BP Submission For

Pedestrian Overhead Bridge, Covered Linkway

NParks

Contents

PART 1 INFORMATION REQUIREMENTS

1. Plans, Application Form and Checklist

A registered architect / professional engineer is required to submit and sign all layers of drawing digitally, a completed NParks' application form, relevant checklist and enclose the letter of authorization from the developer:

The plans should comprise of :

(a) Key and location plans of the development site (scale 1 : 10000 or 1 : 5000)
(b) Site plan showing the development proposal (scale 1 : 500, 1 : 200 or 1 : 100)
(c) Address of the development site (if applicable)
(d) Location of the proposed pedestrian overhead bridge / covered linkway
(e) Tree planting scheme (if applicable)
(f) Cross sectional plans of proposed pedestrian overhead bridge and troughs (scale 1 : 50 or 1 : 100)
(g) Cross section of proposed covered linkway (scale 1 : 50 or 1 : 100)
(h) Detailed drawings of irrigation/drainage systems

2. Site Information

		Layout Plan	Cross Sectional / Detail Plan
(a)	Alignment of proposed overhead bridge, the spans of the proposed planting troughs and schematic engineering drawing with dimensions of the pedestrian overhead bridge and foundation, as approved at pre-consultation / DC stage	Indicate	Indicate
(b)	Alignment of proposed covered linkway and schematic engineering drawing with dimensions of the covered linkway, as approved at pre-consultation / DC stage	Indicate	Indicate
(c)	Road reserve line of existing and proposed roads	Indicate	Indicate
(d)	Location and dimensions of carriageway, roadside drain, existing / proposed roadside planting verge (coloured green), service verge (coloured green) and footpath, as approved at pre-consultation / DC stage	Indicate	Indicate
(e)	Location of existing and proposed lamp posts, OG boxes, SCV boxes, TAS manholes,sewer lines and manholes, electrical posts, fire hydrants, traffic lights, authorised signs and etc, as approved at pre-consultation / DC stage	Indicate	
(f)	Locations of proposed fire engine hardstandings (if applicable)	Indicate	
(g)	Location of proposed water tanker lay-by, as approved at pre-consultation / DC stage	Indicate	
(h)	Planting beds beneath pedestrian overhead bridge staircases, as approved at pre-consultation / DC stage	Indicate	
(i)	Details of footings and clearance from existing trees to roadside drain as approved at pre-consultation / DC stage		Indicate
(j)	Roof dimension and the clearance from existing trees as approved at pre-consultation / DC stage	Indicate	Indicate
(k)	Depth and types of existing / proposed underground services as approved at pre-consultation / DC stage	Indicate	

3. Existing Roadside Trees / Palms / Shrubs

		Layout Plan	Cross Sectional / Detail Plan
(a)	All existing trees / palms / shrubs, with girth and the numbering indicated on the building plan, should be the same as those shown on the plan submitted to NParks on pre-consultation / DC stage	Indicate	

		Layout Plan	Cross Sectional / Detail Plan
(b)	Any changes on the status of the existing trees / palms / shrubs approved at pre-consultation stage are reflected on Annexes 1, 2 & 3	Indicate	

Note:
Refer to Annexes 4-1 to 4-4 on method of measuring girth of a tree / single-stem palm

		Layout Plan	Cross Sectional / Detail Plan
(c)	The colour code for existing trees / palms / shrubs is as follows :	Indicate	

Table 3c – Colour Code for existing trees/palms/shrubs

Status of existing trees/ Palms / shrubs	Outline Colour
To be retained	Green
To be removed	Yellow
Removed without written approval	Red
Removed with written approval	Yellow (indicate approval date in the tree schedule)
Non existence after inspection	Indicate a ‘cross’ on tree symbol

		Layout Plan	Cross Sectional / Detail Plan
(d)	For existing trees / palms on footpath, the existing unpaved areas and loose paved PC slabs around the trees are to be shown	Indicate	

4. Tree / Palm Planting Requirements

4.1 Roadside Verge (Tree Planting and Service Verge)

		Layout Plan	Cross Sectional / Detail Plan
(a)	Proposed roadside verges are to be excavated to 1m deep, backfilled with 3 parts of loamy soil and 1 part of organic matter (processed woodchips or compost) and close turfed with 50mm thick Axonopus compressus (cow grass)	Indicate and Endorse	Indicate
(b)	For existing public road, disturbed tree planting/service verges should be planted with 50mm thick Axonopus compressus (cow grass) in close turfing, with provision of 100mm depth planting mixture. The planting mixture should make up of 3 parts of loamy soil and 1 part of organic matter (processed woodchips and compost)	Indicate and Endorse	Indicate
(c)	The gradient of planting verge should not be steeper than 1:40. The finish soil level of the verge is to be 25mm below footpath	Indicate	
(d)	All roadside tree planting must be free from encumbrances below the planting level	Endorse	
(e)	Any planting verge of less than 0.5m wide should be paved with cement	Endorse	
(f)	Any planting area less than $1m^2$ should be paved with cement	Endorse	

4.2 Planting Scheme (if applicable)

		Layout Plan	Cross Sectional / Detail Plan
(a)	Planting scheme to be implemented within the planting bed shown on plan	Indicate	
(b)	Location and species of proposed trees and shrubs to be shown on plan. A legend for proposed trees is to be provided. (Please use colours other than green, red and yellow)	Indicate	
(c)	Shrubs are to be planted within the troughs. Species of the shrubs are to be shown on plan	Indicate	

PART II Division 4B Regulatory Requirement

1 Planting Bed Beneath the Staircase

		Layout Plan	Cross Sectional / Detail Plan
1.1	A planting bed of at least 0.6m depth is provided around the bridge staircases, columns and along guardrails, as approved at pre-consultation stage. The beds are coloured green on plan.	Endorse	
1.2	Existing old foundations and road surface under the proposed planting beds area are to be hacked up and removed.	Endorse	
1.3	The planting bed is to be backfilled with 3 parts of loamy soil and 1 part of organic matter (proposed woodchips or compost).	Endorse	
1.4	No fire hydrant, OG box and other underground services are allowed within the planting bed.	Endorse	
1.5	Shrubs should have height of 0.3 to 0.5m and planted at 0.3m to 0.5m c/c depending on the species.	Endorse	

Note: Length of planting bed will be base on project basis.

2 RC Column Footing of Pedestrian Overhead Bridge

		Layout Plan	Cross Sectional / Detail Plan
2.1	All footings of the columns are to be recessed at least 0.6m below the planting level.		Indicate
2.2	The RC columns and staircase beams should have a rough and absorbent finish to facilitate the growth and anchorage of creepers onto the structure.		Indicate
2.3	Creepers (Ficus pumila) are to be planted immediately around the columns at 150mm c/c.		Indicate

3 Planting Troughs along the Span of Pedestrian Overhead Bridge

		Layout Plan	Cross Sectional / Detail Plan
3.1	Continuous planting troughs are to be provided along the span on both sides of the bridge. The troughs should have internal minimum width of 650mm and depth of 750mm. The troughs should be waterproofed.		Indicate
3.2	Any railing or walls proposed should allow accessibility to the trough for regular maintenance such as forking, manuring or replacement of plants. The top of the trough is to be levelled with the overhead bridge platform.		Indicate
3.3	The troughs are to be backfilled with 1 part of expanded clay, 1 part organic matter (processed woodchips or compost) and 2 parts of loamy topsoil.		Indicate
3.4	For covered pedestrian overhead bridge, the roof shall be extended not more than 50% over the width of the planting surface of the trough, laterally from the edge of the deck.	Endorse	Indicate

4 Irrigation System

4.1 Watering system

The watering system should be designed to carry water from the base of the bridge column to the planting troughs, and distribute water evenly to each shrub.

		Layout Plan	Cross Sectional / Detail Plan
(a) The diameter of the pipes are:	i) For pedestrian overhead bridge less than 25m long, 25mm stainless steel sprinkler pipe (with 5mm diameter holes are provided at 200mm c/c along the bottom of the pipe) should be fixed to the inner wall of the trough that abuts the platform and above the soil level.		Indicate
	ii) For pedestrian overhead bridge between 25m to 50m long, 25mm stainless steel sprinkler pipe (with 3mm diameter holes are provided at 400mm c/c along the bottom of the pipe) should be fixed to the inner wall of the trough that abuts the platform and above the soil level.		Indicate
	iii) For pedestrian overhead bridge exceeding 50m long, multiple pipe system with A Robust "Switch" valve to channel water to different pipes are used. 25mm stainless steel sprinkler pipe (with 3mm diameter holes are provided at 400mm c/c along the bottom of the pipe) should be fixed to the inner wall of the trough that abuts the platform and above the soil level.		Indicate
(b)	The watering system pipes are terminated 1m above the ground level with ***37.5mm*** diameter male adapter.		Indicate
(c)	Unless there is technical reason, e.g. long span of pedestrian overhead bridge, there should have only one coupling point. Coupling point should be easily and safely accessible by NParks water tanker.		Indicate
(d)	For breeching inlet, which is not mounted to the column of the bridge, it is to be housed in a pit flushed to ground level with a hinged metal cover. Location of breeching inlet is to be shown.	Indicate	Indicate

4.2 Drainage system

		Layout Plan	Cross Sectional / Detail Plan
Perforated overflows pipes and down water pipes are to be provided to channel excess water from the planting troughs to roadside drain.			Indicate
(a)	The overflow pipe is to be provided at the base of the planting trough. It is a 100mm diameter perforated PVC pipe with 5mm diameter holes at 100mm apart in all directions. The pipe is wrapped with permeable membrane and rested on a 150mm thick porous graded hardcore layer.		Indicate
(b)	A 100mm diameter PVC down water pipe is to be provided to channel excess water to the nearest roadside drain.		Indicate

5 Railings

	Layout Plan	Cross Sectional / Detail Plan
Design of proposed railings is to comply with LTA's requirements.	Endorse	

6 Vehicular Impact Guardrails

		Layout Plan	Cross Sectional / Detail Plan
6.1	Design of vehicular guardrails is to comply with LTA's requirement.	Endorse	
6.2	Vehicular impact guardrails are to be camouflaged with shrub planting.	Indicate	

7 Vesting Of Proposed Pedestrian Overhead Bridge

Vesting of proposed pedestrian overhead bridge will be decided by LTA.

8 Maintenance Of The Bridge

NParks will only maintain the watering system, drainage system and shrub planting in the planting troughs and planting beds.

9 Lay-By For Water Tanker

		Layout Plan	Cross Sectional / Detail Plan
(a)	A lay-by of 23m long and 3m wide is provided for water tanker, unless there is a paved shoulder. A letter from the authority indicating no objection for the use of paved area is attached	Indicate	
(b)	Location of the coupling point at the column of the bridge or housed in a pit has to be within a radius of 8m from the mid-point of the lay-by.	Indicate	

Annex 1- Existing Tree / Single Stem Palms within Site Boundary

Serial No.	Tree / Palm No.	Botanical Name of Trees / Single Stem Palms	Girth Size (m)		Height (m)	Proposed to remove		Proposed to retain		*Reasons for removal / retention
			=< 1.0m (a)	> 1.0m (b)		DC (c)	BP (d)	DC (e)	BP (f)	
Total Nos. of Trees / Single Stem Palms										

Annex 2 - Existing Tree / Single Stem Palms On Neighbouring Lot

(Up to a distance of 5.0m from the site boundary)

Serial No.	Tree / Palm No.	Botanical Name of Trees / Single Stem Palms	Girth Size (m)		Height (m)	Proposed to remove		Proposed to retain		*Reasons for removal / retention
			=< 1.0m (a)	> 1.0m (b)		DC (c)	BP (d)	DC (e)	BP (f)	
Total Nos. of Trees / Single Stem Palms										

Annex 3 Existing Roadside Trees / Palms / Shrubs

Abutting the Development Boundary and up to a Distance of 10m on Both Sides of Boundary

Serial No.	Tree / No.	Botanical Name of Trees / Single Stem Palms	Girth Size (m)		Trees proposed to remove		Trees proposed to retain		*Reasons for removal / retention
			=< 1.0m (a)	> 1.0m (b)	DC (c)	BP (d)	DC (e)	BP (f)	
Total Nos. of Trees / Single Stem Palms									

Serial No.	Palm / Shrub	Botanical Name of Cluster Palms and Shrubs	Height (m)	Nos	Trees proposed to remove		Trees proposed to retain		*Reasons for removal / retention
					DC (c)	BP (d)	DC (e)	BP (f)	
Total Nos. of Cluster Palms / Shrubs									

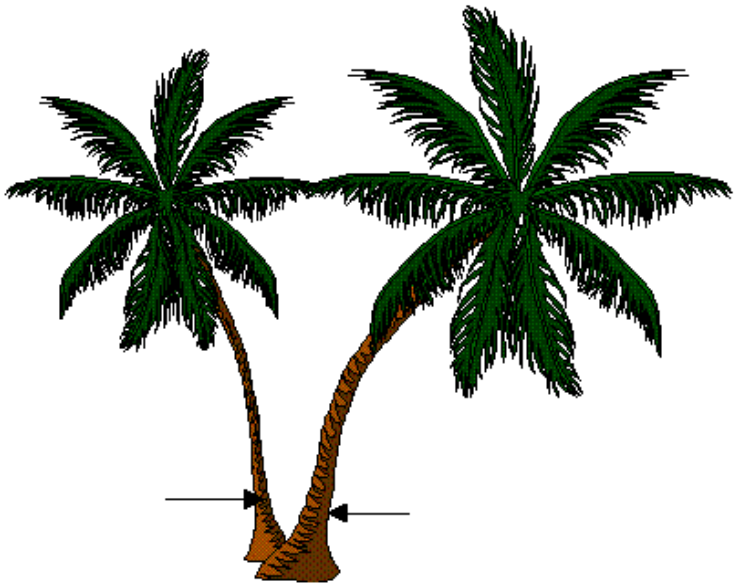
* Please refer to Annex 3-1 for list of reasons

Annex 3-1 Reasons for Removal / Retention

Reasons for Removal		Reasons for Retention
main covered structure (ms)		good/rare species (gs) within the buffer zone (bz) uncovered structures (us) within road widening plot (wp)
Ancillary buildings		
e.g substation guard house bin centre	ss	
Outdoor recreational facilities		
e.g swimming pool tennis courts playground car park	ou	
Vehicular access		
driveway, fire engine access access to bin centre, substation footpath fire hardstanding area (fa)	va	
Other construction activities		
roadside drain, surface drain (dn) boundary wall (bw) retaining wall (rw) basement encroachment into green verges (bv) basement outside green verges (bo) construction (temp) activities (ca) sewer line & manhole (sw) soil profile change in height (sc)		
Health of tree		
strike by lightning, wind throw (sl) unhealthy (decay, rot) (uh) poor form (pf) hazard (hz)		

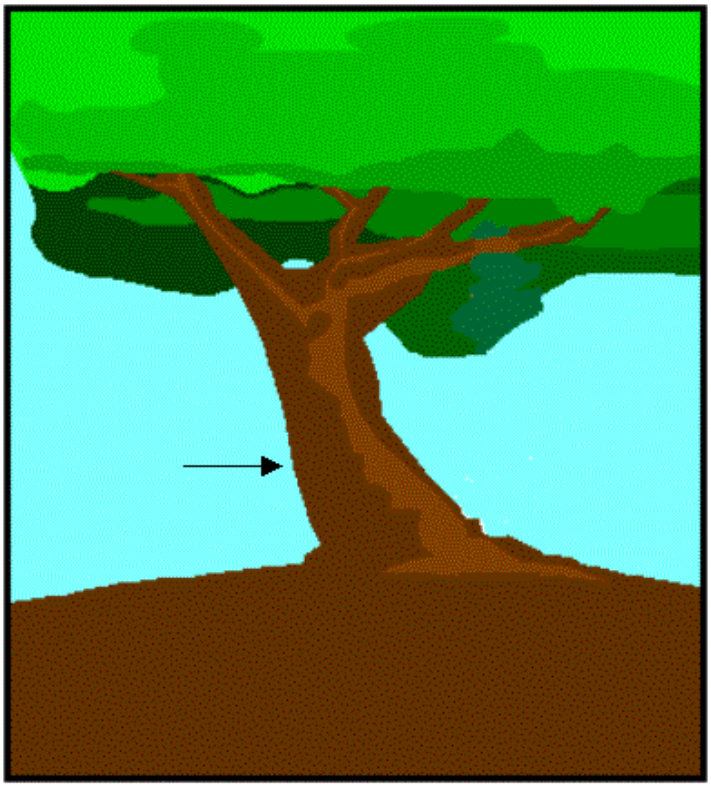
Annex 4-1 Girth Measurement For Multi-Leader Tree (leaders sprout from collar)

For this type of multi-leader tree where the leaders sprout from the collar, measure the girth of each individual stem, and treat each stem as a separate tree. (arrowed)



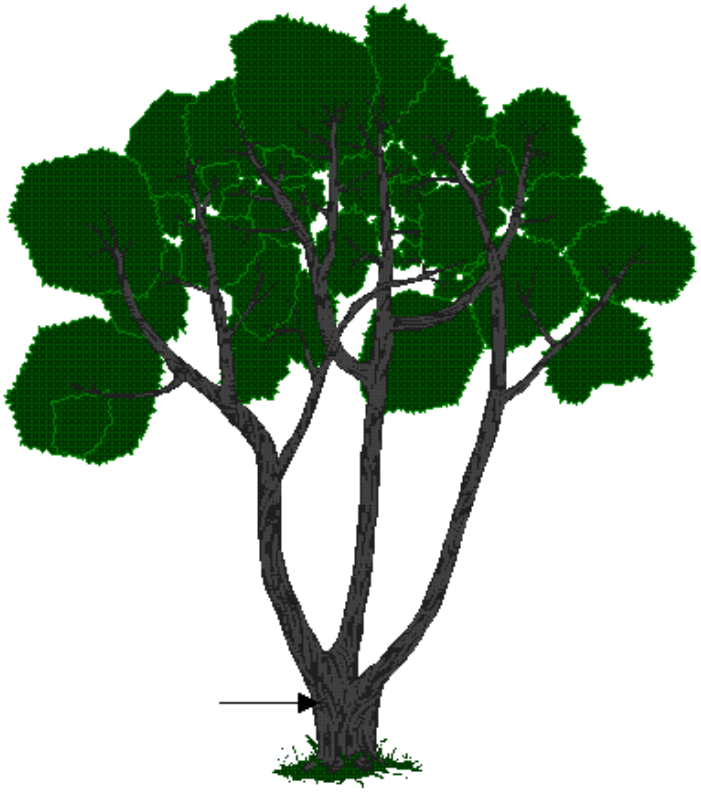
Annex 4-2 Girth Measurement For Buttressed Tree

For this type of buttressed tree, measure the girth at 0.5 metres height above the ground. (arrowed)



Annex 4-3 Girth Measurement For Multi-Leader tree (at a point between collar)

For this type of multi-leader tree, measure the girth at a point between the collar and 0.5 metres height above the ground. (arrowed)



Annex 4-4 Girth Measurement For Tree Growing on a Mound

For this type of tree growing on a mound, measure the 0.5 metres height above the ground next to the collar (arrowed), and not at the base of the mound.