CCC As-built requirements for Land Improvements V3.0

Survey As-built Guidelines (SAG) Appendix J

CCC As-built requirements for Land Improvements V3.0

J01: Garden

Name **Garden (Polygon)**

Polygon Type **J01** "Polygon Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Polygon Feature	J01
B	Specific type of Garden	Select from pick list: domGardenType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Polygon Vertex Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Polygon Vertex Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Order of vertex / point along polygon	data - Number
I	Date of commission	data - Date (dd/mm/yyyy)
J	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
K	Name of main contractor who installed asset	Select from pick list: domInstalledBy
L	Date of "survey-start"	data - Date (dd/mm/yyyy)
M	Long Description - further details, if vertical garden, note if ground rooted or container suspend	data - Text (70 Characters)
N	File name of photo - Photos must be supplied	data - Text (50 Characters)
O	Garden style	Select from pick list: domGardenStyle
P	Irrigation type	Select from pick list: domGardenIrrigationType
Q	Mulch type	Select from pick list: domGardenMulch
R	Surround Construction Material	Select from pick list: domGardenSurroundConstruction
S	Donated	Select from pick list: domDonatedBy
T	Botanical Collection	Select from pick list: domBotanicalCollection

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example. Col G: enter number of vertex along outline.

All corner points along outline to be surveyed.
Create one CAT row per surveyed point.

A plot of ground or other open space where flowers, shrubs, grasses, vegetables, fruits or herbs are cultivated. Gardens have a higher level of maintenance and planting than natural areas.

Outline of Garden

X Y

Grasses type garden. This garden has been constructed in the raised bed style with a rock surround.

Herbaceous/Perenialtype garden. This garden has been constructed in the raised bed style with a brick surround.

Annuals type garden. This garden has been constructed in the bed style with no surround.

Garden (Continued)

CLASSIFICATION INFORMATION

1. Garden Type

The category of plants grown within the plot (e.g. Annuals, Shrubs).

- **a. Annuals** – Plants that grow, seed and die within one year.
- **b. Grasses** – Bed consisting solely of native or exotic sedges, rushes and grasses.
- **c. Groundcover** – 80% or more of the area consists of evergreen or deciduous plants that do not grow over 500mm high.
- **d. Herbaceous/Perennial** – 60% or more of the area consists of long or short lived non-woody plants that grow and flower over summer but are dormant over winter.
- **e. Low Growing Shrubs** – 60% or more of the area consists of shrubs that do not grow higher than 1m.
- **f. Rose** – Area consists of only standard, climbing and bush roses.
- **g. Rose Groundcover** – 60% or greater of the area consists of carpet roses.
- **h. Shrubs** – 60% or greater of the area consists of woody plants having several stems arising from the base and lacking a single trunk; a bush. Can be evergreen or deciduous, native or exotic.
- **i. Woodland** – Stands of native, exotic or mixed native and exotic trees. A woodland may or may not have an understory planting, formed edge or mulch.
- **j. Riparian** – Area of water loving plantings on river or pond banks.
- **k. No Planting** – Empty area where a garden exists but has not been planted.

2. Garden Style

The category of the containment of the planting area (e.g. Bed, Floral Planter).

- **a. Bed** – Planted area with a formed edge or border separating it from the surrounding surface. Surface level with surroundings.
- **b. Floral Planter** – Large moveable container of soil and plants.
- **c. Hanging Basket** – Suspended container.
- **d. Rain Garden** - Planted depression or a hole that allows rainwater runoff from impervious urban areas, like roofs, driveways, walkways, parking lots, and compacted lawn areas, the opportunity to be absorbed.
- **e. Raised Bed** – As per bed but surface level at the edges elevated above surroundings. Raised beds have a constructed surround on at least one side.
- **f. Single Plant** – A large single plant that is not a tree.
- **g. Vertical** - a garden that grows upward (vertically) using a trellis or other support system, rather than on the ground

3. Irrigation Type

The method of application of water (e.g. Auto Drippers, Auto Popup Sprinklers).

- **a. Auto-Drippers** – Automatically controlled drip line irrigation.
- **b. Auto Pop-Up Sprinklers** – Automatically controlled pop-up or upright sprinklers.
- **c. Manual** – Manual irrigation.
- **d. Not Irrigated** – No irrigation.
- **e. Travelling Irrigator** – Mechanised sprinkler that moves under its own power
- **f. Water Cannon** - shoots a high-velocity stream of water.

4. Mulch Type

The material applied to the soil surface, to suppress weed growth, retain moisture, provide nutrients, or prevent erosion (e.g. Bark Nuggets, Leaf Mould).

- **a. Bark Grade 1** – High quality chipped tree bark. Mulch contains a range of different sized particles.
- **b. Bark Nuggets** – High quality chipped tree bark. Nugget-like chips of a single size only.
- **c. Compost** – Decomposed vegetable material from a range of different plants.
- **d. Leaf Mould** – Compost made from leaves only.
- **e. Not Mulched** – No mulch applied.
- **f. Soil Conditioner** – A chemical, manmade substance added to improve soil health.
- **g. Stones** – Hard solid non-metallic mineral matter made smooth by the action of water or sand.
- **h. Tree Mulch** – Chipped and shaved waste tree material.

5. Surround Construction Material

What is the surround around the garden circumference constructed of?

- **a. Asphalt**
- **b. Brick**
- **c. Concrete**
- **d. Rock**
- **e. Steel**
- **f. Tile**
- **g. Wood**
- **h. None**

ADDITIONAL COMMENTS

If there is a single tree amongst other plants in a garden, capture the tree separately.

If the bed contains landscaped rocks do not record them separately. Note in the long description for the garden that it contains rocks.

Single shrubs should be captured as single plant gardens.

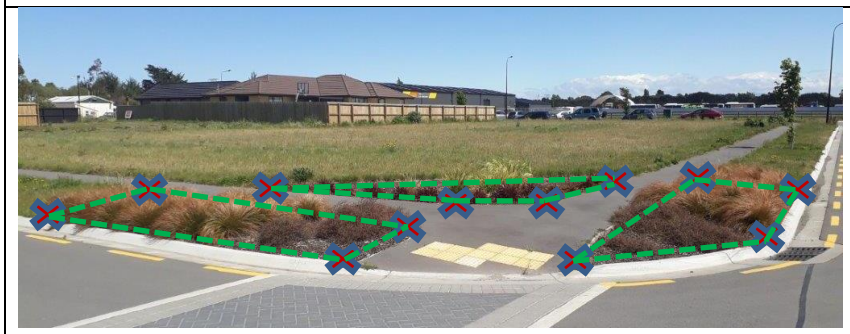
Woodland gardens, natural areas and stands of trees are similar, but there are differences. Woodland gardens will be mixed tree species and will have a mixture of trees and shrubs. Ground under a woodland garden is maintained similarly to other garden types and may be mulched. Stands of trees will only have trees and minimal maintenance on the ground beneath them (either mowing or spraying). Natural areas have a minimum of maintenance and are more common in Regional Parks.

The garden style is considered to be a bed if the surface level around the perimeter of the garden is flush with the neighbouring surface. Raised beds have a surround constructed around the garden to enable the perimeter of the garden to be elevated over the neighbouring surfaces.

Garden (Continued)

Standard amenity low growing shrub garden.

Rain garden example.



Further examples of amenity low growing shrub gardens. Note how these three assets have been split out from each other.

Terraced garden examples. Where difficult to define boundary like in upper right-hand image, please confer with CCC staff.

CCC As-built requirements for Land Improvements V3.0

J02 : Hedge

Name **Hedge (Line)**

Line Type **J02** "Line Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Line Feature	J02
B	Leave Blank	Leave Blank
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Line Vertex Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Line Vertex Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Order of vertex / point along Line	data - Number
I	Date of commission	data - Date (dd/mm/yyyy)
J	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
K	Name of main contractor who installed asset	Select from pick list: domInstalledBy
L	Date of "survey-start"	data - Date (dd/mm/yyyy)
M	Long Description - explanation, further details, or location within park or road corridor	data - Text (70 Characters)
N	File name of photo - Photos must be supplied	data - Text (50 Characters)
O	Specific use of Hedge	Select from pick list: domHedgeUse
P	Hedge Height in meters (m)	Select from pick list: domHedgeHeight
Q	Hedge Width in meters (m)	data - Decimal Number (3 Chars, 2 Decimals)
R	Hedge Species	Select from pick list: domHedgeSpecies

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.
Col G: enter number of vertex along line

All edges, start/end points to be surveyed.
Create one CAT row per surveyed point.

A row of bushes or small trees planted close together. Formally maintained, especially when used to delineate a boundary or create shelter.

Centre of structure
X Y

If the dominant species field can be accurately completed, please do so.

Amenity hedge around a garden.

Hedge(Continued)

CLASSIFICATION INFORMATION

1. Hedge Use

a. Amenity – A hedge with an aesthetic or functional purpose consisting of plants of the same species kept well maintained.

b. Boundary – A hedge planted with the functional purpose to define a boundary line.

c. Mixed – Various species all in the same hedge with an aesthetic or functional purpose.

2. Hedge Height

Describe the vertical distance of the asset from the base to top with the values grouped into specific range classifications (e.g. < 1m, 1m - 2.5m, > 2.5m)

a. < 1m

b. 1 – 2.5m

c. > 2.5m

3. Width

Distance through the hedge from one face to another. All widths shall be in metres.

4. Species - What is the hedge's predominant species?

a. Abelia Sp
b. Buxus Sp
c. Callistemon Sp
d. Chamacecyparis Sp
e. Corokia
f. Cotoneaster Sp
g. Crataegus Sp
h. Cupressus Sp
i. Cypress
j. Elaeagnus Sp
k. Escallonia
l. Fagus Sp
m. Griselinia
n. Holly
o. Hypericum
p. Ivy
q. Ligustrum Sp
r. Macrocarpa
s. Mixed
t. Oleria Sp
u. Photinia
v. Pinus Sp
w. Pittosporum eugenioides
x. Pittosporum tenuifolium
y. Poplar
z. Rose
aa. Salix
ab. Thuja Sp

ADDITIONAL COMMENTS

Rows of untrimmed or limbed trees as show in the two photos above are not hedges. These assets should be captured as stand of trees.

CCC As-built requirements for Land Improvements V3.0

J03 : Natural Area

Name **Natural Area (Polygon)**

Polygon Type **J03** "Polygon asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Polygon Feature	J03
B	Specific type of Natural Area	Select from pick list: domNaturalAreaType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Polygon Vertex Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Polygon Vertex Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Order of vertex / point along polygon	data - Number
I	Date of commission	data - Date (dd/mm/yyyy)
J	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
K	Name of main contractor who installed asset	Select from pick list: domInstalledBy
L	Date of "survey-start"	data - Date (dd/mm/yyyy)
M	Long Description - explanation, further details, or location within park or road corridor	data - Text (70 Characters)
N	File name of photo - Photos must be supplied	data - Text (50 Characters)
O	Grazed	Select from pick list: domNaturalAreaGrazed
P	Botanical Collection	Select from pick list: domBotanicalCollection

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example. Col G: enter number of vertex along outline.

All corner points along outline to be surveyed.
Create one CAT row per surveyed point.

Area (either naturally occurring or constructed) which is representative of what would naturally occur in this environment.

Natural wetland area

Coastal natural area

Areas of native bush, dark green trees, scrub, gorse and grassland.

Natural Area (Continued)

CLASSIFICATION INFORMATION

1. Natural Area Type

Description of naturally occurring plants, grass, etc. (Exotic bush, Tussock, Native Vegetation, etc.)

a. Coastal – Area of sand dunes planted in salt tolerant species.
b. Constructed Wetland– Man-made area incorporating swamps and watercourses.
c. Exotic Bush – A group of various species of trees and bushes not native to NZ.
d. Grassland – Areas of grasses, including paddocks but not including tussocks.
e. Native Bush – A group of various species of native trees and shrubs.
f. Natural Wetland – Naturally occurring area incorporating swamps and watercourses.
g. Tussock – Area of tussocks and low growing herbaceous plants.
h. Native Revegetation – Regenerating native bush. Small, low growing and not yet fully established. Revegetation occurs through man-made replanting efforts.
i. Native Regeneration - Regenerating native bush. Small, low growing and not yet fully established. Regeneration occurs naturally.
j. Scrub – An area of fast growing, introduced and often invasive shrubs such as gorse, broom, etc. Scrub typically occurs on land that has been previously cleared.
k. Rock Outcrop – An area where the bedrock or other stratum protrudes through the soil layer.
l. Hillside vegetation – Natural grouping of a variety of tree & shrub species on a steep slope that can either be planted by CCC, Residents, or self-sown specifies from surrounding mature vegetation.

2. Grazed

Is the area grazed by livestock? (Yes/No).

3. Botanical Collection

Is it a botanical collection (Yes/No).

ADDITIONAL PHOTOS

Native revegetation natural area.

Hillside vegetation.

ADDITIONAL COMMENTS

If an area is grown or pruned one or more times a year then it is either turf or a garden. Natural areas are those that are usually maintained no more than once a year unless there is pest plant abundance.

Paddocks, even if fenced and grazed, should be recorded as natural areas, type = grassland, provided they are mown no more than once a year.

J04 : Turf

Name	**Turf (Polygon)**
Polygon Type	**J04 "Polygon Asset Input"**

CAT Column	SAG Attribute Description	Valid Values
A	Type of Polygon Feature	J04
B	Specific type of Turf	Select from pick list: domTurfPurpose
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Polygon Vertex Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Polygon Vertex Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Order of vertex / point along polygon	data - Number
I	Date of commission	data - Date (dd/mm/yyyy)
J	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
K	Name of main contractor who installed asset	Select from pick list: domInstalledBy
L	Date of "survey-start"	data - Date (dd/mm/yyyy)
M	Long Description - explanation, further details, or location within park or road corridor	data - Text (70 Characters)
N	File name of photo - Photos must be supplied	data - Text (50 Characters)
O	Drainage	Select from pick list: domTurfDrainage
P	Mowing Height Standard	Select from pick list: domTurfMowingHeightStandard
Q	Turf Base	Select from pick list: domTurfBase

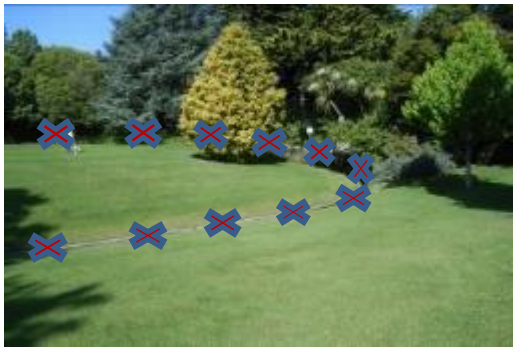
Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example. Col G: enter number of vertex along outline.

All corner points along outline to be surveyed.
Create one CAT row per surveyed point.

A surface layer of earth covered by a dense growth of grass. The earthen surface is held together by a matted layer of grass roots.

Outline of structure
X Y



Ornamental turf

Informal turf - Common in rural or semi-rural areas. This turf receives a minimum of maintenance.

Turf(Continued)

CLASSIFICATION INFORMATION

1. Turf Purpose
Turf purposes are listed here from the highest standard at top to lowest standard at bottom.

a. Ornamental – Area planted with a single species of grass and maintained to an extremely high standard. Usually only found in garden and heritage parks.

b. Amenity – Area planted with a mixture of two or three species of grass. Well maintained but not to as high a standard as ornamental turf.

c. Sports – Grassed area used as a playing surface for sports codes. Sports turf is the grassed surface available for sport code to be played on. Sports turf is typically mowed by large, tractor pulled gang mowers or ride on mowers to a seasonal or sports code mowing standard.

d. Informal – Grass area with a variety of different grass species. Weeds will be present and mowing sporadic.

2. Turf Base
Type of turf base (Soilbased, sandbased)

3. Drainage
Type of drainage provision (field tile, gravel raft, nova flow, top-draining, slit-draining)

4. Mowing Height Standard

a. Category K, 25-60mm, All Year
b. Category L, 30-100mm, All Year
c. Category S, 0-400mm, Fire Mitigation
d. Category T, 0-400mm, Reach Arm Flail

ADDITIONAL COMMENTS
Turf is a grass area mowed once or more every year. If a grassed area is mowed less than once a year it should be classified as grassland under natural areas.


Standard residential turf.


Example of a fire mitigation area.


Amenity Turf – The presence of daisies and weeds differentiates this from ornamental turf.


Sports Turf – The presence at all parks with sports fields. Sports turf includes all turf available for sports to be played on and not just the area marked out as sport fields.

CCC As-built requirements for Land Improvements V3.0

J05 : Tree

Name **Tree (Point)**

Point Type **J05** "Point Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Point Feature	J05
B	Specify Tree Species	Select from pick list: domTreeSpecies
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (50 Characters)
F	Centre of Structure in Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Centre of Structure in Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Date of commission	data - Date (dd/mm/yyyy)
I	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
J	Name of main contractor who installed asset	Select from pick list: domInstalledBy
K	Date of "survey-start"	data - Date (dd/mm/yyyy)
L	Long Description - explanation, further details, or location within park or road corridor	data - Text (50 Characters)
M	File name of photo	data - Text (50 Characters)
N	Date Planted	data - Date (dd/mm/yyyy)
O	Observation Date	data - Date (dd/mm/yyyy)
P	Tree Age Class	Select from pick list: domTreeAgeClass
Q	Diameter at Breast Height in meters (m)	data - Decimal Number (4 Chars, 2 Decimals)
R	Height measured in meters (m)	data - Decimal Number (5 Chars, 2 Decimals)
S	Crown Spread Measured in meters (m)	data - Decimal Number (5 Chars, 2 Decimals)

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

Describes a single woody plant with the potential to reach at least 6m in height.

Centre of structure
X Y

Quercus robur, common name English Oak.

Tree (Continued)

CLASSIFICATION INFORMATION - TREE

- At least 6 metres in height and have a single stem diameter of, or exceeding, 250mm measured at 1.4 metres above ground (DBH); or
- At least 6 metres in height with no more than 6 stems and a combined aggregate stem diameter of, or exceeding, 600mm measured at 1.4 metres above ground (DBH).

There are certain species, which could include fruit, nut and endemic species, which may not always fit within the definition of a Tree. In these situations, the decision as to whether or not to include the species, or individual tree, as a Tree will be determined by the City Arborist. Assets that are currently recorded as Trees but do not fit the definition of a Tree will continue to be managed as a Tree throughout their life cycle until they are replaced.

1. Specify Tree Species.
To choose species from the list. If the desired species isn't in the list, select 'Not in List' and use CAT sheet 'Survey as-built Report', line 2, to register the species name.

2. Date Planted
Point in time the tree was placed in the ground at this location.

3. Observation Date
Point in time attribute data was recorded.

4. Tree Age Class
The stage of which the tree has matured. This may or may not be attributed to the number of years the tree has been growing.

a. Juvenile – recently planted/transplanted or establishing tree
b. Semi-Mature – an established tree, but one which has not reached its potential ultimate size. May be in either its juvenile or adult form.
c. Mature – a tree reaching its ultimate potential size, whose growth rate is slowing down, with limited potential for any significant increase in size.
d. Over Mature – a senescent tree, with a limited life expectancy.

5. Diameter at Breast Height in meters (m)
Breadth of the tree trunk at approximately 1.4m from the ground.

6. Height measured in meters (m)
Vertical measurement from the ground to the apex of the tree in metres.

7. Crown Spread Measured in meters (m)
Diameter of the horizontal area covered by the branches or foliage of the tree.

J06 : Stand of Trees

Name **Stand of Trees (Polygon)**

Polygon Type **J06** "Polygon Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Polygon Feature	J06
B	Specific type of Stand of Trees	Select from pick list: domStandOfTreesType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Polygon Vertex Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Polygon Vertex Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Order of vertex / point along polygon	data - Number
I	Date of commission	data - Date (dd/mm/yyyy)
J	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
K	Name of main contractor who installed asset	Select from pick list: domInstalledBy
L	Date of "survey-start"	data - Date (dd/mm/yyyy)
M	Long Description - explanation, further details, or location within park or road corridor	data - Text (70 Characters)
N	File name of photo - Photos must be supplied	data - Text (50 Characters)
O	Specify Dominant Tree Species in group	Select from pick list: domStandOfTreesTreeSpecies
A	Type of Polygon Feature	J06
B	Specific type of Stand of Trees	Select from pick list: domStandOfTreesType

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

Outline of structure
X Y

A stand of trees is managed and maintained as a group of trees and recorded as a single asset. Condition assessment criteria and other data/information is assigned to the stand and not to each individual tree. A Stand of Trees may contain trees that, due to their stature, are managed as individual trees as per the definition of a "Tree". Stands of Trees provide a wide range of environmental, social and economic services to the community.

There are two types of Stand of Trees –

- Those in urban environments which are generally crown lifted for CPTED, can be seen and walked through, and will have various under surface management treatments (e.g. mown grass, mulch, planted garden)
- Those in rural areas (e.g. Banks Peninsula road sides) where both the tree and the under surface may or may not be actively managed.

Stand of Trees (Continued)

CLASSIFICATION INFORMATION – STAND OF TREES

Trees are located in close geographic proximity to each other and meet at least one of the following criteria:

a. canopies are touching; or

b. canopies are overlapping; or

c. there is the potential to form a closed canopy; or

d. are environmentally dependent upon each other where the loss of one or more of the trees would have a detrimental effect on all or part of the remaining trees; or

e. they have an obvious level of visual connectivity through having a similar or complimentary sense of scale or form or age or colour or texture.