro-zone planning

Before planning the garden, decide and carefully plan the watering zones.

A garden can have four hydro-zones:

1. High water usage zone: Entrances and focal points, plan at 5%
2. Moderate water usage zone: Vegetable gardens, plan at 10%
3. Low water usage zone: Lawns plan at 15%
4. No water usage zone: Xeriscaping, plan at 70%

This approach still allows any gardener to have an area for high water consumption plants, but at the same time results in water savings of between 30 and 80%

Note: Install your irrigation systems according to the hydro-zones

Landscaping style

Entrances:

May be formal but with limited structure and symmetry.

Plants with colour, which may need additional watering, may be used prudently.

Avoid hedges and over-styled entrance gardens

Avoid pretentious, flashy entrances

No topiarised balls are allowed.

Hydro-zone 1

Focal points:

May be semi-formal with limited structure and plants with colour

May need additional watering.

Hydro-zone 2

Courtyards; INTERNAL WITH NO VISIBILITY

The sky's the limit with style; however, no plants off the plant list may grow higher than the screening wall or building.

Low-walled courtyards, screened courtyards, edged garden beds (plants are visible):

Structured informality

Medium to low water requirement Hydro-zone 3

Peripheral areas:

Orchestrated natural style to blend in with natural grassland

Limited/no additional irrigation required Hydro-zone 4

Concepts not allowed:

Water hungry garden designs

Pots harking back to Grecian times Visible sculptures



Figure 6: Landscaping style examples

Ecological Gardening

Plan your garden according to ecological gardening practices:

Ecological gardening is gardening with waterwise, organic, and carbon sequestering principles in mind. In ecological gardening, we mimic nature's systems.

These are some of the key practices which relate to garden design:

1. Incorporate xeriscaping principles which is the practice of designing landscapes to reduce or eliminate the need for irrigation. Using plants common to the Highveld, especially to the EGG, will facilitate this.

2. In planning your garden, think about planting low-to-the-ground and medium size plants beneath taller plants. Incorporate trees, perennials, flowers, grasses, and maybe even a few harmless weeds into the mix, just like nature!

3. Plants, plants, and more plants! When we plant the ecological way, we mimic nature. Nature never grows in monoculture—the diversity of plants above ground improves the diversity of microbes and fungi underground.

4. Reduce lawn to a minimum.

5. Combat erosion. Plan how rainwater flows over your property and make sure that soil's not exposed to runoff.

This is directly related to berm shaping. A poor slope results in soil erosion and a poor growth environment for grass. The long-term effect is poor water retention and carbon sequestering abilities.

6. Plan well-defined paths and use stepping-stones to reduce soil compaction.

7. Cover up: In areas where you don't plan to grow plants, keep the land covered. Cover mulch, straw, leaves or compost over the soil. This reduces the loss of carbon molecules from the soil into the air and keeps soil micro-organisms happy, maintaining moisture, and moderating soil temperatures. Cover protects valuable humus from erosion.

Plant choice & planning for the future

With all plant choices, whether it be tree, grass, or perennial, positioning and growth patterns are integrally linked. While there are a large number of trees on our approved plant list, please pay special attention to the following guidelines when making your choice. The smaller size of the stands and the greater proximity of neighbours results in closer proximity of their trees.

1. Select plants which will enhance the EGG, see annexure C.
2. Know the plants, and understand their growth patterns and root systems. This will determine what can be planted where and links to long-term planning.
3. Think long-term. Will the tree get too big for that spot or block my neighbour's view? What will be the effect of the root system in the future on the surrounds? Paper barks and Celtis will lift driveways and paving long-term, cabbage trees can break walls. What will be the effect of the crown (the shade pattern) in the future? Will that plant self-seed and escape into the EGG and become a problem in the future?
4. Think about sustainability as well as durability. Will this plant look good two to three years from now? An excellent example is Cape thatch which looks good for two seasons, but doesn't handle cut back well and gets dead patches. In a few years, it will need to be replaced. Hence this plant, while a good pioneer, lacks sustainability and durability. Specifically for courtyards, will that tree overwhelm the space? Will it become diseased due to the unnatural environment? Olea might be happy with some shade, but generally they don't grow in thickets or forests and hence enjoy free flowing air around them. Long-term, in courtyards, despite it being sunny, without knowledgeable care, they will become diseased and unhappy.
5. Seed patterns—are they aggressive self-seeders? Will they invade and have a long-term negative impact on the EGG? Some of these plants are on the Monaghan Exclusion List because of this.
6. Water requirements? You can group plants correctly if you know their original environment. Clivia and Arums both handle shade well, but Arums require moisture and Clivia require dry shade.
7. What is the environment you are planning to plant in? What trees thrive on Monaghan? Even within the EGG, you have a variety of biomes. Because a plant is endemic to the EGG, It doesn't follow that it will suit every spot in your garden—it merely means it will suit the spot closest to its natural environment. A south facing wall gives deep shade and is thus similar to forests. A north or west facing wall will have baking hot sun and retains the heat at night, similar to rocky north facing outcrops. The bottom of a hill will be a gathering point for water and can be seasonally flooded, similar to a wetland. Next to a tap will be moist because of water dripping, also similar to a wetland. Check whether the soil is clay or sandy or rocky.
8. The natural environment is varied. Plant a large variety of plants as this decreases insect infestations as well as improves the good micro-organisms in the soil (principle of ecological gardening and improving carbon sequestration in soil)

INSTALLATION & MAINTENANCE OF GARDEN

Undeveloped pocket

- The undeveloped pocket must be rehabilitated to its original state once building is complete.
- It may be planted with bulbs and perennials from the appropriate list (see Monaghan EGG Tree and Plant List).
- The grass must not be cut in the first season in any reseeded/rehabilitated areas, apart from a required firebreak. Seasonally, thereafter, the grass can be cut to a minimum height of 150mm.
- The grass is not allowed to be cut more than twice a year, in March and August.
- Apart from a firebreak designated by MAC, grass cut and kept short is not allowed in the undeveloped pocket and will result in a penalty.
- Homeowners must keep their undeveloped (and developed) pocket free of invader species. If not, penalties will be levied. Please see Monaghan Exclusion List, and Invader Species List.

Berms

- Berms must be natural and blend in with the landscape. The surrounding hills should be the inspiration and guidance for the shape.
- They're not to be used as pseudo-walls.
- They're for screening where additional privacy is required.
- For a berm of 1.5m, you must have a width between 6 and 7m to allow for the correct 30° slope and a plateau sufficient in size for planting of trees and shrubs.
- If your house has been terraced in, the berm on the higher section must be terraced and separated from the lower slope to avoid excessively long slopes and erosion
- Once seeded, do not cut your grass for the first year. Berms can be cut seasonally after the first year but must be cut to a minimum height of 150mm.
- Mowing grass short and keeping it short like a lawn (unless in the developed pocket) is not allowed and will result in a penalty being levied.

See Establishing and maintaining berms and grasslands for a greater explanation

Gardens

- Gardens must be as per the approved MAC plan. Any alterations to this must be submitted for approval.
- Any changes without approval will have penalties levied.
- Plants chosen must be from the appropriate approved Monaghan list (see Monaghan Courtyard Garden List). If not on the list, please request approval.
- Any plants seen, not on the approved list, will be requested to be removed. If not removed, penalties will be levied.
- Preparation is key and the foundation to any good garden. You could plant a garden in extremely poor soil due to terracing. Plan for substantial amounts of topsoil, compost, and organic fertilisers to rehabilitate the soil. It takes hundreds of years to create a healthy, living topsoil and you're trying to do this in a short space of time! (Limit chemical fertilisers—while they have short-term growth benefits, these have a negative long-term effect on micro-organisms in the soil and the soil's carbon sequestering properties.)

Choosing and planting of trees

“The stability of a tree and its capacity for extracting an adequate supply of moisture and nutrients from the soil necessitate the development of a sturdy and effective root system” Hence a large tree, although considered not to have an invasive root system, can be a problem in the long term. As the tree grows to support its crown, the surface roots will increase incrementally in size and can lift paving and, if they find a gap, break through walls and pipes.

There are scientific calculations that determine how close you can plant a tree to your building or paving but these take tree crown, soil type, and infrastructure you wish to plant close to, into account.

“safe allowable proximity X soil factor X infrastructure = distance from infrastructure”

The simplest method is to err on the side of caution. Most root systems will be as wide as the tree's crown, if not wider. Therefore, plant the tree at least two-thirds of the crown's radius away from any buildings. So, when choosing a tree that you wish to plant close (1m or less) to a building, it's advisable to choose a tree which will have a crown no more than three metres wide at maturity. This then limits you to smaller trees and large shrubs.

Conversely, if you wish to plant a tree that will get to 12m high (most three storey buildings are 11m high) you will be choosing from medium to large trees. The root system will be at least 6m wide and therefore should be planted a minimum of 2 to 3m away from the building to not cause damage.

Poynton, R.J, 2001, Tree rooting habits and their implications for the infrastructure of Rand Water, Rand Water, Water Wise, p.1

Irrigation

Basic guidelines for established gardens:

1. Zones which require watering should be watered deeply and with days between watering (between 4 and 14 days as required by plant choice) rather than shallowly and often. This develops deeper root systems.
2. Lawns should be watered every three days for 10 to 15 minutes.
3. Never water in the early evening.
4. During restrictions, water within the allocated times allowed by law.

See Irrigation principles for more information.

Maintenance

1. Composting:

Spring and mid-summer. Add compost to beds' surface and let nature take its course.

2. Fertilising, preferably organic:

Spring - high in nitrogen

Summer - general

Autumn - low in nitrogen, high in potassium and phosphates

3. Pruning:

Spring - late summer, autumn and winter flowering plants

Mid-summer - spring flowering plants

Autumn - dead or diseased plants only

Winter - fruit trees, deciduous trees, and shrubs

Note: For indigenous plants, wait until they have completed their cycle to cut down—many have seeds birds love, and/or many will reseed themselves.

4. Maintenance:

Digging over of beds? Never!

Establishing and maintaining berms and grasslands

What are the best practices in establishing berms and grasslands, and once established, how do we care for them?

Establishing berms

There are four S's for establishing berms: Shape, slope, soil, and seeding

- **Shape:** Be like nature...look to the mountains for inspiration, not a graveyard! You don't want berms that look like you have a couple of graves surrounding your property. You want mini hills, which undulate and blend seamlessly with the surrounding landscape. That's your target.
- **Slope:** A good slope is hard to find. The slope gradient is extremely important and the more gradual the slope, the less erosion will occur, and the better the grass will seed. We know nothing grows in the shade, and very little survives on a cliff face, so aim for a 30° slope but a 25° slope is even better. It's extremely important to ensure your landscape plans have berms drawn to scale. At the outset, you'll know the actual height you can achieve with the correct slope in your available space. A good rule of thumb: You need a width of 6 to 7m to achieve a height of 1.5m with a 30° slope and a good plateau to plant trees and shrubs on.
- **Soil:** The soil is like a starving child, and we must feed it. Most berms comprise subsoil where we've terraced into the land for the house. It's nutrient poor. If you're unable to spread 10cm of compost on the area being rehabilitated, enrich the soil going forward with fertiliser, leaves, and short veld grass cuttings.
- **Seeding:** Finally, when berms are beautifully/correctly shaped and fertilised, and approved, you can now seed. This seeding process applies to all disturbed areas where grassland has to be re-established



Figure 7: Berms

Timing and effective preparation are key:

- **Timing:** There must be enough time for the seed to germinate and the seedlings to establish themselves before the next dry season. What does this mean? Don't seed in April and expect the seeds to germinate and grow well in autumn and winter and then thrive the next summer season. Ideally seeding should take place when the rains come—which now seems to be in October, with the latest ideal time early January. However, if you're building, seeding according to the rainy season might not work, so you'll have to step in for nature and water. Even though it's an indigenous veld, it still needs water to germinate and grow!
- **Preparation:** Loosen the soil to allow water penetration and aeration. Before seeding, water the ground well to provide a moist seedbed.
- **Seeding:** With the surface now rough and moist, you can sow your seeds. The seed doesn't need to be buried. For all types of seeds, the seed's size is the depth it requires for planting. Seed should be applied superficially and evenly over the entire prepared area and immediately rolled with a lawn roller or sprinkled with water. This presses the seed down and prevents it blowing away. According to Mayford, the seed suppliers, "The soil must be cultivated to achieve an as favourable as possible seedbed. On heavy compacted soil, ripping and discing may have to precede surface cultivation. Seeding must be superficial as seed of most of the species require light to germinate. The seed should lie in the top 20mm of soil and then be immediately rolled in."
- **Watering:** Follow-up rain/watering is very important, as even if it's very hot during the day and the soil around the seed dries, as long as the seed is moist once every 24 hours, the germination process will continue. This is where you step in on behalf of nature. If you're seeding in warm but dry periods, water every 24 hours—a short watering period that will moisten the seeds. Once the seeds have germinated and grown to a height of approximately 3cm—unless it's very hot and dry—you can reduce the watering to every second day, and when they reach 5cm, reduce to weekly. As they grow and strengthen, you can cut back to every second week. Once they're healthy clumps, they should be happy with seasonal rain.



Caring for your berm and grassland

This applies to all areas being rehabilitated and reseeded.

Always look to nature—we have to emulate nature when caring for the grassland. Nature acts as the “gardener”, as through rainfall, fire, and animals, the landscape is maintained. Where nature cannot do its job because man has interfered, it’s our responsibility to step in and do it.

So how do we do act like nature when caring for our berms?

The seed you’re using is the Monaghan mix, **Biosome Reclamation grassland veld seed**. It consists of pioneer grasses or annual grasses that prepare the area for perennial grasses. If we don’t care for the newly seeded grassland correctly, the natural process of the pioneer grasses being eliminated and the endemic grasses taking over, will not happen. This change usually occurs over three seasons. The progress from pioneer to climax grasses, in nature, is largely influenced by grazing, rain, and fire, but in our case, it’s cutting height and frequency as well as watering and thatch removal that influence progression. You can assist this change by additional seeding with the **Biosome Wildlife mixture** in the second season.

Remember: Don’t be a goat, be a buck! Just like overgrazing destroys grasslands, excessive cutting stops progress and destroys them too.

Firstly, if you continually cut the grasses short, the grass composition remains the same with the pioneer grasses dominating and the beautiful climax veld grasses prevented from taking over. Secondly, your grassland will eventually die out, as there’s no natural reseeding occurring.

To put it in perspective, this is like planting a garden of just annuals and not allowing them to go to seed. It looks great the first season, not so great the next, and by the time you get to the third season, there’s no garden, just bare earth!

Don’t cut your grass until the end of winter or in the first year from seeding. This allows a seed bank to begin as well as ensures you don’t accidentally cut your grass before it goes to seed. You can lend a helping hand by seeding with the **Grassveld Wildlife mixture** at the start of the second season. This mix has a larger component of sub-climax and climax grasses.

After your first season:

The ideal scenario would be to cut approximately 10cm off at a time, twice a year, only after the seeds have formed and fallen.

The grass cycle is approximately three months. So, if you seed in October or it rains and new seeds germinate or old grasses sprout and grow, you can trim off 10cm in February. Leave these short cuttings on the ground to enrich the soil. It also ensures that any seeds that have not yet fallen, go to ground.

The final cut of the season should only be at the end of autumn. This allows time for the nutrients to be transported from the grass leaves to the crowns and/or root systems of the perennial or climax grasses. It's a bit like a bear storing fat to get through winter hibernation. The nutrients are stored in the crown of the grass during winter dormancy. In this final cut, leave the grass at least 15 to 20cm high.

If you cut the grass too short, the crowns will burn, and the grass will struggle to come back in the next season. Conversely, sunlight at ground level is also necessary for tufted perennial grasses' development and/or for new seed germination.

Therefore, not only the cutting technique, but also the amount or type of material left on the ground should be monitored. Accumulation of too much bulky old plant material (moribund) also harms the grassland. There's a fine balance. Cutting once a season and leaving large clumps of dead grass or not cutting at all and allowing a thatch to build up over years are both problems as this blocks out sunlight, which inhibits seed germination or crown regrowth. This moribund is removed in nature by fire, but we need to prevent it by raking and removal. By following this cutting regime, it allows seed to be shed for build-up of the seed bank in the soil, guaranteeing seeds available to germinate when the next rains come.

It will take three seasons, if you follow these practices, and you will have beautiful grasslands consisting of endemic Highveld grasses suited to your patch in Monaghan.

Mayford, 2020, Improve veld with Biomosome TM seed mixtures Parts 1, 2, and 3



Irrigation principles

We are in a water scarce country and the correct irrigation principles are most important.

Automated irrigation

Many people see automatic irrigation as wasteful, however the correct planning of hydro-zones, setting up of your system, and watering regime will save water rather than waste it.

Irrigation stations should be area or hydro-zone specific:

- Lawns
- Garden beds based on sun versus shade, for example, north facing beds will be on a separate zone from south facing beds
- Entrances
- Vegetable gardens

This will allow you to water each area appropriately.

How much and how often you should water

It's more effective to water established plants deeply as needed, rather than for short periods every day.

Plants absorb water through the roots and for water-wise gardening, the aim is to encourage the plant roots to penetrate as deeply into the soil as possible. This will help them to avoid drying out during the drying cycles of the upper soil layers. Just as branches twist and turn to get to more light in forests, roots grow after a water supply. If the area is constantly watered lightly, the moisture will be just below the surface which will encourage the plant roots to remain shallow. The problem is in hot dry spells, the moisture will evaporate quickly and leave plants distressed.

Your aim should be to water deeply so that two or three days after watering, the moisture can still be found to about 10cm below the soil surface. You can check the soil moisture depth using a wooden dowel—like a toothpick to check if a cake has fully baked—or dig a small hole to see how far the water has penetrated

The time you water is very important. Water after 1:00am in the morning. This allows water to soak in before sunrise and reduces evaporation.

Do not water between 5:00pm and 12:00pm in the evening. You are creating the ideal environment for pests and diseases. Mole crickets thrive in lawns that are watered early evening.

Water also plays a major part in supporting and spreading plant diseases. Fungi or bacteria that cause plant diseases are called pathogens and are spread by spores or cells. These spores and cells, like plant seeds, require moisture to begin germination, and once they germinate, if they dry out they die. These pathogens also require a moisture film for at least nine hours to penetrate the plant leaf. In addition to germination, they also require water to spread and infect other plants. Hence moisture is the critical factor determining active disease and pests versus little to no disease or pests in your garden. You can control many plant diseases by merely controlling your watering length and time. This is another important reason to water deeply and less often. Remember dew is water too, so your watering schedule has to account for it. As dew is usually present from about midnight to 8:00am your watering cycle should be between 1:00 and 7:00am to avoid extending the period that the leaves remain moist.

If watering by hand during the day, wait until the dew has dried off. Try to water at the plants' base. Complete your watering so that plants dry off before evening.

By understanding the association of moisture to disease development and by changing your watering practice to cut the duration of leaf wetness and number of irrigations, you can lessen disease in your landscape as well as grow stronger more drought hardy plants. In addition, you'll also use less water (seven days, 10 minutes a day, versus 35 minutes, once a week)

Deciding on the watering regime for an established garden

Cynodon lawns have shallow roots and are drought tolerant. Watering need not be deep. But it also means that water evaporation will be quicker. An established lawn needs watering for about 10 minutes every second or third day. With correct soil preparation, this can be extended to weekly. But before you set your timer, first check how your system wets the lawn. You might have a rotor sprayer that only passes over the area four times in 10 minutes— it might not be enough. It's best to let it run for 10 minutes, wait for 10 minutes, and after the watering cycle is complete, test the moisture depth in the soil. If it's wet 5cm deep, that's enough water, and 10 minutes is long enough. If it's less, extend the watering time by a few minutes until you achieve a 5cm depth.

Group your plants together correctly and plant them in positions suited to their needs with each group having the same water requirements (hydra-zoning). Each garden section can then be watered to suit their specific needs. Ideally you shouldn't water more than once a week, 30 minutes per area – excluding lawns (this also excludes seedlings and newly planted gardens). With indigenous and environmentally appropriate plants, this can be extended to 35 minutes every 8 to 10 days.

If you follow the principles of xeriscaping (and used the provided plant lists), you'll have planted with Highveld plants. As a result, you'll not require much additional watering during the rainy season. In summer or spring, they might need a boost or help through an extremely hot period, otherwise the summer rainfall should suffice. In winter, they shouldn't require watering and irrigation can be turned off.

Lastly, know your plants' watering requirements and any change in watering regime should be gradual:

- Established trees and shrubs (five years or older) don't generally need watering, as they have such wide-ranging roots that they're drought-proof. But their growth may be improved by watering when they're under drought-stress.
- Trees and shrubs planted less than five years ago have increased water requirements and may suffer drought-stress without watering, so regular deep watering is advisable, every 7 to 12 days.
- Newly sown or newly planted areas are very vulnerable to water-stress, and watering these should be high priority. These can have short often irrigation periods until they're established. Once established, reduce watering frequency and conversely, increase watering amount gradually.
- If you're watering every second day for 10 minutes, go to every third day for 12 minutes, then every fourth for 15 minutes, every fifth day for 20, and finally, weekly for 30 minutes.
- Herbaceous perennials often need watering to boost their performance in hot, dry spells. Plant choice is crucial if you want to achieve a drought-proof border.
- Lawns require great water quantities for thorough irrigation. Instead of watering in dry periods, mow less closely and less frequently. Brown patches usually recover when the rains return.
- Planting new plants between spring and mid-summer gives them the best chance of growing strong roots before dry weather begins.

Remember, you all have new gardens and your trees and shrubs have come from a nursery where they've received daily watering and shelter. You cannot plant them out and expect them to survive with little to no water. You must continue to water them properly for the first year, even throughout winter, and then gradually reduce as they become established.

When watering new trees and shrubs, watering by bucket is best as it's measurable:

- A half bucket of water for each 50l plant bag
- One bucket for 100l tree
- Two or three buckets for large transplanted trees

1. Start off watering by bucket, watering three times a week
2. Reduce to watering twice a week after six weeks
3. After three months, water once a week
4. Water weekly throughout winter, early in the day

Once the plants seem established (a minimum of a year after planting), seasonal rainfall and/or deep irrigation using your automated system should suffice

Note: For open-ground transplanted trees, this does not apply. Regular watering must continue for at least three years until they have re-established a root system large enough to support their crown

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ANNEXURES :

Annexure A:

ADDITIONAL RULES AND REGULATIONS GOVERNED BY THE LOCAL AUTHORITY (TSHWANE METROPOLITAN COUNCIL) AND THE CONDITIONS OF ESTABLISHMENT:

Extracts from the conditions of establishment that pertain to all Erven of Bach Village

3.1. MEMORANDUM OF INCORPORATION

The applicant shall incorporate the erven in the township, at his own cost, into the already established non profit company (home-owners' association), Monaghan Farm NPC (Registration nr 2008/001430/08) in terms of the provisions of the Companies Act, 2008 (Act 71 of 2008). All the owners of erven and/or units in the township must become members of the non profit company. A copy of the registered Memorandum of Incorporation must be submitted to the City of Tshwane Metropolitan Municipality.

The Memorandum of Incorporation must clearly state that the main objective of the homeowners' association is the maintenance of the non profit company's property and the internal engineering services of the development (i.e. water, sewerage, electricity, roads and storm water sewers). The developer is deemed to be a member of the non profit company, with all the rights and obligations of an ordinary member, until the last erf has been transferred.

Owners of erven in Monaghan or of any subdivision thereof, or of any sectional title unit thereon or of any interest therein, shall automatically become and shall remain members of the Homeowners' Association and be subject to its memorandum and articles until such owners cease to be owners as aforesaid. None of the said erven, nor any unit erected thereon, nor any interest therein, shall be transferred to any person who has not bound himself/herself/itself to the satisfaction of the Homeowners' Association to become a member thereof and without the prior written confirmation of the Homeowners' Association that all amounts due to the Homeowners' Association by the owner have been paid in full.

The Applicant is deemed to be a member of the Non Profit Company, with all the rights and obligations of an ordinary member, until the last erf has been transferred.

5. CONDITIONS OF TITLE

5.1 THE ERVEN MENTIONED BELOW SHALL BE SUBJECT TO THE CONDITION AS INDICATED, LAID DOWN BY THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY IN TERMS OF THE PROVISIONS OF THE TOWN-PLANNING AND TOWNSHIPS ORDINANCE, 1986 (ORDINANCE 15 OF 1986)

5.1.1 ALL ERVEN

(a) The erf shall be subject to a servitude, 3 m wide, for municipal services (water, sewer, electricity and stormwater) (hereinafter referred to as "the services"), in favour of the Municipality, along all boundaries, in the case of a panhandle erf, an additional servitude for municipal purposes, 3m wide, over the entrance portion of the erf, if and when required by the Municipality: Provided that the Municipality may waive any such servitude.

(b) No buildings or other structures may be erected within the aforesaid servitude area and no trees with large roots may be planted within the area of such servitude or within a distance of 2m from thereof.

(c) The City of Tshwane Metropolitan Municipality shall be entitled to temporarily deposit on the land adjoining the aforesaid servitude, any material it excavates during the laying, maintenance or removal of such services and other works which in its discretion it regards necessary, and furthermore the City of Tshwane Metropolitan Municipality shall be entitled to reasonable access to the said property for the aforesaid purpose, subject to the provision that the City of Tshwane Metropolitan Municipality shall make good any damage caused during the laying, maintenance or removal of such services and other works.

All Erven at Bach Village:

As this property is adjacent to land on which an airport is situated, with the subsequent activities of aircraft and aviation operations, the property is subject to noise and disturbance from aircraft and the owner accepts the nuisance and inconvenience, which may result from such noise and disturbance. The owner indemnifies the operator of the airport against any liability or claims which may arise from such noise and disturbance due to aviation operations.

Annexure B:

EXTRACT OF CONDITIONS OF ESTABLISHMENT WHICH, IN ADDITION TO THE EXISTING PROVISIONS OF THE RULING TOWN-PLANNING SCHEME, HAVE TO BE INCORPORATED IN THE TSHWANE TOWN PLANNING SCHEME, 2008 IN TERMS OF SECTION 125 OF ORDINANCE 15 OF 1986.

6.1 All Erven at Bach Village

1	Use Zone	1: RESIDENTIAL 1
2	Uses permitted	One dwelling house
3	Uses with consent	None
4	Uses not permitted	All other uses
5	Definitions	For the purposes of this scheme, "development footprint" means an area on which buildings may be developed
6	Density	One dwelling house per erf
7	Coverage	The development footprint shall not exceed 365m ² on the erf
8	Height	4.5 meters (1 storey)
9	Floor area ratio	Not applicable
10	Site development plan and landscape development plan	Not applicable
11	Building lines	All boundaries: 1 meter. A minimum street Building Line of 3,0 m shall be applicable to a garage or carport which provides access perpendicular to the street. Where such access is parallel to the street then the garage or carport the set Building Line will apply.
12	Parking requirements	Clause 28, Table G
13	Paving of traffic areas	Not applicable
14	Access to the erf	Not applicable
15	Loading and off-loading facilities	Not applicable

16	<i>Turning facilities</i>	<i>Not applicable</i>
17	<i>Physical barriers</i>	<i>No physical barriers may be erected on the boundaries of the erf except in accordance to the Architectural rules to the satisfaction of the Monaghan Home Owner's Association.</i>
18	<i>Health measures</i>	<i>Any requirements for air pollution-, noise abatement- or health measures set by the Municipality shall be complied with to the satisfaction of the Municipality without any costs to the Municipality.</i>
19	<i>Outdoor advertising</i>	<i>Advertisements and/or signboards shall not be erected or displayed on the erf without the written consent of the Municipality first being obtained in terms of municipal by-laws for outdoor advertising.</i>
20	<p><i>General:</i></p> <ol style="list-style-type: none"> 1) <i>An engineer shall be appointed before the approval of building plans, who must design, specify and supervise structural measures for the foundations of all structures, according to the soil classification for each zone as described in the geological report. On completion of the buildings he shall certify that all his specifications have been met.</i> 2) <i>All building structures and physical barriers to be erected shall be made subject to the provisions of the Architectural Rules and any and all amendments to the said document as may be affected and approved by the Monaghan Aesthetics Committee and the Home Owners Association. Building plans shall only be submitted to the Municipality for final approval once the said plans have been evaluated and approved by the Monaghan Aesthetics Committee.</i> 3) <i>The provisions of Clause 14(10) shall be excluded.</i> 4) <i>In addition to the above conditions the erf and buildings thereon are further subject to the general provisions of the Tshwane Town-Planning Scheme, 2008.</i> <p>1.</p>	

Annexure C:
COLOUR PALETTE

Y1-E2-3
Daphne's Dream

Y4-E1-2
Hideout

O6-E1-2
Stucco Wall

O6-C2-2
Spiced Cider

Y5-C2-2
Parmesan Sauce

B1-E1-3
Grounded

TRP202
Blue Aureole

B3-C2-2
Serene Setting

B1-C2-2
Lazy Afternoon

Y2-D2-2
Stone Wash

O2-E1-2
Jericho Brown

Y4-E1-2
Hideout

Y4-D1-1
Mount Olive

Y4-C2-1
River Reeds

B2-D1-2
River God

B5-D1-2
Splashing Pond

B3-C2-2
Serene Setting

B1-C2-2
Lazy Afternoon

Y1-E2-2
Cement Wash

Y4-E1-2
Hideout

R7-E1-2
Rancho Santa Fe

Y4-D2-1
Bright Idea

O1-D2-1
Cafe Beige

B1-E1-2
Meteor

B5-E1-2
Everest Blue

B4-C2-1
Park Water

B1-C2-1
Lake Placid

Y3-E1-4
Corinthian Pillar

GR-N02
New York Square

Y6-E1-2
Moss Island

Y3-D1-3
Wacky Khaki

O4-D1-3
Earthing

AL-802
Anthracite Aluminium

B6-E1-1
Black as Night

B6-C1-3
Cool Marble

B3-C1-3
Stone Cold

O4-E1-3
Stone Whale

71
Black Bean

O3-E1-1
Cabin In the Woods

Y2-D1-2
Ochre rust

O2-D1-2
Coffee Shop

G7-E1-1
Cape Cliffs

B6-E1-1
Black as Night

B1-C1-2
Stormy Forecast

B6-C1-2
Blueprint

66
Auberge

R3-E1-1
Beautiful Brown Eyes

O3-E1-1
Cabin In the Woods

G6-E1-1
Amazon Jungle

GR-805
Chicago Times

GR-810
Tribecca Corner

Y5-E1-1
Sea Weed Wrap

86-Cl-1
Oceanos

P2-D1-1
Mysterious Iris

B7-E1-1
Black Beard

B6-E1-1
Black as Night

Y2-D1-1
Rich Rewards

Y5-D1-1
Rocking Mountain

Y7-E1-1
Knysna Forest

Y3-E1-1
Jungle Pride

Y1-E1-1
Mother Earth

86-B1-1
Lapis Blue

B2-Cl-1
Atlantic Ocean

B2-E1-1
Night Moss

B5-E1-1
Magic Noire

O3-Cl-1
Mystic Copper

Y1-Cl-1
Spanish Gold

Y4-E1-1
Ranchero

O2-E1-1
African Mud

Y3-D1-1
Gold Olive

B7-A1-1
Saphire

B4-D1-1
Adventure

O4-Cl-1
Spiced Cinnamon

Y1-Cl-1
Spanish Gold

Y4-E1-1
Ranchero

O4-E1-1
Big Bear

Annexure D:

1. PLANT LIST FOR ALL AREAS

BACH PLANT LIST: ALL AREAS

PLANT NUMBER	type	botanical name	common name	habit	max width	max height	seasonal	Frost hardness
A 1	Aloe succulent	Aloe greatheadii var. davyana	Veld Aloe	v shape	0,40	0,20	evergreen	Medium
A 3	Aloe succulent	Aloe Zebrina (was transvaalensis)	Zebra leaf aloe	v shape	0,30	0,50	evergreen	hardy
An 7	Bi-annual	Ceratotheca triloba pink	Wild foxglove	Upright	0,30	1,00	deciduous	hardy
B 2	Bulb	Babiana		v shape	0,3	0,3	deciduous	hardy
B 11	Bulb	Haemanthus humilis	Rabbits ears	upright	0,20	0,30	deciduous	hardy
B 12	Bulb	Hypoxis Hemerocallidea	Star Flower	clump	0,50	0,40	deciduous	hardy
B 13	Bulb	Hypoxis multiceps	Winter star flower	clump	0,30	0,30	deciduous	hardy
B 14	Bulb	Hypoxis rigidula	Silver-leafed star flower	grass like	0,20	0,50	deciduous	hardy
B 17	Bulb	Ornithogalum juncifolium (Ornithogalum juncundum)	Grass-leaved Chinchinchee	clump	0,30	0,30	evergreen	hardy
B 19	Bulb	Schizocarpus nervosus (Scilla nervosa)	White Scilla	clump	0,30	0,40	deciduous	hardy
C 1	Climber	Ancylotrys capensis (Landolphia capensis)	Wild apricot	spreading	1,00	5,00	evergreen	hardy
C 2	Climber	Helinus integrifolius	Soap Bush	spreading	1,00	1,50	deciduous	hardy
C 4	creeper	Jasminum breviflorum	Natal star jasmine	climber	5,00	5,00	evergreen	hardy
C 5	Creeper	Rhoicissus tridentata	Bushmans grape	climber	1,00	3,00	evergreen	hardy
G 18	Grass	Erneapogon Scoparus	Bottlebrush Grass	v shape	0,10	0,60	deciduous	hardy
G 26	Grass	Harpochloa falx	Caterpillar grass	clump	0,30	0,30	evergreen	Moderate
Gc 4	ground cover, succulent	Chasmatophyllum musculinum	Yellow Mountain vygie	spreading	0,30	0,10	evergreen	hardy
Gc 5	Ground cover	Dicliptera enii	Dicliptera enii	spreading	1,00	0,20	evergreen	light
Gc 6	Ground cover	Dimorphoteca jucunda (Osteospermum juc.)	Trailing mauve daisy	round	0,60	0,25	evergreen	hardy
Gc 7	Ground cover	Dimorphoteca jucunda (Osteospermum juc.) 'White moon'	White Moon Daisy	round	0,60	0,25	evergreen	hardy
Gc 13	Ground cover	Hermannia transvaalensis	Hermannia transvaalensis	spreading	0,30	0,15	evergreen	hardy
Gc 14	Ground cover	Hypoestes forskalii		spreading	0,50	0,20	evergreen	semi-hardy
Gc 16	ground cover, succulent	Khadia acutipetala	Khadvygie	spreading	0,5	0,2	evergreen	hardy
Gc 17	Ground cover	Monopsis decipiens	Butterfly lobelia	spreading	0,15	0,15	evergreen	hardy
Gc 19	Ground cover	Thunbergia neglecta		spreading	0,30	0,30	deciduous	hardy
P 4	Perennial-herb, succulent	Adromischus umbraticola	Krans brosplakkie	Clump	0,30	0,30	evergreen	hardy
P 5	Perennial	Aerva leucura	Aambeibossie	Arching	0,50	0,50	evergreen	hardy
P 21	Perennial herb	Commelina africana var barberae	Common yellow commelina	Clump	0,30	0,50	evergreen	Hardy
P 32	Perennial herb	Cyanotis speciosa	Dolls powder puff	spreading	0,20	0,30	evergreen	Hardy
P 35	Perennial herb	Diclis reptans	Dwarf Snapdragon	mat forming	0,30	0,20	semi-deciduous	light
P 38	Perennial herb	Eriosema burkei (Eriosema leacanthum)		clump	0,40	0,50	deciduous	hardy
P 46	Perennial herb	Gerbera ambigua	Botterblom	clump	0,20	0,25	deciduous	hardy
P 47	Perennial herb	Gerbera jamesonii	Barbeton daisy	clump	0,30	0,30	evergreen	hardy
P 59	Perennial herb	Hermibstaedia odorata	Wild cockcomb	upright	0,5	0,6	evergreen	hardy
Sh 58	Shrub medium	Searsia rigida (Rhus eckloniana)	Waterberg Currant	round	1,50	1,50	evergreen	hardy
Sh 60	Shrub small	Sphedannocarpus pruriens	Canary Nettle	climbing	1,50	1,50	deciduous	hardy
Sh 62	Succulent shrub	Stapelia leendertziae	Bell Stapelia	clump	0,30	0,20	evergreen	hardy
Sh 63	Shrub small	Stoebe plumosa (Stoebe vulgaris)	Silver stoebe	clump	1,00	1,00	evergreen	hardy
Sh 64	Shrub small	Trichodesma physaloides	Chocolate bush	clump	0,50	0,50	deciduous	hardy
T 1	Tree small	Acokanthera oppositifolia	Bushmans Poison	Oval	3,00	3,00	evergreen	hardy
T 3	Tree fern	Alsophila dregei (Cyathea dregei)	Tree fern	high crown	3,00	3,00	evergreen	moderate
T 4	Tree small	Apodytes dimidiata	White Pear	High crown	6,00	7,00	evergreen	hardy
T 8	Tree small	Brachylaena rotundata	Mountain Silver Oak	round	4,00	5,00	deciduous	hardy
T 9	Tree small	Buddleja saligna	False Olive	weeping	3,00	5,00	evergreen	hardy
T 12	Tree small	Calpurnia intrusa	Western Wild Laburnum	Slender	3,00	3,00	evergreen	moderate
T 13	Tree medium	Celtis Africana	White stinkwood	High crown	9,00	10,00	deciduous	very hardy
T 15	Tree medium	Combretum molle	Velvet Bushwillow	high crown	10,00	9,00	deciduous	hardy
T 20	Tree small	Diospyros whyteana	Bladderhut	round	5,00	5,00	evergreen	hardy
T 25	Tree small	Euclea crispa	Blue Guarri	round	4,00	6,00	evergreen	hardy
T 29	Tree small	Galpinia transvaalica	Wild pride of India	multi-stemmed	5,00	6,00	evergreen	hardy
T 31	Tree small	Heteromorpha arborescens	Parsley tree	round	6,00	7,00	evergreen	moderate
T 33	Tree medium	Ilex mitis	Cape Holly	high crown	8,00	10,00	evergreen	moderate
T 37	Tree small	Maerua cafra	Common Bush-cherry	round	3,00	3,00	evergreen	hardy
T 39	Tree large	Mimusops zeyheri	Transvaal red milkwood	high crown	10,00	15,00	evergreen	semi-hardy
T 41	Tree medium	Mystroxyloa aethiopicum (Cassine aethiopicum)	Kooboo berry	round	8,00	8,00	evergreen	hardy
T 46	Tree small	Olinia emarginata	Mountain hard pear		5,00	6,00	evergreen	hardy
T 53	Tree medium	Rothmannia capensis	Wild gardenia	oval	8,00	10,00	evergreen	hardy
T 55	Tree small	Scolopia zeyheri	Thorn Pear	spindly	3,00	3,00	evergreen	hardy
T 58	Tree small	Searsia Pyroides	Fire thorn	round	3,00	3,00	deciduous	hardy
T 70	Tree small	Vangueria infausta	Wild Medlar	round	3,00	3,00	deciduous	moderate
T 71	Tree small	Warburgia salutaris (endangered)	Pepper-bark tree	oval	3,00	5,00	evergreen	moderate
T 73	Tree small	Zanthoxylum capense (endangered)	Small Knobwood	scraggly	2,00	3,00	evergreen	hardy

RACH PLANT LIST: ALL AREAS

PLANT NUMBER	type	botanical name	common name	habit	max width	max height	seasonal	Frost hardiness
P 71	Perennial herb	Jamesbrittenia aurantiaca	Cape Saffron	prostrate	0,3	0,3	evergreen	hardy
P 74	Perennial	Jamesbrittenia caerulea	Ruikbossie	round	0,5	0,5	evergreen	hardy
P 84	Perennial	Nemesia fruticans	Wild Snap dragon	clump	0,60	0,60	evergreen	Hardy
P 94	Perennial herb	Pentanisia prunelloides	Broad leaved pentasia	clump	0,30	0,30	deciduous	hardy
P 102	Perennial herb	Schistostephium crataegifolium	Golden Flat-flower	tufted	0,20	0,30	deciduous	hardy
P 117	Perennial herb	Tylosema fassoglense	Creeping Bauhinia	spreading	0,30	0,30	deciduous	hardy
Sh 3	Shrub medium	Artemesia afro	African Wormwood	arching	2,00	2,00	evergreen	hardy
Sh 7	Shrub small	Barleria obtusa	Bush Violet	spreading	1,20	1,20	evergreen	hardy
Sh 8	Shrub small	Barleria pretoriensis	Barleria pretoriensis	round	1,00	1,00	evergreen	hardy
Sh 9	Shrub large	Buddleja salviifolia	Sagewood	scrambling	4,00	5,00	evergreen	very hardy
Sh 10	Shrub medium	Carissa bispinosa	Num-num	round	2,00	2,00	evergreen	hardy
Sh 12	Shrub small	Cliffortia linearifolia	River rice bush	scraggly	2,00	2,00	evergreen	hardy
Sh 13	Shrub medium	Diospyros Austro-africana var. microphylla	Firesticks	round	2,00	2,00	evergreen	hardy
Sh 16	Shrub large	Ehretia rigida	Puzzle bush	round	3,00	3,00	deciduous	moderate
Sh 19	Succulent shrub	Euphorbia schinzii	Euphorbia schinzii	clump	0,30	0,30	evergreen	hardy
Sh 21	Shrub medium	Freylinia tropica	Blue Honeybell bush	oval	1,75	2,00	evergreen	hardy
Sh 22	Shrub small	Gomphocarpus fruticosus (Aclepias fruticosa)	Tontelbos	round	1,00	1,00	deciduous	hardy
Sh 24	Shrub large	Grewia occidentalis	Crossberry	round	3,00	5,00	evergreen	moderate
Sh 26	Shrub medium	Gymnosporia polyacantha (Meytenus polyacantha)	Buffalo spike-thorn	clump	2,00	2,00	evergreen	hardy
Sh 29	Shrub small	Helichrysum kraussii	Straw everlasting	upright	1,00	1,00	evergreen	hardy
Sh 35	Shrub small	Lantana rugosa	Bird's Brandy	round	0,75	1	evergreen	hardy
Sh 37	Shrub small	Lippia javanica	Fever tea	round	1,00	1,00	evergreen	hardy
Sh 38	Shrub small	Lippia rehmannii	Laventelbossie	round	1,00	1,00	evergreen	hardy
Sh 40	Shrub small	Myrsine africana	Cape myrtle	round	1,00	1,00	evergreen	moderate
Sh 41	Shrub small	Nesaea schinzii		round	0,5	0,5	evergreen	hardy
Sh 43	Succulent shrub	Orbeopsis lutea	Yellow carrion flower	clump	0,30	0,30	evergreen	hardy
Sh 44	Shrub medium	Osteospermum moniliferum (Chrysanthemoides monilifera)	Bush-tick Berry	round	2,50	2,00	evergreen	hardy
Sh 45	Shrub large	Pavetta eylesii	Flaky-bark Brides-bush	oval	3,00	6,00	evergreen	hardy
Sh 46	Shrub medium	Pavetta gardeniifolia (Pavetta assimilis)	Christmas bride's bush	oval	2,00	3,00	evergreen	hardy
Sh 49	Shrub medium	Plumbago auriculata	Cape Leadwort	spreading	3,00	3,00	evergreen	light frost
Sh 52	Shrub large	Pterocelastrus echinatus	White candlewood	round	3,00	3,00	evergreen	hardy
Sh 55	Shrub small	Rubus rigidus	White Bramble	scrambling	1,00	1,00	deciduous	semi-hardy
Sh 56	Shrub large	Searsia dentata	Nana-berry	round	3,00	3,00	deciduous	hardy
Sh 57	Shrub small	Searsia magalismontanum	Soutpansberg currant	clump	1,50	1,50	evergreen	hardy

Annexure D:

2. PLANT LIST FOR DEVELOPMENT POCKETS

BACH PLANT LIST: COURTYARDS AND EDGED BEDS IN DEVELOPMENT POCKET

PLANT NUMBER	type	botanical name	common name	habit	maxi width	max height	seasonal	Frost hardness
DA 2	Aloe succulent	Aloe dyeri	Shade Aloe	v shape	0,50	1,00	evergreen	light
DAn 1	Annual	Diascia integerrima	Diascia	upright	0,15	0,15	evergreen	hardy
DAn 2	Annual	Diascia spp	Diascia	upright	0,15	0,15	evergreen	hardy
DAn 3	Annual	Nemesia nesia	Nemesia	clump	0,25	0,20	deciduous	moderate
DB 1	Bulb	Agapanthus campanulatus	Blue lily	Multi-strap leaves	0,60	0,50	deciduous	light
DB 3	Bulb	Chlorophytum bowkeri	Giant chlorophytum	clump	0,60	1,00	evergreen	hardy
DB 6	Bulb	Haemanthus albiloss	White Blood Lily	clump	0,30	0,20	evergreen	hardy
DB 7	Bulb	Haemanthus paucifolius		clump	0,15	0,15	evergreen	hardy
DB 17	Bulb	Tulbaghia acutiloba	Highveld Wild Garlic	grass	0,25	0,30	deciduous	hardy
DB 18	Bulb	Tulbaghia cernua	Wild garlic	grass	0,25	0,30	evergreen	hardy
DB 19	Bulb	Tulbaghia simmleri (Fragrens)	Tulbaghia fragrens	grass	0,25	0,30	evergreen	hardy
DB 20	Bulb	Tulbaghia violacea	Wild Garlic	grass	0,25	0,30	evergreen	hardy
DB 22	Bulb	Zantedeschia aethiopica	White Arum lily	upright	0,50	0,95	semi-deciduous	moderate
DC 1	creeper	Asparagus asparagoides	Cape smilax	Climber	1,00	5,00	evergreen	hardy
DC 3	creeper	Rhacissus digitata	Babbon grape	climber	1,00	5,00	evergreen	hardy
DC 4	creeper	Thunbergia alata	Black-eyed Susan	climbing	1,00	3,00	semi-deciduous	light
DF 1	fern	Asparagus cooperi	Wild asparagus	scrambling	1,00	2,00	evergreen	hardy
DF 2	fern	Asparagus densiflorus	Asparagus fern	v shape	1,00	1,00	evergreen	hardy
DF 3	fern	Asparagus densiflorus 'Meyersii'	Cat's tail fern	v shape	0,60	0,45	evergreen	medium
DF 4	fern	Asparagus densiflorus 'Sprengeri'	Asparagus fern	v shape	0,90	0,30	evergreen	Light
DF 6	fern	Asparagus virgatus	Broom asparagus	v shape	0,90	1,00	evergreen	hardy
DF 7	fern	Pellaea calomelanos	Hard fern	clump	0,10	0,50	evergreen	hardy
DF 8	Fern	Pteris dentata	Toothed brake	clump	1,00	0,50	evergreen	light
DF 9	fern	Rumohra adiantiformis	Krynsna fern	clump	1,00	1,00	evergreen	hardy
DG 4	Grass	Panicum maximum	Guinea grass	tufts	0,50	1,00	evergreen	moderate
DG 5	Sedge	Schoenoplectus corymbosus	Sedge basket grass	clump	1,00	1,00	evergreen	hardy
DG 6	Grass	Setaria megaphylla	Bristle Grass	tuft	0,60	1,00	evergreen	hardy
DGc 1	ground cover	Ruellia patula	White Veld Violet	prostrate	0,30	0,15	deciduous	hardy
DGc 2	ground cover, succulent	Aptenia cordifolia	Red aptenia	Spreading	0,60	0,15	evergreen	Light
DGc 3	ground cover, succulent	Aptenia cordifolia variegata	Aptenia variegated	Spreading	0,60	0,15	evergreen	Light
DGc 4	ground cover	Aptosimum procumbens	Karoo violet	spreading	0,25	0,07	evergreen	light
DGc 5	ground cover	Arctotis arctoides	Botterblom	Spreading	0,40	0,30	evergreen	light
DGc 8	ground cover	Arctotis x hybrida 'Flame'	Flame Arctotis	Spreading	0,40	0,30	evergreen	light
DGc 11	ground cover, succulent	Crassula expansa var. fragilis	Crassula fragilis	spreading	0,20	0,10	semi-deciduous	hardy
DGc 12	ground cover, succulent	Crassula multicava	Fairy crassula	spreading	0,50	0,30	evergreen	moderate
DGc 13	ground cover, succulent	Crassula spathulata	spatula-leaf crassula	Prostrate	0,30	0,30	evergreen	hardy
DGc 19	ground cover, succulent	Delosperma purpureum		spreading	0,30	0,10	evergreen	hardy
DGc 21	ground cover	Dymondia Margaretae	Carpet daisy	spreading	0,30	0,05	evergreen	Hardy
DGc 24	ground cover	Hermannia pinnata	Hermannia pinnata	round	0,30	0,10	evergreen	Hardy
DGc 25	ground cover	Lobelia corniculata	Lobelia corniculata	spreading	0,50	0,25	evergreen	light
DGc 26	ground cover	Lobelia flaccida	Wild Lobelia	spreading	0,50	0,25	evergreen	light
DGc 27	ground cover	Pelargonium alchemilloides	pink trailing pelargonium	spreading	0,35	0,25	evergreen	moderate
DGc 28	ground cover	Plectranthus ciliatus	Speckled Spur flower	spreading	1,25	0,30	evergreen	light
DGc 30	ground cover	Ruellia cordata	Veld Violet	prostrate	0,30	0,15	deciduous	hardy
DGc 31	ground cover	Ruellia patula	White veld violet	spreading	0,30	0,20	evergreen	hardy
DGc 32	ground cover, succulent	Ruschia	Ruschia	clump,spreading	0,30	0,20	evergreen	hardy
DGc 35	ground cover	Salvia repens	Creeping sage	spreading	0,30	0,40	evergreen	hardy
DGc 8a	ground cover	Arctotis x hybrids	Arctotis hybrids	Spreading	0,40	0,30	evergreen	light
DP 1	Perennial-herb	Berula erecta	Lesser parsnip	spreading	1,00	0,50	evergreen	hardy
DP 2	Perennial-herb	Bulbine frutescense	Stalked Bulbine	high crown	0,40	0,30	evergreen	hardy
DP 3	Perennial herb	Centella asiatica	Pennywort	clump	0,30	0,30	deciduous	light
DP 4	Perennial-herb	Dicliptera clinopodia	Pink ribbons	clump	0,50	0,50	evergreen	light
DP 7	Perennial herb	Mentha longifolia	Wild spearmint	clump	0,50	1,00	evergreen	light
DP 8	Perennial-herb	Pelargonium dolomiticum	Pelargonium dolomiticum	scraggly	0,50	0,50	deciduous	moderate
DP 9	Perennial-herb	Plectranthus fruticosus	Forest spur-flower	round	1,20	1,20	evergreen	light
DP 10	Perennial-herb	Plectranthus hereroensis	Herero spur-flower	compact	1,00	1,00	evergreen	light
DP 11	Perennial-herb	Plectranthus neochilus	lobster flower	compact	0,50	0,50	evergreen	light
DP 16	Perennial-herb	Syncolostemon canescens	Coconut-scented sagebu	round	0,50	0,50	semi-deciduous	hardy
DS 1	Shrub medium	Anisodonteia classic cerise	Pink Mallow	Arching	1,00	2,00	evergreen	hardy
DS 2	shrub small	Artemesia afra	Wild wormwood	round	1,00	1,00	evergreen	hardy
DS 3	shrub small	Asparagus virgatus	Broom asparagus	upright	80,00	1,00	evergreen	hardy
DS 4	shrub small	Barleria greenii	Wild bush petunia	round	1,20	1,20	evergreen	winter
DS 6	Shrub medium	Bauhinia tomentosa	Yellowbell Bauhinia	oval	3,00	2,00	evergreen	hardy
DS 7	shrub small	Blepharis squarrosa	Blepharis squarrosa	Spreading	0,50	0,50	evergreen	hardy
DS 8	Shrub large	Buddleja auriculata	Weeping sage	weeping	4,00	4,00	evergreen	hardy
DS 9	Shrub large	Buxus macowanii oliver	Cape Box	round	1,50	2,00	evergreen	hardy
DS 11	Succulent shrub	Cotyledon orbiculata	Pig's ears	clump	0,45	0,30	evergreen	Hardy
DS 12	Succulent shrub	Cotyledon orbiculata var oblonga	Finger aloe	clump	0,45	0,30	evergreen	Hardy
DS 13	shrub small	Eriocephalus africanus	Wild Rosemary	round	1,75	1,75	evergreen	hardy
DS 14	Shrub small	Helichrysum petiolare	Everlasting	round	1,00	1,00	evergreen	hardy
DS 15	Shrub small	Hibiscus engleri	Wild Hibiscus	round	1,00	1,00	semi-deciduous	hardy
DS 16	Shrub small	Hibiscus pedunculatus	Pink Forest Hibiscus	upright	1,00	2,00	semi-deciduous	moderate
DS 17	shrub medium	Hibiscus callyphyllus	Sun Hibiscus	round	1,50	1,50	evergreen	hardy
DS 19	shrub medium	Mackaya Bella	Mackaya	round	2,00	3,00	evergreen	light
DS 20	shrub medium	Meliantus comosus	Honey Flower	round	3,50	3,50	evergreen	light
DS 21	shrub small	Ocimum labiatum	Shell Bush	round	1,50	1,50	deciduous	hardy
DS 22	shrub medium	Pavetta lanceolata	Forest Bride's bush	round	2,00	3,00	evergreen	hardy
DS 23	shrub small	Plectranthus hadiensis	Hairy coleus	round	1,00	0,40	evergreen	light
DS 24	shrub small	Ruschia	Ruschia	clump	1,00	1,00	evergreen	hardy
DS 25	Shrub large	Rotheca myricoides (Clerodendrum myracoides)	Blue Cat's Whiskers	round	3,00	4,00	deciduous	moderate
DS 26	shrub small	Salvia dolomitica	Dolomite sage	scrambling	0,80	0,80	evergreen	hardy
DS 28	shrub small	Strelitzia reginae	Bird-of-Paradise	clump	2,00	2,00	evergreen	moderate

Annexure D:

3. PANT LIST FOR WETLANDS

PLANT NUMBER	type	botanical name	common name	max width	max height
		BULB			
B 5	Bulb	Crinum Bulbispermum	Orange river lily	0,75	1,00
DB 5	Bulb	Crinum campanulatum	Marsh Lily	0,3	0,6
B 7	Bulb	Dipcadi viride	Dainty Green Bells	0,20	1,00
DB 9	Bulb	Kniphofia ensifolia	Torch lily	1,00	1,00
DB 10	Bulb	Kniphofia porphyrantha	Dwarf Red-hot Poker	1,00	1,00
DB 11	Bulb	Kniphofia typhoides	Bulrush poker	1,00	1,00
B 20	Bulb	Schizocarpus nervosus (Scilla nervosa)	White Scilla	0,30	0,40
DB 22	Bulb	Zantendeschia aethiopioca	White Arum Lily	0,50	0,95
		FERN			
DF 8	Fern	Pteris dentata	Toothed brake	1,00	0,50
		GRASS & SEDGES			
DG 1	Grass	Andropogon appendiculatus	Bluegrass	0,50	1,00
G 19	Grass	Eragrostis capensis	Heart -seed love grass	0,40	0,50
DG 4	Grass	Panicum maximum	Guinea grass	0,50	1,00
S 1	Sedge	Ascolepis capensis	Ascolepis capensis	0,30	0,50
DG 3	Sedge	Cyperus albostratus	Dwarf papyrus	0,3	0,3
DG 5	Sedge	Schoenoplectus corymbosus	Sedge basket grass	1,00	1,00
		GROUND COVER			
Gc 5	Ground cover	Dicliptera eenii	Dicliptera eenii	1,00	0,20
		PERNNIAL			
P 10	Perennial herb	Berkheya radula	Boesmansrietjie	0,20	0,15
DP 1	Perennial herb	Berula erecta	Lesser parsnip	1,00	0,50
DP 3	Perennial herb	Centella asiatica	Pennywort	0,3	0,3
P 15	Perennial herb	Cephalaria zeyheriana	Dipsacaceae	1,00	1,00
DP 5	Perennial herb	Gomphostigma virgatum	River Stars	1,50	1,50
DP 6	Perennial herb	Gunnera perpensa	River pumkin	0,60	0,60
P 53	Perennial herb	Haplocarpha lyrata	Bietoou	0,30	0,30
P 54	Perennial herb	Haplocarpha scaposa	False gerbera	0,30	0,30
P 64	Perennial herb	Hypericum lalandii	Spindly Hypericum	0,30	0,30
P 75	Perennial herb	Juncus effusus	Common rush	0,80	1,00
DP 7	Perennial herb	Mentha longifolia	Wild spearmint	0,50	1,00
P 103	Perennial	Senecio achilleifolius	Slootopdammer	0,10	0,30
DP 12	Perennial-herb	Senecio reptans	Senecio reptans	0,30	0,30
P 123	Perennial herb	Xysmalobium undulatum	Apocynaceae	1,00	1,00
		SHRUB			
Sh 9	Shrub large	Buddleja salviifolia	Sagewood	4,00	5,00
Sh 3	Shrub medium	Artemesia afra	African Wormwood	2,00	2,00
Sh 37	Shrub small	Lippia javanica	Fever tea	1,00	1,00
Sh 55	Shrub small	Rubus rigidus	White Bramble	1,00	1,00
		WATER PLANT			
WP 1	water plant	Aponogetan distachyos	Waterblommetjie	0,95	0,1
WP 2	water plant	Nymphaea nouchali	Blue Waterlily	0,80	0,10
WP 3	water plant	Nymphoides thunbergiana	Small Yellow Water lily	0,80	0,30

