



VAL DE VIE
ANNO 1783

PEARL VALLEY

— JACK NICKLAUS —

SIGNATURE GOLF COURSE

LANDSCAPE DESIGN MANUAL

1 REQUIREMENTS & PROCEDURES

- 1.1 The proposed landscaping / irrigation companies must be approved by the P.V.H.O.A. before the commencement of landscaping designs. This is to ensure that both landscaping and irrigation specifications comply with the maintenance requirements. Please contact our landscaping specialist for an appointment:

Address: Box 1, Pearl Valley Estate, Paarl, 7646

Tel: (021) 867 8000

Fax: (086) 585 0055

E-mail: ruan.duplessis@pearlvalley.co.za

- 1.2 As the P.V.H.O.A. is responsible for the maintenance of gardens, a Planting & Irrigation Plan must be prepared for submission for approval by the P.V.H.O.A. This includes any additions or upgrades to gardens.
- 1.3 The various Fees and Deposit applicable to the Landscape design, installation and maintenance as listed below and in the Addendum 1, may be changed without prior notice by Pearl Valley Golf & Country Estate. Please confirm the cost with the Pearl Valley landscape department.
- 1.4 The Planning Partners have been appointed by the Developer to review residential Garden Planting & Irrigation Plans on behalf of the P.V.H.O.A. A scrutiny fee of R1500 is charged for this approval process and is payable to Pearl Valley Golf & Country Estate prior to submission of plans.
- 1.5 Garden Planting & Irrigation Plans must be submitted to the Estate Grounds' Manager for initial approval to ensure that it comply with the Pearl Valley garden maintenance requirements. Once the maintenance approval has been obtained, Garden Planting & Irrigation Plans must be submitted to Planning Partners to be checked against the guidelines and be approved. In the event that the Planting & Irrigation Plan do not comply with the guidelines as set out in the Core Architectural & Landscape Design Manual, the plans must be rectified to comply and be resubmitted to Planning Partners for approval.
- 1.5.1 Planning Partner will process plans in 5 working days after submission. Should the plans not comply with the guidelines and changes are require to the plans, the resubmission of drawings will be deemed as a new submission and trigger the start of the 5 working days anew.
- 1.5.2 Plans can be submitted to Planning Partners via email in a PDF format as long as the drawings are at 1:100 scale.

- 1.5.3 A PDF copy of the architectural plan must be forwarded to the Landscape Department and Planning Partners
- 1.5.4 A PDF copy of the Landscape & Irrigation Plans must be forwarded to the Building controller.

Residential Gardens' manager

Ruan du Plessis

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Planning Partners (Pty) Ltd

Suzanne Lesch / Jacques Dohse

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HOA Building Controller

Jadewin Opperman

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Tel.: (021) 867 8000

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2 APPROVAL OF LANDSCAPE DESIGNER AND LANDSCAPE CONTRACTOR

- 2.1 All landscape designers/contractors will be required to register with Pearl Valley Golf & Country Estate.
- 2.2 A detailed CV and portfolio of previous work must be submitted to the Pearl Valley Landscape office. This must include a list of references. Please allow for a clearance period of 1 month. Acceptance is not guaranteed.
- 2.3 Any landscape designer/contractor applying to work at Pearl Valley Golf & Country Estate must be registered with the South African Landscapers Institute (SALI) and have a minimum of 5 years' experience in order to qualify to design/build any of the residential gardens.
- 2.4 If a landscape designer/contractor is approved, an annual fee of R100 per company (or 5 persons) and R10 per person for each person more than 5 must be paid to the Pearl Valley administration offices. This registration fee is not refundable.
- 2.5 Registered landscape contractors are charged a R25 000 refundable installation deposit for each erf being landscaped. The installation deposit shall be in the form of an irrevocable bank guarantee, the form and wording to be in a format acceptable to the developer. A cash deposit is also acceptable.
- 2.6 The installation deposit may be used to repair any damages to Pearl Valley infrastructure, landscaping and golf course. The deposit may also be to rectify incorrectly installed gardens that deviate from the approved landscape & irrigation plans.
- 2.7 Any service providers undertaking additional garden maintenance must undergo the same process i.e. be approved to work on the estate and an annual fee of R100 per company (or 5 persons) and R10 per person for each person more than 5 must be paid to the Pearl Valley administration offices. This registration fee is not refundable.
- 2.8 On completion of the landscaping, the Landscape contractor will be responsible for a 3 month grow-in period. After the grow-in period, the garden will be handed over to the estate's garden maintenance team. The garden will be inspected and a snag list compiled for the rectification of the snags, or in event of no snags, the installation deposit will be refunded to the Landscape contractor. Please note that a fertilising programme must form part of the 3 month grow-in period.

- 2.9 Should it be found during the snagging process that the approved Planting Plan has not been implemented during the construction phase; the Pearl Valley Golf & Country Estate will keep the damage deposit in order to rectify the landscape to comply with the approved plans.
- 2.10 Pearl Valley Golf & Country Estates will refuse to maintain gardens that do not comply with the Architectural & Landscape Design guidelines.
- 2.11 The Landscape office must be informed of any visitations to any areas/erfs that they are not registered for. This includes visits to former gardens – once handed over to Pearl Valley. These gardens are off limits unless the office has received prior notification. The Landscape office must also be notified of any after hour appointments with clients.
- 2.12 Please note that no D.I.Y landscapes are allowed by the P.V.H.O.A. at Pearl Valley Golf & Country Estate.
- 2.13 Please complete the attached forms and submit to the Landscape Department.

3 ACCESS CONTROL (*Access to the Estate is restricted*)

- 3.1 The Landscape Contractor shall only use designated access assigned by the P.V.H.O.A. for purpose of its work and delivery of materials, equipment and workers.
- 3.2 Where it is necessary to gain access across any paved roadway in the development, or to travel on any portion of a paved roadway in the development, vehicles are restricted to a maximum of 6 (six) tons load on a single axle truck – the total weight of vehicle with load (GVM) 14 500kg.
- 3.3 Certain double axel vehicles are permitted, i.e. Concrete ready mix; brick trucks and roof truss trucks. These trucks are to be escorted by security.
- 3.4 Any other vehicles entering the Estate – special permission to be obtained from the Estate Manager.
- 3.5 The "Gate House" entrance to the development is restricted to a headroom clearance of 2,4 (Two comma Four) meters. A delivery vehicle lane is provided at the Gate House and the Landscape Contractor is required to use such lane.

4 PLANTING PLAN

The Planting Plan is required to be at a scale of 1:100, to be detailed in all aspects and must show the following:

- 4.1 Standard plan notations to include: Erf Number, Client/Developers name, Landscape, Designer's name and contact information, date, scale and north arrow, gradient etc.
- 4.2 All plant material, species, names, numbers, spacing and size shall be indicated as a Plant List in the legend of the plan.
- 4.3 Detailed allocation on plan where each plant specie will be planted, number of the specific specie in the area. The allocated specie must comply with the Plant List in size and spacing.
- 4.4 All earth-shaping, retaining walls, levels and falls. Maximum landscape slope is 1:4. If retaining blocks are used, a member of the landscape department must check the soil used to fill the blocks.
- 4.5 Detaining structures outside the building line must have an approved, 1:100 scale section drawing. All detailing and specifications of materials being used must be indicated. Drainage points must be present and the use of "Bidum" geotextile on all internal retaining walls.
- 4.6 Details of hard landscaping must include all paving, pools, pumps, fences, decks, trellises and other artefacts (pots, sleepers, statues, water features, etc.). Details and photographs of the proposed material must be included onto the Planting Plan. The hard landscaping must utilise high quality products and be of a robust design.
- 4.7 Utility areas and their screening must be shown. Each property should otherwise have its own appropriate screening planted.
- 4.8 The Landscape contractor should provide 'before' photographs of the garden area to be landscape as part of the plan submission.

5 IRRIGATION PLAN

(The Irrigation Plan is required to be at a scale of 1:100, to be detailed in all aspects and must show the following):

- 5.1 A comprehensive fully automated irrigation layout to be submitted with the Planting Plan as a separate drawing, conforming to the specifications.
- 5.2 The irrigation drawing must clearly indicate the spray distance of all nozzles and allow for an overlap of at least 3 spray arcs in any given area.
- 5.3 Standard plan notations to include: Erf Number, Client/Developers name, Landscape, Designer's name and contact information, date, scale and north arrow, gradient etc.
- 5.4 All irrigation material, names, numbers shall be indicated in the legend of the plan.

6 LANDSCAPE GUIDELINES

Each Residential & lodges erf garden will be reviewed by Planning Partners in compliance with the specific Residential Landscape Masterplan, using the components specified. All erf gardens will be reviewed in terms of best design practices and in accordance with Pearl Valley's Landscape Vision.

The Planting Plan must comply with the following Guidelines. The percentages are measured on the remainder of erf after the subtraction of the area of house / lodge, garages, deck, pool, architectural approved paving and driveway. The measured areas in terms of the guidelines must be noted on the Planting Plan. Exemptions to the Guidelines and Restrictions must be addressed to the P.V.H.O.A. and will only be applicable to that specific erf.

6.1 LODGE ERVEN

- 6.1.1 Lawn areas may not exceed 60% (max.) of the remainder of erf (as specified above).
- 6.1.2 Hard Landscaping may not exceed 15% (max.) of the remainder of the erf.
- 6.1.3 Shrub and Groundcover areas should cover a minimum of 40% of the remainder of the erf.
- 6.1.4 One (1) tree per 40 Square Metres (min.) of the remainder of the erf to be planted.

6.2 RESIDENTIAL ERVEN

- 6.2.1 Lawn areas may not exceed 50% (max.) of the remainder of erf (as specified above).
- 6.2.2 Hard Landscaping may not exceed 10% (max.) of the remainder of the erf.
- 6.2.3 Shrub and Groundcover areas should cover a minimum of 50% of the remainder of the erf.
- 6.2.4 One (1) tree per 50 Square Metres (min.) of the remainder of the erf to be planted.

6.3 SOIL PREPARATION (applicable to both the Residential and Lodge Erfs)

- 6.3.1 It is recommended that the landscaper is familiar with the underlying soil structure and that the timeline quoted for completion of the job is based on this. Either view the builder's foundations or sink test holes (recommended 1 per 50m²) to determine the soil structure prior to the start of the project.
- 6.3.2 Lawn areas must be prepared to a depth of 250mm. i.e. all stone larger than 50mm must be removed, as well as any builder's rubble. A minimum of 50% (of total area x 250mm depth) compost topsoil must be worked into the area.
- 6.3.3 All planting beds must be trenched to a depth of 300mm and as much rock, as well as any builder's rubble, as possible should be removed. It is advisable to retain as much of the existing soil as possible.
- 6.3.4 All tree holes to be square in shape and trenched to a depth of at least 1m (metre).
- 6.3.5 A minimum of 100mm layer of good quality A-grade topsoil must be spread over all lawn and planting bed areas.
- 6.3.6 A minimum of 50mm layer of good quality A-grade compost must be spread and dig into all lawn and planting beds areas.
- 6.3.7 Organic fertiliser should be applied to all lawn and planting bed area.
- 6.3.8 All gardens must have a 30mm thick layer of mulch covering all exposed bed areas. Should a stone chip or pebble mulch be applied to the beds instead of organic mulch, then the areas should still comply with the planting rate per square metre.

6.4 **PLANTING RATES PER M²** (*applicable to both the Residential and Lodge Erfs*)

6.4.1 **MINIMUM PLANTING RATES**

Groundcovers – “cutting” material – 10 rooted cuttings per Square Metre minimum.

Groundcovers – “6 pack” material – 8 Plantlets per Square Metre minimum.

Groundcovers – “4kg” material – 6 Plants per Square Metre minimum.

Groundcovers – “10kg” material – 3 Plants per Square Metre minimum.

Shrubs – “4kg” material – 2 Plants per Square Metre minimum.

Shrubs – “10kg” material – 1 Plant per Square Metre minimum.

Shrubs – “20kg” material – 1 Plant per Square Metre minimum.

Bulbous Plants – “4kg” material – 6 Plants per Square Metre minimum.

6.5 **PLANT SIZES** (*applicable to both the Residential and Lodge Erfs*)

6.5.1 **MINIMUM PLANTING SIZES**

Groundcovers : “6-pack” and “cutting” material may not exceed 80% maximum of allocated groundcover areas.

Groundcovers : “6-pack” and “cutting” material may not exceed 80% maximum of allocated groundcover areas.

Shrubs : perennial or small shrubs (4kg) may not exceed 40% of allocated planting bed areas.

Shrubs : large shrubs (10kg or 20kg) may not exceed 40% of allocated planting bed areas.

Trees : 50kg material or larger are preferred. Should 20kg material be used, it may not exceed.

Trees : 50kg material or larger are preferred. Should 20kg material be used, it may not exceed.

6.5.2 Please ensure all plant material is planted within the erf boundaries and that sufficient space is allowed for plant growth.

6.5.3 Verges should also be planted and covered with chip stone mulch by the Landscape contractor. Irrigation to these areas will be the responsibility of the home owner.

6.5.4 Should chip stone or pebbles be used as mulch, plant densities should still remain the same as specified above.

6.5.5 All screens and paving to be included under the architectural design and approved by the review architect prior to installation. Paving will not be allowed to continue all the way to the property boundary.

- 6.5.6 The Landscape contractor should provide 'before' photographs of the garden. All hard and soft landscaping elements should clearly be visible on the photographs.
- 6.5.7 All trees must be double staked with cross braces to strengthen the tree stake.
- 6.5.8 Buffalo lawn (*Stenotaphrum secundatum*) will be the only grass species allowed for lawns. It is recommended that instant Buffalo Lawn should be installed rather than grass plugs or runners.
- 6.5.9 Landscaping will start from the road verges and shall comply with the Planting Rates per square meter, or the verges may be mulched with gravelled. In this case the planting rates per square meter will still apply.
- 6.5.10 A representative from the Pearl Valley Irrigation department must check the installation of all the systems. This is to ensure that the system has been installed as per plan. All meetings/ checks must be booked 48 hours in advance. We are unable to accommodate last minute requests. There is a R3000 management fee for this service. See Addendum 1.

6.6 IRRIGATION

To be read in conjunction with the Irrigation Detail Specifications and drawings if applicable. Please note that according to the Pearl Valley Golf & Country Estate Estate Rules and Regulations, June 2014, point 8.1 – 8.6, Homeowners are responsible for the maintenance of their own irrigation systems. The Pearl Valley Irrigation team are primarily responsible for maintaining the irrigation in the public and communal areas on the Estate. The team is only able to assist Homeowners when time allows.

Extracts from Pearl Valley Estate Rules and Regulations, June 2014:

- 6.6.1 All horticultural and landscape aspects of the Estate including sidewalks, traffic islands and private areas will be managed by the HOA.
- 6.6.2 Gardens of individual properties will be maintained by the HOA. This includes grass cutting, edging, weeding, pruning of excessive shrub growth and removal of cuttings and dead plants. There is no provision for supplementary planting or tree removal.

- 6.6.3 Owners are obliged to establish and complete their gardens, to the required standard, within 3 months from the time that they cease to pay the monthly builders levy, i.e. within 3 months of the completion of the dwelling.
- 6.6.4 Owners are responsible for the maintenance and upkeep of their own garden irrigation systems.
- 6.6.5 Although the HOA maintains gardens, an owner is permitted to improve and supplement planting to his property within his property's boundaries (i.e. not on the sidewalk or on the Golf Course). Such plantings must be approved by the HOA prior to them being planted.
- 6.6.6 In order to create the desired continuity of landscaping, all landscaping must be approved by the HOA."

7 RESTRICTIONS & CONDITIONS

- 7.1 Any additions or upgrades to gardens also require plans to be submitted to Planning Partners. If the upgrade involves more than 15% of the garden, a further scrutiny fee will be required.
- 7.2 Homeowners not wanting to plant lawn in the event of a drought will be required to commit themselves to the planting of lawn once the drought problem has eased. This commitment needs to be in the form of a monetary deposit.
- 7.3 It is not permitted for an owner to remove or damage a tree, landscaping or other plantings on the golf course or any private open space.
- 7.4 No Kikuyu grass (*Pennisetum clandestinum*) or Cape Kweek grass (*Cynodon dactylon*) may be cultivated on an erf, to prevent invasion of the fairways.
- 7.5 Lawns may not be seeded and should be instant lawn.
- 7.6 No invasive alien plants, trees, shrubs and grasses in terms of Regulation 15 & 16 of the Conservation of Agricultural Resources Act (Act No. 43 of 1983) are permitted within the estate and may not be cultivated in any garden. This includes any plant listed as a potential transformer (proposed declared invader).
- 7.7 Fences shall comply in height, layout and specification with the recommended types as per Architectural Guidelines.

- 7.8 Garden lighting must be low key or louvered and indicated on the plans, type and coverage as per Architectural Design Manual.
- 7.9 Above ground pools, "Porta-pools" are not permitted. Pool as per Architectural Design Manual.
- 7.10 No temporary structures are permitted within the erf garden including wendy houses. Sandpits must be maintained by homeowners.
- 7.11 Concrete statues, pots, rock features and rock pools that are viewable from the road or the golf course must be approved by the P.V.H.O.A. prior to construction.
- 7.12 A representative of the Landscape Department will inspect all house gardens on completion at which time a handover certificate will be issued before occupation is permitted. The inspection must be arranged through the Landscape department. The Client / Developer must book time for the inspection at least 48 hours prior to the inspection date. Planning Partners will inspect completed projects upon request on a time and cost charge basis directly to the client / developer / homeowner.
- 7.13 The P.V.H.O.A. will maintain the garden as installed at completion of the house, but any subsequent changes will be for the Owners account, and not maintenance.
- 7.14 No vegetable gardens will be maintained & will therefore be the responsibility of the homeowner.
- 7.15 Any planters not readily accessible to the Pearl Valley maintenance staff cannot be maintained for security reasons. i.e. Planters on 1st floor.
- 7.16 All potted plants must be supplied with a dripper. Pearl Valley will not be held responsible for plants not supplied with an irrigation component.
- 7.17 The irrigation system must be connected to the house potable water on the house side of the water meter; therefore, the homeowner will be responsible for payment of potable (and irrigation) water usage.
- 7.18 Position of irrigation controller to be accessible to maintenance crew at all times. They must also be positioned at least 5m from any other electrical units and have a separate plug point.
- 7.19 The landscaping and irrigation shall be entirely completed as part of the building contract, prior to any completion certificate being issued, or occupancy of the house.

- 7.20 Once gardens have been absorbed into the maintenance schedule, the following must be noted: Rose gardens will be weeded weekly & fertilised annually, however the extra spraying and feeding required by these plants must be undertaken by the homeowner. Annual pruning is also for the homeowner to address. Inaccessible indoor gardens and plants (eg. Patio plants) cannot be maintained by the Pearl Valley maintenance team for security reasons.
- 7.21 Artificial lawn to be measured as hard landscaping.
- 7.22 Fencing panels to be bolted and not welded together.

8 PLANTING CHARACTER

It is the intention to encourage the design and cultivation of largely "Water-Wise" indigenous gardens, complemented by vernacular trees and shrubs of the traditional Franschoek valley gardens. To this end the following lists have been compiled to guide the gardener, Stone mulch will only be permitted if the planting ratios are maintained as in Planting Rates / m². Planning Partners has the right to reject plant species during the Plant Plan approval process on the basis of water requirements being too high; species prone to pests and diseases; species inappropriate for the weather conditions and species that negatively impact the overall landscape vision at Pearl Valley.

8.1 PLANTS SPECIES NOT PERMITTED

Any declared invasive alien plants and trees. Class 1, 2 & 3 on the current listing.

- 8.1.1 Kikuyu, (*Pennisetum clandestinum*),
- 8.1.2 Cape Kweek (*Cynodon dactylon*)
- 8.1.3 Typha capensis (*Bulrush*) (permitted in restricted quantities within the lakes).
- 8.1.4 No palm species will be allowed to be planted in the gardens facing the golf course. Palm will also not be counter at the required quantities of trees and should be limited as focal plant elements.

8.2 LIST OF RECOMMENDED PLANT SPECIES

Please note that this list indicate plant species that will do well under current site conditions. The landscape designer may add additional species based on the design criteria of each garden. Plant selection will be measured against suitability for climatic conditions and suitability for design solution. This plant list is a guideline only. Other plants are permitted – please check with the Landscaping Office (021 867 8002).

(* Denotes Indigenous species)

8.2.1 TREES

Acacia karoo (Wild Thorn)*
Acacia xanthophloea (Fever tree)*
Brachylaena discolor (Coast silver oak)*
Celtis africana (White Stinkwood)*
Combretum erythrophyllum (Bush Willow)*
Cupressocyparis x leylandii (Leyland Cypress)
Cupressocyparis x leylandii Robinson's Gold
Cupressus sempervirens 'Stricta' (Italian or Pencil Cypress)
Curtisia dentata (Assegai)*
Ekebergia capensis (Cape Ash)*
Erythrina caffra (Coast coral tree)*
Harpephyllum caffrum (Natal Plum)*
Kigalaria africana (Wild Peach)*
Liquidambar styraciflua (Liquidambar)
Mimosops caffra*
Nuxia floribunda*
Olea europaea subsp. africana (Wild olive)*
Phoenix canariensis (Canary Island Date palm)
Pittosporum viridiflorum (White Cape Beech)*
Podocarpus falcatus (Outeniqua Yellowwood)*
Podocarpus henkelii (Wild Yellowwood)*
Populus lasiocarpa (Chinese Poplar)
Populus simonii (Simon's poplar)
Quercus ilex (Holly oak)
Quercus nigra (Water oak)
Quercus palustris (Pin oak)
Quercus reticulata (Evergreen oak)
Quercus suber (Cork oak)
Rhus chirindensis (Currant Bush)*
Rhus lancea*
Rhus pendulina (Wit karee)*
Rhus viminalis (White karee)*
Syzygium cordatum (Water Berry)*
Virgilia oroboides (Keurboom)*
Washingtonia robusta (Fan Palm)

8.2.2 TREES SUITABLE FOR VERGE PLANTING

Celtis Africana (White Stinkwood)*
Ekebergia capensis (Cape Ash)*
Harpephyllum caffrum (Wild Plum)*
Liquidambar styraciflua (Liquidambar)
Olea europaea subsp. Africana (wild olive)*
Platanus x acerifolia (London Plane)
Quercus robur (English Oak)
Syzygium cordatum (Water Berry)*

8.2.3 SHRUBS AND GROUND COVERS

Agathosma imbricate
Agathosma ovata (Buchu)*
Anisodonteia scabrosa
Arctotheca spp (Cape marigold)*
Arctotis spp*
Asparagus densiflorus (Emerald fern) *
Barleria obtuse*
Barleria repens*
Bauhinia galpini*
Buddleja saligna (Sage wood)*
Buddleja salvifolia*
Brabejum stellatifolium (Wild Almond)
Carissa macrocarpa*
Carpobrotus spp (Hottentot fig)*
Elegia tectorum (Thatching reed)* - formerly Chondropetalum
Chrysanthemoides monilifera*
Chrysanthemoides incana*
Coleonema alba*
Coleonema pulchrum (Confetti Bush)*
Diospyros whyteana (Bladder Nut)*
Dodonea viscosa (Sand olive)*
Erica spp*
Eriocephalus africana*
Euclea capensis*
Euclea racemosa*
Euclea undulate (Gewone Guarrie)*
Euryops pectinatus / virgineus*
Felicia spp*

Gazania rigens (Trailing gazania)*
Gazania rigida (Rooi Gousblom)*
Geranium incanum (Carpet Geranium)
Grewia occidentalis (Croo-berry)*
Hedera spp (excl. Hedera Helix)
Helichrysum petiolare (Curry Bush)*
Helichrysum argyrophyllum*
Hemizgia obermeyerii
Hibiscus species (Rose-mallows)
Kniphofia praecox (Red-hot Poker)*
Kniphofia uvaria (Red-hot Poker)*
Leucadendron spp*
Leucospermum spp*
Melianthus major (Large Melianthus)*
Metalasia muricata*
Myrica cordifolia*
Osteospermum spp (Van Stadens River daisy)*
Pelargonium spp (Geranium)*
Pelargonium cucullatum (Perlargonium)*
Pelargonium betlinum (Pelagornium)*
Pelargonium gibbosum*
Plectranthus spp.*
Plectranthus ecklonii (Medleywood)*
Plectranthus fruticosus*
Plumbago auriculata (Blue plumbago)*
Podalyria calyptrata*
Polygala myrtifolia*
Polygala spp*
Protea spp*
Rhus spp*
Rhus crenata*
Rhus glauca*
Rhus laevigata*
Rosa spp (Shrub Roses)
Salvia aurea*
Salvia africana-lutea*
Salvia dolomitica*
Salvia chamelaeagnea*
Sparaxis tricolour
Strelitzia reginae*
Tarconanthus camphoratus (Wild Camphor)*
Tecoma capensis (Cape honeysuckle)*

Thamnochortus insignis (Dune reed)*
Thamnochortus specigerus*
Tetragonia fruticosa
Watsonia spp*

8.2.4 **STREAM COURSES**

Zantesdeschia aethiopica (Arum lily)*
Cyperus alternifolius (Umbrella sage)*
Cliffortia spp*
Wachendorfia thyrsiflora*

8.2.5 **LAKE MARGINS**

Prionium serratum (Palmiet)*
Cyperus alternifolius (Umbrella sage)*
Cyperus textiles (sedge)s
Wachendorfia parvifolia*
Wachendorfia paniculata (Rooikanol)*

8.2.6 **LAKE-WATER PLANTS**

Aponogeton distachyos (Water blommetjie)*
Nymphaea capensis (Blue water lily)*
Nymphoides indica (Small yellow water lily)*

8.2.7 **LAWN**

Stenotaphrum secundatum (Buffalo grass)*

8.2.8 **CREEPERS AND CLIMBERS**

Vitis spp (Ornamental vine)
Parthenocissus tricuspidata (Boston Ivy)
Parthenocissus quinquefolia (Virginia creeper)
Wisteria sinensis (Wisteria)
Thunbergia alata (Blackeyed Susan)*
Rhoicissus tormentosa (Grape Ivy)*
Senecio tamoides (Canary Creeper)*
Bougainvillea spp (Pastel Colours only)
Hedera spp (Ivies) (Excl. Hedera helix)
Pelargonium peltatum*

8.2.9 HERBACEOUS PERENNIALS

Athanasia parvifolia (Coulter Bush)
Eriocephalus africanus (Wild Rosemary)
Felicia amelloides (Blue Marguerite)*
Leonotis leonurus (Wild Dagga)*
Nemesia floribunda (Leeubekkie)
Perlagonium capitatum*
Scabiosa incise (Wild Scabiosa)

8.2.10 BULBOUS PLANTS

Asparagus capensis (Katdoring)*
Agapanthus spp. (Blue Lilies)*
Aristea major (Tall aristae)*
Bulbinella floribunda (Cat's Tail)*
Babiana stricta
Chasmanthe aethiopica*
Clivia miniata (Fire Lilly)*
Crinum moorei (Cape Coast Lilly)*
Crocsmia spp.*
Dietes grandiflora (Large Wild Iris)*
Dietes bicolor (Yellow Wild Iris)*
Dierama pendulum (Zuurberg Harebell)*
Tulbaghia violaceae (Purple Wild Garlic)*
Freesia alba (Wild Freesia)
Watsonia marginata*
Watsonia pyramidata (Watsonia)*
Zantedeschia aethiopica (Wild Arum Lilly)*

8.2.11 SUCCULENTS

Aloe arboroscens (Kranz Aloe)*
Aloe ferox (Bitter Aloe)*
Bulbine frutescens (Bulbine)*
Carpobrotus spp.*
Cotyledon orbiculata (Varkoor)
Jordaniella dubia (Vygjie)*
Lampranthus spp. (Vygies)*

9 IRRIGATION GUIDELINES

9.1 GENERAL

- 9.1.1 The system should be designed at 40-45ℓ / min. No substitution of smaller pipes of a lower pressure rating shall be accepted, but the substitution of larger pipes, or pipes of a higher-pressure rating may be accepted (at the rates tendered for the specified item) at the sole discretion of the Landscape Architect. All piping shall be installed as per the manufacturer's recommendations.
- 9.1.2 All piping shall meet the representative SABS Specifications and shall bear the SABS mark.
- 9.1.3 All HDPE piping will be manufactured using High Density Polyethylene, having a density of not less than 0,949 grams for cubic centimetre. The pipe will be Type IV Class 6 which meets the requirements of SABS Specification No. 533 Revised and shall bear the SABS mark.
- 9.1.4 HDPE pipe fittings will be the compression type, comprising of two basic parts, the body into which the pipe is inserted and seals on an "O" Ring and a compression nut with screws onto the body and tightens the grip on the outside of the pipe. Fittings used on HDPE pipes will conform to the dimensions as laid down in the SABS Specification No. 533 Revised.
- 9.1.5 Saddles will be fitted with a rubber "O" Ring seat set in a recess under the saddle outlet to effect a watertight seal. The outlet will have a female BSP thread size to suit the fittings to be attached. Saddle dimensions will conform to HDPE pipe specifications SABS 533 Revised. Saddles for 63 mm HDPE pipe shall have 4 bolts and for 50 mm shall have 2 bolts. All nuts and bolts shall be stainless steel.
- 9.1.6 Pop-up sprinklers and sprayers
- 9.1.7 Unless otherwise directed, pop-up sprinklers/sprayers shall be installed perpendicular to the finished grade. Sprinklers/Sprayers shall be left protruding above ground level until the grass has been planted, after which the contractor shall be required to make final adjustments to height, as well as setting the arc to be irrigated and radius of trajectory.

9.1.8 Spray nozzles in the groundcover areas shall be 300 mm above finished grade, with the soil around the riser pipe tamped down to hold the riser in vertical position. Setting of the spray nozzle arc and radius of trajectory shall be set after planting, as per the drawing of as directed by the Landscape Architect.

9.1.9 It shall be the exclusive responsibility of the contractor to correctly nozzle sprinklers and sprayers in accordance with the areas to be irrigated and the specifications. Nozzles will be such in accordance with the area to be irrigated and the specifications. Nozzles will be such that the entire area of a station will receive an even application of water.

9.2 **MATERIALS**

9.2.1 **POP-UP SPRINKLERS**

9.2.1.1 The sprinklers shall be of the gear driven rotary type. The sprinkler shall have an exposed surface diameter after installation of 50 mm and shall have a 20 mm BSP female inlet.

9.2.1.2 The body of the sprinkler shall be constructed of non-corrosive, heavy duty ABS. The sprinkler shall carry a two-year over the counter exchange warranty (not prorated).

9.2.2 **POP-UP SPRAYERS**

9.2.2.1 Each pop-up body shall have a captured filter screen and a wiper seal shell that provides a positive seal with no flow by. All models shall have the ability to adjust the direction of the spray nozzle via a mechanical ratchet mechanism.

9.2.3 **SPRAYERS AND STAND PIPES**

9.2.3.1 Spray heads shall be constructed of high-grade, non-corrosive plastic and stainless steel parts. MP rotors will not be allowed unless approval in writing is obtained from the irrigation manager.

9.2.3.2 Riser pipes shall be ½ "PVC poly vinyl chloride with ½ " BSP male thread on each end. The Landscape Architect must approve the riser pipes. Micro mists will not be allowed unless approval in writing is obtained from the irrigation manager.

9.2.4 **AUTOMATIC CONTROL**

- 9.2.4.1 Irrigation control shall be automatic. If automatic, the controllers shall be either A/C powered from a mains connection of Master switch for on/off and automatic settings. Reset circuit breaker.
- 9.2.4.2 Irrigation control shall be automatic. If automatic, the controllers shall be either A/C powered from a mains connection of Master switch for on/off and automatic settings. Reset circuit breaker.
- 9.2.4.3 Rapid advance through station, which is set to zero or off: Independent station time from six to sixty minutes per station. Dual programme facility with each programme offering a minimum of two start times per day.
- 9.2.4.4 The capability of operating at least two 24-volt solenoid valves and a pump start relay simultaneously. A weatherproof lockable box suitable for mounting outdoors. All controllers must be at least 5m away from any other electrical units, especially the aircon units & pool pumps. Controllers must have a separate plug point from the aircons & pool pumps. We recommend a Hunter ProC is used.
- 9.2.4.5 Electric solenoid valve (The valve shall be sized to suit the required demand).
- 9.2.4.6 The valves shall have the capability of being manually set and adjusted prior to electrical connection and may be mounted in any position. The valve body shall have a globe or an angle configuration option and be constructed of high density, high strength CPVC and PVC material. The diaphragm assembly shall be constructed of stainless steel, plastic and high strength fabric reinforced synthetic rubber. The valve solenoid shall be 24 Volt A.C. and be totally encapsulated by glass filled polypropylene.
- 9.2.4.7 The valves shall have the capability of being manually set and adjusted prior to electrical connection and may be mounted in any position. The valve body shall have a globe or an angle configuration option and be constructed of high density, high strength CPVC and PVC material. The diaphragm assembly shall be constructed of stainless steel, plastic and high strength fabric reinforced synthetic rubber. The valve solenoid shall be 24 Bolt A.C. and be totally encapsulated by glass filled polypropylene.

- 9.2.4.8 Solenoid Valve Features:
- Adaptable globe or angle configuration.
 - Flow control (standard).
 - Manual bleed.
 - High efficiency totally encapsulated solenoid.
- 9.2.4.9 Inrush volt amps at 24 VAC 11,50 VA
- 9.2.4.10 Inrush current at 24VAC 0,48 amp
- 9.2.4.11 Holding volt amps at 24 VAC 5,75 VA
- 9.2.4.12 Holding current at 24VAC 0,24 amp
- 9.2.4.13 Each tree as required in the Plant list and specifications shall have a dripper ring installed around its base. This dripper ring shall consist of a 1.2 length of Pressure Compensated Integral Dripper line, with drippers spaced at 300 mm intervals, and curved into a circle around the base of the tree. The dripper ring (unless otherwise specified) shall be installed on the surface of the soil, under the mulch layer, such that the trunk of the tree is in the centre of the ring. The ring shall be held in position by means of 3 galvanised wire pegs, 200mm long, installed at equal intervals throughout the ring. Care shall be taken in installing these pegs, so as not to damage the dripper lines in any way or impede the flow of water out of the drippers. The dripper ring shall be connected to the dripper lateral line installed 450 mm below the ground surface. The lawn, beds and dripper/ bubbler lines should be on separate stations.
- 9.2.4.14 Trees requiring different water requirements shall not be connected together on the same irrigation station. Similarly, trees planted in tree rings inside paved (and compacted) areas shall not be connected together on the same irrigation station with trees in open landscape areas. Should the project specifications all for trees in landscape areas already irrigated by conventional means, to be provided with supplementary dripper ring irrigation, these trees shall also not be together on the same irrigation station as trees not irrigated in this way.

- 9.2.4.15 Valve boxes shall be installed over each and every valve, isolation valve, scour valve, pressure regulating valve and air relief valve. They shall be lockable and sized to ensure easy access to the valve encase.

9.3 IRRIGATION INSTALLATION

9.3.1 TRENCH EXCAVATION

- 9.3.1.1 The Contractor shall perform all trench excavations to a depth that will ensure no less than 400 mm of cover, from finished grade, over pipes and / or electrical cables. All excavated material not required for fill or backfill shall be removed and wasted as directed by the Landscape Architect. Trenches shall be excavated true to line, so that a space not less than 100 mm is provided on each side of the pipe.

9.3.2 PIPE ASSEMBLY

- 9.3.2.1 The interior of the pipe shall be thoroughly cleaned of all foreign matter before being lowered into the trench, and shall not be laid in water, water shall be kept out of the trench until the jointing and partial backfilling is complete. When work is not in progress, open ends of pipes and fittings shall be securely closed so that no foreign material will enter the pipes. Any pipe that has the grade or joint disturbed after laying shall be taken up and re-laid.
- 9.3.2.2 Fittings, bends in the pipelines and ends of lines shall be firmly wedged against the vertical undisturbed face of the trench by means of concrete thrust blocks. Size of thrust blocks shall be as per the manufacturer's recommendations for the soil type in which the pipe is installed.
- 9.3.2.3 PVC pipe, couplings and fittings shall be handled and installed in accordance with the manufacturer's recommendations. Each pipe length shall be properly jointed to allow expansion and contraction.
- 9.3.2.4 All pipe installed under hard surfaced roads or proposed roads shall be sleeved in Class 16 PVC. These sleeves shall be of ample size to accept the required materials to pass through them.

9.3.3 **POP-UP SPRINKLERS**

- 9.3.3.1 Sprinkler heads installed in areas where grass has not been established shall be installed at a minimum of 80 mm above grade. Lowering of sprinkler heads to grade shall be done by the contractor after the turf has been established. No heads shall be installed until the Landscape Architect approves the positions and spacing.

9.3.4 **AUTOMATIC CONTROLLER**

- 9.3.4.1 A controller shall be installed as per the manufacturer's recommendations, on pedestal mounts to be set in concrete. The controllers shall be installed in the field as per the irrigation layout plan and with prior approval of the Landscape Architect. Surge protection shall be installed on the primary side of each controller and to each field wire terminal. A 5m distance is recommended between the controller and any other electrical device to prevent the possibility of electrical interference.

9.3.5 **ELECTRICAL WIRING**

- 9.3.5.1 All electrical wiring shall be installed according to local municipal regulations. All wiring shall be bound with tape every 6 (six) metres and shall be a minimum of 50 (fifty) millimetres below the top of the pipe. Care shall be used to leave plenty of slack in the pipe when installing in the trench. Wiring should be encased in a sleeve and 1.5mm house wire must be used.
- 9.3.5.2 All wire installed under hard surfaced roads or proposed roads shall be sleeved in Class 16 PVC. These sleeves shall be of ample size to accept the required materials to pass through them. Wire runs will be accurately marked on the final "As-Built" drawings.

9.3.6 **BACKFILLING / PIPELINE FLUSHING AND TESTING**

- 9.3.6.1 The trenches shall be carefully backfilled with the excavated materials approved for backfilling, consisting of earth. Loam, sandy clay and sand, or other approved materials, free from large clods of earth or stone. Backfilling shall be done in 200 mm layers and properly tamped, so as to prevent subsidence.

9.3.6.2 Any trenches improperly backfilled, or where settlement occurs, shall be reopened to the depth required for compaction, then refilled and compacted with the surface restored to the required grade and compaction, and left in a level surface condition.

9.4 IRRIGATION FINALIZATION

9.4.1 EXCAVATION AND BACKFILL

9.4.1.1 The irrigation sub-contractor shall do all necessary trenching and backfilling required for the proper installation of the systems.

9.4.1.2 The Irrigation sub-contractor shall use backfilling equipment that will tamp the backfill in such a manner that no setting will result.

9.4.1.3 Backfill material will be free from rock, large stones or other unsuitable substances to prevent damage during backfill operations.

9.4.1.4 Backfilling of trenches containing plastic and copper pipe shall be done when the pipe is cool to avoid excessive contraction in cold weather.

9.4.1.5 Minimum depth of cover over pipe 50mm in diameter and smaller is to be 400 mm deep, 63 mm and larger is to be 500mm.

9.4.1.6 Excavations will be in soft and pickable material, where underground structures are encountered the design of the irrigation layout will be amended to avoid such structures.

9.4.1.7 Where trenching occurs behind kerbs/edgings, backfill material must be compacted to 90% MOD AASHTO Density.

9.4.1.8 Materials shall be sorted in such a manner to ensure the preservation of their quality. Suitable location for storage of materials must be arranged with the Main Contractor. Security of storage materials is the responsibility of the Irrigation sub-contractor.

9.5 UTILITIES

- 9.5.1 All damage to utilities and existing water lines will be repaired by the Irrigation sub-contractor at his expense provided the location has been indicated by the Main Contractor when requested by the irrigation sub-contractor.

9.6 IRRIGATION COMPLETION & TESTING

- 9.6.1 During the course of installation where the Irrigation sub-contractor has at least 50% of mainline valves installed, he shall call for a preliminary inspection by Irrigation Manager. The Irrigation sub-contractor is to leave a minimum of 30% of the installation exposed for visual inspection.
- 9.6.2 The entire system will be tested at the normal working pressure of the system. Upon visual inspection of the ground, should any leak be found, it shall be promptly repaired.
- 9.6.3 Testing shall be performed after the backfilling and compaction operation.
- 9.6.4 The system to be pressure tested before trenches are backfilled.

9.7 ADJUSTING THE SYSTEM

- 9.7.1 Upon the completion of the system, the Irrigation sub-contractor shall adjust the sprinkler heads to provide optimum performance.

9.8 AS-BUILT DRAWINGS

- 9.8.1 After completion of installation, the Irrigation sub-contractor shall furnish the Client's representative or Landscape Architect with reproducible "as-built" drawings showing all elements of the system and pipelines to reasonable scale and provide a minimum of two dimensions taken from fixed, obvious objects to each control valve.
- 9.8.2 Instruction sheets and parts lists covering all operating equipment will be bound into a folder and furnished to the Owner's representative or Landscape Architect in two (2) copies.

9.9 INSTRUCTIONS

- 9.9.1 After completion, testing and acceptance of the system the Irrigation sub-contractor will instruct the Client's personnel in the operation and maintenance of the system.

9.10 IRRIGATION WARRANTY (GUARANTEE)

- 9.10.1 For a period of one (1) year from date of completion of the installation, the Irrigation sub-contractor shall promptly furnish and install, without cost to the Owner, any parts that prove defective in material and / or workmanship.
- 9.10.2 Any damage to the equipment not covered by the guarantee will be repaired by the Irrigation sub-contractor and charged to the Owner at the Irrigation sub contractor's regular service rates.
- 9.10.3 It will be the responsibility of the Irrigation sub-contractor to get a signed work order before making any non-warranty repairs.
- 9.10.4 Homeowners shall take cognisance of potable water connection diameters and ensure that garden irrigation systems are designed according to the flow and dynamic pressure that will be available once Pearl Valley is developed to the fullest. The potable water network was designed for a minimum peak draw-off pressure of 25m.

9.11 IRRIGATION PUMPS AND MOTORS

9.11.1 INSTALLATION REQUIREMENTS

- 9.11.1.1 Pumps shall be selected to provide a capacity of 10% in excess of the design flow and be able to cope with the additional friction and pressure involved in this increase. Selection must be within the manufacturer's recommended operating limits.
- 9.11.1.2 Motors shall be protected with an approved starter with overloads set to trip at 5% above full load current.
- 9.11.1.3 Accessible break joints shall be fitted on both suction and delivery pipes.
- 9.11.1.4 An isolating valve shall be fitted on a pump suction and/or delivery piping where flooding can occur.
- 9.11.1.5 All pumps set above a water source shall have a foot valve installed on the suction line and be fitted with a priming device.
- 9.11.1.6 All pumps must be fitted with adequate protection devices to prevent them running dry.
- 9.11.1.7 It is the responsibility of the designer and/ or contractor to establish that the water quality is suitable for the system.

- 9.11.1.8 The capacity for storage tanks shall be adequate for at least one complete irrigation cycle.
- 9.11.1.9 Where fine nozzles are being used and where the water condition warrants it, a cleanable filter of adequate size shall be installed on the mainline inlet of a system.

Irrigation Manager

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