Figure B4.4.1 - Photovoltaic solar panels on roof of building

Figure B4.4.2 - Use of biowall to act as biofiler and enhance the aesthetic quality of the building

Figure B4.4.3 - Use of sunshading devices to enhance energy efficiency

Figure B4.4.4 - Natural cross-ventilation or solar chimneys

Objectives:

- To encourage site planning and building design that optimises site conditions to achieve energy efficiency and minimises energy and water consumption in buildings.
- To facilitate the design and construction of energy efficient buildings in accordance with the project's sustainability objectives and targets.
- To reduce the necessity for mechanical heating and cooling.
- To reduce reliance on fossil fuels.
- To minimise greenhouse gas emissions.
- To reduce environmental impact over the life cycle of a building.
- To promote renewable energy initiatives.
- To encourage development which provides for low recurrent outlays in terms of maintenance and capital upgrades over the life cycle of the structure.

Design Guidelines:

1. Commercial buildings should achieve a minimum of 5 star Building Greenhouse rating in respect to energy efficiency.
2. The orientation, internal layout and design of the building should minimise energy consumption. Aspects to consider:
   * Passive solar access
   * Natural light to internal areas
   * Natural cross ventilation
   * Solar access to outdoor recreational areas
   * Use of landscaping to reduce thermal load
3. In designing the building consideration should be given to utilising large areas of roof space for generating electricity via solar panels or other relevant technology.
4. Materials for construction should seek to have recycled content such as:
   * concrete that utilises slag and fly ash
   * structural and reinforced steel that uses recycled steel content
   * certified plantation or engineered timber materials
5. Where appropriate incorporate biowalls (green walls) in the design of the buildings which will act as a biofilter, add insulation to a facade, reduce the destruction caused by UV rays, help reduce the rates of stormwater runnoff, as well as be an aesthetic feature of the building.
6. Water conservation techniques should be employed as outlined in Section B4.8.

B4.5 Substation Building Design

Figure B4.5.1 -Energy Australia sub-station with quality facade design and materials

Figure B4.5.3 - Building facade design made architecturally interesting with materials

Objectives:

- To ensure that the quality of design and materials enable the buildings to successfully combine function and external appearance consistent with a business park character.
- To ensure the safety of the adjoining properties.
- To provide landscaping to minimise the potential visual impact of the building bulk on the adjoining and nearby properties.

Design Guidelines:

- The visual impact of the building bulk is to be minimised by incorporating landscaping in site design including tree planting to screen the buildings.
- Building facades should be made interesting by use of materials and articulation.
- All servicing equipment should be screened from adjoining residential development and pubic domain.
- All transformers/switch yards to be enclosed, roofed and aesthetically pleasing.
- All cables, joining chambers and turning areas associated with the switching station should be underground.
- To utilise technology and efficiencies to reduce the ecological footprint of individual site.

Figure B4.5.2 -Energy Australia building at Surry Hills. The design and combination of material creates interest and helps reduce the bulk of the building

Figure B4.6.1 -Landmark planting

Figure B4.6.2 -Retain existing heritage landscape

Figure B4.6.3 -Low maintenance, drought resistant landscaping

Figure B4.6.4 - Opportunity to express water in design

Figure B4.6.5 - Drainage corridors providing green areas with low maintenance planting

Figure B4.6.6 - Swales in the street verge

Objectives:

- To provide large scale landscape gestures that are informed by the existing heritage landscape.
- To ensure that existing trees are retained where possible and incorporated into the final development.
- To minimise the visual impact upon the residential area to the east and south and especially of any retaining wall along the eastern boundary.
- To soften the impact of the built form and to provide shading and variation in the appearance of the area.
- To provide an edge to the Business Park.
- To provide low maintenance and drought resistant landscaping.
- To provide for an attractive streetscape within the Business Park.
- To provide shading in car parking areas.
- To protect and screen the heritage items adjacent to the site.
- To encourage landscaping that enhances public areas.
- To utilise, where practicable, existing plantings, such as palms, from the adjoining surplus areas of the reservoir site to minimise the threat of importing diseases such as root rot.
- To provide landscaping which reflects the character of the natural vegetation of the area.

Design Guidelines:

1. Large scale landmark planting that reflect the history of the site such as Kauri Pines and palms, should be included in the design to further develop a distinctive landscape character of the site.
2. Encourage large complementary planting to provide a landscaping setting for the buildings.
3. Encourage shading of car parking areas.
4. Encourage boulevard like accessways to facilitate comprehension of the site.
5. Earth mounding can be provided within the setbacks to reduce noise impacts on the surrounding development.

Figure B4.7.1 - Break out spaces

Figure B4.7.3 - Passive recreation area

Figure B4.7.2 - Desired microclimate around building edges

Objectives:

- To provide break out spaces within the grander landscape gestures for employees.
- To provide a desired microclimate for the comfort of the employees and visitors.
- To provide opportunities for outlook to the reservoirs and the city skyline.
- To provide opportunities to appreciate the historic context of the reservoir site

Design Guidelines:

1. Open space areas are to be provided for employees and visitors within or adjacent to landscape areas.
2. Horizontal facade elements are to be provided to unify buildings and provide sun-shading.
3. Passive recreational areas are to be incorporated within the building design with outlooks to reservoirs and city skyline.

Figure B4.8.1 - Bioretention system in car parks

Figure B4.8.2 - Stormwater reuse in landscaping

Figure B4.8.3 - Drought tolerant plants

Objectives:

- To use stormwater in the urban landscape to maximise the visual and recreational amenity of development.
- To reduce potable water demand through water efficient appliances, rainwater and greywater reuse.
- To minimise wastewater generation and treatment of wastewater to a standard suitable for effluent reuse opportunities and/or release to receiving waters.
- To ensure that the amenity of the surrounding residential development is not lowered through stormwater pollution.
- To minimise drainage infrastructure cost of the development.
- Integrate natural and/or existing site topographical features into the vehicle parking area design.
- Improved vehicle parking facility aesthetics.
- To provide for a Business Park wide approach to water management

Design Guidelines:

1. Water sensitive urban design measures should include:
   * grassed swales instead of conventional kerbs and channel drainage in appropriate locations
   * filter strips such as maintained grass or vegetated strips
   * stormwater filtration measures at the end of swales and /or open drains
2. Stormwater runoff from roofs should be collected into a rainwater tank to irrigate landscaped areas or for toilet flushing.
3. Incorporate gently sloping grassed areas or recessed basins into car parks to encourage detention and retention of run-off.
4. Parking area could be constructed with porous pavement to prevent run-off.
5. The design of buildings should include rainwater harvesting and plumbing for non-potable water use within the individual sites.

B4.9 Individual Site Entries and Signage

Figure B4.9.1 - Business Park signage

Figure B4.9.2 - Directional signage

Figure B4.9.3 -Business signage set within the landscape

Objectives:

- To encourage distinctive, well landscaped entries to the site.
- To encourage extensive verge landscaping and/or landscaped medians.
- To ensure that vehicles can access industrial sites safely and efficiently.
- To provide opportunity for the business to identify their location and activity.
- Ensure that signage does not adversely impact on the surrounding land uses by controlling the location and size of signage.
- To limit the amount of signage to avoid the creation of visual clutter on streetscapes.
- To ensure that the location and design of signs are consistent with road safety principles.

Design Guidelines:

1. Land owners should consider prohibiting kerbside parking and access to lots near site entry to increase the amount of landscaping.
2. Provide an entrance sign adjacent to the lot entry where desired by land owners. The design of signage should complement the landscaping.
3. All advertising signs must comply with Part D9 of Bankstown DCP 2005.
4. Directory sign must be located parallel to road boundary to facilitate legibility.
5. Signage must relate to the use occurring on the respective property.
6. Signs are to be visible from the street level and nearby higher buildings.
7. Limit only one primary sign per lot entry along public streets.

B4.10 Fences

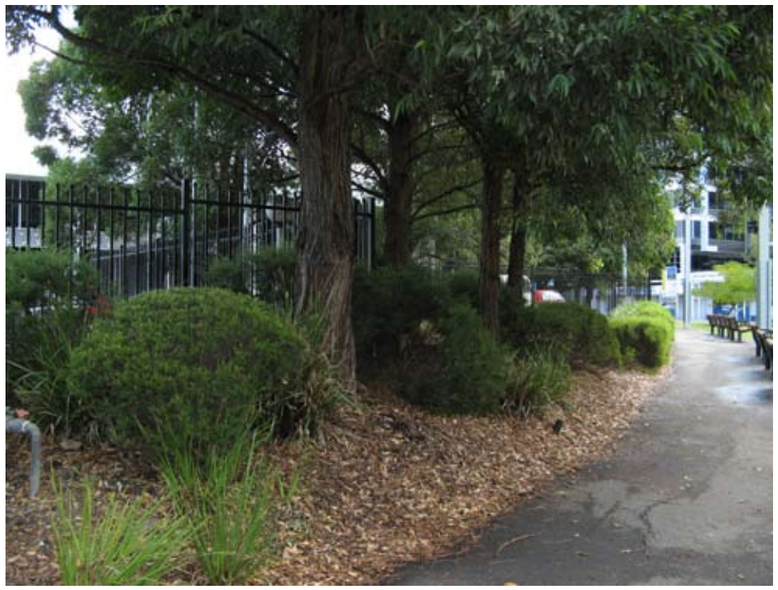

Figure B4.10.1 - Dark coloured palisade fence within a landscaped setback

Figure B4.10.2 - Dark coloured, chain mesh fence set within a landscaped setback

Figure B4.10.3 - Dark coloured palisade, security fence

Objectives:

- To ensure that fencing does not detract from the overall visual amenity and landscape character of the Potts Hill Business Park.
- To ensure that fences are sympathetic to the design of the buildings and do not dominate the streetscape.
- To provide security for the individual sites.
- To ensure that fencing does not interrupt authorised pedestrian permeability through the site.
- To ensure that fencing does not impact upon or compromise the integrity and security of the adjoining reservoir site.

Design Guidelines:

1. Fencing should be erected within a landscaped setback.
2. A 2.95m high security chain link fence to be provided along the eastern boundary of Sydney Water's operation land (refer Figure 2.1.1, pg 7).
3. Solid, pre-painted metal fencing should not be used because of it's poor visual appearance. If required for security reasons it should be screened by landscaping.
4. Dark coloured palisade fencing is encouraged where appropriate.
5. Wherever chain linked fences are used for security purposes, landscaping shall be provided to screen the fence.
6. All fences shall be made of durable and weather resistant material.
7. Fences to be provided along street edges and between adjoining property owners.
8. Where possible landscaping should be used to soften the visual impact of boundary fences, however the landscaping and screening vegetation is not to impede any security surveillance or lighting spill.

B4.11 Safety & Security

Objectives:

- To ensure design and layout takes into account the safety of occupants and visitors to the site.
- To ensure the design permits surveillance of the streets for public safety.
- To maximise natural surveillance so that people feel safe at all times.
- To ensure that the integrity and security of the adjoining reservoir site is not impaired or compromised.

Design Guidelines:

1. Design of buildings and landscaping should ensure natural surveillance of pathways and open space setback areas around buildings is possible from within buildings or from adjoining roads.
2. Building design should ensure building entrances are visible.
3. Appropriate lighting should be provided to all pedestrian paths, parking areas and building entries to identify and encourage use of safe access routes.
4. Planting within car parks and along internal pedestrian paths should not include foliage between the heights of 0.5m and 2m to allow for passive surveillance.

B4.12 Lighting

Objectives:

- To ensure lighting does not cause distraction to vehicle drivers on internal or external roads or to occupants of adjoining properties.
- To encourage the use of solar lighting for outdoor areas in accordance with relevant Australian Standard.

Design Guidelines:

1. Accent illumination can be provided at key location such as building entrances and driveways.
2. External lighting should be integrated into building form and designed to accentuate architectural form and features.
3. External lighting fixture design shall be compatible with the design and the use of the principal structure on the site.
4. All exterior light fittings shall be energy efficient types.

B4.13 Waste Management and Recycling

Objectives:

- To minimise the overall environmental impacts of waste.
- To provide waste management system that allow ease of use by occupants and ease of service by collection contractors.
- To encourage waste minimisation, including source separation, reuse and recycling.
- To promote design that provide convenient waste storage, recycling and collection facilities on site.
- To reduce potable water consumption.
- To utilise technology and efficiencies to reduce the ecological footprint of individual site.

Design Guidelines:

1. Use sustainable building materials that can be reused and recycle.
2. Adequate garbage and recycling areas must be provided on every buildings.
3. Storage areas for rubbish bins are to be located away from the front of the development and are to be screened.

- *Gross floor area* - is the sum of the floor area of each floor of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes:
  a. the area of a mezzanine, and
  b. habitable rooms in a basement or an attic, and
  c. any shop, auditorium, cinema, and the like, in a basement or attic,

but excludes:

  d. any area for common vertical circulation, such as lifts and stairs, and
  e. any basement:
    (i) storage, and
    (ii) vehicular access, loading areas, garbage and services, and
  f. plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
  g. car parking to meet any requirements of the consent authority (including access to that car parking), and
  h. any space used for the loading or unloading of goods (including access to it), and
  i. terraces and balconies with outer walls less than 1.4 metres high, and
  j. voids above a floor at the level of a storey or storey above.

- *Floor space ratio* - is the ratio of the gross floor area of all buildings within the site to the site area.

- *Site coverage* - is the proportion of a site area covered by buildings. However, the following are not included for the purpose of calculating site coverage:
  a. any basement,
  b. any part of an awning that is outside the outer walls of a building and that adjoins the street frontage or other site boundary,
  c. any eaves,
  d. unenclosed balconies, decks, pergolas and the like.
  - spa pool has the same meaning as in the Swimming Pools Act 1992.

Note. The term is defined to include any excavation, structure or vessel in the nature of a spa pool, flotation tank, tub or the like.