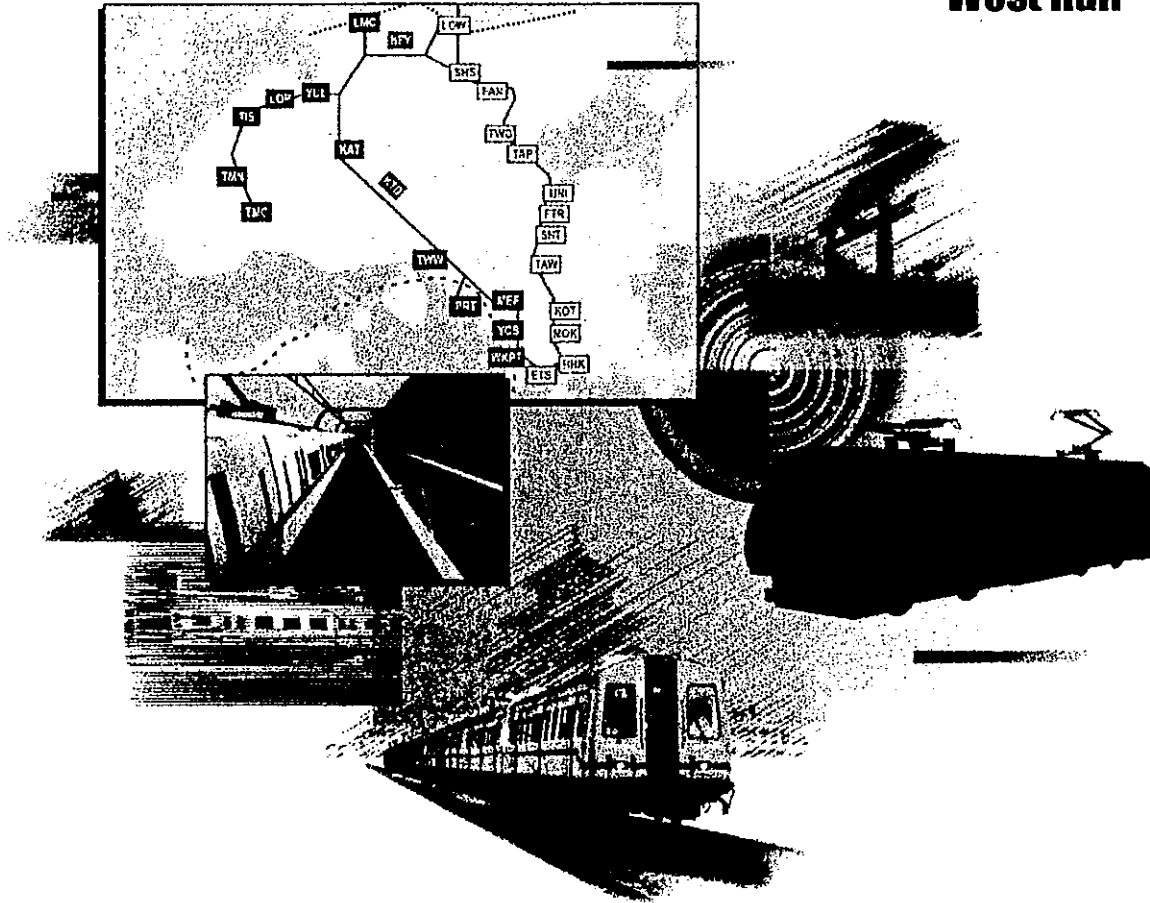


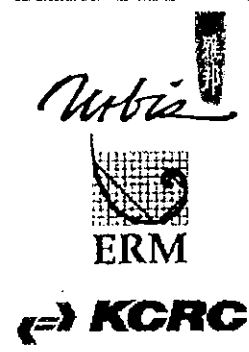
Kowloon-Canton Railway Corporation West Rail



KCRC WEST RAIL DCC RECORD

DCC SCAN DATE: 03 Dec 97
BY: AD PAGES: 44(12/13)
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FILE NAME: 0013-52.pdf

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Contract No. TS-900
Environmental Impact Assessment
Final Landscape Design Strategy Report
Technical Appendices
Volume 2

Kowloon-Canton Railway Corporation

KCRC-WEST RAIL
DCC#: <u>TS0900-0018-2</u>
REF: <u>054231</u>

Contract No. TS-900
West Rail : Environmental Impact Assessment
Final Landscape Design Strategy Report - Volume II
Technical Appendices

17 November 1997

Reference C1588

For and on behalf of ERM-Hong Kong, Ltd
Approved by: <u>J.M. LAISTER</u>
Signed: <u><i>J.M. Laister</i></u>
Position: <u>Deputy Managing Director</u>
Date: <u>14 November 1997</u>



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List of Acronyms and Abbreviations

KCRC	Kowloon-Canton Railway Corporation
LDSR	Landscape Design Strategy Report
USD	Urban Services Department

1.0 INTRODUCTION

1.1 Objective of Volume 2

The objective of Volume 2 of the Landscape Design Strategy Report is to create themes for common soft and hard landscape features to be used by all Engineering Design Consultants in the production of Directive Drawings and Detailed Design of West Rail.

1.2 Report Methodology

The objective of the Landscape Design Strategy Report Volume 1 was to establish the design principles and guidelines for all landscape and visual aspects of the West Rail to be used by the Engineering Design Consultants in formulating the planting and landscape maintenance strategies under the other Technical Studies.

The Landscape Design Strategy Report recommended landscape solutions for each situation along the Corridor which reflected and enhanced the existing and known proposed character of the surroundings, and, where possible, heightened the passenger experience and public perception of West Rail.

The proposals were subdivided into those which were system-wide and those which were context specific. They were further divided into more detailed proposals which should be used in later detailed design phases in order to create a co-ordinated range of hard and soft landscape details and materials which would create a consistent theme and image throughout West Rail.

Volume 2 creates themes for common landscape features and recommends appropriate locations for their use as developed in the Landscape Strategy.

1.3 Report Structure

Volume 2 comprises Technical Appendices I and II.

Technical Appendix I identifies the Detail Landscape Hardworks Strategy. Typical details for common hard landscape elements are proposed and appropriate locations for their use.

Technical Appendix II identifies the Detail Landscape Softworks Strategy. Recommended species lists are provided for use in specific types of location. Maintenance regimes are also proposed.

1.4 How to use this Report

All Engineering Design Consultants should read the Technical Appendices in Volume 2 in conjunction with the Landscape Design Strategy in Volume 1.

All Engineering Design Consultants should:

- Understand and adopt the Design Parameters and System-wide Landscape Strategy Proposals outlined in Volume 1 of the Landscape Design Strategy Report.
- Refer to the information in Technical Appendices I and II of Volume 2 during Phase II of the Technical Studies and during the subsequent detailed design of the West Rail.





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2.0 HARDWORKS STRATEGY

2.1 Design Methodology

The stages in the design process which specifically relate to the Hard Landscape Strategy are shown below.

2.1.1 Site Survey

Purpose- to record information on the following:

- Pedestrian and vehicular surfaces - note which routes are likely to be severed as a result of the construction and the type and condition of existing surface treatment.
- Boundary treatment - note the type, condition and location of private boundary treatment likely to be disrupted or removed during the construction process and record all vehicular and pedestrian entrance and exit points.
- Site utilities - note the presence of existing site utilities and the extent of likely disruption from excavation.
- Surrounding streetscape - note the scale of the space surrounding the area to be redesigned and record the style, colour, texture and materials of the adjacent buildings.
- Street furniture - note the presence, location, style and condition of any existing street furniture.

2.1.2 Detailed design

Purpose- to decide the following:

- Function - the function of each element of hard landscape should be seen within the context of other West Rail facilities and their immediate surrounds. Facilities should be provided for the use of West Rail passenger and staff, except where the presence and function of the railway corridor has been incorporated into the adjacent landuse e.g. West Rail within Lai Chi Kok Park in the Southern Section of the alignment. There may be a range of functions for each element e.g. signage can be informative or purely directional, and it will be necessary to state exactly which type of hard landscape feature is required.

- Location - hard landscape features should be located to consider trackside safety and to avoid obstruction to safety exits, through routes or maintenance facilities. Individual elements of street furniture should be located to assist passenger circulation throughout KCRC property. The range of paving materials should highlight exit and entrance points and features of streetscape interest.
- Position - items of street furniture should be positioned to relate to the general direction of pedestrian, train and vehicular traffic flow e.g. seats on platforms should be positioned parallel to the direction of train travel. There should be sufficient clearance around individual elements for emptying and cleaning.
- Design theme - all street furniture has been designed to conform as far as possible to the general ovoid theme of West Rail. The detailed design of the immediate surrounds should have consideration to this theme. Many elements of street furniture will be made of corrosion resistant materials/finishes to allow for use of the same design internally and externally.
- West Rail logo - the design of all items of street furniture can include the West Rail logo if required. It is also possible to include the logo within areas of decorative paving.

2.1.3. Maintenance

Purpose- to ensure hard landscape elements are kept in good condition, are replaced when necessary and do not become a safety hazard.

- Materials for the construction and finish of elements of street furniture will be corrosion resistant to minimise maintenance. Sufficient room should be allowed for access around each element for regular maintenance and for cleaning and repairs to the ground surface material.

2.2 Typical details

Figures 2.2.1-2.2.10 illustrate typical details for hard landscape features for use in the preparation of Directive Drawings and detailed design of external spaces for West Rail. Text describes issues specific to the design, construction and maintenance of each item.

Table 2.01 *Hardworks/ location matrix* illustrates the recommended use of each item of hard landscape within likely urban and rural situations along the route of West Rail.

Table 2.01 *Hardworks/ location matrix*

ITEMS OF HARD LANDSCAPE	URBAN					RURAL				
	At Grade	Cut and Cover Tunnel	Embankment	Under Viaduct	Station Areas	Embankment	Cutting	Under Viaduct	Station Areas	
Boundary Markers	X	X	X	X	X	X	X	X	X	
Fencing	X	X	X	X	X	X	X	X	X	
Lighting	X			X	X				X	
Litterbins	X	X		X	X				X	
Paving Materials	X	X	X	X	X	X	X	X	X	
Raised Planters	X			X	X				X	
Seating	X	X		X	X				X	
Signage	X			X	X				X	
Tree Grille and Guards	X			X	X				X	
Water Points	X	X	X	X	X				X	

X- Indicates item of Hard Landscape suitable for specific location



HARDWORKS STRATEGY**2.2.1 BOUNDARY MARKER****Function**

Boundary markers should be used to mark KCRC property line where access into the railway corridor by non-KCRC personnel is permitted. Markers should be used instead of fencing where continuity of landuse within the railway corridor and adjacent land is appropriate.

Location

Typical locations for the use of boundary markers:

- Along KCRC boundary under railway viaducts.
- Along KCRC boundary where the railway corridor is part of an area of open space owned by others.

Design

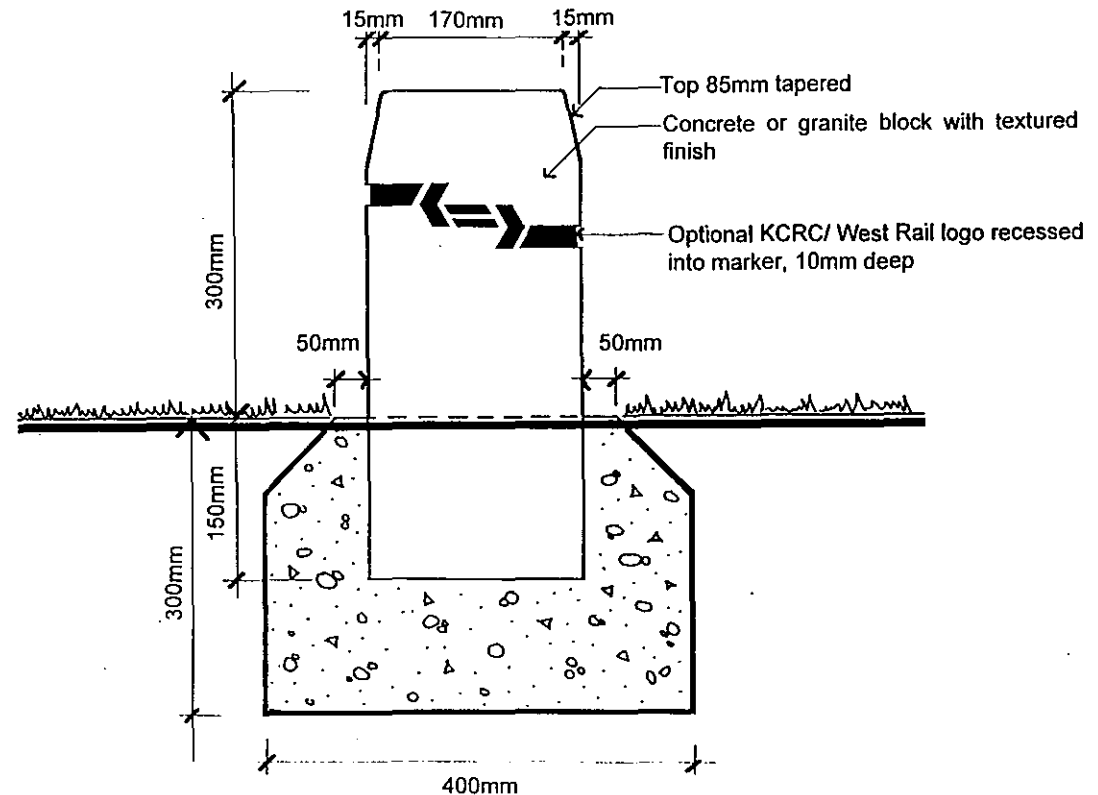
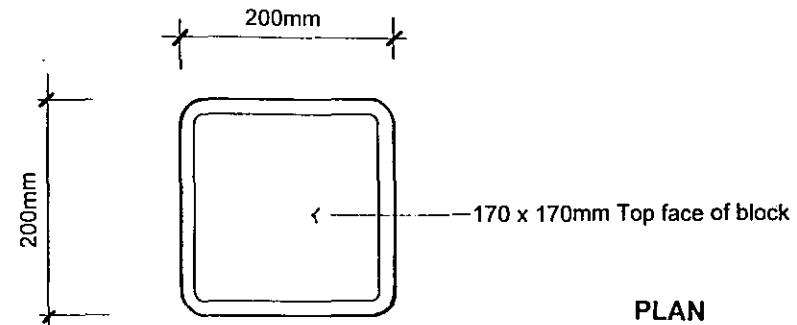
Markers should be 200 x 200 x 300mm high, of local granite for urban areas and of concrete for rural areas. Granite markers should be light in colour and of smooth finish. Corners should be rounded. Concrete markers should be of coloured concrete (e.g. Shadecrete) to blend with local earth colours in rural areas and of textured finish. Corners should be rounded.

Incorporation of logo

Logo should be carved into surface of marker by a 10mm recess.

Maintenance

Markers should require no specific maintenance. However, clearance of weeds from around markers should be included in the Soft landscape Maintenance Schedule of adjacent area.



2.2.2 FENCING

Location

Fencing may be necessary in the following locations:

- Where access into KCRC property for non KCRC personnel is prohibited for security or safety reasons, i.e. at the top of steep cuttings and at the foot of railway embankments, into tunnel portal, around a Rail Yard or Terminal etc.
- Where access from the railway corridor into the adjacent landuse is dangerous i.e. into an existing transportation corridor.
- Where existing fencing is inadequate or not provided.
- Where a barrier is required to separate private land from KCRC land.

Note it is proposed that where screening of KCRC land or property is necessary, that this should be achieved using soft landscape methods. (See Technical Appendix II for methods of establishing screen planting).

Position

At the perimeter of KCRC land fencing to be positioned 1 meter within KCRC ownership boundary so that adjacent property does not abut directly onto KCRC land. Refer to System-wide Design Strategy in Landscape Design Strategy Report for illustration on positioning of fence.

At the top of cuttings fencing to be located so that drainage channels and splash paths are within KCRC property, 1 m wide path to be located beyond fenceline as above. (See section on paving for treatment to resulting 1 m wide boundary path).

Lockable gates should be provided at convenient locations to facilitate maintenance and emergency requirements.

Design

Safety: All metal fencing near overhead electrical lines should be earthed according to current electrical guidelines.

Fence types- 2 types of fence are recommended:

Type 1 : Weld mesh panel fence for general boundary treatment. Type 1 fence to have 80% transparency to maintain passenger views across the KCRC boundary. Type 1 fencing to be rigid and of sturdy configuration.

Size- Fence to be 1.5m high along KCRC boundary where access is restricted to controlled points. Width of panels 2300mm. Mesh size 200 x 60mm. Spacing between posts c/c 2360mm.

Materials- Posts and panels to be of galvanised steel with high adhesive plastic coating.

Type 2: Continuous footing steel palisade fencing. This fence type has no rails and is suitable as a security fence. Type 2 can also be used to suit the ground contours of undulating terrain without the need for expensive shop fabrication.

Size

Height above ground level of palisades max. 2440mm. Minimum depth of palisade below ground is 200mm. C-shaped sectional palisades should be 57mm x 43mm.

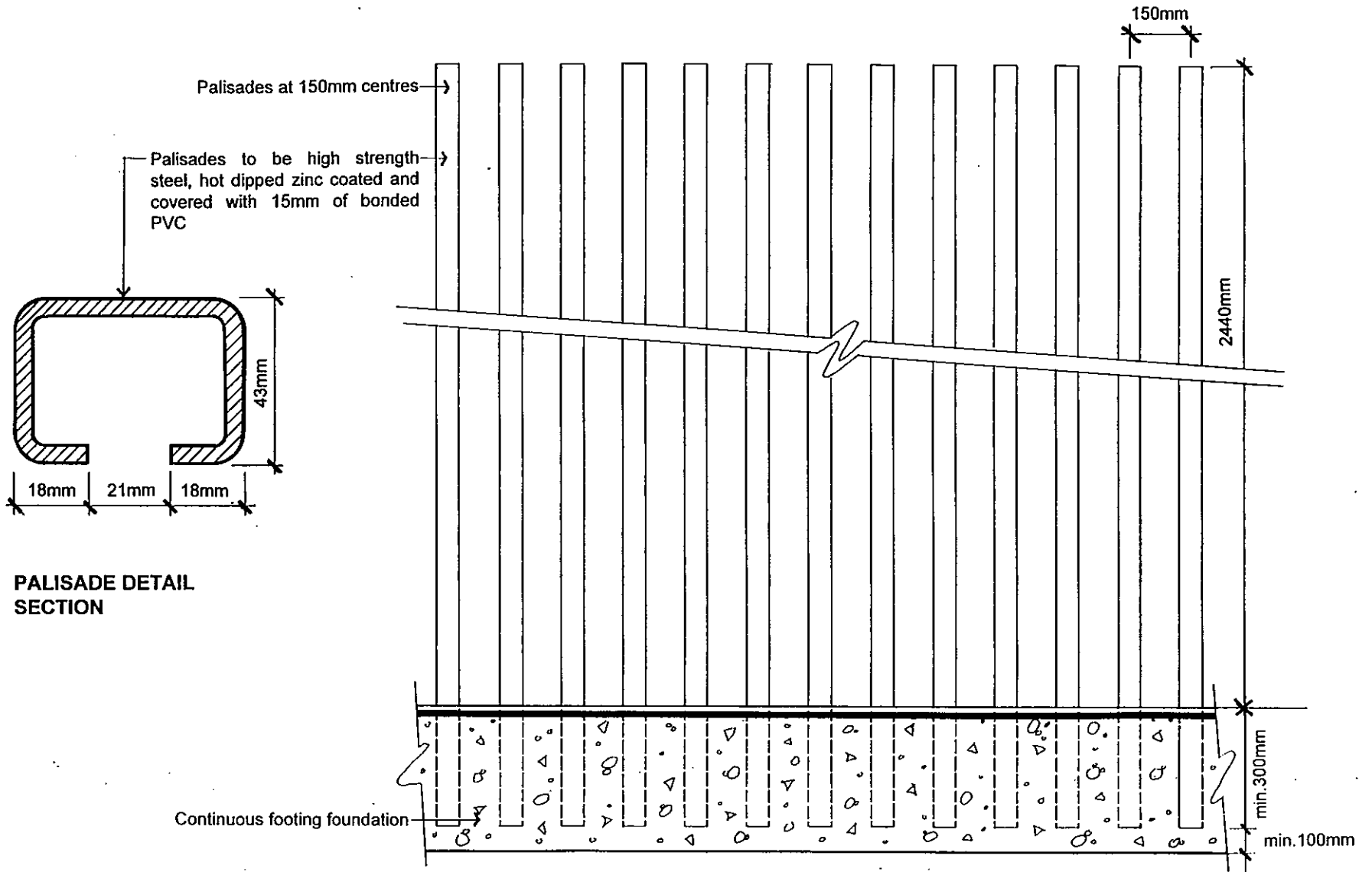
Material

Palisades to be high strength steel, hot dipped zinc coated and covered with 10 -15mm of bonded PVC.

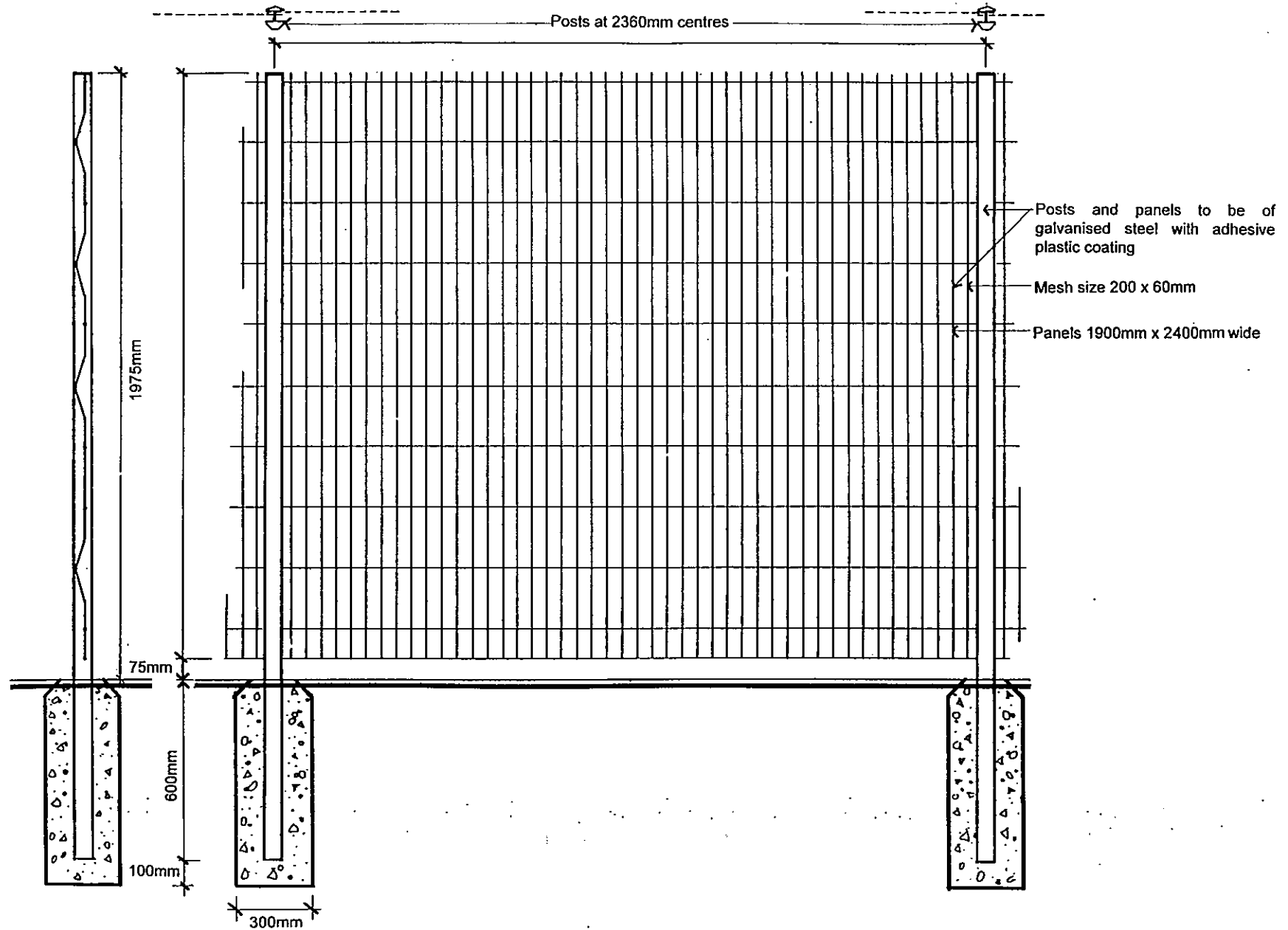
Maintenance

Maintenance for fencing is minimal. PVC coating cannot be pulled off therefore the risk of corrosion or reduced.

TYPICAL DETAILS



ELEVATION
CONTINUOUS FOOTING STEEL PALISADE FENCE



SECTION

ELEVATION
WELD MESH PANEL FENCE



TYPICAL DETAILS
LANDSCAPE DESIGN STRATEGY REPORT
TECHNICAL APPENDIX I
DETAIL LANDSCAPE HARDWORKS STRATEGY

HARDWORKS STRATEGY

2.2.3 LIGHTING

Function and location

Externally, lighting should be required to increase pedestrian security around KCRC property, to highlight entrance/exit points, at maintenance areas and to illuminate signage. Lighting will be used at station forecourts, on platforms and under viaducts, within the Depots, Yards and Terminals.

Position

Lighting should be positioned so as not to obstruct pedestrian routes or safety exits. Wall mounted signs or lights suspended from ceilings should be used where possible.

Design, size, materials, finishes, colours

All lighting should be directional and have baffles incorporated within the design so as to reduce light glare on surrounding areas. The height of lights should be in scale with surrounding location and landscape features i.e. Maximum 4m high in open pedestrian areas and on station platforms and according to manufacturers recommendations. Additional facilities such as clocks, loudspeakers or CCTV cameras mounted to lighting columns should have a head clearance of minimum 2m.

Light columns should be of seamless round aluminium tube and welded to a cast aluminium base. Poles should be round and non-tapered, have a flush cast aluminium pole cap and can be single or double side arm mounted. Poles should have an external base plate to cover ground fixing and fittings. All lights should be finished in polyester powder coat paint, over a chromate conversion coating. The recommended colour of the finish should be 'neutral' so that they do not become visually dominant.

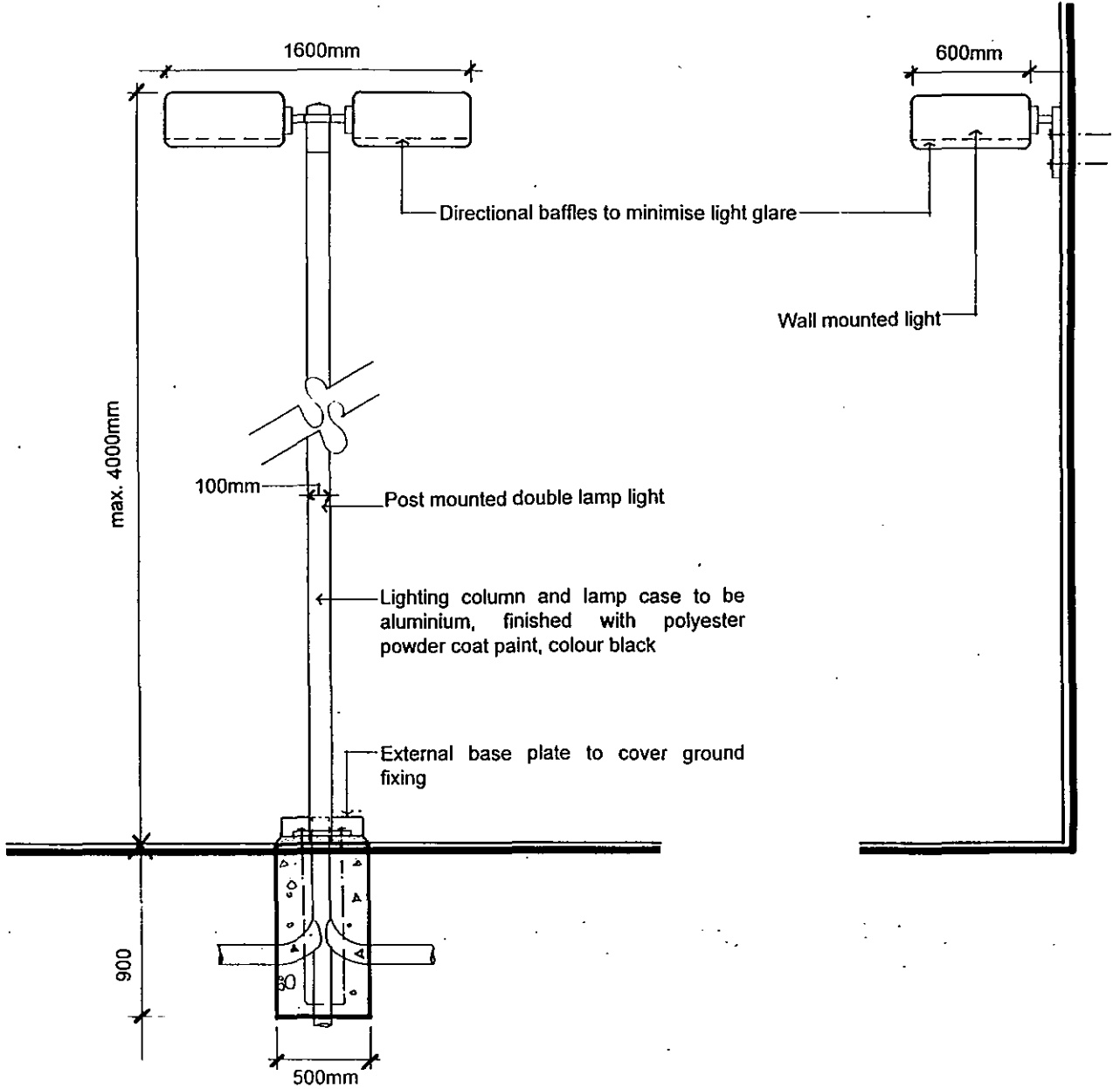
All metalwork associated with lighting fittings near to overhead electrical lines should be earthed according to current electrical guidelines as a protective measure.

Incorporation of logo

It is not necessary to incorporate a logo onto lighting fittings, a well designed co-ordinated range of lighting should create a theme for West Rail property.

Maintenance

Lights should be maintained regularly to ensure that the bulb is working, protective coating is intact, corrosion or structural damage has not occurred and that anchor fixing bolts are tight.



SECTION

ELEVATION LIGHTS

HARDWORKS STRATEGY

2.2.4 LITTERBINS

Locations

Litterbins should be located at the entrances to KCRC stations, next to sitting areas and near to shops within KCRC property.

Position

Litterbins should be positioned so that they do not obstruct pedestrian routes, emergency exits, or block access to railway maintenance facilities. There should be sufficient clearance around litterbins for emptying and cleaning.

Design

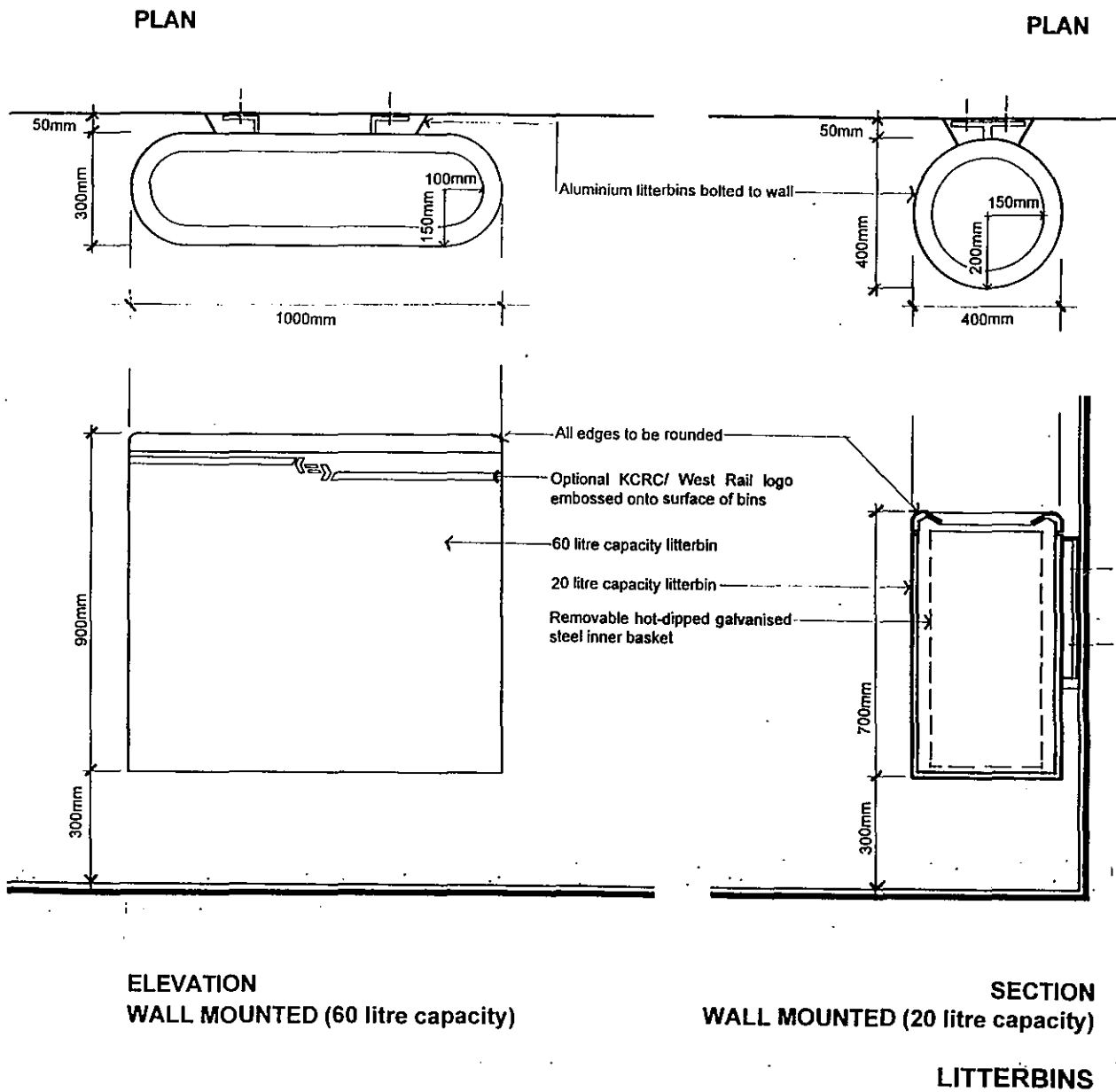
A variety of litterbin sizes and styles is required for all potential locations within KCRC property. Both free-standing (bolted to ground) and wall-mounted litterbins are recommended, however wall-mounted are preferred to minimise obstruction at ground level. Wall-mounted bins should be fixed with a clearance of min. 300 mm at ground level to allow for cleaning of floor surface.

The size of bin should vary according to the location and probable usage i.e. the largest bins at station entrances and around station shops should be approx. 60 litre capacity and the smaller bins 20 litre capacity. Litterbins should have optional ashtray inserts for location such as station entrances.

Litterbins should be stainless steel or aluminium with a removable hot-dip galvanised steel inner basket for maintenance/ cleaning. KCRC logo can be embossed onto the surface of litterbins by a recessed pattern incorporated at manufacturing stage, otherwise the logo can be painted onto the surface with polyester powder coating.

Maintenance

Bins should be emptied as soon as they have become filled and the external surfaces should be washed with a non abrasive cloth to avoid damage to protective coating. Litterbins should be checked regularly to ensure that protective coating is intact, anchor bolts are tight, and that corrosion or structural damage has not occurred.





HARDWORKS STRATEGY

2.2.5 PAVING MATERIALS

Location

External paving should be located in the following places: station platforms, station forecourts, service entrances to stations and ancillary buildings, pedestrian and vehicular surfaces throughout the West Rail Depots, Northern Freight Yard and Port Rail Terminal

Position

Decorative patterns and directive bands of paving should be positioned to highlight station entrances and streetscape features and comprise a range of colours, textures and finishes.

A hard wearing surface should be selected for areas to infill decorative patterns and for areas where there should be a high use e.g. station platforms.

Less decorative inexpensive material should be used for pedestrian and vehicle surfaces in maintenance areas and ancillary buildings, carparks and drop-off areas.

Design, size, materials, finishes, colours

Decorative patterns and directive bands of paving should be of ceramic tiles and reconstituted granite in a range of sizes and colours to match the modular interior paving and adjacent surfaces. Both ceramic and reconstituted granite tiles have textured surfaces for grip and the latter is available in tactile form to assist the disabled.

Washed grano surface should be used where large expanses of hard wearing surface are required. It can be laid insitu to a high quality, smooth finish in a range of colours and is laid on a concrete screed to avoid problems of settlement often associated with expanses of paving in pedestrian area. Carburandum strips can be inserted into washed grano to provide a strip resistant ramp or at the interface of an external and internal surface.

Precast concrete pavers should be used for pedestrian surfaces in maintenance areas and around ancillary buildings in a range of dark colours.

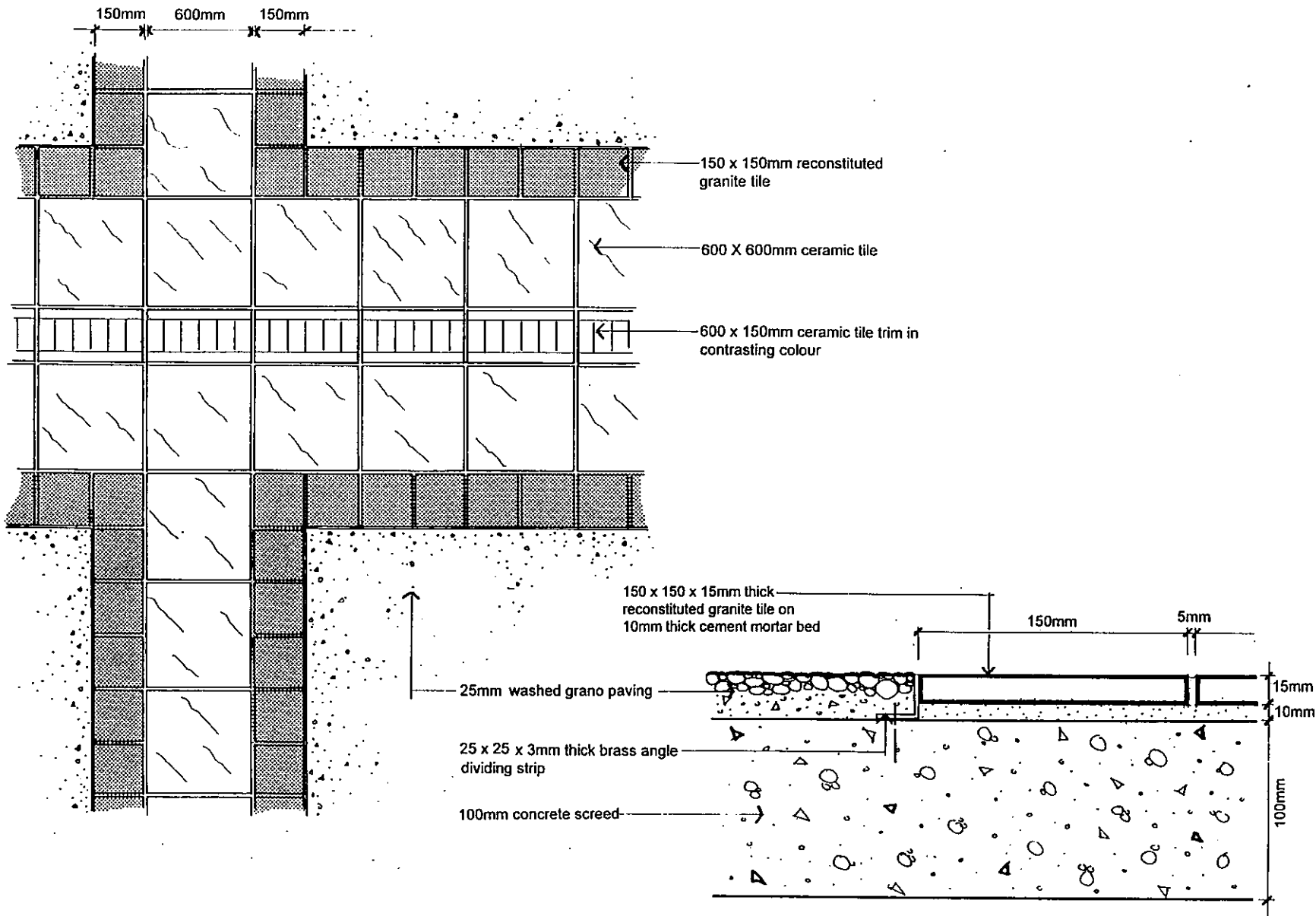
Precast concrete pavers or brushed concrete should be used for vehicular surfaces.

Cost comparison (Costs include supply of all material from sub base to surface level and labour. Costs are current i.e. 1997 prices)

Ceramic tiles	HK\$ 400/m ²
Reconstituted granite 650/m ²	HK\$
Washed grano surface	HK\$ 400/m ²
Precast concrete pavers	HK\$ 270/m ²
In-situ concrete	HK\$ 180/m ²

Maintenance

Maintenance of paved areas should be carried out regularly to ensure surfaces are at the designed fall and that individual paving stones are firm.



**PLAN
TYPICAL LAYOUT OF
DECORATIVE PAVING**

**SECTION
INTERFACE OF WASHED GRANO
WITH RECONSTITUTED GRANITE TILE**

PAVING

HARDWORKS STRATEGY

2.2.6 RAISED PLANTERS

Function and Location

Raised planters should be used within urban situations to highlight a station entrance or landscape feature or to restrict access around a buildings or structure.

Position

The raised planter and planting should not obscure traffic sight lines, views of station entrances, access to emergency exits around buildings or where access is required underneath elevated structures.

Where the raised planter wall is adjacent to a footpath or station entrance and where there is insufficient space for a seat, the wall should be designed to provide short term seating.

Where the planter is adjacent to a road, the wall should be positioned to create a 500mm refuge strip. Adjacent to a road the design of the planter walls should not permit sitting.

Design

Planter walls should be minimum 350mm high and 350mm in depth to allow for occasional sitting. The walls should be of reinforced concrete, finished to match adjacent building, viaduct pier of footpath surface. Otherwise finish should be rubbed grano 5-10mm nom.

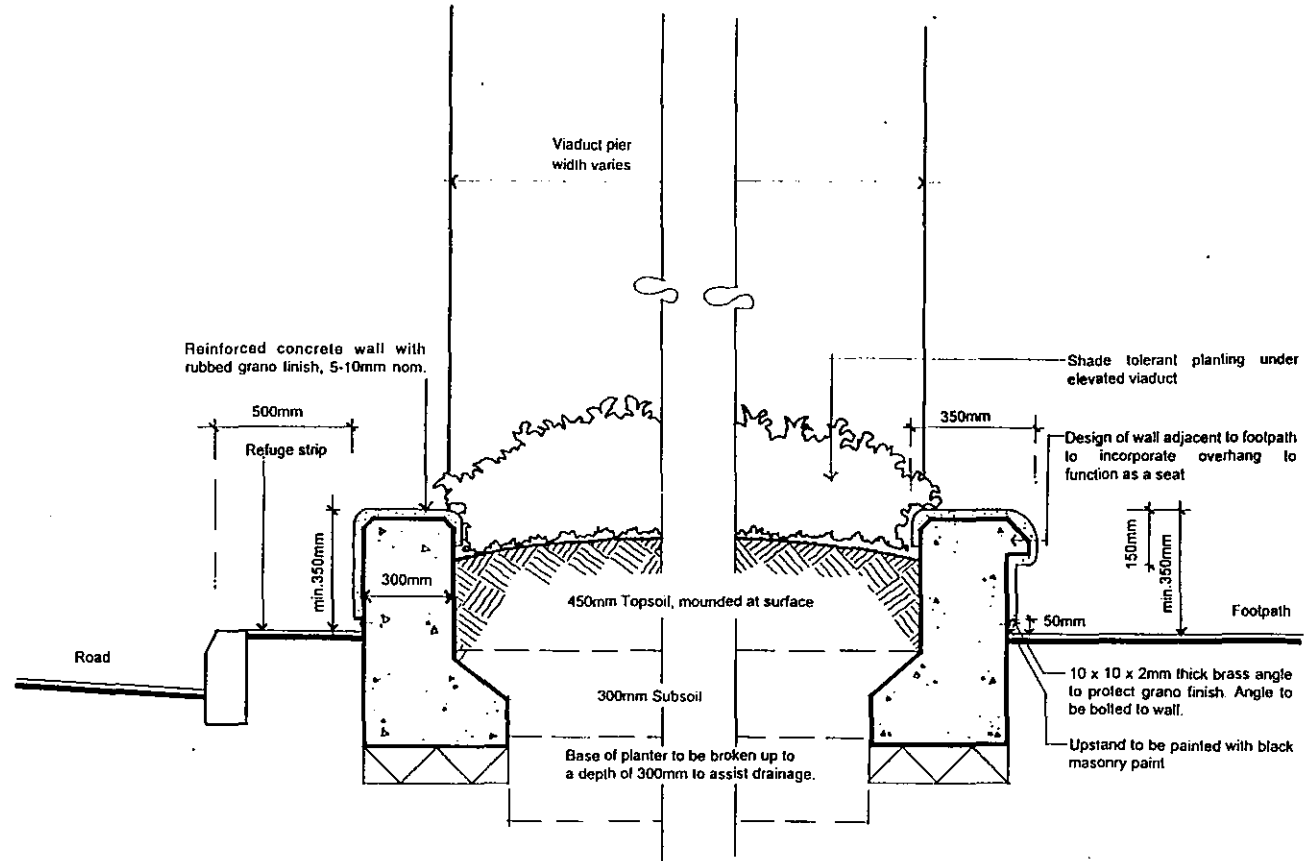
Planters should be minimum 1.5m wide to allow sufficient space for the establishment of a substantial and effective display of planting.

Planters constructed at ground level should contain 300mm depth subsoil and 450mm topsoil or fabricated soil. The base of free-draining planters should be broken up to a depth of 300mm to assist drainage.

Planters constructed on a structural slab should contain 100% topsoil or fabricated soil i.e. no subsoil. Topsoil or fabricated soil should be minimum 450mm in depth. These planters should have a 100mm depth aggregate drainage layer and weep holes for the removal of surplus water at ground level.

Maintenance

Maintenance of planting within raised planters should be according to schedule in Technical Appendix II. Planter walls require no specific maintenance after construction other than checks on the condition of the finish.

SECTION
RAISED PLANTER

HARDWORKS STRATEGY

2.2.7 SEATING

Function and location

Generally seats should be provided for waiting West Rail passengers within KCRC property, typically on station platforms and at station forecourts. However, where the route of West Rail has created new areas of public open space, seats could also be included.

Position

Seats should not obstruct pedestrian routes, emergency exits, EVA's or West Rail signage, or block access to railway maintenance facilities.

Design

A co-ordinated range of seats is required to suit all potential locations.

For external use single-aspect wall-mounted seats with backs are recommended where possible to minimise obstructions at floor level.

Double/twin-aspect, free-standing seats with backrests are recommended for use on platforms, positioned parallel with the direction of train movement.

All seat types should have uprights to divide seat places and to avoid nighttime occupation

Seats should be capable of seating a minimum of 3 to 4 people and should be flexible in design to allow for a variety of sizes.

The overall height of seats varies between 700-760 mm high and the depth 350- 550 mm. The width of each seat is approx. 400 mm. The overall length of the seat depends on the number of seat places required.

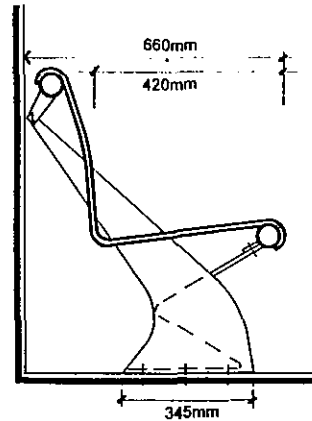
Seats should be made of stainless steel and/or aluminium to allow for use internally and externally.

The structural supports to be of stainless steel and the seat portion of rolled aluminium. All fixings to be of stainless steel and seats should be bolted into a supporting wall or at ground level.

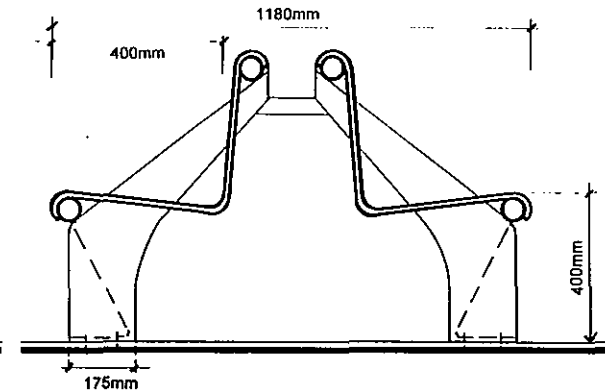
Maintenance

Seats should be maintained regularly to ensure that protective coating is intact, corrosion or structural damage has not occurred and that the fixing method is secure.

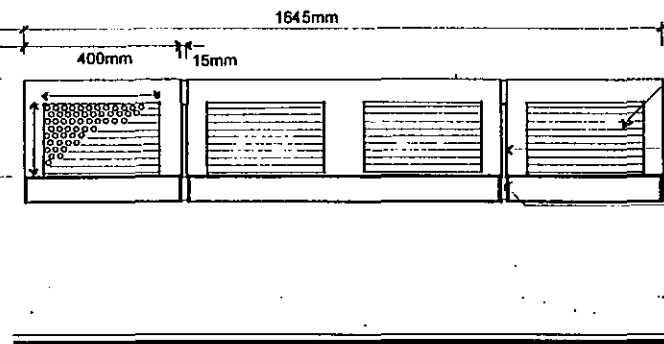
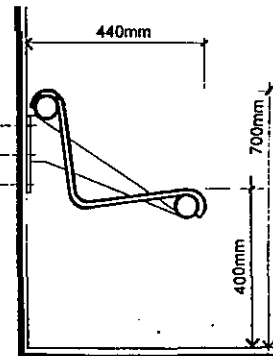
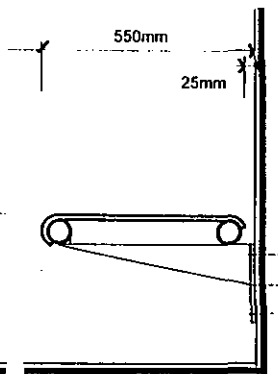
**SECTION
FREE STANDING
SEAT WITH BACK**



**SECTION
FREE STANDING
TWIN SEAT WITH BACK**



**SECTION
WALL MOUNTED
SEAT WITHOUT BACK**



- Rolled aluminium seat with perforated panel. Panel holes 8mm diam.
- Bracket 10mm thick, welded to hollow section and to wall plate
- 60mm hollow stainless steel section

**SECTION
WALL MOUNTED SEAT
WITH BACK (preferred option)**

ELEVATION

SEATS



HARDWORKS STRATEGY

2.2.8 SIGNAGE

Function

Signage should be used to direct members of the public to and from all new KCRC/ West Rail facilities. A range of signs is required to display information relating to specific facilities or services and to highlight relevant place names.

Locations

The location and clarity of signage will determine the ease of passenger circulation to, from and within KCRC property. Signs should be located to relate to the direction of traffic /pedestrian flow and to avoid obstruction of safety exits, through routes or maintenance facilities.

At street level signs are required to indicate the following facilities:

- Station entrances
- Carpark areas
- EVA's
- Railway crossing points

On station platforms and concourses signs should be required to highlight the presence of and direction to the following:

- Station name
- Platform and emergency exit points
- General passenger facilities

Design

The generic design for signage for West Rail should be developed from the station name signs already in place at East Rail stations. Signs should be simple in shape so as not to detract from the information being displayed and with curved edges to conform with the general ovoid theme of West Rail structures. Signs should be of stainless steel or aluminium for continuity of material internally and externally. Surfaces should be a mixture of polished and matt metallic finishes. Lettering/ characters should be painted in a bold colour to contrast with the background material.

3 types of signs are proposed depending on available fixing method, existing obstructions at ground level, desired viewing distance and location of viewer.

KCRC/ West Rail logo can be incorporated onto all signs using corporate colours. The logo should be located in the same position on all signs to further enhance the co-ordinated range of signs.

Type 1 Free standing signs

Free standing signs should be used in locations where double-aspect visibility of information is desired i.e. along the centreline of station platforms or where fixing to a wall or ceiling is not possible.

Where information is displayed primarily for passengers within passing trains, lettering should be positioned at approx. 1.5m in height above ground. Where information on free standing signs is intended for pedestrian use, information should be displayed as near as possible to eye level. Posts for free standing signs should be circular and fixed at ground level with curved cover plates for minimum pedestrian obstruction.

Type 2 Suspended signs

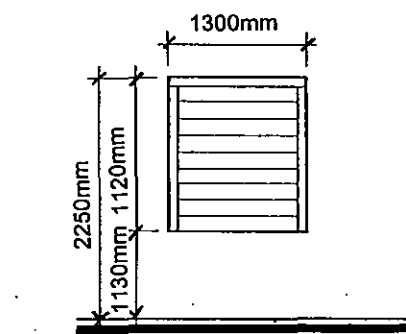
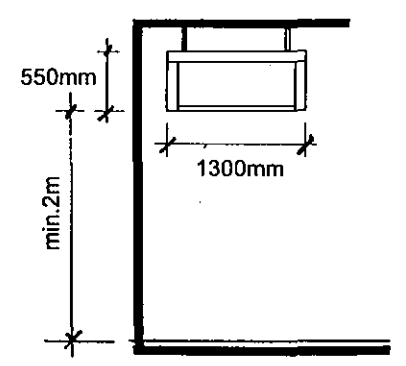
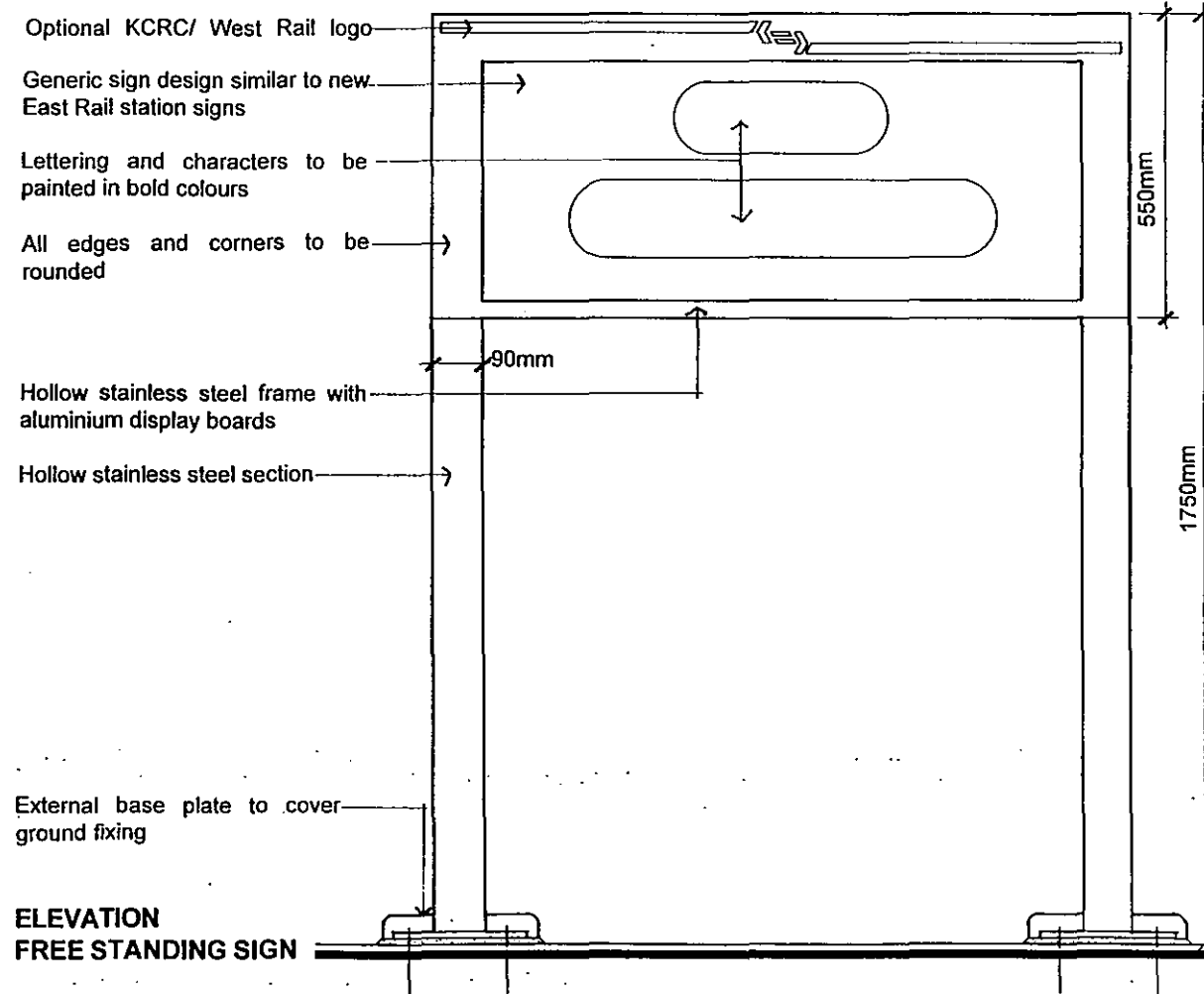
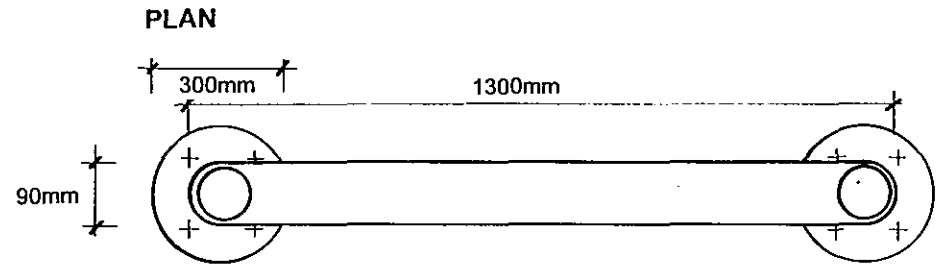
Suspended signs should be used over main pedestrian through routes and where information will be read from a distance. Suspended signs should have a head clearance of min 2m to ensure the information can be seen over all possible obstructions at ground level.

Type 3 Wall mounted signs

Wall mounted signs should be located where there is sufficient space for viewers to stand and read the information on display without causing an obstruction. In general the main information should be displayed at eye level i.e. approx. 1.5m in height above ground with additional information above or below.

Maintenance

Signs should be cleaned regularly so that the information remains visible, that the fixing method is secure and that associated lighting (if present) is functioning.



SIGNS

HARDWORKS STRATEGY

2.2.9 TREE GRILLES AND GUARDS

Function

Trees in paved areas may be liable to damage by vehicular traffic and should be protected with grilles and guards. Trees with grilles and guards should be located where recommended in Technical Appendix II: Detail Landscape Softworks Strategy.

Locations

Typical locations where tree grilles and guards may be necessary within KCRC property are:

- Station forecourts
- Within footpaths around KCRC/ West Rail buildings
- Open air carparks

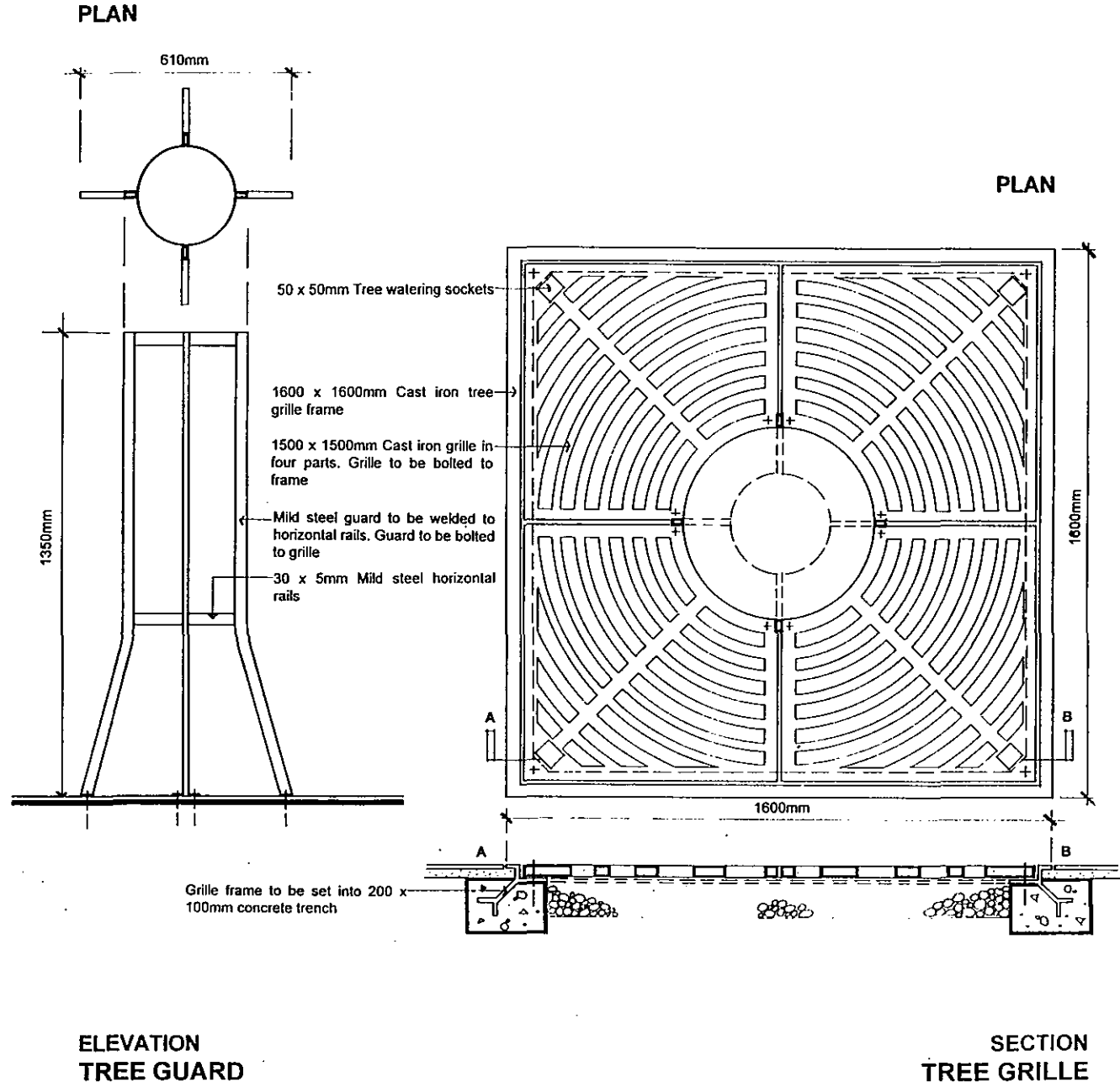
It is unlikely that trees should be planted within station buildings.

Design

Tree grilles should be square in plan to facilitate modular patterns within surrounding paving. Upright elements should be slender and joints in metal should be curved to avoid rigid corners. Tree guards should be 1350 mm in height and fixed into a grille with frame 1600 x 1600 mm in size. The guard should be of mild steel, polyester powder coated and the grille and frame should be of cast iron painted black.

Maintenance

Regular maintenance of the grille and guard should ensure that the frame is flush with surrounding paving, that all fixings are tight, that protective coating is intact and that the guard is not obstructing the normal growth of the tree. Regular maintenance should also involve removal of litter and debris within the guard and grille which could obstruct access to drainage layer.



HARDWORKS STRATEGY

2.2.10 WATERPOINT

Locations

Water points should be located to maintain areas of decorative planting and planting in raised containers. Water points should not be provided for planting in rural areas as planting will be designed to be drought resistant. Refer to Technical Appendix 2 for provision of water to planting in urban and rural areas during establishment maintenance period.

Position

Water points should be positioned within West Rail property and in a position that is clearly identified i.e. not obscured by fencing or planting and at intervals of not less than 50m.

Design, size, materials, finishes, colours

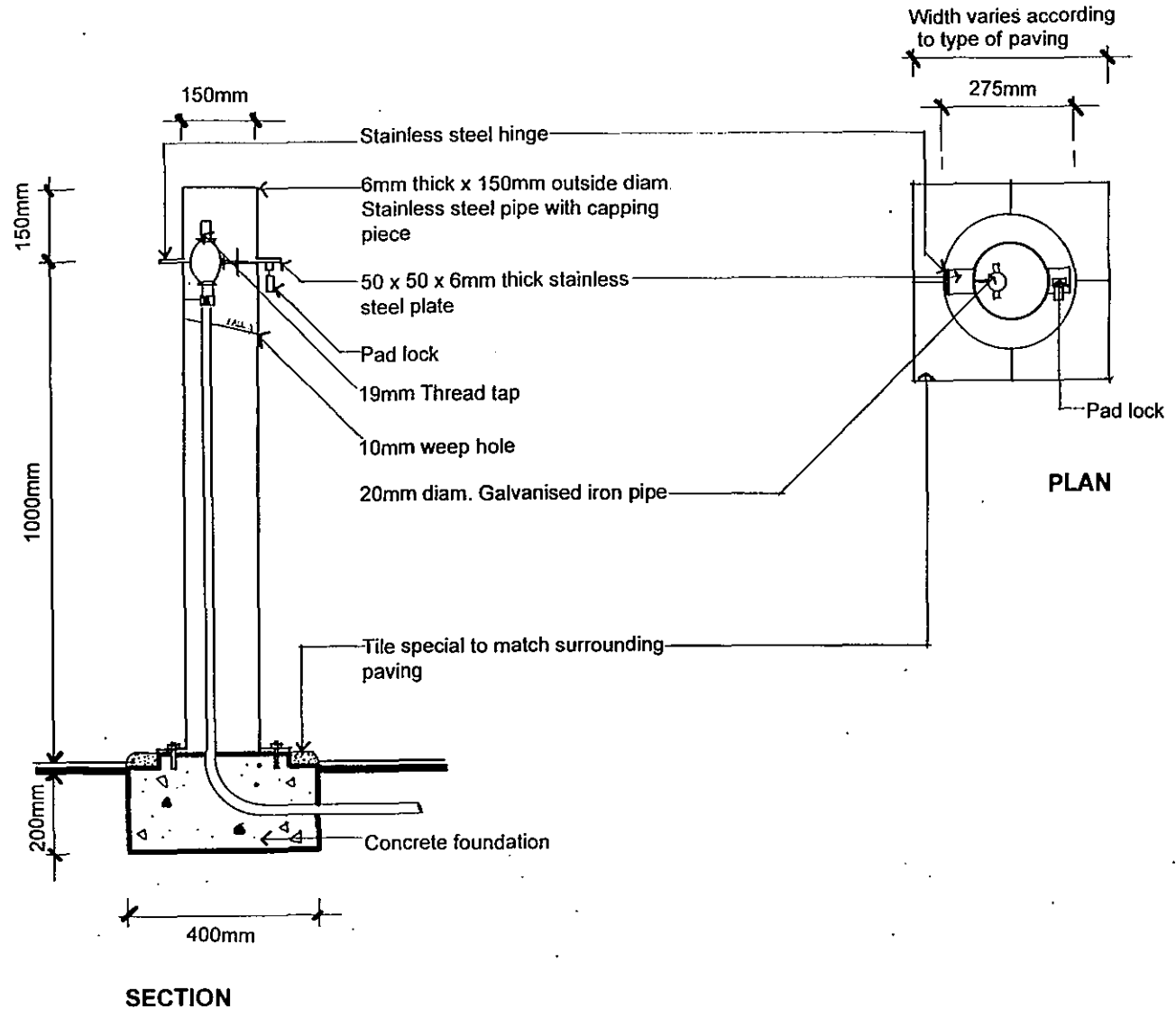
Water point should be 1150 mm in height x 150 mm in diameter, of stainless steel 6 mm thick. Water should be supplied through a 20 mm galvanised iron pipe, the thread tap should be protected by a stainless steel case.

Incorporation of logo

KCRC logo can be on the surface of water point by a recessed pattern incorporated at manufacturing stage. The logo could also be painted onto the surface with polyester powder coating.

Maintenance

Water points should be maintained regularly to ensure that protective coating is intact, corrosion or structural damage has not occurred and that anchor bolts are tight. External surfaces of the water point should be washed with a non abrasive cloth to avoid damage to protective coating.



WATER POINT



PAGE NOT USED



3.0 SOFTWARES STRATEGY

3.1 Design Methodology

The stages in the design process which specifically relate to the Softworks Landscape Strategy are shown below.

3.1.1. Site survey

Purpose- to record information on the following:

- Boundary treatment - note the type, condition and location of planted boundary treatment likely to be disrupted or removed during the construction process and record all vehicular and pedestrian entrance and exit points.
- Site utilities - note the presence of existing site utilities across existing soft landscape areas and the extent of likely disruption from excavation.
- Surrounding environment - note the presence of soft landscape features in the area adjacent to the railway corridor, identify species, record their height and condition and note any site specific conditions which would effect the establishment of areas of planting.

3.1.2. Detailed design

Purpose- to decide the following:

- Function - plant themes with specific functions previously identified in the Landscape Design Strategy Report area shown below.

Screen Planting - this type of planting will be used to obscure visibility of certain aspects of West Rail from Visually Sensitive Receivers as highlighted in the TS-900 Visual and Landscape Assessment of the Initial Assessment Report. Screen planting will also be used to obscure passenger visibility where necessary.

Structure Planting - this type of planting will be used as advance planting to create a framework within which development and further soft landscape works can take place.

Woodland planting - this type of planting will be used to create woodland edge type planting or expand upon an existing woodland adjacent to the railway corridor.

Screen Planting, Structure Planting and Woodland planting comprise different percentage mixes of fast growing pioneer species which can establish in poor environmental conditions and shade, dominant woodland trees, and shrubs. Ornamental plants are included within the mix for use where suitable i.e. within an urban setting.

Street Trees - street trees will be used in urban locations to replace or supplement existing street trees removed during the construction of West Rail. They may also be used to enhance aspects of KCRC property, within road central reservations or within footpaths for general street planting. Street trees can establish and grow in urban conditions.

Ornamental plants - ornamental plants may be used to enhance aspects of West Rail and KCRC property particularly within urban settings. They can be used to provide shade and to add colour, scent and texture along the route of the railway. This type of planting will comprise trees, conifers, palms, shrubs and climbers.

Hydroseeding - hydroseeding is the application of a specified mixture of seed, mulch, fertiliser and soil binding agent in aqueous suspension by high pressure spraying. Hydroseeding will be used in location where access for hand sowing of seed is difficult i.e. on a steep slope. The mixture of seed will comprise either grass only or a mixture of grass and shrubs.

- Location - the soft landscape proposals illustrated in the Landscape Design Strategy Report were subdivided into those which were system-wide and those which were context specific. The system-wide guidelines describe soft landscape treatment for typical locations. The context specific guidelines describe soft landscape proposals for actual locations along the route.

To simplify the task of specifying recommended species for each location along the route of West Rail, the context for soft landscape works is described in terms of urban and rural settings and are shown in Table 3.01.

Typical contextual description e.g. *Urban context, railway alignment within cut and cover tunnel* - the choice of species for soft landscape works over and either side of the cut and cover tunnel should be selected from the Screen planting, structure planting, woodland planting, ornamental plants and hydroseeding lists.

To reduce the risk of fire planting should not be located near to equipment rooms, high voltage feeder stations, cable troughs or cable hangers.

3.1.3 Establishment Maintenance

Purpose- to ensure establishment of soft landscape areas by the contractor

General

During the period for Establishment Works, regular inspections and cultural operations are required as defined below to ensure that all grass, trees and other plants thrive and become established. The Contractor shall keep the Site neat and tidy at all times. Unless otherwise specified (and/or exceptional weather conditions prevail), inspections with the Landscape architect shall be carried out at monthly intervals.

Establishment maintenance comprises the following tasks:

- Watering - The Contractor shall water all trees, shrubs and grass areas as often as is required to keep the ground moist all around the roots of the plants. An inspection of watering requirements shall be made in dry weather by the Contractor and the Landscape architect twice weekly. The Contractor shall thoroughly water areas as necessary to ensure the above conditions are achieved. Fresh water only shall be used for the works. When required an analysis of water to be used shall be obtained by the Contractor for approval. Water shall be applied using an approved rose or sprinkler, and so as not to cause compaction or wash-outs of soil, or loosening of plants. The Contractor shall immediately make good any such damage. The Contractor shall complete watering operations within 24 hours of an inspection which deems watering to be necessary.



SOFTWARES STRATEGY

- Weeding and Litter Removal - Planting in bare ground shall be maintained in a weed free condition by the removal of all unwanted vegetative growth over the whole planted area to the satisfaction of the Landscape architect. Planting not in bare ground shall be maintained by removing all competing and overhanging weeds and by cutting all grass and by keeping all areas within a 300mm radius of the base of each plant in a weed/grass free and tidy condition. Weeding shall be carried out by a means approved so as not to cause any damage to the Works. All weeds and rubbish resulting from this operation shall be removed from the Site. The Contractor shall weed areas as necessary and shall complete weeding within seven days of inspection. All litter/rubbish in the planting areas shall be removed from the site. Litter/rubbish removal shall be completed within seven days of inspections.
- Pruning - The Contractor shall prune all plants other than trees, when agreed with the Landscape architect during the Establishment Period. Pruning and removal of branches shall be carried out using sharp clean implements. Pruning shall be carried out with the cut just above, and sloping away from, an outward facing healthy bud. Removal of branches shall be carried out by cutting flush with the adjoining stem and in such a way that no part of the stem is damaged or torn. Ragged edges of bark shall be trimmed with a sharp knife. any cuts or wounds over 25mm diameter shall be painted with an approved sealant after trimming.
- Grass Cutting - The Contractor shall cut all grassed and not otherwise planted areas by approved mechanical or manual means so as to avoid root pulling. Grass shall be cut when it reaches a height of 100mm. Cutting shall reduce the height to 40mm.
- Post Planting Fertiliser - The Contractor shall apply post-planting fertiliser when agreed with the Landscape architect twice during the Establishment Period. Application of fertiliser shall be at a rate of 100g/sq.m. of grass. Application of fertiliser shall be at a rate of 50g per Shrub, Climber, Whip Tree or Seedling Tree, Ground-cover, Bamboo Plant or Herbaceous Plant.

Application of fertilizer shall be at the rate of 225g per Light Standard Tree, Standard Tree, Heavy Standard Tree, Semi-mature Tree, Palm, Heavy Palm, Extra Heavy Palm and Semi-mature Palm. Fertiliser shall be lightly worked into the soil surface around the base of the plant, allowing an even distribution. After application of fertiliser each plant shall be well watered.

- Forking Over - The Contractor shall fork over the surface of all bare ground planted areas to relieve surface panning and compaction of the soil. The Contractor shall take care not to disturb the roots or loosen the plants. Any plants so disturbed shall be firmed up and well watered in immediately.
- Securing Stakes and Ties - The Contractor shall be responsible for securing stakes and ties. An inspection shall be made every month by the Contractor and he shall replace all broken, damaged or otherwise unsatisfactory stakes and ties. Any ties which are causing chafing or abrasion of the tree shall be adjusted. The Contractor shall be responsible for firming up any plants which become loose as a result of wind-rock or other cause. The Contractor shall inspect the Site regularly for this purpose and after each storm or typhoon, to assess damage. Any damaged branches shall be carefully pruned and the wounds sealed. The Contractor shall tighten or loosen the underground guys for the Semi-mature trees as required once towards the end of the Establishment period. The Contractor shall allow for uplifting and replacing the brick and granite paving blocks which are open jointed over the tree pit area. The Contractor shall also allow for topping up the tree pit with topsoil mix as described and bedding sand where necessary.
- Replacement of Plants - The Contractor shall replace all plants which are dead, dying or otherwise unsatisfactory, if the cause is in the opinion of the Landscape architect, as a consequence of the use of poor materials or workmanship. Such replacement shall be to the relevant clauses of this Specification.

- Mulching - The Contractor shall apply approved mulch when agreed and in the areas agreed by the Landscape architect during the Establishment Period. The Contractor shall allow for three applications of mulch each to a thickness of 30mm to be carried out during the Establishment Period. The final mulching operation is to be carried out in the last month of the Establishment Period.

3.1.4 Long Term Maintenance

Purpose- to ensure adequate long term care of soft landscape areas

Long term maintenance of soft landscape areas will require the following tasks to be undertaken : watering, removal of weeds and litter, pruning, grass cutting and securing of stakes and ties. The frequency of these operations will depend on the individual site conditions and should be specified by the landscape architect at detailed design stage.

3.2 Establishment of a Holding Nursery

3.2.1 General Obligations

A Holding Nursery will be used to store plant material and fencing and keep specified plant material for growing on and inspection prior to planting. The Contractor/s shall carry out any necessary arboricultural work to maintain the stocked plants in a good and healthy condition during the holding period prior to planting.

3.2.2 General Responsibilities

The general responsibilities for maintaining plant stock within holding nursery are as follows:

- Dead Plants - The Contractor/s shall be responsible for the replacement at his own expense, of any plant which dies during the holding period.



SOFTWORKS STRATEGY

Establishment of Holding Nursery (cont.)

- **Damaged Plants** - The Contractor/s shall be responsible for replacing dead or damaged stock resulting from vandalism during the holding period. The Contractor/s shall be responsible for replacing dead or damaged planting material resulting from Typhoon Signal No. 8 or above during the holding period.
- **Watering** - Contractor/s shall provide at all times a supply of non-toxic water to the Holding Nursery. The Contractor/s shall make due allowance in his rates for importing non-toxic water during periods of restrictions or pipe work failure if a piped supply has been laid on. The Contractor/s shall water all trees and shrubs as often as is required to keep the soil moist all around the roots of the plants. Water shall be applied using an approved rose or sprinkler. Watering shall be carried out either in early morning or late afternoon or both as the case may be. Watering frequency shall be determined by the Contractor/s to ensure the plants are in a healthy condition during the Holding Period.
- **Weed and Litter Removal** - The Holding Nursery shall be kept weed and litter free.
- **Fertilizer** - The Contractor/s shall if instructed by the Engineer carry out one slow release fertilizer application during the Holding Period. Fertiliser shall be applied at the following rates:

Extra Heavy Standard Trees	400g/no.
Standard Trees and Palms	300g/no.
Shrubs	100g/no.
Ground Cover	100g/no.
Seedling Trees	100g/no.
Feature Plants	300g/no

- **Peats and Fungal Growth** - The Contractor/s shall regularly check for any insect attack or fungus infestation particularly during known periods of activity. The Contractor/s shall report to the Landscape architect any such occurrence and shall carry out remedial eradication by use of approved sprayed insecticide/fungicides. Use of such material is to be to the convenience of the general public and is to be carefully controlled to avoid unnecessary dispersion.

- **Reinstatement of Holding Nursery** - The Contractor/s shall reinstate to the satisfaction of the Landscape architect the Holding Nursery to its original condition prior to occupation, within two months after completion of all landscape softworks in the Contract. Reference should be made to the Landscape Design Strategy Report for landscape treatment to reinstate temporary works areas.

3.3 Definition of Plant Types

For clarity, the general characteristics of all plants listed in Table 3.01(a-i) are described below. The plant list in Table 3.01(a-i) is not exhaustive and additional plants could be added at the detailed design stage.

It should be noted that plants with toxic fruits, seeds, leaves or flowers that are dangerous to humans should not be used adjacent to public areas within West Rail property.

The exact sizes of plants to be used within detailed designs will be specified by the individual design consultancies within West Rail Phase II.

3.3.1 Trees

Trees can be classified under the following headings:

- **A Heavy Standard Tree** shall have a sturdy, straight stem not less than 2100mm in height from soil level to the lowest branch, a stem diameter between 60 - 100mm depending on species when measured at a point one metre from soil level, a well balanced branching head, or a well defined straight and upright leader with branches growing out from the stem with good symmetry still providing a head, a total height above soil level greater than 3 500mm, and a rootball not less than 400mm in diameter and 350mm in depth
- **A Semi-mature Tree** shall have a sturdy, straight stem, not less than 2500mm in height from soil level to the lowest branch, a stem diameter, greater than 200mm when measured at a point one metre from soil level, a well balanced branching head, or a well defined straight and upright leader with branches growing out from the stem with good symmetry, still providing a head.

- **A Semi-mature Tree(cont.)** A Semi-mature Tree should have a total height above soil level greater than 5000mm grown on in Hong Kong, a root ball not less than 1000mm in diameter and 600mm in depth, and a root system previously under cut a minimum of one year prior to lifting to encourage compact fibrous growth.
- **A Standard Tree** shall have a sturdy straight stem not less than 1800mm in height between the soil level and the lowest branch, a stem diameter between 36 - 60mm when measured at a point one metre above the root collar, a well balanced branching head, or a well defined straight and upright leader with branches growing out from the stem with good symmetry still providing a head, a total height above soil level between 2751 - 3500mm and a rootball not less than 350mm in diameter and 300mm in depth
- **A Light Standard Tree** shall have a stem diameter between 20 - 35mm when measured at a point one metre above the root collar, a strong, upright and reasonably straight unpruned stem well furnished with side branches, a branching head or a well defined straight and upright leader with branches growing out from the stem with good symmetry, a rootball not less than 350mm in diameter and 300mm in depth and a total height above soil level between 1751mm - 2750mm
- **A Feathered Tree** shall meet the total height, rootball and stem diameter, dimensions as specified for Standard or Light Standard Trees according to size, a well defined straight and upright leader which has not been pruned, branches growing from the stem with good symmetry, vigorous lateral shoots starting no more than 1000mm above root collar in the case of Standards and 750mm above root collar in the case of Light Standards.
- **A Whip Tree** shall have a single central stem and elementary branch system and a well developed vigorous root system, a height above soil level of 601 - 1500mm grown in a container not less than 125mm in diameter and 200mm deep



SOFTWARES STRATEGY

Definition of Plant Types(cont.)

- A Seedling Tree shall have a single slender stem, a well developed vigorous root system, height above soil level of 150 - 600 mm, grown in a container not less than 75mm in diameter and 200mm deep.

3.3.2 Palms

Palms can be classified under the following headings:

- A Semi-mature Palm shall have a well developed upright form with good symmetry and vigorous fronds, well developed healthy root system, no less than ten fronds, a sturdy straight stem not less than 5000mm, in height from soil level to the base of the crown shaft, a root ball of not less than 1000mm in diameter and 600mm, in depth and a stem diameter of not less than 175mm measured at a height of 1000mm from soil level.
- An Extra Heavy Palm shall have a well developed upright form with good symmetry and vigorous fronds, a well developed healthy root system, no less than seven fronds, a sturdy straight stem not less than 3500mm in height from soil level to the base of the crown shaft and a root ball not less than 750mm in diameter and 600mm in depth.
- A Heavy Palm shall have a well developed upright form with good symmetry and vigorous fronds, a well developed healthy root system, no less than five fronds, a sturdy straight stem not less than 1500mm in height from soil level to the base of the crown shaft, a root ball not less than 400mm in diameter and 350mm in depth.
- A Palm Tree shall have a well developed upright form with good symmetry and vigorous fronds, a well developed healthy root system, no less than the 5 fronds per plant, an overall height above ground of between 1200mm and 2000mm and a root ball not less than 350mm in diameter and 300mm in depth.
- A Small Palm shall have a well developed form with good symmetry and vigorous fronds a well developed healthy root system an overall height above ground of between 750mm and 1200mm unless stated otherwise on Drawings grown and supplied in a container not less than 200mm in diameter and 250mm deep.

3.3.3 Shrubs

Shrubs can be classified under the following headings:

- A Small Shrub shall be a seedling or rooted cutting which has a bushy habit, two or more one year old vigorous shoots, a well-developed, vigorous root system, a height between 150mm and 400mm, grown and supplied in a container not less than 125mm in diameter and 150mm deep.
- A Medium Shrub shall be a seedling or rooted cutting which has a bushy habit two or more years old, bushiness encouraged by pruning with a minimum of three vigorous branches well furnished with shoots to produce a plant with a diameter two-thirds of the height, 401-700mm in height, a well developed vigorous root system, grown and supplied in a container not less than 175mm diameter and 200mm deep.
- A Large Shrub shall be a seedling or rooted cutting that has been transplanted and which has a bushy habit, bushiness encouraged by pruning with a minimum of three one year old vigorous shoots well furnished to produce a diameter two-thirds of the height, a well-developed, vigorous root system, 701-1000mm in height, grown and supplied in a container not less than 200mm in diameter and 250mm deep.

3.3.4 Ground cover shrubs

A Ground-cover Plant shall have well developed vigorous shoots, a well-developed vigorous root system, an average diameter between 100mm and 350mm, grown and supplied in a container not less than 125mm in diameter and 150mm deep

3.3.5 Climbers

A Climber shall have one, or more, one year old, vigorous main shoots not less than 600mm long, one to two years old, a well developed vigorous root system, grown and supplied in a container not less than 125mm in diameter and 150mm deep

3.3.6 Conifers

A Conifer shall be a seedling which has been transplanted not less than 2 years old and shall have a well developed upright stem and vigorous shoots with good symmetry a well-developed vigorous root system, a height between 200mm and 600mm grown and supplied in a container of dimensions not less than 175mm diameter and 200mm deep.

Table 3.01a Plant species/ function/location matrix

X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION							URBAN/ RURAL		EVENTUAL HEIGHT		
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Street Trees	Ornamental Planting	Fast Growing Screen Planting	Embankments	Cut and Cover Tunnels	Urban Areas	Rural Areas	Greater than 12m	Between 6m and 12m	6m and less
Trees															
Acacia auriculiformis			X	X				X	X	X	X			X	
Acacia mangium			X	X				X	X	X	X			X	
Albizia saman			X	X		X			X	X	X			X	
Aleurites moluccana		X		X		X		X		X	X	X	X		
Araucaria heterophylla			X				X			X	X			X	
Artocarpus altilis			X				X			X	X			X	
Bauhinia blakeana	X				X		X		X	X	X	X		X	
Bischofia javanica	X			X	X	X				X	X	X	X		
Bombax malabaricum		X				X	X			X	X	X	X		
Brachychiton acerifolium		X					X			X	X	X		X	
Bridelia monoica	X				X					X	X	X		X	
Broussonetia papyrifera	X				X					X	X	X		X	
Callistemon viminalis			X				X			X	X			X	
Cassia siamia		X		X				X		X	X		X		
Cassia surattensis		X					X			X	X				X
Castanopsis fissa	X			X	X			X	X	X	X	X			X
Celtis sinensis	X			X	X					X	X	X	X		
Cinnamomum camphora	X			X	X	X				X	X	X	X		
Crataeva religiosa		X		X		X				X	X		X		
Delonix regia		X				X	X	X		X	X	X		X	
Erythrina spp		X					X			X	X	X		X	X
Ficus benjamina			X			X		X		X	X		X		



SPECIES LIST

Table 3.01b Plant species/ function/location matrix

X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION							URBAN/ RURAL		EVENTUAL HEIGHT		
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Street Trees	Ornamental Planting	Fast Growing Screen Planting	Embankments	Cut and Cover Tunnels	Urban Areas	Rural Areas	Greater than 12m	Between 6m and 12m	6m and less
Trees (Cont'd)															
Ficus elastica		X					X			X	X		X		
Ficus microcarpa	X			X	X	X		X		X	X	X	X		
Ficus rumphii			X	X			X			X	X	X	X		
Ficus superba	X				X				X	X		X		X	
Ficus virens	X			X	X					X	X	X	X		
Grevillea spp			X				X			X	X			X	X
Hibiscus tiliaceus		X					X	X		X	X			X	
Jacaranda acutifolia			X				X		X	X	X			X	
Lagerstroemia speciosa		X					X		X	X	X			X	
Liquidamber formosana	X			X	X	X	X			X	X	X	X		
Litsea glutinosa	X			X	X				X	X		X		X	
Litsea monopetala	X			X	X				X	X		X		X	
Macaranga tanarius	X				X			X	X	X	X	X			X
Mallotus paniculata	X				X				X	X		X			X
Melaleuca leucadendron		X		X		X				X	X	X	X		
Michelia alba			X			X	X			X	X			X	
Microcos paniculata	X				X				X	X		X			X
Peltophorum pterocarpum		X		X		X	X			X	X	X	X		
Pinus eliottii		X		X	X					X	X	X		X	
Plumeria rubra		X					X		X	X	X				X
Pterocarpus indicus			X	X		X				X	X		X		
Reevesia thyrsoidea	X				X				X	X		X		X	

Table 3.01c Plant species/ function/location matrix

X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION							URBAN/ RURAL		EVENTUAL HEIGHT		
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Street Trees	Ornamental Planting	Fast Growing Screen Planting	Embankments	Cut and Cover Tunnels	Urban Areas	Rural Areas	Greater than 12m	Between 6m and 12m	6m and less
Trees (Cont'd)															
Salix babylonica		X		X			X			X	X	X	X		
Sapium sebiferum	X			X	X		X		X	X	X	X		X	
Schefflera octophylla	X				X				X	X		X		X	
Schima superba	X				X					X		X	X		
Spathodea campanulata		X					X			X	X		X		
Sterculia lanceolata	X				X				X	X		X		X	
Swietenia mahogani		X		X		X		X		X	X		X		
Syzygium jambos		X		X						X		X		X	
Tristania conferta			X	X				X	X	X	X				X



SPECIES LIST

Table 3.01d Plant species/ function/ location matrix X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION							URBAN/ RURAL		EVENTUAL HEIGHT		
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Street Trees	Ornamental Planting	Fast Growing Screen Planting	Embankments	Cut and Cover Tunnels	Urban Areas	Rural Areas	Greater than 12m	Between 6m and 12m	6m and less
Palms															
Archontophoenix alexandrae		X					X			X	X		X		
Areca catechu			X				X			X	X		X		
Arecastrum romanzoffianum			X			X	X			X	X		X		
Caryota ochlandra			X			X	X			X	X			X	
Chrysalidocarpus lutescens		X					X	X	X	X	X	X		X	
Hyophorbe lagenicaulis			X				X			X	X				X
Livistonia chinensis	X						X			X	X			X	
Phoenix hanceana	X						X			X	X				X
Phoenix roebelenii		X					X			X	X				X
Ravenala madagascariensis			X				X			X	X				X
Rhapis spp		X					X	X	X	X	X	X			X
Roystonea regia		X				X	X			X	X		X		
Trachycarpus fortunei			X				X			X	X				X
Washingtonia robusta			X				X			X	X		X		



Table 3.01e Plant species/ function/ location matrix X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION						URBAN/ RURAL		EVENTUAL HEIGHT			
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Ornamental Planting	Embankments	Cuttings	Cut and Cover Tunnels	Urban Areas	Rural Areas	2.5 - 4.5 m	1.5 - 2.5 m	1 - 1.5 m	0.3 - 1 m
Shrubs															
Agave americana 'Marginata'			X			X			X	X			X		
Aglaiia odorata	X			X	X	X	X	X	X	X	X		X		
Alocasia odorata	X				X	X	X	X	X		X		X		
Allamanda neriifolia			X			X	X		X	X				X	
Alpinia zerumbet 'Variegata'			X			X	X		X	X			X		
Barleria cristata			X			X	X		X	X				X	
Calliandra haematocephala				X		X	X		X	X	X		X		
Camellia japonica		X				X	X		X	X			X		
Chlorophytum comosum	X				X	X			X	X	X				X
Clerodendrum kaempferi	X				X		X	X	X		X			X	
Cordyline terminalis			X			X			X	X				X	
Cuphea hyssopifolia	X				X	X			X	X	X				X
Dracaena spp			X			X			X	X				X	
Duranta repens		X		X		X	X	X	X	X	X				
Eranthemum nervosum			X			X	X		X	X					X
Ficus microcarpa 'Golden Leaf'		X				X			X	X				X	
Gardenia jasminoides		X			X	X	X		X		X				X
Hibiscus rosa-sinensis (vars)		X				X	X		X	X	X		X		
Hymenocallis americana			X			X	X		X	X					X
Ixora chinensis	X				X	X	X	X	X	X	X			X	
Ixora stricta		X				X			X	X					X
Jasminum mesnyi		X				X	X	X	X	X				X	

SPECIES LIST



SPECIES LIST

Table 3.01f Plant species/ function/ location matrix X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION						URBAN/ RURAL		EVENTUAL HEIGHT			
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Ornamental Planting	Embankments	Cuttings	Cut and Cover Tunnels	Urban Areas	Rural Areas	2.5 - 4.5 m	1.5 - 2.5 m	1 - 1.5 m	0.3 - 1 m
Shrubs (Cont'd)															
Jasminum sambac		X				X			X	X					X
Lagerstroemia indica			X			X	X		X	X			X		
Ligustrum sinense	X			X	X	X	X	X	X	X	X	X			
Melastoma candidum	X				X		X	X			X			X	
Melastoma sanguineum	X				X		X	X			X			X	
Michelia figo	X			X	X	X	X		X	X	X		X		
Monstera deliciosa			X			X			X	X				X	
Murraya paniculata		X		X		X	X		X	X			X		
Nandina domestica		X				X			X	X				X	
Philodendron selloum			X			X			X	X				X	
Phyllanthus emblica	X			X	X		X	X			X	X			
Pittosporum tobira		X		X		X	X		X	X			X		
Rhapholepis indica	X				X		X	X			X		X		
Rhododendron sp.		X		X		X	X	X	X	X	X			X	
Rhoeo discolor			X			X			X	X					X
Sansevieria trifasciata var. laurentii		X				X			X	X					X
Schefflera arboricola		X			X	X	X	X	X	X				X	
Spathiphyllum sp.		X			X	X			X	X					X
Thryallis glauca			X			X	X		X	X				X	



Table 3.01g Plant species/ function/ location matrix

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION						URBAN/ RURAL		EVENTUAL HEIGHT	
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Ornamental Planting	Embankments	Cuttings	Cut and Cover Tunnels	Urban Areas	Rural Areas	150 - 300 mm	0 - 150 mm
Ground Cover Shrubs													
<i>Alternanthera versicolor</i>			X			X			X	X			X
<i>Asparagus densiflorus 'Sprengeri'</i>			X			X			X	X		X	
<i>Chlorophytum laxum</i>	X				X	X			X	X	X		X
<i>Lantana montevidensis</i>	X				X	X			X	X	X		X
<i>Liriope spicata</i>		X				X			X	X		X	
<i>Nephrolepis exaltata</i>	X				X	X			X	X	X	X	
<i>Scindapsus aureus</i>			X			X			X	X			X
<i>Spathiphyllum x Cleveland</i>			X			X			X	X		X	
<i>Stenotaphrum secundatum</i>			X			X			X	X			X
<i>Wedelia trilobata</i>		X				X			X	X	X	X	
<i>Zebrina pendula</i>			X			X			X	X		X	

SPECIES LIST



SPECIES LIST

Table 3.01h Plant species/ function/ location matrix X- Indicates plant species suitable for specific location

SPECIES	ORIGIN			PLANT FUNCTION /PLANTING LOCATION						URBAN/ RURAL	
	Native	Naturalised	Exotic	Structure Planting	Woodland Planting	Ornamental Planting	Embankments	Cuttings	Cut and Cover Tunnels	Urban Areas	Rural Areas
Climbing Plants (*need supporting frame)											
Beaumontia grandiflora*			X			X				X	
Bougainvillea glabra*	X					X				X	X
Ficus pumila	X					X		X		X	X
Philodendron cordatum		X				X				X	
Parthenocissus himalayana		X				X		X		X	X
Pyrostegia ignea*	X					X				X	X
Wisteria sinensis*	X					X				X	X
Hydroseeding (shrub seeds to supplement grass seeds)											
Lespedeza formosa	X						X	X			X
Leucaena glauca	X						X	X			X
Ligustrum sinense	X						X	X			X
Melastoma candidum	X						X	X			X
Melastoma sanguineum	X						X	X			X
Rhaphiolepis indica	X						X	X			X
Rhododendron sp.		X					X	X			X
Rhodomyrtus tomentosa	X						X	X			X

Annex A - Response to Comments

**KOWLOON-CANTON RAILWAY CORPORATION
WEST RAIL
DESIGN REVIEW RECORD**

CONTRACT: TS-900 DELIVERABLE: Landscape Design Strategy MILESTONE: DCC LOG: DATE: 21/10/97
 CONSULTANT: ERM-Hong Kong TYPE: Report REVISION: - ID NO: PAGE:

ITEM NO.	REVIEW BY	DOCUMENT REFERENCE	WEST RAIL COMMENT	CONSULTANT RESPONSE	ACTION (I or D)	DUE DATE	CLOSE DATE
1		HyD letter ref: HYDT 12/7/73	<p>b) Technical Appendices Vol. 2</p> <p>i) Advice on horticultural maintenance schedule should also be sought from the landscape consultant to ensure the landscape could be maintained after the establishment period in the long run.</p>	Noted, text in section 3.1.4 amended accordingly			
2			<p>ii) Hard Landscape inputs should not be limited to street furniture and itemised elements. In fact, landscape approach should be integrated into the design of the rail related structures.</p>	<p>Agreed. Technical Appendix 1 deals with specific details of hard landscape elements such as street furniture. The general principles of the integrated landscape design of all rail related structures are outlined in the main Landscape Design Strategy Report (LDSR). As a direct result of the recommendations within the LDSR, the KCRC have set up a "Task Force on the Integrated Design of Visible Structures" to address the issues raised in the LDSR and ensure the proper co-ordination of engineering design between the different technical consultants.</p>			

ITEM NO.	REVIEW BY	DOCUMENT REFERENCE	WEST RAIL COMMENT	CONSULTANT RESPONSE	ACTION (I or D)	DUE DATE	CLOSE DATE
3			iii) (Re: 2.2.6a) Raised Planters Design Drainage layer is generally not recommended for it will inhibit root penetration; instead the base of the planter should be broken up to 300mm min. for better drainage.	Noted, drawing and text in section 2.2.6 amended accordingly			
4			iv) (Re: Table 3.01a) Plant Species/Location Matrix The species in the plant list are basic which is not exhaustive, other species should be added where appropriate in the detailed planting design.	Noted.			

ITEM NO.	REVIEW BY	DOCUMENT REFERENCE	WEST RAIL COMMENT	CONSULTANT RESPONSE	ACTION (I or D)	DUE DATE	CLOSE DATE
5		Transport Department letter ref: CT/PAD 105/195-7	1. The requirements stipulated in TPDM Volume 2 Chapter 3 Clause 3.3.5 Sight Distance and Chapter 6 Clause 6.10.2 Landscaping should be fully complied with for the landscape design. Planting and other landscaping in the central reserve, at side of the carriageway or at the junction/along the road should not become obstruction to sightline of the motorists or obscure the traffic signs. Adequate set back from the edge of carriageway should be allowed for in the planting of trees and shrubs which are likely to grow higher than motorist's eye level to ensure that the design stopping sight distances are maintained.	Noted, text in section 2.2.6 amended accordingly			
6			2. No structure shall be located within 500mm from the edge of the carriageway.	Noted. Drawing in section 2.2.6 amended accordingly.			
7			3. Section 2.2.8 - Signage Signage for transport interchange and transport facilities should be included at street level and concourse.	Noted. It is intended that co-ordinated signage be used throughout all West Rail property including street level and concourse, as mentioned in text of Section 2.2.8.			