

Sydney Metro North West

Design and Construction of Surface
and Viaduct Civil Works



Visual Amenity Management Plan

NWRLSVC-ISJ-SVC-PM-PLN-120210

Revision 05

29 May 2017

Visual Amenity Management Plan

Surface and Viaduct Civil Works



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Document Revision History

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Signature

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1 DEFINITIONS AND ABBREVIATIONS

Abbreviation	Definition
CEMF	Construction Environmental Management Framework (Submissions Report, Section 3)
CEMP	Construction Environmental Management Plan
CLIP	Community Liaison Implementation Plan
CM	Construction Manager(s) (ISJV)
COA	Conditions of Approval
CPTED	Crime Prevention Through Environmental Design
DP&E	NSW Department of Planning and Environment (formerly DP&I)
EIS	Environmental Impact Statement
EM	Environment Manager (ISJV)
EMS	Environmental Management System
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ER	Independent Environmental Representative
IC	Independent Certifier
Incident	Any unplanned or undesired event which results in or has potential to result in injury, ill health, damage, to or loss of property, interruption to operations or environmental impairment. An incident also includes a near miss, breach of procedure, quality failure, injuries to employees, contractors or members of the public and any other statutorily reportable occurrence.
ISJV	Impregilo S.p.A. (Australia) and Salini (Australia) Joint Venture / Principal Contractor
Mitigation Measures	Measures employed to reduce (mitigate) an impact
PMS	Project Management System
REMM	Revised Environmental Mitigation Measures (Submissions Report, Section 7)
SE	Site Engineer
SMNW	Sydney Metro North-west
SSI	State Significant Infrastructure
SVC Works	Surface Viaducts and Civil Works, for the Sydney Metro North-west Project
SWTC	Scope of Work and Technical Criteria
Activity Generators	Activity generators are features that tend to create activity. They can result in positive or negative impacts. With careful design, activity generators may reduce opportunities for crime. Equally, the location of an activity generator (such as a tavern) may generate high levels of undesirable activities in what otherwise would have been a very quiet neighbourhood.
Entrapment Spaces	Entrapment spaces are usually concealed from view and can be used as hiding places, or places to trap the unwary or to conceal criminal acts.
Movement Predictor	A movement predictor is a lane, path or track that follows a predictable course in an area where there is an absence of alternative routes.
Natural Surveillance	Natural surveillance occurs where there is an opportunity for people to incidentally observe a street, house front, park or other space. For example, natural surveillance of a street may occur while someone washes the dishes and looks

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Abbreviation	Definition
	through a kitchen window, or while someone waters the front lawn.
Target hardening	Target hardening reduces the opportunity for criminal activity by making an attacked more difficult or unattractive. For example, a location may be more dangerous or unprofitable to attack with the addition of locks, window film, grilles, computer locking mechanisms, fencing, security doors, or cages of lights. Such security features provide a visible signal to would-be offenders that the site is well protected, that attempts to force entry will be time-consuming and that there is a greater opportunity for apprehension.
Territoriality	Territoriality refers to a sense of ownership of a common space, such as a park or street. This concept relates mostly to private or semi-private space and is developed by groups of people to communities.
Hotspots	Hotspots are high-crime locations that can affect a nearby development. For example, they may be areas of high car theft (such as certain underground parking lots), areas favoured by pickpockets (such as bus terminals) or specific pubs that experience fights at closing time. Consideration must be given to the proximity of such locations and how to provide for public safety.

2 INTRODUCTION

2.1 Project Description

2.1.1 Description of SMNW Project

The SMNW project is a key priority for the NSW Government. The SMNW will deliver a new high frequency single deck train system initially operating as a shuttle between Cudgegong Road and Chatswood. The project includes eight new stations, approximately 15.5km of tunnels from Epping to Bella Vista, a 4.5km elevated 'skytrain' (viaduct) between Bella Vista and Rouse Hill, and conversion of the Epping to Chatswood Rail Link to deliver high frequency rapid transit services.

Stations are planned at Cherrybrook, Castle Hill, Showground, Norwest, Bella Vista, Kellyville, Rouse Hill and Cudgegong Road. Bus, pedestrian, cycling and easy access facilities will be provided at all stations, with approximately 4000 'Park and Ride' spaces spread across five sites.

The project is approved staged infrastructure under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act). It is to be implemented in two stages under this approval, with each stage having its own Environmental Impact Statement (EIS) and approval:

- Stage 1 – Major Civil Construction Works (EIS 1), under approval SSI-5100.
- Stage 2 – Stations, Rail Infrastructure and Systems (EIS 2), under approval SSI-5414.



Figure 1: The Sydney Metro North-west service alignment

2.1.2 Description of the SVC Project works

The project is approved staged infrastructure under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is to be implemented in two stages under this approval, with each stage having its own Environmental Impact Statement (EIS) and approval:

- Stage 1 – Major Civil Construction Works (EIS 1), under approval SSI-5100.
- Stage 2 – Stations, Rail Infrastructure and Systems (EIS 2), under approval SSI-5414.

The scope of the SVC Project works consists of the detailed design, construction and handover of the viaducts, bridges and associated civil works required for the SMNW between Bella Vista and Cudgegong Road and includes establishment and reinstatement of worksites, spoil removal and disposal and all required utility relocations and adjustments at construction worksites.

The permanent infrastructure to be delivered includes:

- Approximately 4.5 km of viaduct between Balmoral Road and Rouse Hill Station including crossings over Memorial Avenue, Samantha Riley Drive, Windsor Road, Sanctuary Drive and White Hart Drive
- Bulk earthworks requirements including all cut, fill and embankments between Balmoral Road and Cudgegong Road
- A bridge over Windsor Road / Rouse Hill
- A bridge over Second Ponds Creek
- Allowance for station structures to be incorporated onto the viaduct at the Kellyville and Rouse Hill station sites
- Adjustments to existing infrastructure and roads within the construction site and / or otherwise affected by ISJV activities
- Safe, secure personnel access / egress into site areas including necessary temporary support services and site facilities, with hoardings, fencing and so on around worksites to be left in place upon completion
- Construction traffic and transport management including temporary and permanent traffic management works
- Removal of all temporary work and site facilities not otherwise required for handover to subsequent contractors.

Activities associated with the temporary and SVC Contractor works required in order to complete construction include:

- Safe, secure personnel access / egress into site areas including necessary temporary support services and site facilities, with hoardings, fencing and the like around work sites to be left in place upon completion
- Construction traffic and transport management including temporary and permanent traffic management works
- Removal of all temporary work and site facilities not otherwise required for handover to subsequent contractors.
- Construction of temporary T-way car parking at Rouse Hill and Kellyville
- Construction, removal and transportation of the gantry along the SVC construction zone
- Temporary changes to site personnel access/egress
- Signage, fencing and hoarding
- Construction environmental management activities

- Construction traffic management activities
- Interface and communications within SVC Contractor team and across SMNW team
- Stakeholder liaison activities
- Adherence to SMNW protocols and procedures.

The construction methodology and scope is comprehensively set out in the Construction Plan.

2.2 Plan Preparation and Review

The Construction Manager is responsible for preparing and updating the Visual Amenity Management Plan.

The Visual Amenity Management Plan must be prepared and initially submitted to the Principal's Representative and Independent Certifier as required within 60 Business Days of the date of the deed.

The Construction Manager will ensure as part of the preparation and review of the Visual Amenity Management Plan that the plan is also complying with the requirements of Salini Impregilo– Business Management System.

Ongoing review and updating of the Plan will be undertaken, as outlined in the CEMP Section 4.2.3:

The Visual Amenity Management Plan documentation will be reviewed on a regular basis as part of project review meetings in accordance with MSP47 Project Reviews.

Revisions of the Visual Amenity Management Plan will be made as required to reflect the current status of the workplace. Visual Amenity Management Plan revision details will be maintained by the PQM in accordance with MSP18 Document & Data control.

All revisions including amendments of this plan will be authorised by the Project Director and the Environment Manager prior to their issue.

2.3 Relationship to Other Plans

The position of the Visual Amenity Management Plan to other plans within the ISJV Management System and overarching documentation framework is shown in Figure 2.

The Visual Amenity Management Plan interfaces with the Environmental management plans. The relationship of this plan to the other environmental plans is indicated in Figure 3 and the relationship of this plan with the CEMP can be found in Figure 4.

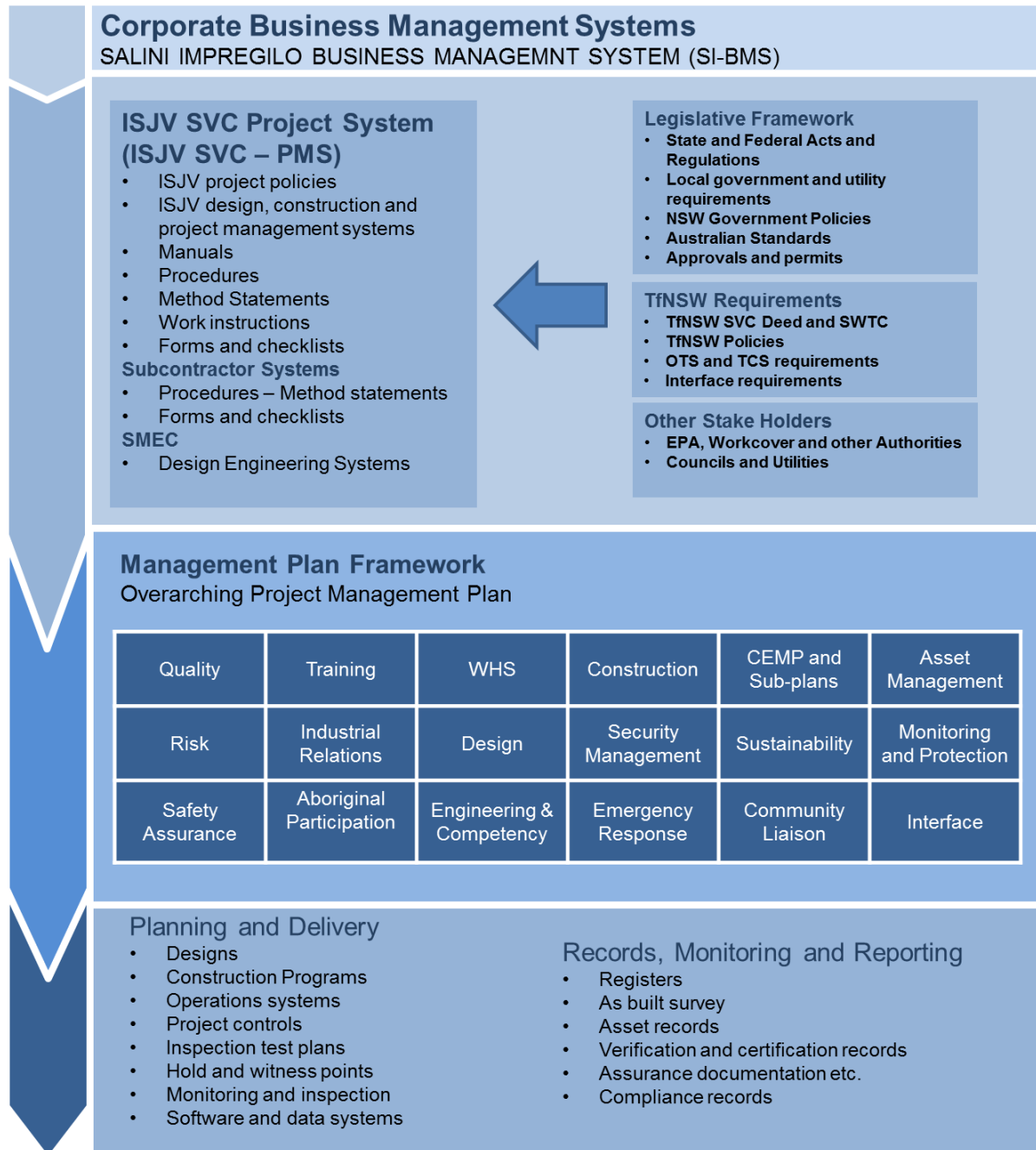


Figure 2: ISJV SVC Management Systems and Document Framework

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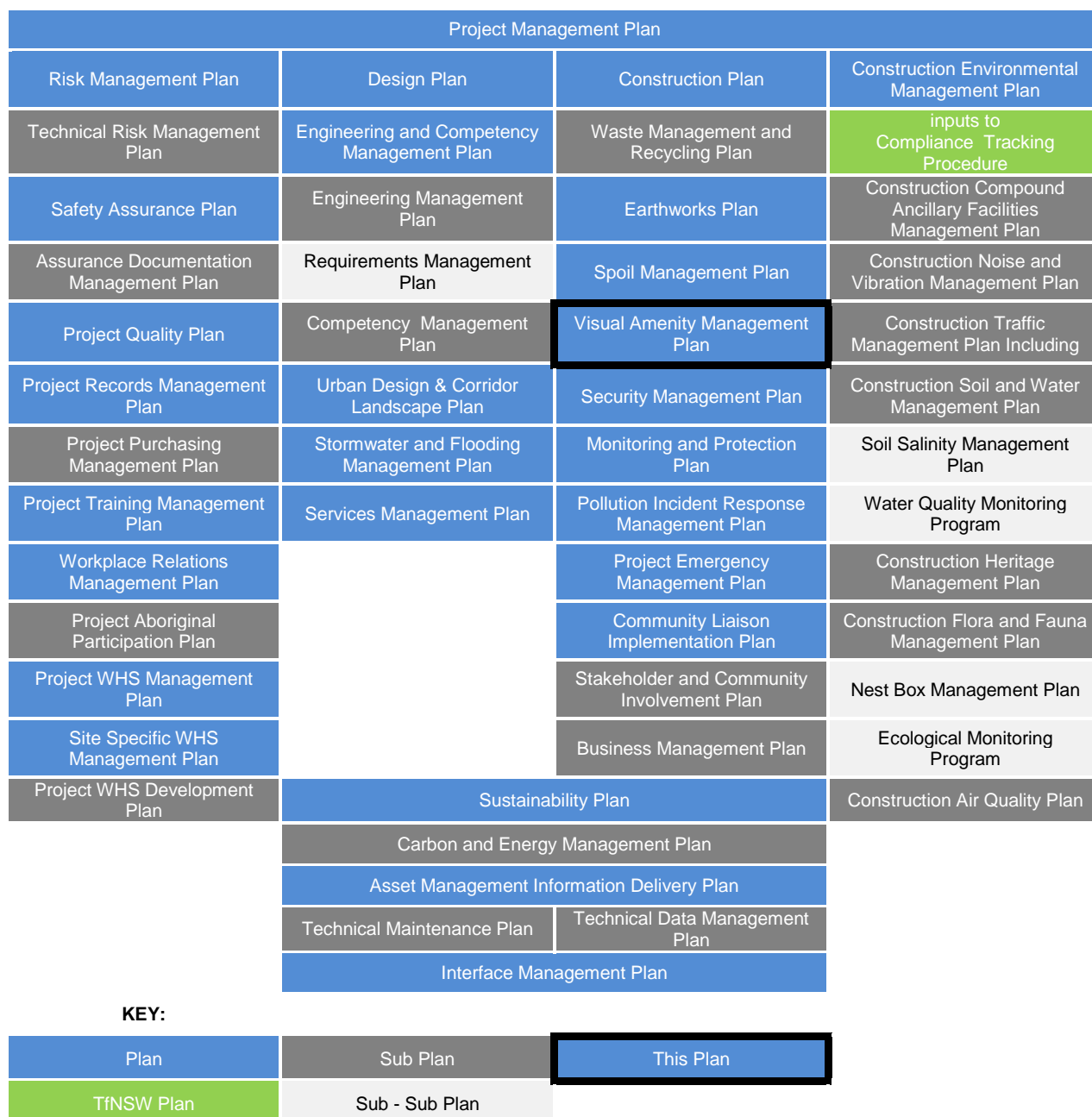


Figure 3: Management Plan Structure

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CEMP	CEMP interface plans
Construction Environmental Management Plan	Project Management Plan
	Design Plan
	Construction Plan
	Risk Management Plan
	Quality Plan
	Project Training Management Plan
	Community Liaison Implementation Plan
	Earthworks Plan
	Site Specific Emergency Response Plan
	Interface Plan
	Sustainability Plan
	Training Plan
	inputs to Compliance Tracking Procedure
Environmental Management Plans	Attachments
Construction Noise and Vibration Management Plan	
Construction Soil and Water Management Plan	Soil Salinity Report
	Water Quality Monitoring Program
Construction Heritage Management Plan	
Construction Flora and Fauna Management Plan	Nest Box Management Plan
	Ecological Monitoring Program
Construction Air Quality Plan	
Construction Compound Ancillary Facilities Management Plan	
Construction Traffic Management Plan Including	
Pollution Incident Response Management Plan	
Monitoring and Protection Plan	
Sustainability Plan	Carbon and Energy Management Plan
	Spoil Management Plan
	Waste Management and Recycling Plan
Visual Amenity Management Plan	
Stormwater and Flooding Management Plan	

KEY:

CEMP	Plan Interface
EMP	Interface with TNSW Plan
Attachment	

Figure 4: CEMP Structure

Note: The Site Specific Emergency Response Plan is now named the Project Emergency Management Plan

3 GOALS, OUTCOMES, KEY ISSUES

Scope	<p>The Visual Amenity Plan has been prepared to manage impacts on visual amenity during construction of the Surface Viaducts and Civil (SVC) Works component of the Sydney Metro North-west (SMNW). The scope of this Plan includes construction sites along the 7.5 km above ground section of the route from Bella Vista to Rouse Hill, which is a combination of viaduct, embankment, at grade and cutting.</p> <p>This plan is based on identified environmental aspects and impacts to visual amenity from construction activities in each of the SVC construction sites, and identified guidelines and standards to be achieved.</p> <p>This plan forms part of the Impregilo S.p.A. (Australia) and Salini (Australia) Joint Venture (ISJV) Business Management System and should be read in conjunction with plans shown in Figure 2.</p>
Goals	<p>Visual Amenity (CEMF Section 12.1):</p> <ul style="list-style-type: none"> • Minimise impacts on existing landscape features as far as feasible and reasonable. • Ensure the successful implementation of the Landscape Design. • Reduce visual impact of construction to surrounding community.
Intended Outcomes	<ul style="list-style-type: none"> • Comply with the specific Ministerial Conditions of Approval (COAs) regarding visual amenity • Visual amenity management controls are to be effective and properly maintained at all times. • Achieve compliance with statutory requirements for principles of Crime Prevention Through Environmental Design (CPTED)
Key Issues and Sensitive Areas	<p>Key issues relating to visual amenity are:</p> <p>The visual amenities plan applies to all construction sites, site compound and ancillary facilities. Ancillary facilities are defined in the project approvals as temporary facilities for construction not identified in the EISs or Submissions Reports. This includes facilities such as office and amenities compounds, construction compounds, batch plants, materials storage compounds, maintenance workshops, testing laboratories or material stockpile areas. Refer to the Construction Compound & Ancillary Facilities Management Plan for more details of facility locations.</p> <p>The facilities will be designed to contain general construction works, storage areas, site offices, workshops and parking. The site facilities include vehicle/staff access and egress points linked to the existing road network. For a list of the construction compound and ancillary facilities refer to the Construction compound & Ancillary Facilities Management Plan</p> <p>The NSW Government Crime Prevention through Environmental Design guidelines have been adapted for this project. As there is no</p>

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	<p>public access to the SVC Works construction sites, the principles have been modified to apply to the surrounds of the temporary construction worksites. Refer to Section 6 of this Plan.</p> <p>The visual impact is based on specific viewpoints, taking into consideration the sensitivity of the viewer as well as the visual effect or magnitude of the proposal based on scale, distance, contrast, etc. The visual impact is measured through the combination of the area's sensitivity and the magnitude of impact (scale, visual contrast and distance). For example, commercial properties are generally considered less sensitive than private residences, and heritage properties are generally considered more sensitive than residential properties. Transient-type spaces are generally considered less sensitive compared to spaces in which people spend more time. (Matrix for determining level of visual impact (RTA, 2009))</p>
Statutory Requirements	<p>The key legislation relevant to visual amenity management includes:</p> <ul style="list-style-type: none"> Environmental Planning and Assessment Act 1979 <p>Section 79C of the Environmental Planning and Assessment Act, 1979, provides Crime Prevention Legislative Guidelines. The guidelines contain two parts.</p> <ul style="list-style-type: none"> Part A details the need for a formal crime risk assessment (Safer By Design Evaluation) to be done in conjunction with trained police, and; Part B outlines basic CPTED principles and strategies that can be used by consent authorities to justify the modification proposals to minimise risk.
Relationship to Other Plans	<ul style="list-style-type: none"> This Plan is a sub-plan of the Construction Environmental Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120200) This Plan has the following interrelationships with other management plans and documents: <ul style="list-style-type: none"> The Security Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120700) sets out the security and crime management processes and procedures to be implemented for the SVC Works including implementation of the findings of CPTED principles included in Appendix C of this Plan. Community Liaison Implementation Plan (NWRLSVC-ISJ-SVC-PM-PLN-121600) includes strategies for community consultation for the SVC Works. The Sustainability Plan (NWRLSVC-ISJ-SVC-PM-PLN-120300) sets out the sustainability strategy for the SVC Works, including visual amenity objectives. The Construction Flora and Fauna Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120211) addresses the retention of vegetation, where feasible and reasonable, as a means of mitigating impacts on visual amenity. The Compound and Ancillary Facilities Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120211) includes details of

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	<p>site-specific visual amenity enhancement strategies based on the guidelines included in Section 4 of this Plan.</p> <ul style="list-style-type: none">- The General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) addresses the requirements for night time lighting at compounds, car parks and any areas where out of hours works are required.- The Urban Design and Landscaping Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-121101) Appendix B sets out the landscaping design and requirements for the Project works
Environmental Aspects & Impacts	Refer to environmental aspects and impacts identified in CEMP Appendix 5.
Licence & Permit Requirements	<ul style="list-style-type: none">• See the ISJV website for current version of EPL 20454 (http://www.isjv.com.au/environmental-management/environmental-protection-licence-epl/).



4 DIRECTOR GENERAL REQUIREMENTS

4.1 Major Civil Construction Works - Sydney Metro North-west (SSI-5100)

No.	Ref.	Relevant Requirement	Reference
1	E2	The SSI shall be constructed in a manner that minimises visual impacts resulting from construction sites, including retaining, where feasible and reasonable, existing vegetation around the perimeter of construction sites, providing temporary landscaping where appropriate to soften views of the construction sites, minimising light spillage, and incorporating architectural treatment and finishes within key elements of temporary structures that reflect the context within which the construction sites are located.	This Plan Refer also to Construction Flora and Fauna Management Plan (NWRL-ISJ-SVC-PM-PLN-120208); General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)

4.2 Stations, Rail Infrastructure and Systems - Sydney Metro North-west (SSI-5414)

No.	Ref.	Relevant Requirement	Reference
2	E9	The SSI shall be constructed in a manner that minimises visual impacts resulting from construction sites, including retaining, where feasible and reasonable, existing vegetation around the perimeter of construction sites, providing temporary landscaping where appropriate to soften views of the construction sites, minimising light spillage, and incorporating architectural treatment and finishes within key elements of temporary structures that reflect the context within which the construction sites are located.	This plan Refer also to Construction Flora and Fauna Management Plan (NWRL-ISJ-SVC-PM-PLN-120208) ; General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)

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5 ENVIRONMENTAL MITIGATION MEASURES

5.1 Stage 1 Submissions Report (SSI-5100)

No.	Original Ref.	Relevant Requirement	Reference
3	V1	Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.	This Plan Refer also to Construction Flora and Fauna Management Plan (NWRL-ISJ-SVC-PM-PLN-120208)
4	V2	Cut-off and directed lighting would be used to ensure glare and light trespass are minimised.	General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)
5	V3	Where feasible and reasonable the elements within construction sites would be located to minimise visual impact, eg setting particular equipment/ structures back from the site boundaries to minimise their visual impact.	This plan
6	V4	Regular maintenance of site hoarding and perimeter site areas would be undertaken, including the prompt removal of graffiti.	This plan
7	V5	Visual mitigation would be implemented as soon as feasible and reasonable, and remain for the duration of the construction period.	This plan
8	V6	Monitoring of the effectiveness of mitigation measures would be undertaken by the relevant construction contractor. This would primarily include regular visual inspection of the condition of the various measures.	This plan
9	V10	Hoardings would be designed to visually recede in more rural or bushland settings.	This plan

5.2 Stage 2 Submissions Report (SSI-5414)

No.	Original Ref.	Relevant Requirement	Reference
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10	V1	Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.	This plan Refer also to Construction Flora and Fauna Management Plan (NWRL-ISJ-SVC-PM-PLN-120208)
11	V2	Cut-off and directed lighting would be used to ensure glare and light trespass are minimised.	Section 7 General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)
12	V3	Where feasible and reasonable the elements within construction sites would be located to minimise visual impact, eg setting particular equipment/ structures back from the site boundaries to minimise their visual impact.	Section 7
13	V4	Regular maintenance of site hoarding and perimeter site areas would be undertaken, including the prompt removal of graffiti.	Section 8
14	V5	Visual mitigation would be implemented as soon as feasible and reasonable, and remain for the duration of the construction period.	Section 7
15	V6	Monitoring of the effectiveness of mitigation measures would be undertaken by the relevant construction contractor. This would primarily include regular visual inspection of the condition of the various measures.	This plan
16	V7	The colour and materials of acoustic sheds at selected sites would be selected to blend into adjacent bushland or rural setting.	Section 8
17	V8	The design of acoustic sheds as visual features would be considered where there is limited opportunity to make them recede.	Acoustic Sheds not required for SVC Site works
18	V9	Designing hoarding as a feature would be considered at appropriate locations. This may include artworks or project information. These would be installed as early as feasible and reasonable in the construction process.	Section 7 and TfNSW's SMNW Style Guidelines (Co-branding),
19	V10	Hoardings would be designed to visually recede in more rural or bushland settings.	This plan and TfNSW's SMNW Style Guidelines (Co-branding),

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6 DEED REQUIREMENTS

6.1 Deed Requirements

No.	Original Ref.	Relevant Requirement	Reference
20	Project Compliance Requirement	The SVC Works must comply with the requirements of TfNSW's SMNW Style Guidelines (Co-branding), with regards to signage and branding, (Reference <i>SMNW Style Guidelines (Co-branding)</i> (TfNSW, November 2012)).	Section 7
21	7.12	Without limiting clause 7.3, in carrying out the SVC Contractor's Activities, the SVC Contractor must: a) keep the Construction Site, Extra Land and the Project Works clean and tidy and free of refuse; b) regularly remove rubbish, litter, graffiti and surplus material (including Materials) from the Construction Site and Extra Land; and as a condition precedent to Construction Completion of a Portion, remove all rubbish, surplus materials (including Materials), Construction Plant and Temporary Works (other than the Handover Works) from the relevant parts of the Construction Site and Extra Land relevant to that Portion except where the retention of any of these are required for the correction of Defects during the Defects Correction Period and this is approved in writing by the Principal's Representative	Section 7 of this Plan and Section 8 of Construction Compound & Ancillary Facilities Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120211)

6.2 SWTC Requirements

No.	Original Ref.	Relevant Requirement	Reference
22	7.9 (a)	All temporary site facilities, including site sheds, must be as-new and must be maintained in excellent condition. Site facilities, including site sheds, must be established at locations and positions that minimise the impact on adjoining properties and residents. All facilities utilised for the purpose of the SVC Contractor's Activities must be sited, constructed and maintained in good condition to meet the requirements of relevant Authorities.	Construction Compound & Ancillary Facilities Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120211)
23	7.9 (b)	All temporary site facilities, including site sheds must be maintained free of graffiti and any advertising material not authorised by the Principal's Representative until the Date of	Section 7

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No.	Original Ref.	Relevant Requirement	Reference
		Construction Completion of the last Portion to achieve Construction Completion.	
24	7.9 (c)	The SVC Contractor must carry out daily inspections of all temporary site facilities, including site sheds. Graffiti and unauthorised advertising identified during the daily inspections must be removed or covered within the following timeframes: graffiti must be removed or covered within 24 hours; and any advertising material must be removed or covered within 24 hours.	Section 8
25	7.10 (a)	The SVC Contractor must not place any signage, advertising or branding (other than safety signage, other signage required to comply with Law or signage produced in accordance with designs provided by the Principal as required by subsection (c) below) on the external face of any hoarding or fence without the prior written approval of the Principal's Representative.	Section 7
26	App24.4, (l)	In addition to the plans required by the Project Planning Approvals, the Construction Environment Management Plan must also include, as sub-plans, a separate "Spoil Management Plan", "Visual Amenity Management Plan", "Carbon and Energy Management Plan" and "Waste Management and Recycling Plan".	Spoil Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120212) Visual Amenity Management Plan (This Plan) Carbon and Energy Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120301) Waste Management and Recycling Plan (NWRLSVC-ISJ-SVC-PM-PLN-120213)
27	App 24.4, (n)	The Visual Amenity Management Plan must identify the processes and procedures that will be used for the incorporation of the principles of Crime Prevention Through Environmental Design (CPTED) in the design and construction of any temporary site facilities.	Section 7

6.3 CEMF Requirements

No.	Original Ref.	Relevant Requirement	Reference
28	4.4 (a)	SMNW Principal Contractors will develop and implement a Landscape and Temporary Works Management Plan for their scope of works. The Landscape and Temporary Works Management Plan will ensure as a minimum:	
29		i. Temporary construction works including site hoardings and acoustic sheds consider urban design and visual impacts, including:	Section 7
30		ii. Artwork, graphics and images to enhance the visual appearance of temporary works in	Section 7

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No.	Original Ref.	Relevant Requirement	Reference
		high visibility locations.	
31		iii. Project information to raise awareness of the SMNW and its benefits, explain the proposed works at each site and provide updates on construction progress.	Section 7
32		iv. Community information, including contact numbers for enquiries / complaints.	Refer to CLIP
33		v. Signage and information to mitigate impacts on local businesses which may be obscured by the construction site.	Refer to Business Management Plan (NWRLSVC-TJV-002042-SVC-SH-PLN)
34		vi. SMNW advertising / public awareness campaigns.	Refer to CLIP
35		vii. Logos / branding, including SMNW, NSW Government, and Contractor branding.	Section 7
36	4.4 (b)	The design of all temporary works will require TfNSW approval in relation to urban design and visual impacts.	Refer to Design Plan (NWRLSVC-TJV-002030-SVC-DN-PLN)
37	4.4 (c)	Construction hoardings, scaffolding and acoustic sheds will be regularly inspected and kept clean and free of dust build up. Offensive Graffiti on construction hoardings, scaffolding or acoustic sheds will be removed or painted over within 24 hours.	Section 8
38	4.4 (d)	The principles of Crime Prevention Through Environmental Design will be applied to all works, including temporary works that have a public interface.	Section 7
39	12.1 (a)	The following visual and landscape management objectives will apply to the construction of the project: i. Minimise impacts on existing landscape features as far as feasible and reasonable. ii. Ensure the successful implementation of the Landscape Design. iii. Reduce visual impact of construction to surrounding community.	This Plan Construction Compound & Ancillary Facilities Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120211) Urban Design and Landscaping Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-121101)
40	12.2 (a)	SMNW Principal Contractors will implement visual and landscape management as part of the CEMP and sub-plans. As a minimum, the following would be covered:	This Plan
41		i. The visual mitigation measures as detailed in the environmental approval documentation.	Section 6, This Plan
42		ii. The responsibilities of key project personnel with respect visual management.	CEMP (NWRLSVC-ISJ-SVC-PM-PLN-120200)
43		iii. Monitoring requirements.	Section 8, This Plan
44		iv. Compliance record generation and management.	Section 6, This Plan

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No.	Original Ref.	Relevant Requirement	Reference
45	12.2 (b)	Visual and landscape measures will be incorporated into the Principal Contractor's regular inspections including checking the health of retained vegetation around site boundaries, checking the condition of any site hoarding and acoustic sheds, and checking the position and direction of any sight lighting.	Section 7, This Plan General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)
46	12.2 (c)	The Contractor will retain compliance records of any inspections undertaken in relation to visual and landscape measures.	Section 8
47	12.3	<p>Examples of visual amenity mitigation measures include:</p> <ul style="list-style-type: none"> Wherever feasible and reasonable, vegetation around the perimeter of the construction sites will be maintained. Temporary construction works will be designed with consideration of urban design and visual amenity as per Section 4.4. Temporary site lighting, for security purposes or night works will be installed and operated in accordance with AS4282:1997 Control of the Obtrusive Effect of Outdoor Lighting. 	<p>Section 6, This Plan</p> <p>Construction Flora and Fauna Management Plan (NWRL-ISJ-SVC-PM-PLN-120208)</p> <p>Construction compound & Ancillary Facilities Management Plan (NWRL-ISJ-SVC-PM-PLN-120211)</p> <p>General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278)</p> <p>Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)</p>

6.4 Safer by Design – NSW Police Requirements

6.4.1 Crime Prevention Through Environmental Design Requirements

No.	Ref.	Relevant Requirement	Reference
Natural Surveillance			
48		Openings in the site boundary are located and designed to overlook public places to maximise casual surveillance.	Appendix A
49		The main entry to the site should face the street.	Appendix A
50		An external entry path to a site must be direct to avoid potential hiding places.	Appendix A

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No.	Ref.	Relevant Requirement	Reference
51		Entry areas to and from car parking areas should be transparent, allowing viewing into and from these.	Appendix A
52		Landscaping must not conceal the entrance to a site when viewed from the public domain	Appendix A
53		Pedestrian access should be well lit and maximise sightlines.	Appendix A
54		Landscaping should not inhibit sightlines.	Appendix A
55		Landscaping should be designed to maximise sightlines.	Appendix A
Active Surveillance			
56		CCTV system must cover all high risk areas and including all entry areas and the laneway	Security Plan (NWRLSVC-ISJ-SVC-PM-PLN-120700)
Access Control			
57		Entry points are secured outside business hours.	Security Plan (NWRLSVC-ISJ-SVC-PM-PLN-120700)
58		Access to the sites is to be controlled at the entry points. Only security cleared personnel may enter.	Security Plan (NWRLSVC-ISJ-SVC-PM-PLN-120700)
Territorial / Ownership			
59		Site planning provides a clear definition of territory and ownership of all private, semi- public and public property.	Security Plan (NWRLSVC-ISJ-SVC-PM-PLN-120700)
Lighting			
60		Both natural and artificial lighting is used to reduce poorly lit or dark areas and therefore deterring crime	Appendix B
61		Lighting must be provided to the following areas of a building to promote safety and security and night: A) An external entry path, foyer, driveway and car park to a building	Appendix B
62		The lighting in a car park must conform to Australian Standards 1158.1, 1680, 2890.1.	Appendix B
63		The use of lighting fixtures, and vandal resistant, high mounted light fixtures, which are less susceptible to damage in the car park and boundary areas	Appendix B
64		Car parking areas should be painted in light colours that will increase levels of illumination.	Appendix B
65		The exterior to the site must be painted in a graffiti resistant coating.	Appendix B

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No.	Ref.	Relevant Requirement	Reference
Maintenance and Housekeeping			
66		Maintenance regimes should be implemented which ensure all public areas are well maintained.	Section 7
67		Cleaning regimes should be implemented which ensure all main public areas are free of rubbish.	Section 7
68		Graffiti removal regimes should be implemented to ensure Offensive graffiti is promptly removed.(within 24 hours for)	Section 7

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7 MITIGATION MEASURES

ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing
Active Surveillance							
HR1.	Security cameras, site manned 24/7 – Refer to Security plan for full detail on site security	X	X	All	N/A	Construction Manager	Prior to starting work in area concerned
Access Control							
HR2.	Exterior surfaces and finishes with a high level of vandal resistance (graffiti shield)	X		All	N/A	Construction Manager	During design
HR3.	Fencing/hoarding set back from fixed infrastructure so that the fencing cannot be used to climb onto buildings or structures	X	X	All	N/A	Construction Manager	As required
Territorial / Ownership							
HR4.	Clearly define and designate areas with respect to their intended use, e.g. ensure clear signage for no public access	X	X	All	N/A	Construction Manger	Prior to starting work in area concerned
Lighting Considerations							
HR5.	Review General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276) for each site where night lighting is required to		X	All	N/A	Construction Manger	Prior to starting work in area concerned

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ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing
	minimise any glare or light spill issues to address any potential night time impacts resulting from lighting.						
HR6.	Temporary site lighting, for security purposes or night works, will be installed and operated in accordance with AS4282:1997 <i>Control of the Obtrusive Effect of Outdoor Lighting as outlined in the General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)</i>		X	All	N/A	Construction Manger	Prior to starting work in area concerned
HR7.	Any security and warning lighting used at the SVC Works construction sites will be installed so that light is not directed at or reflected onto neighbouring properties. Cut-off and directed lighting will be used where required to ensure glare and light trespass/spill are minimised as outlined in the General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)		X	All	N/A	Construction Manger	Prior to starting work in area concerned
HR8.	Reflective surfaces are minimised		X	All	N/A	Construction Manger	Ongoing during construction
Hoarding Banners and Signs							
HR9.	Hoarding banners for the external faces of hoardings and fences at each construction site will be full colour and produced in accordance with designs provided by the Principal and to comply with the hoarding requirements of the SMNW Style Guidelines (co-branding).		X	All	N/A	Construction Manger	Ongoing during construction

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ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing
HR10.	Signage will be installed to provide the community with details of the Sydney Metro North-west information line and out of hours contact details for ISJV.		X	All	N/A	Construction Manger	Ongoing during construction
•	Maintenance and Housekeeping						
HR11.	All temporary site facilities, including hoardings, will be maintained in excellent condition, and must remain fit for their intended purpose.		X	All	N/A	Construction Manger	Ongoing during construction
HR12.	<p>All SVC Works construction sites, and other areas affected by construction activities associated with the SVC Works, will be kept clean and tidy and free of refuse. This includes the regular removal of:</p> <ul style="list-style-type: none"> • Rubbish • Litter • Graffiti • Surplus material <p>The extended storage of rubbish or loose items with the construction sites or elsewhere will not be permitted.</p>		X	All	CEMF, 4.4 (c)	Construction Manger	Ongoing during construction

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ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing
HR13.	All temporary site facilities, hoardings and fencing, and banners and signage on hoardings and fencing must be maintained free of graffiti and any advertising material not authorised by TfNSW. Timing of graffiti and unauthorised advertising material removal include: <ul style="list-style-type: none"> Site facilities (including site sheds) - within 24 hours Hoardings and fencing - within 24 hours Banners and signage on hoardings and fencing - within 2 hours 		X	All	N/A	Construction Manger	Ongoing during construction
HR14.	If hoarding banners/signs become irreparably damaged, ISJV will install replacement fencing banners or fencing signage within 24 hours of this damage occurring. Hoarding and fencing banners for the external faces of fences and hoardings will be replaced by ISJV every 12 months or as required, upon the issue of new artwork for replacement banners by TfNSW.		X	All	N/A	Construction Manger	Ongoing during construction
HR15.	Progressive rehabilitation/revegetation of disturbed areas		X	All	N/A	Construction Manger	Ongoing during construction
HR16.	Visual inspection of the appearance of all buildings, structures, facilities or works (including paint colours and specifications).		X	All	N/A	Construction Manger	Weekly during construction
HR17.	Details, specifications and staged work programs to be undertaken, including a maintenance program of all landscape works, building		X	All	N/A	Construction Manger	Ongoing during construction

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ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing
	materials and cladding.						
HR18.	Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.	X	X	All	SSI-5100, REMM, V1 SSI-51414, REMM,V1	Construction Manger	Ongoing during construction
HR19.	Cut-off and directed lighting would be used to ensure glare and light trespass are minimised as outlined in the General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)		X	All	SSI-5100, REMM, V2 SSI-51414, REMM,V2	Construction Manger	Ongoing during construction
HR20.	Where feasible and reasonable the elements within construction sites would be located to minimise visual impact, eg setting particular equipment/ structures back from the site boundaries to minimise their visual impact.	X	X	All	SSI-5100, REMM, V3 SSI-51414, REMM,V3	Construction Manger	Ongoing during construction
HR21.	Regular maintenance of site hoarding and perimeter site areas would be undertaken, including the prompt removal of graffiti.		X	All	SSI-5100, REMM, V4 SSI-51414, REMM,V4	Daily – Foreman Weekly - Construction Manager and Environment Manger	Daily Inspection by Foreman and Weekly Joint Environment Inspections
HR22.	Visual mitigation would be implemented as soon as feasible and reasonable, and remain for the duration of the construction period.		X	All	SSI-5100, REMM, V5	Construction Manger	Weekly during construction

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ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing
					SSI-51414, REMM,V5		
HR23.	Monitoring of the effectiveness of mitigation measures would be undertaken by the relevant construction contractor. This would primarily include regular visual inspection of the condition of the various measures.		X	All	SSI-5100, REMM, V6 SSI-51414, REMM,V6	Construction Manger	Weekly during construction
HR24.	Hoardings would be designed to visually recede in more rural or bushland settings. – Note Hording style has been set by TfNSW in accordance with the NWRL Style Guidelines and therefore this will be implemented on the entire site unless advise otherwise by TfNSW.	X		All	SSI-5100, REMM, V10 SSI-51414, REMM, V10	Construction Manger	During design
HR25.	The colour and materials of acoustic sheds at selected sites would be selected to match the TfSNW SMNW branding requirements - No sheds are envisaged on the site at this stage	X		All	SSI-51414, REMM, V7	Construction Manger	If required
HR26.	The design of acoustic sheds as visual features would be considered where there is limited opportunity to make them recede.	X		All	SSI-51414, REMM, V8	Construction Manger	If required
HR27.	Designing hoarding as a feature would be considered at appropriate locations. This may include artworks or project information. These would be installed as early as feasible and reasonable in the construction process. Note Hording style has been set by TfNSW in accordance with the SMNW Style Guidelines and therefore this will be implemented on the entire site unless advise otherwise by TfNSW	X		All	SSI-51414, REMM,V9	Construction Manger	During design

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ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	Relevant Approval Conditions	Responsibility	Timing

Responsibility Key: EM – Environment Manager, CM – Construction Manager, SS – Site Supervisor, EC – Environment Co-ordinator

Note: Based on the above mitigation measure the following check sheets have been provided that will be used for every construction compound:

- Appendix A and B for mitigation check sheet to be completed during design

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8 MONITORING

Item	Frequency	Standards	Reporting	Responsibility
Daily visual inspections by Site Supervisors, including inspection of the following: <ul style="list-style-type: none">Construction site hoarding and perimeter site areas (including vegetation)Scaffolding, acoustic sheds, and other site structuresLighting structures	Daily	N/A	As required for incident reporting	SS
Weekly Joint Environment Inspections attended by representatives of the ISJV Environment Team, Environment Representative, the Independent Certifier, and representatives from TfNSW. This will include inspection of the following: <ul style="list-style-type: none">Health of retained vegetation around site boundariesThe condition of any site hoarding Position and direction of any site lightingLitterGraffiti Inspection reports will be prepared following weekly site inspections to document any relevant observations made and identify any issues to be rectified in relation to visual amenity and timing for rectification. Any identified issues will be noted in MSF43-2 Environmental Inspection Checklist and included in the Environmental Action Register which will be distributed to the relevant Project Manager, the Construction Manager and the	Weekly	N/A	MSF43-2 Environmental Inspection Checklist	CM / EM / ER

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Item	Frequency	Standards	Reporting	Responsibility
Environment Manager for action. ER will prepare independent report which will include any outcomes of the inspection				
Undertake inspection of lighting as part of daily pre-start as per the General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)	Daily pre-start	N/A	ISJV-MSF22-5 Daily Pre-start	CM

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9 TRAINING AND RESOURCES

Training

Inductions are required and are to address:

- An overview of visual amenity requirements
- Importance of retaining vegetation where practicable
- Importance of maintenance and housekeeping
- Graffiti removal requirements

Inductions are to be recorded in accordance with MSF15-6 Project Induction and MSF Daily Planning and Induction. Toolbox talks to be conducted on visual amenity management requirements, when required, and recorded using MSF 15-5 Toolbox (Consultation) Records.

Resources

- Signage, exclusion fencing, marker buoys
- Visual Amenity Specialist
- Environment Officers, Environmental Manager

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10 REFERENCES AND REVISIONS

Related Documents
ISJV SVC – PMS MSF43-2 Environmental Inspection Checklist
NWRL EIS 2 Chapter 16, Visual Amenity
Sydney Metro North-west, SVC Project Deed, Design and Construction of Surface and Viaduct Civil Works. Exhibit A, Scope of Works and Technical Criteria, Appendix 24 – Project Plan Requirements
References
Additional guidelines and standards relating to the management of visual amenity include: <ul style="list-style-type: none">• Crime Prevention through Environmental Design (CPTED) principles• SMNW Style Guidelines (Co-branding) (refer to latest version on Teambinder)• AS 4282-1997 Control of the obtrusive effects of outdoor lighting• Guidelines for landscape character and visual impact assessment, EIA-N04, Version 1.0, (RTA, March 2009).• Bridge Aesthetics Design guidelines to improve the appearance of bridges in NSW (RTA, 2003).
Related Plans
<ul style="list-style-type: none">• The Security Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120700) sets out the security and crime management processes and procedures to be implemented for the SVC Works including implementation of the findings of Crime Prevention through Environmental Design (CPTED) principles included in Appendix C of this Plan.• Community Liaison Implementation Plan (NWRLSVC-ISJ-SVC-PM-PLN-121600) includes strategies for community consultation for the SVC Works.• The Sustainability Plan (NWRLSVC-ISJ-SVC-PM-PLN-120300) sets out the sustainability strategy for the SVC Works, including visual amenity objectives.• The Construction Flora and Fauna Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120206) addresses the retention of vegetation, where feasible and reasonable, as a means of mitigating impacts on visual amenity.• The Compound and Ancillary Facilities Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-120211) includes details of site-specific visual amenity enhancement strategies based on the guidelines included in Section 4 of this Plan.• The General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) addresses the requirements for night time lighting at compounds, car parks and any

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areas where out of hours works are required.

- The Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276) addresses the requirements for night time lighting for gantry related activities
- The Urban Design and Landscaping Management Plan (NWRLSVC-ISJ-SVC-PM-PLN-121101) Appendix B sets out the landscaping design and requirements for the Project works .

Revision, Control & Amendment

Revisions to this plan will be made as required and in accordance with MSP18 'Document and Data Control'. The Environmental Manager will review outstanding issues and comments provided by the ER, IC, Principal's Representative or authorities and address these either:

- in time to be endorsed by the IC and reviewed by the Principal's Representative prior to commencement of any related activities or work; or
- at the next Management Review of the plan as outlined in the Project Management Plan.

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11 INCIDENT PLANNING AND RESPONSE

Incident Planning & Response			
Potential incidents that could arise during the works include the following:			
No.	Situation	Response	Responsibility
1	Graffiti	Engage cleaning contractor to maintain and clean graffiti.	CM
2	Landscaping entrapment spaces	Engage contractor to maintain landscaping across all sites.	CM
3	CCTV	Engage security contractor to manage CCTV installations	CM
4	Lighting	Services contractor to ensure vandalised and un-serviced lighting is maintained	CM
Responsibility Key: EM – Environment Manager, CM – Construction Manager, CSM – Community and Stakeholder Manager, EC – Environment Co-ordinator			

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APPENDIX A. Construction Compound and Ancillary Facilities Crime Prevention Review Checklist

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Crime Prevention Review Checklist

Location Amber Tiles

Approved by Construction Manager

To be completed prior to construction

Requirement	Design Check	Comments	Date	Signature
Crime Prevention Review				
Natural Surveillance	Openings in site boundary are located and designed to overlook public places to maximise casual surveillance.	yes	10 Dec 16	
Natural Surveillance	The main entry to the site should face the street.	yes		
Natural Surveillance	An external entry path to a site must be direct to avoid potential hiding places.	yes		
Natural Surveillance	Entry areas to and from car parking areas should be transparent, allowing viewing into and from these.	yes		
Natural Surveillance	Landscaping must not conceal the entrance to a site when viewed from the public domain.	yes		
Natural Surveillance	Pedestrian access should be well lit and maximise sightlines.	yes		
Natural Surveillance	Landscaping should not inhibit sightlines.	yes		

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Requirement	Design Check	Comments	Date	Signature
Natural Surveillance	Landscaping should be designed to maximise sightlines.	yes	10 Dec 16	[Signature]
Active Surveillance	CCTV system must cover all high risk areas and including all entry areas and the laneway.	yes		
Access Control	Entry points are secured outside business hours	yes		
Access Control	Access to the sites is to be controlled at the entry points. Only security cleared personnel may enter.	yes		
Territoriality/ownership	Site planning provides a clear definition of territory and ownership of all private, semi-public and public property.	yes		
Lighting	Both natural and artificial lighting is used to reduce poorly lit or dark areas and therefore deterring crime.	yes		
Lighting	Lighting must be provided to the following areas of a building to promote safety and security at night: A) An external entry path, foyer, driveway and car park to a building.	yes		

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Requirement	Design Check	Comments	Date	Signature
Lighting	The lighting in a car park must conform to Australian Standards 1158.1, 1680, 2890.1.	yes	10 Dec 16	<i>[Signature]</i>
Lighting	The use of lighting fixtures and vandal resistant, high mounted light fixtures, which are less susceptible to damage in the car park and boundary areas.	yes		<i>[Signature]</i>
Lighting	Car parking areas should be painted in light colours that will increase levels of illumination.	yes NA		
Lighting	The exterior to the site must be painted in a graffiti resistant coating.	NA		
Maintenance and Inspection	Maintenance regimes should be implemented which ensure all public areas are well maintained.	yes		
Maintenance and Inspection	Clearing regimes should be implemented which ensure all main public areas are free of rubbish.	yes		
Maintenance and Inspection	Graffiti removal regimes should be implemented to ensure graffiti is promptly removed.	yes		

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Crime Prevention Review Checklist

Location

Approved by

Construction Manager

To be completed prior to construction

Requirement	Design Check	Comments	Date	Signature
Crime Prevention Review				
Natural Surveillance	Openings in site boundary are located and designed to overlook public places to maximise casual surveillance.	Not possible. Only access via rural road with bus stop adjacent entry.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	The main entry to the site should face the street.	Gate opens to Terry Road	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	An external entry path to a site must be direct to avoid potential hiding places.	Not Applicable. No external paths.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	Entry areas to and from car parking areas should be transparent, allowing viewing into and from these.	Not possible. Only available car parking area surrounded by EEC vegetation.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	Landscaping must not conceal the entrance to a site when viewed from the public domain.	Not Applicable. No landscaping.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	Pedestrian access should be well lit and maximise sightlines.	Not applicable. No pedestrian access from street. No night lighting available as compound only for day operations.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

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Requirement	Design Check	Comments	Date	Signature
Natural Surveillance	Landscaping should not inhibit sightlines.	Not Applicable. No Landscaping	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	Landscaping should be designed to maximise sightlines.	Not Applicable. No Landscaping	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Active Surveillance	CCTV system must cover all high risk areas and including all entry areas and the laneway.	No CCTV installed. Temporary facility only.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Access Control	Entry points are secured outside business hours	ISJV Security lock gates at COB.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Access Control	Access to the sites is to be controlled at the entry points. Only security cleared personnel may enter.	ISJV Security in place.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Territoriality/ownership	Site planning provides a clear definition of territory and ownership of all private, semi-public and public property.	Not Applicable. No public lands.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Lighting	Both natural and artificial lighting is used to reduce poorly lit or dark areas and therefore deterring crime.	No night lighting installed. Compound runs on generator for power.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Lighting	Lighting must be provided to the following areas of a building to promote safety and security at night:	No night lighting installed. Compound runs on generator for power.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

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Requirement	Design Check	Comments	Date	Signature
	A) An external entry path, foyer, driveway and car park to a building.			
Lighting	The lighting in a car park must conform to Australian Standards 1158.1, 1680, 2890.1.	No night lighting installed. Compound runs on generator for power.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Lighting	The use of lighting fixtures and vandal resistant, high mounted light fixtures, which are less susceptible to damage in the car park and boundary areas.	No night lighting installed. Compound runs on generator for power.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Lighting	Car parking areas should be painted in light colours that will increase levels of illumination.	No night lighting installed. Compound runs on generator for power.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Lighting	The exterior to the site must be painted in a graffiti resistant coating.	Not applicable. Hoarding only present along boundary with adjacent caravan park for noise attenuation. No other hoarding present onsite.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Inspection	Maintenance regimes should be implemented which ensure all public areas are well maintained.	Not applicable. No public areas.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Inspection	Clearing regimes should be implemented which ensure all main public areas are free of rubbish.	Not applicable. No public areas.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

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Requirement	Design Check	Comments	Date	Signature
Maintenance and Inspection	Graffiti removal regimes should be implemented to ensure graffiti is promptly removed.	ISJV to manage any future graffiti damage.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer



APPENDIX B. Construction Compound and Ancillary Facilities Visual Amenities Design Checklist

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Construction Compound and Ancillary facilities Visual Amenity Design Checklist

Location *Amber Tiles*

Approved by *Construction Manager*

To be completed during site compound design and prior relevant site establishment

Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Mitigation Measure	Crime Risk Assessment (Safer by Design) to be undertaken	<i>Security in place as above.</i>	<i>10 Dec 16</i>	<i>[Signature]</i>
Mitigation Measure	Site visit required to identify sensitivities.			
Natural Surveillance	Jagged edges of hoarding/noise walls to be avoided to maximize natural surveillance. Perhaps long alignments for hoarding layout could be applied where practicable.	<i>Yes</i>		
Natural Surveillance	Good levels of lighting	<i>Yes</i>		
Active Surveillance	Security cameras, site manned 24/7 – Refer to Security plan for full detail on site security	<i>Yes</i>		
Access Control	Exterior surfaces and finishes with a high level of vandal resistance (graffiti shield)	<i>Yes</i>		
Access Control	Horizontal surfaces to be avoided, or as a minimum sloped to prevent loitering or the placing of unwanted/unattended objects. (Worksite hoardings act as anti-climbing devices).	<i>Yes</i>		
Access Control	Fencing/hoarding set back from fixed infrastructure so that the fencing cannot be used to climb onto buildings or structures	<i>Yes.</i>		
Territorial / Ownership	Clearly define and designate areas with respect to their intended use, e.g. ensure clear signage for no public access	<i>Yes</i>		

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Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Lighting Considerations	Install any temporary construction lighting in accordance with the General Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120278) and Gantry Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)	Yes	10 Dec 16	
Hoarding Banners and Signs	Hoarding banners for the external faces of hoardings and fences at each construction site will be full colour and produced in accordance with designs provided by the Principal and to comply with the hoarding requirements of the SMNW Style Guidelines (co-branding).	Yes		
Maintenance and Housekeeping	Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.	Yes		
Maintenance and Housekeeping	Where feasible and reasonable the elements within construction sites would be located to minimise visual impact, eg setting particular equipment/ structures back from the site boundaries to minimise their visual impact.	Yes		
Maintenance and Housekeeping	Hoardings would be designed to visually recede in more rural or bushland settings. – Note Hording style has been set by TfNSW in accordance with the SMNW Style Guidelines and therefore this will be implemented on the entire site unless advise otherwise by TfNSW.	Yes		

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Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Maintenance and Housekeeping	The colour and materials of acoustic sheds at selected sites would be selected to match the TfSNW SMNW branding requirements- No sheds are envisaged on the site at this stage	yes	10 Dec 16	<i>[Signature]</i>
Maintenance and Housekeeping	The design of acoustic sheds as visual features would be considered where there is limited opportunity to make them recede.	NA		
Maintenance and Housekeeping	Designing hoarding as a feature would be considered at appropriate locations. This may include artworks or project information. These would be installed as early as feasible and reasonable in the construction process. Note Hoarding style has been set by TfNSW in accordance with the SMNW Style Guidelines and therefore this will be implemented on the entire site unless advise otherwise by TfNSW	yes		

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Construction Compound and Ancillary facilities Visual Amenity Design Checklist

Location

Approved by

Construction Manager

To be completed during site compound design and prior relevant site establishment

Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Mitigation Measure	Crime Risk Assessment (Safer by Design) to be undertaken	Not Applicable.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Mitigation Measure	Site visit required to identify sensitivities.	Completed	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	Jagged edges of hoarding/noise walls to be avoided to maximize natural surveillance. Perhaps long alignments for hoarding layout could be applied where practicable.	Not applicable. No boundary hoardings.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Natural Surveillance	Good levels of lighting	Not applicable. No night lighting installed.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Active Surveillance	Security cameras, site manned 24/7 – Refer to Security plan for full detail on site security	Not applicable. ISJV Security patrols during after hours.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

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Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Access Control	Exterior surfaces and finishes with a high level of vandal resistance (graffiti shield)	Not applicable. No public access.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Access Control	Horizontal surfaces to be avoided, or as a minimum sloped to prevent loitering or the placing of unwanted/unattended objects. (Worksite hoardings act as anti-climbing devices).	Not applicable. No boundary hoardings.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Access Control	Fencing/hoarding set back from fixed infrastructure so that the fencing cannot be used to climb onto buildings or structures	Not applicable. No boundary hoardings.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Territorial / Ownership	Clearly define and designate areas with respect to their intended use, e.g. ensure clear signage for no public access	Not applicable. No public areas.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Lighting Considerations	Install any temporary construction lighting in accordance with Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)	No night lighting installed. Only internal lighting in crib facilities.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

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Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Hoarding Banners and Signs	Hoarding banners for the external faces of hoardings and fences at each construction site will be full colour and produced in accordance with designs provided by the Principal and to comply with the hoarding requirements of the NWRL Style Guidelines (co-branding).	Not Applicable. No external hoardings.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Housekeeping	Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.	All external vegetation retained. EEC within site retained.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Housekeeping	Where feasible and reasonable the elements within construction sites would be located to minimise visual impact, eg setting particular equipment/ structures back from the site boundaries to minimise their visual impact.	Not possible. Location of Jigs and Cranes cannot be moved.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Housekeeping	Hoardings would be designed to visually recede in more rural or bushland settings. – Note Hording style has been set by TfNSW in accordance with the NWRL Style Guidelines and therefore this will be implemented on the entire site unless advise otherwise by TfNSW.	Not Applicable. No external hoardings.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Housekeeping	The colour and materials of acoustic sheds at selected sites would be selected to match the TfSNW NWRL branding requirments- No sheds are envisiaged on the site at this stage	Not applicable. Site facilities not visible from outside of project boundaries.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

Visual Amenity Management Plan

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Requirement	Design Check	Comments	Date	Signature
Visual Amenity Design Review				
Maintenance and Housekeeping	The design of acoustic sheds as visual features would be considered where there is limited opportunity to make them recede.	Not applicable.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer
Maintenance and Housekeeping	Designing hoarding as a feature would be considered at appropriate locations. This may include artworks or project information. These would be installed as early as feasible and reasonable in the construction process. Note Hording style has been set by TfNSW in accordance with the NWRL Style Guidelines and therefore this will be implemented on the entire site unless advise otherwise by TfNSW	Not applicable. No external hoardings	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer

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APPENDIX C. Initial Establishment and Ongoing Maintenance Checklist

Visual Amenity Management Plan

Surface and Viaduct Civil Works



Construction Compound and Ancillary facilities Visual Amenity Initial Establishment and Ongoing Maintenance Checklist

Location **Amber Tiles**

Approved by **Construction Manager**

To be completed during site compound design and prior relevant site establishment

Requirement	Design Check	Comments	Date	Signature	Action
Natural Surveillance	Ensure openings to site boundaries are clear from obstructions, temporary materials or other items that are not included on the design documentation.	Yes	27/5	Andrew Smith	Address 27/5
Natural Surveillance	Ensure pedestrian access to site boundaries are clear of potential hiding places, obstructions or other items that could provide entrapment spaces.	Yes			
Active Surveillance	Ensure CCTV cameras are not vandalised and are directed towards entry points and access openings to site boundaries.	NA			
Natural Surveillance	Review landscaping around site boundaries to ensure clear egress to site openings and elimination of potential entrapment spaces.	Yes			
Natural Surveillance	Review access after hours to ensure sites are being secured.	Yes			
Lighting	Asses site lighting to ensure it meets the design conditions and review equipment condition for potential vandalising, blown light bulbs or power failure.	Yes			
Lighting	Asses temporary site lighting is in accordance with AS4282-197 Control of the Obtrusive Effect of Outdoor Lighting and Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)	Yes			
Lighting	Confirm Reflective surfaces are minimised	Yes			
Maintenance	Asses site for graffiti and remove as required.	Yes			
Maintenance	Asses site hoarding and repair as required	Yes			
Maintenance	Asses site signage and repair as required	Yes			
Maintenance	Asses site for rubbish and repair as required	Yes			
Maintenance	Asses site for landscaping and maintain as required	Yes			
Maintenance	Asses site structures and maintain as required	Yes			
Maintenance	Asses site equipment and maintain as required	Yes			

Visual Amenity Management Plan

Surface and Viaduct Civil Works



Construction Compound and Ancillary facilities Visual Amenity initial establishment and ongoing maintenance checklist

Location

Approved by

Construction Manager

To be completed during site compound design and prior relevant site establishment

Requirement	Design Check	Comments	Date	Signature	Action
Natural Surveillance	Ensure openings to site boundaries are clear from obstructions, temporary materials or other items that are not included on the design documentation.	Site access clear.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Natural Surveillance	Ensure pedestrian access to site boundaries are clear of potential hiding places, obstructions or other items that could provide entrapment spaces.	Not applicable. No pedestrian access.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Active Surveillance	Ensure CCTV cameras are not vandalised and are directed towards entry points and access openings to site boundaries.	Not applicable. No CCTV cameras.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Natural Surveillance	Review landscaping around site boundaries to ensure clear egress to site openings and elimination of potential entrapment spaces.	Not applicable. No landscaping.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Natural Surveillance	Review access after hours to ensure sites are being secured.	Not applicable. No after hours access envisaged.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Lighting	Asses site lighting to ensure it meets the design conditions and review equipment condition for potential vandalising, blown light bulbs or power	Not applicable. No access	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16

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Requirement	Design Check	Comments	Date	Signature	Action
	failure.	lighting installed.			
Lighting	Asses temporary site lighting is in accordance with AS4282-197 <i>Control of the Obtrusive Effect of Outdoor Lighting</i> and Lighting Strategy (NWRLSVC-ISJ-SVC-PM-PLN-120276)	Not applicable. No outdoor lighting.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Lighting	Confirm Reflective surfaces are minimised	Not applicable. No reflective surfaces.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Maintenance	Asses site for graffiti and remove as required.	ISJV maintain ability to remove graffiti as it occurs.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Maintenance	Asses site hoarding and repair as required	Not applicable. No hoardings.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Maintenance	Asses site signage and repair as required	ISJV maintain site signage at boundary gate.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Maintenance	Asses site for rubbish and repair as required	Daracon provide bins for use onsite.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16

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Requirement	Design Check	Comments	Date	Signature	Action
Maintenance	Asses site for landscaping and maintain as required	Not applicable. No landscaping	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Maintenance	Asses site structures and maintain as required	Not applicable. Hired structures.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16
Maintenance	Asses site equipment and maintain as required	Daracon maintain equipment as needed.	19/01/16	Inspected by Aaron Ridley Daracon Environmental Engineer	19/01/16



APPENDIX D. CRIME Prevention Through Environmental Design (CPTED) principles



Crime Prevention Through Environmental Design (CPTED) Principles

The principles adopted in this Plan are those of CPTED, which is based on a situational approach to crime prevention. This involves using design to intensify difficulty and risks for possible offenders while diminishing rewards. The approach acknowledges, however, that any design strategy can only be part of a wide-ranging approach to crime prevention, which includes social and community strategies.

ISJV's approach is consistent in principle and philosophy with the guidelines outlined in the NSW Department of Urban Affairs and Planning, Crime prevention and the assessment of development applications: Guidelines under section 79C of the Environmental Planning and Assessment Act 1979.

It considers how the Plans for the temporary site facilities contained in Chapter 7 of the NWRL EIS 2 embrace, or intend to embrace, central CPTED principles such as natural surveillance, access control, ownership (territoriality) and space management (maintenance). Given the schematic level of the site plans for the temporary facilities, this Plan focuses on identifying the processes and procedures that will be used to incorporate the principles of CPTED.

A preliminary CPTED assessment is supported by the following five overlapping CPTED principles that form the basis of the assessment and future design methodology for the temporary site facility plans.

Territoriality

Territoriality is a concept that clearly delineates private space from semi-public and public space and creates a sense of ownership. People usually protect territory that they feel is their own and have a certain respect for the territory of others. Fences, paving, art, signs, good maintenance and landscaping are some physical ways to express ownership. Identifying intruders is much easier in a well-defined space. An area that looks protected gives the impression that greater effort is required to commit a crime. A cared-for environment can also reduce fear of crime. Areas that are run-down and the subject of graffiti and vandalism are generally more intimidating than areas that do not display such characteristics. Ownership creates an environment where strangers and intruders stand out and are more easily identified through:

- Providing an enhanced feeling of legitimate ownership by reinforcing existing natural surveillance and natural access control strategies with additional symbolic or social ones
- The design of space to allow for its continued use and intended purpose
- The use of pavement treatments, landscaping, art, signage, screening and fences to define and outline the ownership of space.

Natural Surveillance

Natural surveillance is a design concept directed primarily at keeping intruders under observation. Provision of natural surveillance helps to create environments where there is plenty of opportunity for people engaged in their normal behaviour to observe the space around them. Criminals usually do not want to be seen. Crime may be discouraged by placing physical features, activities and people in ways that maximise the ability to see what is happening. For example, placing cafés and kiosks in parks increases natural surveillance by park users, while placing clotheslines near play equipment in a multiple unit development increases natural surveillance of the play area. Barriers such as bushes

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or sheds can make it difficult to observe activity. Areas can be designed so they are more easily observed through design and placement of physical features to maximise visibility. This will include:

- Building orientation, entrances and exits, car parks, rubbish bins, walkways
- Landscape trees and shrubs, fences or walls, signage and other physical obstructions
- The placement of persons or activities to maximise surveillance possibilities
- Minimum maintained lighting standards that provide for night-time illumination of car parks, walkways, entrances, exits and related areas to promote a safe environment.

Access Control

Access control is a design concept directed primarily at decreasing criminal accessibility. Natural access controls will limit access and increase natural surveillance and will restrict criminal intrusion, especially into areas where they will not be easily observed. Access can be restricted by physical barriers such as bollards, fences and doorways, or by security hardware such as locks, chains and alarms. Human measures can also be used, such as security guards. All these methods aim to increase the effort required to commit a crime and therefore reduce the potential for it to happen.

When present, intruders are more readily recognised through:

- Use of footpaths, pavement, gates, lighting and landscaping to clearly guide the public to and from entrances and exits
- Use of gates, fences, walls, landscaping and lighting to prevent or discourage public access to or from dark or unmonitored areas.

Activity Support

Activity support involves placing activity where the individuals engaged in such an activity will become part of the natural surveillance system. Examples include:

- Placing safe activities in areas that will discourage would-be offenders, to increase the natural surveillance of these activities and the perception of safety for normal users, and the perception of risk for offenders
- Place high-risk activities in safer locations to overcome the vulnerability of these activities by using natural surveillance and access control of the safe area
- Locate gathering areas in locations that provide for natural surveillance and access control or in areas away from the view of would-be offenders
- Improve the scheduling of space to allow for effective use and appropriate intensity of accepted behaviours.

Maintenance

Proper maintenance of landscaping, lighting treatment and other features can facilitate the principles of CPTED, territorial reinforcement, natural surveillance and natural access control. Functions include:

- Proper maintenance of lighting fixtures to prescribed standards
- Landscaping which is maintained at prescribed standards
- Minimising the conflicts between surveillance and landscaping as the ground cover (shrubs and trees) matures.