

R E P O R T

Darwin City Waterfront Redevelopment

VISUAL IMPACT ASSESSMENT

Technical Assessment for the Draft Environmental Impact Statement

Prepared for

27 February 2004

36909-007 DCWR EIS

URS

Project Manager: Paul Lloyd
Senior Environmental Scientist

URS Australia Pty Ltd
Level 1, Arkaba House, The Esplanade
GPO Box 2005, Darwin NT 0801 Australia
Tel: 61 8 8980 2900
Fax: 61 8 8941 3920

Project Director: Charles Johnston
Principal, NT Manager

Author: Jim Singleton
(Optional) Principal Environmental Scientist

Date: 27 February 2004
Reference: 36909-007 Visual
Status: Final

Contents

1	Objectives and Scope -----	1-1
2	Description of the Existing Environment -----	2-1
2.1	Site Landscape Elements and Land Use	2-1
2.2	Visual User Groups	2-3
2.3	Visual Accessibility	2-4
2.4	Visual Catchments and View lines	2-6
2.4.1	Internal	2-6
2.4.2	External	2-7
2.5	Topography and Key Features (for landscape enhancement and exploitation/management)	2-7
3	Description of the Proposed Development -----	3-1
4	Assessment of Potential Impacts from the Proposed Development -----	4-1
5	MITIGATION STRATEGIES-----	5-1
5.1	Visual Corridor – Kitchener Drive to McMinn Street	5-2
5.2	Height Controls and Roof Top Design Control for New Developments	5-2
5.3	Visual Impact of Mudflats, Foreshore Treatment and Inner Harbour Views	5-2
5.4	Integration With the CBD	5-3
5.5	Integration of Heritage Elements	5-4
5.6	Community Validation of Visual and Scenic Values	5-5

LIST OF FIGURES

Figure 13.1	Landscape elements
Figure 13.2	Visual accessibility
Figure 13.3	Visual catchment - Internal
Figure 13.4	Visual catchment – External and peripheral
Figure 2	Strategic visual aspects and mitigation elements / focus

The stated **objectives** for the visual impact assessment (VIA) was to describe the overall landscape and visual characteristics of the existing Darwin wharf site and to relate these values to the surrounding landscapes, land use and developments, as well as to the intended re-development concept for the overall site. The interests of all stakeholders were to be considered in this context.

The stated **scope** of the VIA was as follows:

- Identification of the range and type of view situations, the visual catchment and visual user groups;
- Evaluation of the existing visual environment based on a site inspection, dividing the locality into visual catchment areas to;
 - assess the capacity of land to absorb change,
 - evaluation of visual catchments area, and
 - an analysis of land use within and around the site.

Topography, screening potential, location of key features and significant sites, views and viewing locations/situations were taken into account.

- Assessment of visual impact on the surrounding environment incorporating an assessment and combination of the projected levels of visual modification with viewer sensitivity:
 - *Visual Modification* – includes assessing the visual impact by determining the degree of visual ‘fit’ with the current landscape. This included:
 - the degree to which the environment has already been modified,
 - the scale of other natural and built forms,
 - the presence of water and any other visually and aesthetically attractive features, relative relief, topographic ruggedness and overall scenic quality of the area.
 - *Viewer Sensitivity* – included an analysis of visual user groups by talking with stakeholders.

The projection of viewer sensitivity was based on both the physical environment and the psychological or social environment, which determines how individuals will view the development. Viewer sensitivity was assessed in relation to the visibility of the development from critical viewing areas and view angles, the distance of the viewer from the site and the land use area viewed. The degree of sensitivity is also affected by how the viewer perceives the development and factors which can influence this can include the visual user group to which the individual belongs, the extent to which the local community has been consulted and the amount of information available to the community on the project.

- Recommendations, including potential design techniques for reducing visual impact if required.

2.1 Site Landscape Elements and Land Use

The Darwin Port/City Waterfront site is currently a landscape in transition, with various elements from the original biophysical setting as well as from the past and present human use of the site. The transition elements in the landscape relate to the current yet early stages of the long term transformation which has been initiated by the redevelopment project itself. These aspects are the visual and landscape consequences of decommissioning and demolition of past port activities/structures. This visual impact assessment therefore takes into account and responds to this transformation process in train.

Moving in rough sequence from the seaward side of the site back towards the city, the principal landscape elements of the site (see Figure 1) are:

- 1) The outer wharfs (Stokes Hill Wharf, Fort Hill Wharf, Old Iron Wharf and Old Fort Hill Wharf), including the causeway or jetty access to them, provide the dominant 'port' landscape elements. The alignment of the dominant Fort Hill Wharf and the Stokes Hill Wharf extending out from the shoreline at either end of the existing shoreline of the overall site provides a sense of symmetrical enclosure. However, due to their historic and sequential development westerly arrangement of the Iron Ore Wharf, Fort Hill Wharf and Old Fort Wharf are juxtaposed awkwardly to create a visually confused layout. Old Fort Hill Wharf is especially incongruous. The western extension (and duplicated access jetty) of the existing Fort Hill Wharf appears 'tacked on'. The fixtures on the wharfs (sheds, gantries, cranes, etc) are neither extensive nor particularly intrusive. The exception is the conveyor on the Iron Ore Wharf. The wharf structures, particularly the strong horizontal element that the Stokes Hill Wharf and the main Fort Hill Wharf/Old Fort Hill Wharf present when viewed looking southward from the land out into the Darwin Harbour, are visually quite different between high tide and low tide conditions. At high tide much of the sub-structure/support structures is submerged and as overall features they are much less prominent in the landscape. At low tide they are markedly more dominant foreground features in the seascape as viewed from the landward side. Similarly, their visual prominence also increases significantly when viewed from the seaward side.
- 2) The tidal zone and mudflats are an important and dominant landscape element, easily overlooked. Yet this element is at times dominant and certainly can not be ignored. While the 8 metre maximum tidal range means that for extended periods there is an open water vista between the current shoreline and the wharfs, for significant periods during the tidal change extensive shallows and mudflats are evident. These can extend to within 30 metres of the jetty wharfs at the lowest tides, which means that at times most of Kitchener Bay within the Stokes Hill and Fort Hill Wharfs will in fact be mudflat rather than open water. Small natural drainage channels cut across the mudflats at lowest tide. For many, especially visitors from sub-arid or temperate climatic settings, tidal flats are likely to be the least attractive aspect of the Darwin Harbour coastal landscape. Yet mud flats are the natural order of things. It is interesting to note that the promotional literature for the redevelopment project indicates 'architectural landscape concept drawings' providing an impression of the possible future concept that do not accommodate or apparently recognize the reality of this dominant landscape element.

-
- 3) The 'industrial' portion of the port precinct zone that takes up the majority of the former port site contributes most of the existing landscape elements within the site. However, from a visual standpoint they can be divided into the following sub-elements:
- i. Sub-element 1: the existing shipping and container storage area associated with the Fort Hill Wharf that will remain outside the designated 'redevelopment' project area.
 - ii. Sub-element 2: the area of the sulphuric acid tank, quarantine incinerator, former iron and zinc concentrate storage area, and shell bitumen plant form another sub-element. In combination they present a grouping of industrial port structures of similar 'type' or character, and of broadly uniform height and mass, in keeping with a former port industry zone. They are being progressively decommissioned and hence part of their visual feel is of vacancy and dereliction.
 - iii. Sub-element 3: the former warehouse area that is currently in an advanced stage of demolition and site clearance.
 - iv. Sub-elements 4: the area of both completed and progressive reclamation on the 'seaward' side of sub-element 3, including the former Cockburn Cement Area and Northern Cement Plant sites. Within the sub-element 3 area, these sites form the most obviously transitional elements of the study area.
- 4) The existing recreational and commercial tourism site that includes the Indo Pacific Marine and the Pearling Museum, the Jetty Restaurant and the Tram Eatery venue. This landscape takes in the access road, parking and associated landscaping (e.g. Stokes Hill Park), and the historic pump house structure. These features collectively form an identifiable landscape component of the site. They are mainly occupied, in use, well maintained and relatively ordered and tidy.
- 5) The partly landscaped open foreshore area on the western edge of the study area, and which is to the west of old quarantine station (sub-element 2, under point (3) above) forms another distinctive landscape element, and allows a degree of visual integration with the adjacent section of foreshore to the north that extends up to the location of the Deck Chair Cinema.
- 6) The old power station site to the east of Stokes Hill forms a large cleared and partly rehabilitated landscape from the previous 'industrial' site. Former structures have been demolished and removed, and the site has been left largely cleared and vacant.
- 7) The Stokes Hill Fuel Tank site 'depression' is a distinct man made landscape element. It is a hidden site, created from excavations into Stokes Hill to form a depression in which to locate and hide the two existing fuel tanks.
- 8) Stokes Hill scarp and ridge effectively forms the depression referred to above, and forms a visual enclosure on the eastern side of the redevelopment site. This scarp is a highly visible topographic feature consisting of steep vegetated scarp. On the ridge top at its south easterly point is located a prominent storage tank. Nearby at the foot of the scarp lies the half circle concrete wall remains of a partially demolished former storage tank.
- 9) The main escarpment that is the predominant topographic feature of the site, and forms the physical northern boundary to the redevelopment area. Visually the dense cover and canopy of

the vine forest on the 25 metre high escarpment presents a strong vegetated enclosure and setting to the site. Although understood to be mainly re-growth since Cyclone Tracey thirty years ago, albeit with rehabilitation management and a significant degree of management intervention (e.g. species enrichment, weed suppression, etc), the diversity of species is considered to be good. The upper canopies of the tallest trees reach to approximately 10 to 15 metres in height (subjective assessment) which is significantly less than the long term potential height of the certain mature rainforest species. This means that the physical barrier/edge this element forms to the study area and visual barrier it provides between the city centre to the northwest and the site itself, will be greater in the future rather than less. While this main escarpment appears visually uniform it should be noted that in a land use sense there are different components within it. These include:

- private land ownership (lots) extending down from the Esplanade at the eastern end of the scarp;
- public road access (Hughes Avenue) to the wharf precinct running diagonally down the scarp from north east to south west;
- Survivors Lookout on the Esplanade and the associated steps down to Kitchener Drive; and
- Government House property that extends over the entire south west ‘spur’ of the scarp.

2.2 Visual User Groups

The current visual user groups of the area include a widespread section of the community. In principle they encompass the following:

- port area employers and employees of the various organizations and businesses operating within the former Darwin Port area (including port activities, various port related industry, tourist operators, government, infrastructure services and operators);
- visiting crews of the various shipping using Darwin Port;
- all passing marine and boating traffic in Darwin Harbour;
- tourists using the visiting the study area for a range of activities including general sight seeing, recreational fishing, visiting the various heritage sites in the locality (e.g. former munitions tunnels, Goyders’s Camp, Damoe-Ra Park, Travellers’ Walk, Survivors Lookout and Staircase, etc), and use of the various commercial recreation attractions (e.g. food markets, restaurants, the Indo-Pacific Marine, the Pearling Museum, charter boat hire, the Deckchair Cinema, etc);
- local community visiting the study area for a range of activities (as above for tourists);
- public servants and government representatives operating in the nearby ‘government precinct’ and who either visit, take advantage of close physical proximity to the study area site, or who have direct

visual access from upper story office windows (particularly Parliament House, Supreme Court, and Government House) overlooking the study area;

- nearby city workers in the Darwin central business district (as above for public servants);
- occupiers of various key buildings (mainly high rise) with direct visual access through windows from either most floors, or selective upper floors. These include the following buildings:
 - Bridgeport building (full visual access)
 - Arkaba House (full visual access)
 - Kapetas residence next to Arkaba House on the Esplanade
 - Harbour View Plaza (partial visual access)
 - Vantage Point towers (Defence Housing Authority) (partial visual access)
 - 9-11 Cavenagh Street office tower (partial visual access)
 - Energy House (partial visual access)
 - Supreme Court building (substantial visual access)
 - Parliament House building (substantial visual access)
 - NT Library (limited visual access)
 - NT House (limited visual access)
 - Crown Plaza (limited visual access)
 - Darwin Central (limited visual access)
- residents and occupiers of houses on Larrakeyah Terrace, and occupants of the Larrakeyah naval base, who have an oblique view of the south western portion of the site (vicinity of the former Fort Hill peninsula).

2.3 Visual Accessibility

In general terms, the Waterfront Development site is to a significant degree contained within a closed visual catchment, largely unseen from the adjacent land areas of Darwin city (CBD and nearby suburbs). It is obviously visually accessible from the open waters of the harbour.

Occupying the low lying reclaimed area below a pronounced shoreline scarp/cliff at the southeast end of the main Darwin city central business district, views either into the site from the city or out of the site towards the city are extremely limited. Back from the edge of the escarpment, only the tallest buildings are visually connected, and even then generally only the upper levels/floors. Even from the edge of the

escarpment itself, open views down into the site are quite limited by the height and density of the upper canopy of the vine forest on the scarp itself.

The site has the following visual accessibility both to and from external, adjacent and nearby locations (see Figure 2):

- Visual accessibility to (and from) the CBD is limited to glimpses and views to (and from) floors of the tallest buildings at various distance back from the Esplanade frontage above the scarp. These include:
 - Bridport building (full visual access)
 - Arkaba House (full visual access)
 - Kapetas residence next to Arkaba House on the Esplanade
 - 9-11 Cavenagh Street office tower (partial visual access)
 - Energy House (partial visual access)
 - Supreme Court building (substantial visual access)
 - Parliament House building (substantial visual access)
 - NT Library (limited visual access)
 - NT House (limited visual access)
 - Crown Plaza (limited visual access)
 - Darwin Central (limited visual access)
- Visibility from the Esplanade is limited to Survivors' Lookout and to glimpses at the eastern end of the road, and full visual access from Arkaba House, the Bridgeport Building and the Kapetas residence;
- Visibility from larger buildings lying beyond the gap between the scarp through which the extension of Kitchener Drive passes before joining up with McMinn Street. This landform feature provides the only significant visual corridor connection between the site and nearby areas of the city and inner suburbs. It is be noted that if the large redevelopment area between the McMinn Street and Frances Drive intersection is developed for high rise development there will be a significant increase in visual access from external developments in this location. The buildings currently with visual access to the redevelopment precinct include:
 - Harbour View Plaza (partial visual access)
 - Vantage Point towers (Defence Housing Authority) (partial visual access)

- A degree of visibility into the western edge of the redevelopment precinct exists from the coastal portions of the suburb of Larrakeyah. This locality is two to three kms distance from the site, which is sufficient distance for landscape detail to start merging to the naked eye. Only major structural landscape elements and man-made structures can be seen with clarity.

2.4 Visual Catchments and View lines

The principal visual catchments and view lines are illustrated in **Figures 3 and 4**. These consist of various arc views/visual catchments identified from various key points of visibility within the site or from key locations outside the site, or on the periphery of the site.

2.4.1 Internal

The internal visual catchments and view lines are illustrated in Figure 3, and include the following:

- Visual catchment 1: a wide panorama from the Stokes Hill Wharf looking generally northward back to the redevelopment site. Most features in the foreground, midground and background (horizon of the scarp top, tops of tall buildings previously identified) are visible.
- Visual catchment 2: a wide panorama from the edge of the site over Darwin Harbour that also encompasses the landscaped foreshore area to the north towards the Deck Chair Cinema and Damoe Ra Park.
- Visual catchment 3: viewlines covering the main portion of the port, tidal mudflats and jetty wharfs looking southward from the start of the causeway out to Stokes Hill Wharf.
- Visual catchment 4: similar viewlines covering the open water of the port, mudflats and jetty wharfs, but from the opposite side of the port near the shipping container storage and handling area.
- Visual catchment 5: a more restricted but nevertheless open view of the port from the Tram Eatery site.
- Visual Catchment 6: view from near the old Pump House site of the former power station site.

In addition, a series of key vantage points are also identified, either realized already or potential, as follows:

- Stokes Hill lookout – with potential for 360 degree access of the entire site.
- central foreshore location
- start of Stokes Hill Wharf causeway
- vantage point on foreshore near shipping container storage area

-
- open foreshore on western shoreline of site near Goyder's Camp and Tamarin trees location
 - Survivors' Lookout
 - General vicinity of Arkaba House
 - Government House Gardens

2.4.2 External

The external visual catchments and view lines are illustrated in Figure 4, and include the following:

- Visual catchment 1: encompassing the western shoreline, immediate foreshore landscape, and iron ore jetty, with visual connection along the western foreshore of Darwin city centre, and visible to (and from) the Larrakeyah suburb foreshore developments.
- Visual catchment 2: wide panoramas over the overall site from the elevated position/developments at the eastern end of Esplanade at the top of the scarp, partly as a result of the cleared vegetation on the upper slopes of the scarp.
- Visual catchment 3 (a) and (b): visible zone through the gap between the main scarp and Stokes Hill scarp from one side to the other. These catchments and viewlines have considerable implications for future development within the visual catchment (internal and external).
- Visual catchment 4: a wide panorama from the existing Survivors' Lookout.
- Visual catchment 5: a potential wide and strategic visual catchment and sight lines from Government House gardens, currently restricted to a minimum by dense tree canopies.

2.5 Topography and Key Features (for landscape enhancement and exploitation/management)

The main topographic features of significance to the visual qualities of the site include the following:

- the main scarp
- the spur at the western end of the main scarp (Government House site)
- Stokes Hill scarp
- the spur at the south-easterly point of Stokes Hill scarp
- the foreshore edge
- the intertidal zone (tidal mudflats and existing rubble/rip rap foreshore edge)

-
- the open water zone contained within the main wharfs

The key features of the site include the following:

- lookout on Stokes Hill spur and existing storage tank
- jetty structures and the structures and activities on the public accessible Stokes Hill Wharf, including visually interesting vessels tied up at the jetty
- vegetated vine forest cover of dense green cover
- existing in-use and disused/derelict industrial structures
- untidy vacant land use areas (decommissioned, derelict, demolished sites) that currently support prolific colonizing vegetation, mainly weed species.

These various landscape features include both positive (high attribute, scenically attractive) and negative elements (visually intrusive, unsightly and incongruous) elements. Of these the most problematic and in need of visual amelioration/enhancement include:

- storage tank on Stokes Hill
- all industrial structures
- vacant, decommissioned and disused derelict sites
- untidy jetty/wharf structures (Old Fort Hill Wharf, Iron Ore Wharf)
- central foreshore edge (as exposed at either high tide or low tide)
- mudflats

The proposed development is, at the time of writing, only conceptual in nature. There are no specific development or structural details (architectural, engineering, landscape) as yet determined.

However, from the development brief and promotional literature so far made available, it is understood the following key development features are assumed to be likely:

- 1) All structures generally not exceed the height of the main scarp.
- 2) A major convention and exhibition centre development to form a centre piece to the development near the foot of the main scarp approximately on alignment with the Smith Street axis.
- 3) Extensive pedestrian areas, open space and parks.
- 4) An area of high-class medium to high density mixed residential in the vicinity of the former Stokes Hill topographic feature (removed by excavation in the 1960s) and identified Landscape Element 2 (sub-element 2) location.
- 5) Open water harbour/port frontage and foreshore that is public accessible and that forms a major concourse and foreshore civic space in front of the proposed convention centre.
- 6) Foreshore marine (recreational) activities, including landing points and possible marina/finger jetty facilities.
- 7) A major 'open water' harbour setting will be a centrepiece, with fishing, boating and yachting.
- 8) A maximum provision of open space and publicly accessible areas are required for the development.
- 9) The existing shipping container storage and handling area, together with the Fort Hill Wharf will remain.
- 10) The Iron Ore wharf and Old Fort Wharf are to be removed
- 11) All existing industrial land uses and structures within the designated development precinct will be removed, except the fuel pipelines running along the foot of the main scarp beside Kitchener Drive.
- 12) The visible storage tanks will be removed, as will the Stokes Hill Tanks hidden within the man-made depression (mentioned above).

In summary the intended development will extend over most of the former Darwin Port area, and is to be a highly prestigious and visually integrated yet exciting development of mixed uses ranging from civic and public, to residential and commercial. Tourism facilities and attractions, both commercial and non-commercial, are a major strategic underpinning to the development. Residential development will be important to bring activity and life to the area, and to generate a financial base to the overall development concept. Extensive landscaping with appropriate upper/high canopy species is anticipated.

In so far as the redevelopment site is a former industrial port zone, now in a transition stage over most of the area of decommissioning, vacancy and demolition, the proposed redevelopment concept will almost entirely result in a visually positive outcome.

Hence the overall visual impact will be significant, but it will be almost entirely positive.

The main areas of concern identified in this study and by prior stakeholder consultation, include the following:

- potential loss or diminution of heritage values and icons;
- unsightly foreshore edge treatment that detracts from visual quality and experience of the development;
- exposure of mudflats on a regular (tidal) basis without taking into account the predominant perception of mudflats as unsightly;
- unsightly on incongruous structures within the site that are constructed to a height above the main scarp contour height (or tree canopy height) and hence are visible within the parliamentary and adjacent heritage precinct, and diminish the civic and landscape quality of those key civic precincts;
- perceived commercial competition between city centre traders/business interests and attractions of the wharf redevelopment, that is reinforced by a sense of visual and functional isolation/separateness between the two areas and their functions/activities;
- large areas of open car parking.

The current state of the site is that of a semi-derelict former industrial port. Owing to the location and site orientation at the south-eastern end of the peninsula landform on which the Darwin city centre is positioned, and at the foot of a 25 metre high foreshore escarpment, the redevelopment site is largely hidden from view from the landward side.

The proposed nature of the development as specified in the vision for the waterfront development and invitation for Expressions of Interest, indicate the intention for a well integrated development, key features of which are for the development to be visually attractive and scenically integrated.

If the redevelopment is executed well in terms of good site planning, design excellence of all structures and outdoor spaces, and seamless functional integration, then the result should be a very positive visual impact outcome.

The main areas of potential concern are the following:

- 1) Visual site lines and the view corridor through the Kitchener Drive gap between the Stokes Hill Scarp and the main scarp (adjacent to the Esplanade/Harry Chan Avenue) to the large urban redevelopment area in the vicinity of the McMinn Street and Frances Bay Drive intersection (the former railway yards). If poor quality development occurs in this urban development precinct it could detract from the visual quality of the wharf redevelopment, and vice versa.
- 2) Lack of appropriate height controls on new structures in the wharf redevelopment site could result in visual incongruity and intrusion in the landscape of the adjacent civic, parliamentary and associated heritage precinct on the north side of the Esplanade.
- 3) The visual impact of marina developments or navigable channels in the shallow tidal mudflats zone within the harbour could be high. Dredge channels through the mudflats to allow boat access would be highly visible and unsightly at low tides.
- 4) Poor design treatment of the foreshore edge to the development could result in a visually unattractive yet very prominent landscape element to the development, especially during mid and low tide periods.
- 5) Lack of design/aesthetic and functional integration with the adjacent city centre civic landscape and urban land use functions. A weakness of any large redevelopment is that it may not adequately integrate with nearby or adjacent landscapes (built or natural). Failure to achieve appropriate integration can diminish important existing historical and heritage values.
- 6) Lack of internal design/aesthetic and functional integration, particularly of existing heritage and key landscape elements, would result in these values being diminished, and possibly lost. It is vital that their importance is retained and given suitable prominence in the redevelopment.

5.1 Visual Corridor – Kitchener Drive to McMinn Street

The principal mitigation measure is for the development of suitable urban design codes and development control provisions to be placed on the redevelopment precinct in the vicinity of the McMinn Street and Frances Bay Drive intersection, to ensure appropriate and compatible design, aesthetic and functional outcomes. Similarly, the Wharf redevelopment guidelines/specifications should ensure visual and landscape integration within the identified visual corridor (**Figure 4**).

5.2 Height Controls and Roof Top Design Control for New Developments

Height controls for all structures to not exceed the view lines obtainable from the city (at near ground level or pedestrian viewing height) should be generally applied. However, functional and visual integration of the new development with the city could be assisted by the judicious placement of a limited number of carefully designed structures that are of a greater height, and that serve to provide visual indicators able to be seen from outside the development precinct. These taller ‘indicator’ structures could be in the form of masts, lookout towers, or upper levels of a suitable building structure, designed as such to deliberately achieve visual connectedness with the CBD. There are possibly three suggested positions that might be appropriate:

- on the spur of Stokes Hill;
- on the axis through the wharf redevelopment site;
- on the alignment with Smith Street; and
- at a site central to the former (now removed) Fort Hill and on an axis with Government House and the associated spur-line of the main scarp.

5.3 Visual Impact of Mudflats, Foreshore Treatment and Inner Harbour Views

The mudflats require special consideration. While there is a suggestion the entire inner port/harbour area be dredged and deepened, this may not be affordable or practical. To avoid visually unsightly scars from selective deepening through the dredging of navigable channels other options should be considered.

First, the design brief and the selected development consortium must come to terms with the nature of the Darwin Harbour tidal regime and the existence of mudflats.

Second, it would be preferable to accept a final design solution that is environmentally acceptable and that accommodates natural processes rather than attempt a purely engineering solution that might not be sustainable.

It is the advice of this report that three design guidelines/principles be considered, as follows:

-
- Avoid a sloping foreshore edge constructed of rip-rap, rubble fill, or loosely consolidated materials. This will look visually very unsightly. A preference would be for a vertical edge retaining wall, or stepped construction using a smooth or seamless constructed finish. Variation in alignment, structural elements (steps, lookouts, indents, etc) and texture of the finished material should be considered.
 - If possible establish a ‘green visual edge’ in the foreground as viewed from the immediate land areas of the redevelopment (i.e. the promenade, civic open space, etc) looking seaward. This would provide the opportunity for visual softening of the foreshore edge when viewed from the wharfs back towards the development, and a visual filter of the mudflats when looking seaward from the shoreline and various other vantage points on the landward side.
 - A belt of mangrove islands running parallel and close to the foreshore edge could be considered. This offers the potential for a sustainable, natural, and visually consistent landscape element to be introduced into the redevelopment, and one that would function to provide visual softening of the shoreline, as well as a filtered visual screen/barrier in front of the mudflats. This option would allow the alignment and dredging of small navigable channels through the mudflats zone to allow boat access to the foreshore marina pens, finger jetties, etc, which might be considered, but in such a way that the channels look natural rather than artificial. Preliminary advice is that if islands/mud banks with a suitable range of elevation from –1 AHD to +3 AHD could be established, together with appropriate hydrodynamic flushing of channels (to avoid excessive erosion/sediment removal/scouring and excessive accretion and deposition) establishment of a diverse mangrove habitat could be readily achieved. This would present an ecotourism and environmental interpretation attraction (boardwalks and lookouts) as part of the development, and provide a landscape element with appropriate environmental and heritage landscape attributes, as well as help achieve certain important visual and functional objectives.

5.4 Integration With the CBD

An important related consideration is the achievement of both visual and functional integration with the CBD and adjacent parliamentary precinct. The invitation for expression of interests draws important attention to the connecting axis on the Smith Street alignment extending over the scarp and into the redevelopment site. This report finds that this axis is a critical aspect of the development. The axis ‘connection’ should be designed to be both strongly visual, and functional.

The visual connection should consider the clear extension of the Smith Street axis along an ‘at grade’ (top of scarp elevation) walkway (or similar) through the scarp vine forest canopy and on to the roof surface/upper levels of a possible convention centre (or similar), with clear sight lines so that the city can be seen from the ‘walkway’ in the redevelopment, and vice versa (the redevelopment site can be seen/recognized from the city).

This axis could include a suitable ‘people mover’ (e.g. electric trams, light rail system, mono-rail), that ultimately extends along Smith Street through the pedestrian mall and on through the spine of the CBD.

In turn the axis walkway could extend further toward the water's edge in the redevelopment precinct, dropping in elevation, but aligned with 'axial' features within the development. A 'people-mover' transport terminus could be included. A swing suspension pedestrian bridge (or similar) could then connect the foreshore edge with Stokes Hill Wharf along the same axis, thereby completing visual and functional integration.

The above is one suggestion of how visual connection between the city and the redevelopment might be achieved. Visibility is closely connected to perceptions of access, as well as notions/perceptions of practical functional connectivity (i.e. the mental map the community has of where something is, and how easy it is to get there from another location). Linear connections are an important way of achieving this.

It is posited here that this design principle would also be a major way of addressing the sense of competition and conflict the redevelopment might pose to city businesses, especially those catering for the commercial tourism market. The principle discussed here offers one way of achieving the benefits of land use integration and agglomeration, as opposed to mutually exclusive and essentially competing land use precincts that remain visually and functionally separate.

5.5 Integration of Heritage Elements

There are numerous heritage sites and artefacts within or close to the redevelopment area. These include (but are not necessarily restricted to):

- Goyder's Camp and the possibly original Tamarind trees
- Damoe-Ra Park
- Travellers' Walk
- Survivors' Lookout and staircase
- former munitions tunnels
- old Pump House
- remains of the former concrete tank wall
- submerged naval wrecks
- the site of the Fort Hill peninsula

These and other attractions and sites, some of which have intrinsic landscape and visual value, can form a strong identity to the redevelopment site, especially as some are of great historic interest and importance. They are also elements that if integrated into the design of the overall precinct can strengthen the visual qualities of the area by contributing to the overall 'mental map' of the development. This can help provide visual legibility of the development, and is best achieved if all the various sites are linked in some appropriate way (i.e. through signage with common 'heritage' nomenclature, linked by pedestrian ways

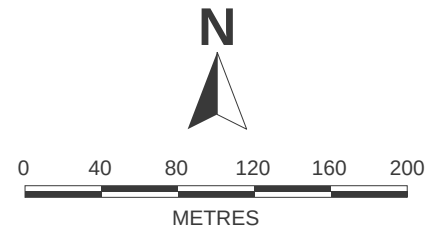
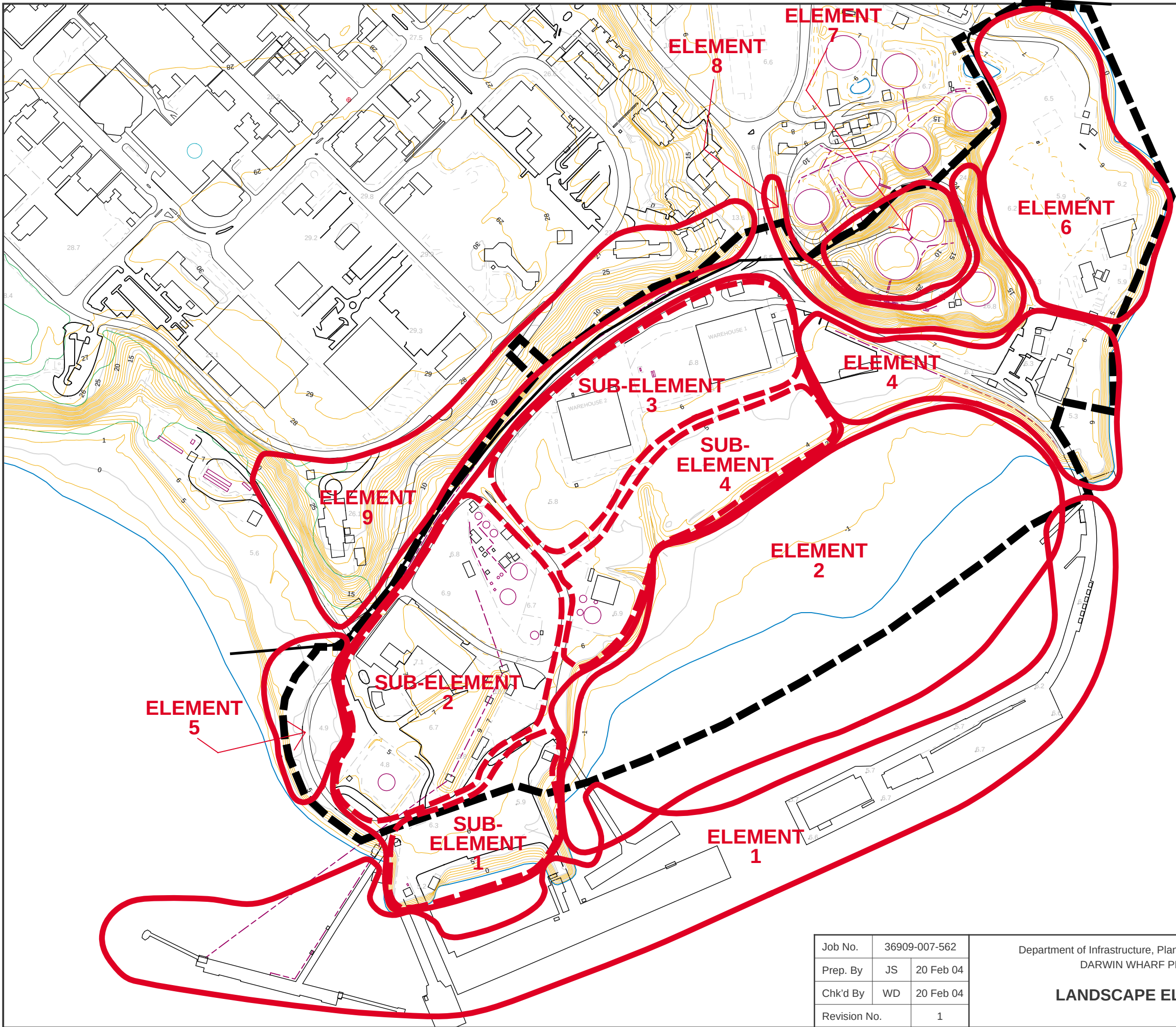
and trails, their positions and linkages clearly explained in directional signs and maps of the area, etc). Valuing the heritage values within the precinct is also an important way of establishing conceptual as well as visual and design links with the very important historic/heritage precinct immediately north of The Esplanade (e.g. Parliament, Supreme Court, and Smith Street location).

5.6 Community Validation of Visual and Scenic Values

It is important to gain community validation of important visual and scenic values. This is principally achieved through community consultation and engagement.

This part of the EIA process has not as yet been comprehensively undertaken. A high priority task is therefore the implementation of a suitable community and stakeholder engagement program to receive comment on the findings of this visual impact assessment undertaken so far, to modify the statements and findings accordingly, and to incorporate consensus community views and priorities concerning landscape and visual aspects, into the final design guidelines and specifications for the redevelopment. This may or may not include techniques such as relatively limited attitudinal surveys and community workshop meetings, or may extend to more complex but often more productive techniques such as ‘design by enquiry workshops’ or ‘charrettes’. A range of community engagement techniques are available.

These various approaches will also help define the requirements for setting performance goals acceptable to the community, and hence also the most appropriate monitoring requirements and methods.



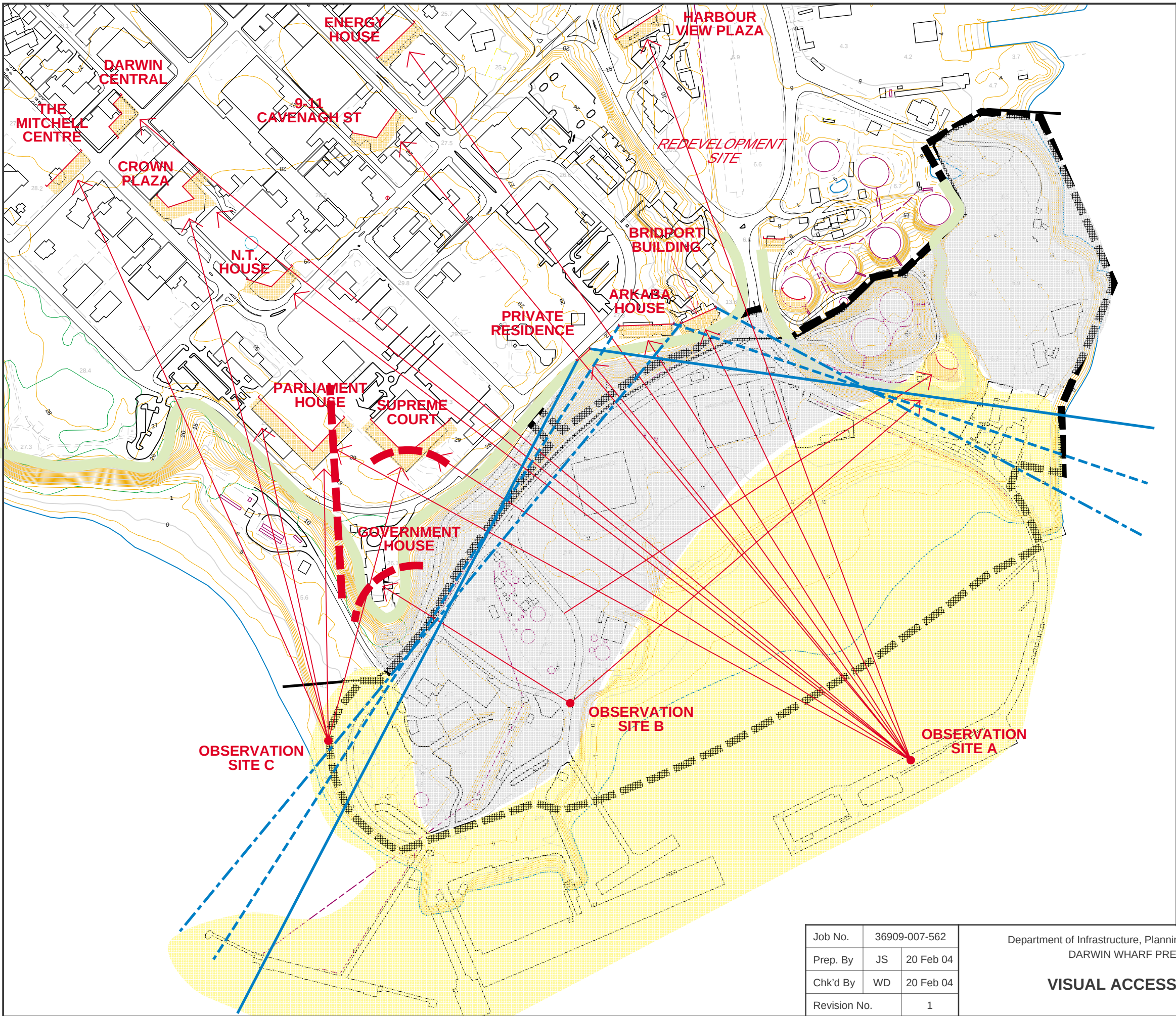
Job No.	36909-007-562	
Prep. By	JS	20 Feb 04
Chk'd By	WD	20 Feb 04
Revision No.	1	

Department of Infrastructure, Planning and Environment
DARWIN WHARF PRECINCT

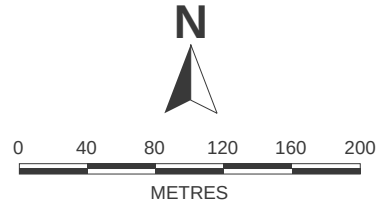
LANDSCAPE ELEMENTS

Figure 13.1





- LEGEND**
- MOST VISUALLY ACCESSIBLE PORTIONS OF THE SITE
 - LEAST VISUALLY ACCESSIBLE PORTIONS OF THE SITE
 - VISUAL CUT-OFF OR BARRIER
 - 'TOP OF SCARP' VISUAL CUT-OFF
 - SITE LINES FROM SPECIFIC OBSERVATION POINTS - TO CBD
 - VISIBILITY OF CBD STRUCTURES (UPPER LEVELS)
 - ARC-VIEWS FROM SELECTIVE BUILDINGS ON THE ESPLANADE
 - STUDY AREA BOUNDARY



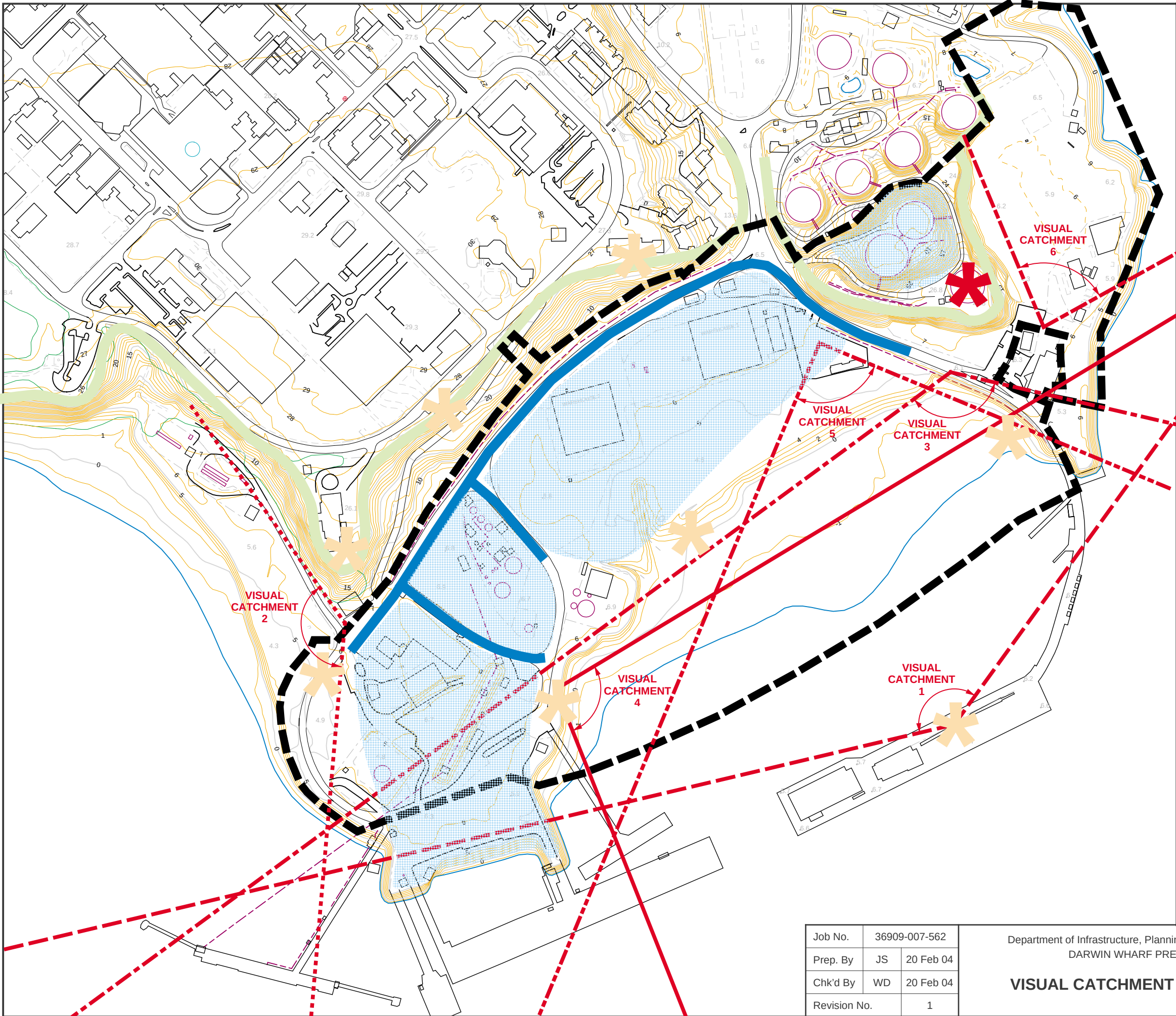
Job No.	36909-007-562	
Prep. By	JS	20 Feb 04
Chk'd By	WD	20 Feb 04
Revision No.	1	

Department of Infrastructure, Planning and Environment
DARWIN WHARF PRECINCT

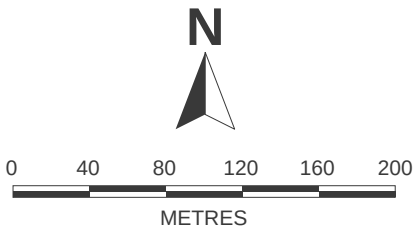
VISUAL ACCESSIBILITY

Figure 13.2





- LEGEND**
- FOREGROUND CLOSURE (LINEAR ROUTES)
 - ENCLOSED SITES (PARTIALLY OR FULLY)
 - 360° VISUAL VANTAGE POINT TO SITE
 - CRITICAL VISIBILITY LOCATIONS (VIEWLINES OF SIGNIFICANCE - POTENTIAL OR REALISED)
 - VISUAL CUT-OFF OR BARRIER



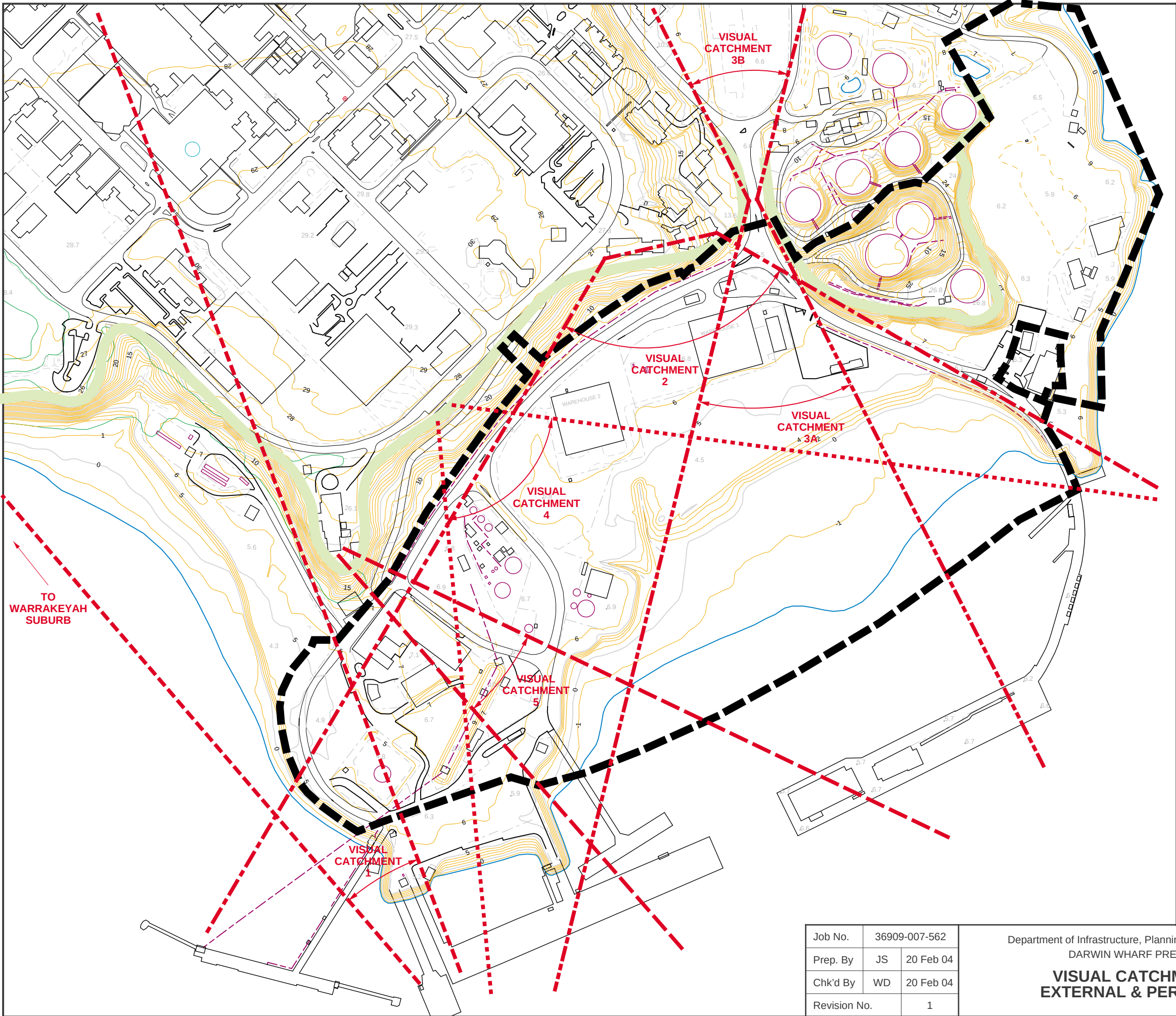
Job No.	36909-007-562	
Prep. By	JS	20 Feb 04
Chk'd By	WD	20 Feb 04
Revision No.	1	

Department of Infrastructure, Planning and Environment
DARWIN WHARF PRECINCT
VISUAL CATCHMENT - INTERNAL

Figure 13.3

URS

URS AUSTRALIA PTY LTD Perth Office +61 8 9221 1630
S:\Risk and Liability\DIPE\36909007 DRW Harbour Precinct Study\Drawing\016\36909007r016f13-4.dgn
Fri 27 Feb 04



LEGEND

VISUAL CLOSURE
(TO THE SITE)



0 40 80 120 160 200
METRES

Job No.	36909-007-562	
Prep. By	JS	20 Feb 04
Chk'd By	WD	20 Feb 04
Revision No.	1	

Department of Infrastructure, Planning and Environment
DARWIN WHARF PRECINCT
**VISUAL CATCHMENT -
EXTERNAL & PERIPHERY**

Figure 13.4

