

BEON ENERGY SOLUTIONS
DEVELOPMENT PLAN
MELBOURNE METRO RAIL AUTHORITY
CONSTRUCTION POWER SUPPLY INFRASTRUCTURE
SEPTEMBER 2017

DEVELOPMENT PLAN

REVISIONS

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	30/06/2017	GHD	Megan Crockford	Phil Aggenbach	Preliminary Draft. Issued for Beon review
B	05/07/2017	GHD	Megan Crockford	Phil Aggenbach	Revised Draft
C	06/07/2017	GHD	Megan Crockford	Phil Aggenbach	Revised Draft
D	17/07/2017	GHD	Megan Crockford	Phil Aggenbach	Issue for public display
E	25/08/2017	GHD	Megan Crockford	Phil Aggenbach	Revised Draft
F	13/09/2017	GHD	Megan Crockford	Phil Aggenbach	Revised Draft
G	27/09/2017	GHD	Megan Crockford	Phil Aggenbach	Issue for Ministerial review

Draft issues of this document shall be identified as Revision A, B, C etc. The first post approval version will start Revision 00. Revision numbers shall use a sequential numbering system commencing at Rev. 01, 02, etc.

All copies shall be distributed in accordance with the Distribution List. On receipt of a revision, the copyholder shall incorporate the revised pages into this document. The document shall be subject to reissue after a practical number of changes have been made.

Team Binder Ref: BES_015

DISTRIBUTION

The Development Plan is to be distributed for approval to the Minister for Planning and following this to Beon Energy Solutions Project Team for implementation.

Copies of the Plan downloaded by project personnel shall be deemed uncontrolled.

ABBREVIATIONS

Beon	Beon Energy Solutions
CHMP	Cultural Heritage Management Plan
CoM	City of Melbourne
CEMP	Construction Environmental Management Plan
CEIMP	Construction Environmental Implementation Plan
CSEMF	Community and Stakeholder Engagement Management Framework
CSEMP	Community and Stakeholder Engagement Management Plan
DEDJTR	Department of Economic Development, Transport, Jobs and Resources
EES	Environment Effects Statement
EMF	Environmental Management Framework
EMS	Environmental Management System
EPR	Environmental Performance Requirement
HV	Heritage Victoria
MMRA	Melbourne Metro Rail Authority
OVGA	Office of the Victorian Government Architect
PPP	Public Private Partnership
PTV	Public Transport Victoria
TBM	Tunnel Boring Machine
TTWG	Traffic and Transport Working Group
UDAAP	Urban Design & Architectural Advisory Panel
UDS	Urban Development Strategy
VHR	Victorian Heritage Register

Contents

DEVELOPMENT PLAN	2
REVISIONS	2
DISTRIBUTION	3
ABBREVIATIONS	4
1 INTRODUCTION	6
1.1 ROLE OF THE DEVELOPMENT PLAN	6
1.2 STRATEGIC CONTEXT	6
1.3 APPROVALS CONTEXT.....	7
1.4 DEVELOPMENT PLAN REQUIREMENTS	8
2 PROJECT AND SITE CONTEXT	10
2.1 PROJECT CONTEXT	10
2.2 SITE CONTEXT	11
3 COMMUNITY AND STAKEHOLDER ENGAGEMENT	14
3.1 SUMMARY OF CONSULTATION	14
4 PROPOSED WORKS	15
4.1 WORKS DESCRIPTION.....	15
4.2 MATERIALS AND EXTERNAL FINISHES	16
5 COMPLIANCE WITH URBAN DESIGN STRATEGY	17
6 ALIGNMENT WITH THE ENVIRONMENTAL PERFORMANCE REQUIREMENTS	20
6.1 METRO TUNNEL PROJECT ENVIRONMENTAL MANAGEMENT FRAMEWORK.....	20
6.2 BEON RESPONSE TO EPRS	20
APPENDIX A. SITE LAYOUT PLANS	35
APPENDIX B. SUPPORTING MATERIAL	40

1 INTRODUCTION

Beon Energy Solutions (Beon) has been contracted by Melbourne Metro Rail Authority (MMRA) to design and construct the MMRA Construction Power Supply Infrastructure Project. The Construction Power Supply Infrastructure Project will form a part of the overall Melbourne Metro Rail Project (also referred to as the Metro Tunnel Project) and will provide electricity supply to the Tunnel Boring Machines (TBMs) required to construct the bored sections of tunnel.

This Development Plan has been prepared by Beon for the Construction Power Supply Infrastructure Project. The scope of this plan is limited to works carried out by Beon. Beon's works involve design and construction of the Construction Power Supply Infrastructure Project, which comprises:

- ▶ Arden Precinct temporary substation (Arden substation): a temporary 22kV/11Kv 20MVA substation located south of Barwise Street, North Melbourne in the Arden precinct
- ▶ Domain Precinct temporary substation (Domain substation): a temporary 22kV/11Kv 20MVA substation at the Edmund Herring Memorial Oval, Domain Road, South Yarra in the Domain precinct.

CitiPower will carry out trenching and cabling works to connect the two substations to the existing CitiPower network. These works are outside the scope of this Development Plan.

Once construction is complete (Practical Completion) the two substations will be handed over to MMRA's Public Private Partnership (PPP) contractor to operate, maintain, decommission and ultimately reinstate. The PPP contractor will deliver the twin nine kilometre rail tunnels and five new stations. Both substations will form part of broader construction compounds at both locations during the Metro Tunnel Project works. Operation, maintenance, decommissioning and reinstatement of the substations by the PPP contractor is outside the scope of this Development Plan.

1.1 ROLE OF THE DEVELOPMENT PLAN

The role of this Development Plan is to comply with Clause 4.6 of the Incorporated Document.

In a broader sense, the purpose of this Development Plan is to provide a summary of the architectural, landscape and urban design outcomes for the Construction Power Supply Infrastructure Project works locations. The Development Plan provides an outline of the proposed design and works at a resolution that was not available at the time of assessment in the Metro Tunnel Environment Effects Statement (EES) and at the time of approval in the Melbourne Metro Rail Project Incorporated Document.

This Development Plan also explains how works have addressed the requirements of MMRA's approved Urban Design Strategy (UDS) and Environmental Performance Requirements (EPRs) as included within the Environmental Management Framework (EMF).

1.2 STRATEGIC CONTEXT

The Construction Power Supply Infrastructure Project (Arden substation and Domain substation) will be designed and constructed on Metro Tunnel Project Land as shown in Appendix A of the GC67 Melbourne Metro Project Incorporated Document, dated May 2017 (Incorporated Document).

The Arden and Domain substations are temporary works required to provide electricity supply to enable construction of the Metro Tunnel Project. The substations are expected to be operated by the PPP contractor for a period of around six years to support construction. After this time, the substations will be decommissioned and reinstated by the PPP contractor.

The substations will form part of the Metro Tunnel Project's construction zones. The substations are therefore consistent with the proposed use of this land during the Melbourne Tunnel Project's construction phase.

As decommissioning and reinstatement works are outside the scope of this Development Plan, this Development Plan considers the design of the temporary works only and does not address the ultimate design response for these locations as a result of the overall Metro Tunnel Project.

1.3 APPROVALS CONTEXT

1.3.1 MELBOURNE METRO RAIL PROJECT INCORPORATED DOCUMENT

The use and development of land for the Metro Tunnel Project is authorised and regulated by the Melbourne Metro Rail Project – Incorporated Document (May 2017). Relevant clauses of the Incorporated Document include:

- ▶ Clause 4.6, which requires Development Plans to be approved by the Minister for Planning for development works as defined in Clause 4.6.1.
- ▶ Clause 4.7, which requires preparation of an EMF, including EPRs, to be prepared and approved by the Minister for Planning
- ▶ Clause 4.8, which requires a UDS to be prepared and approved by the Minister for Planning
- ▶ Clause 4.9, which requires Early Works Plans to be approved by the Minister for Planning for Early Works as defined in Clause 4.9.1
- ▶ Clause 4.12, which permits Preparatory Works as defined in Clause 4.12.2 to occur prior to approval of the plans outlined in Clauses 4.6 to 4.9.

Although the Construction Power Supply Infrastructure Project involves temporary works to supply electricity to enable construction of the Metro Tunnel Project, it does not meet the definition of Early Works defined in Clause 4.9.2 or Preparatory Works defined in Clause 4.12.2. It therefore falls within the definition of Clause 4.6.1 (I): *'Any other above-ground works or structures that are part of the Project'*. Accordingly, a Development Plan approved by the Minister for Planning is required for the Construction Power Supply Infrastructure Project.

1.3.2 OTHER APPROVALS

Other legislation and approvals relevant to the Construction Power Supply Infrastructure Project include:

- ▶ *Aboriginal Heritage Act 2006* and *Aboriginal Heritage Regulations 2007*: A Cultural Heritage Management Plan (CHMP) was developed by MMRA and approved under the *Aboriginal Heritage Act 2006*. The Construction Power Supply Infrastructure Project is within the defined Activity Area for this CHMP. Works for the Construction Power Supply Infrastructure Project will be managed in accordance with the procedures set out in the CHMP.
- ▶ *Heritage Act 1995*: The Domain substation is located at the Edmund Herring Memorial Oval within the Domain Parklands, which are listed on the Victorian Heritage Register (VHR). As the works are within the Domain Parklands heritage site (VHR number H2304), a Heritage Permit application has been submitted by Beon for approval as required in the provisions of the *Heritage Act 1995*. This Heritage Permit requires approval from the Executive Director of Heritage Victoria, and is a separate process to, but informed by the Minister's Assessment of the EES.

In addition to these approvals, ongoing consultation is being undertaken with the Office of the Victorian Government Architect (OVGA) and with the City of Melbourne (CoM) as the relevant land owner in these locations.

All works will be carried out in accordance with the conditions of these approvals (once granted) and relevant legislation.

1.4 DEVELOPMENT PLAN REQUIREMENTS

Clause 4.6 of the Incorporated Document outlines requirements for Development Plans including content and consultation requirements. These requirements are summarised in the table below, together with a cross-reference to where they are addressed in this Development Plan.

TABLE 1 DEVELOPMENT PLAN REQUIREMENTS

Clause	Requirement	Location in this Development Plan
4.6.2	A Development Plan must address surface works that are associated with each of the items listed in clause 4.6.1. A Development Plan for a station must address underground areas from the station entrance to the ticket gate.	Surface works are described in Section 4. Station works are outside the scope of this plan.
4.6.3	A Development Plan must include: <ul style="list-style-type: none"> a) a site layout plan/s b) Architectural, landscape and public realm plans and elevations including lighting, signage, pedestrian access, bicycle access and other ancillary facilities c) An explanation demonstrating how the Development Plan (including materials and external finishes) is in accordance with MMRA’s approved Metro Tunnel Project: <ul style="list-style-type: none"> ▶ UDS ▶ EPRs included within the EMF 	<p>Section 4 and Appendix A describe works and contain a site layout plan/s.</p> <p>Section 4 and Appendix B describe and present architectural features and plans including ancillary items such as lighting, signage, fencing and ground surface covering. As the substations are temporary; will not be publicly accessible (as they are electrical substations); and will not prevent existing pedestrian and bicycle access to substation surrounds, landscaping and public realm plans, pedestrian access, bicycle access and other ancillary facilities are not relevant. The Urban Design Plan will show how the design sits within and responds to the landscape and public realm.</p> <p>Section 5 responds to the UDS.</p> <p>Section 6 responds to the EPRs and EMF.</p>
4.6.4	<p>Prior to submission of a Development Plan to the Minister for Planning for approval under clause 4.6.1, a Development Plan must be:</p> <ul style="list-style-type: none"> a) Provided to the Office of the Victorian Government Architect and relevant council/s for consultation. b) Where relevant, provided to the Roads Corporation, Public Transport Development Authority, Melbourne Water and Heritage Victoria for consultation. c) Made available for public inspection and comment on a clearly identifiable Project website for 15 business days. The website must set out details about the entity and contact details to which written comments can be directed during that time and specify the time and manner for the making of written comments. <p>For the avoidance of doubt, consultation in accordance with (a) and (b) can occur prior to or after the public inspection and comment period in (c).</p> <p>Before, or on the same day as a Development Plan is made available in accordance with clause 4.6.4(c), a notice must be</p>	<p>Section 3 provides a summary of consultation.</p> <p>Beon consulted with key stakeholders OVGA, CoM, Heritage Victoria and Melbourne Water in development of this plan, as well as VicRoads, Public Transport Victoria (PTV)/DEDJTR (Transport) and the Environment Protection Authority (EPA). Beon will continue consulting with key stakeholders.</p> <p>This Development Plan was made available on the Metro Tunnel website at metrotunnel.vic.gov.au for 15 business days (from 19 July 2017 to 8 August 2017) and an email was sent to registered users on the Metro Tunnel eNews list. Copies of the Early Works Plan were made available to the City of Melbourne for members of the public to inspect (if requested by City of Melbourne).</p>

	published in a newspaper generally circulating in the area to which a Development Plan applies informing the community of the matters set out in clause 4.6.4(c).	On 19 July 2017, the same day as the Development Plan was made available in accordance with clause 4.6.4(c), a notice was published in The AGE newspaper which generally circulates in the area to which the Development Plan applies. This informed the community of the matters set out in clause 4.6.4(c).
4.6.5	A Development Plan submitted to the Minister for Planning for approval under clause 4.6.1 must be accompanied by all written comments received under clause 4.6.4 and a summary of consultation and response to issues raised during the consultation.	Section 3 provides a summary of consultation that was undertaken in the development of the Development Plan. Further detail of the consultation process, including a response to issues raised and outcomes of the public inspection period, are incorporated in a separate Consultation Summary Report.
4.6.8	<p>A Development Plan may be prepared and approved in stages or parts, and may be amended from time to time with the approval of the Minister for Planning. The Minister must require an application for approval of an amendment to a Development Plan to comply with the requirements of clauses 4.6.3, 4.6.4, 4.6.5 and 4.6.6 unless, in the opinion of the Minister:</p> <ul style="list-style-type: none"> a) the proposed amendment: <ul style="list-style-type: none"> i) does not result in a material detriment to any person; or a person who may suffer a material detriment as a result of the Minister’s approval of the amendment has already been sufficiently consulted in respect of the amendment; and b) any amendment does not involve any change to an approved Environmental Performance Requirement. 	Due to the temporary nature of works and relatively short (6 month) construction period for the Construction Power Supply Infrastructure Project, Beon submits this Development Plan in one instance. If there is cause for this Development Plan to be amended, then this will be completed in accordance with Clause 4.6.8.

2 PROJECT AND SITE CONTEXT

2.1 PROJECT CONTEXT

The following sections provide an overview of the context of the Construction Power Supply Infrastructure Project within the Metro Tunnel Project.

2.1.1 METRO TUNNEL PROJECT

The Metro Tunnel Project comprises twin nine kilometre rail tunnels between Kensington in the inner west and South Yarra in the inner southeast of Melbourne that will connect the Sunbury and Pakenham/Cranbourne train lines. The Metro Tunnel Project will provide five new inner city underground railway stations at Arden, Parkville, CBD North, CBD South and Domain.

The Metro Tunnel Project alignment and land is shown in Figure 1.

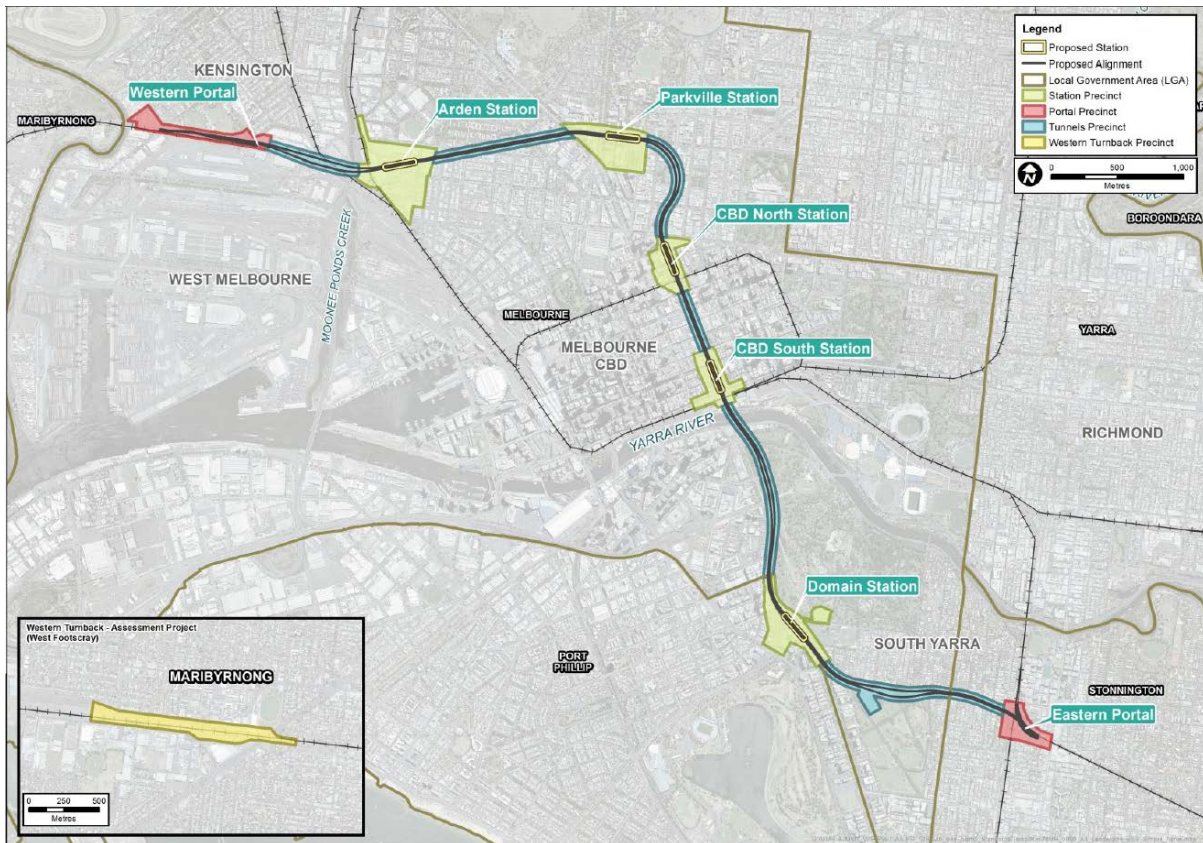


Figure 1 Metro Tunnel Project Alignment and Land

2.1.2 CONSTRUCTION POWER SUPPLY INFRASTRUCTURE PROJECT

The Construction Power Supply Infrastructure Project forms part of the Metro Tunnel Project and will provide electricity supply for the construction equipment for the Metro Tunnel. The Construction Power Supply Infrastructure Project will be delivered by Beon and involves design and construction of two 22kV/11kV 20MVA substations on Metro Tunnel Project Land (as defined in the Incorporated Document) within the Arden Station and Domain Station precincts. This Development Plan applies to these substation sites only.

2.2 SITE CONTEXT

This section provides an overview of the site context, including existing site features and surrounding land uses for the Construction Power Supply Infrastructure Project substation sites. Figures 2 and 3 show site locations and surrounding site features.

The siting of the temporary substations has taken into consideration the broader construction compounds of the PPP contractor. Once the PPP contractor commences works, the substations will be less visible to the public and will become enclosed by the construction activity within the broader compound.

2.2.1 ARDEN SUBSTATION

The Arden substation site is located south of Barwise Street, North Melbourne and will form part of a broader construction compound during the Metro Tunnel Project works.

The site was previously used for industrial purposes and is currently vacant. The site has hardstand surfacing and is surrounded by permanent cyclone fencing.

The site is situated within an existing industrial precinct of North Melbourne, with immediate surrounding land uses being industrial and commercial in nature.

Further afield, recreational and residential uses exist to the north of the site across Arden Street, whilst the Moonee Ponds Creek, land for rail uses and the CityLink freeway are located to the west. Residential and commercial uses lie east across Laurens Street, whilst mainly industrial uses are located to the south.

There is no existing vegetation or identified heritage values at this site or immediately adjacent the site.

2.2.2 DOMAIN SUBSTATION

The Domain substation site is located at the Edmund Herring Memorial Oval within the Domain Parklands, near the corner of Domain Road and Dallas Brooks Drive, South Yarra. The site will form part of a broader construction compound during the Metro Tunnel Project works.

The Domain Parklands are listed on the Victorian Heritage Register (VHR number 2304). Other identified heritage values within the vicinity of this substation site include the heritage protected Shrine of Remembrance to the northwest, La Trobe's Cottage to the northeast, and established trees along Domain Road to the south.

Further afield, other surrounding land uses include Melbourne Grammar to the south across Domain Road, and Domain House to the north of the Edmund Herring Memorial Oval. Commercial and residential land uses lie further to the west across St Kilda Road. Recreational uses (including the Royal Melbourne Botanical Gardens) lie further afield to the northeast of the site.

A number of established amenity trees are located on Domain Road to the south of the substation compound and along Dallas Brooks Drive to the east of the site. No trees will be removed as part of the Construction Power Supply Infrastructure Project works at this site. Design and construction of these works will be undertaken in accordance with a Tree Protection Plan prepared by a qualified arborist, which includes maintaining Tree Protection Zones and specific actions to ensure tree protection.

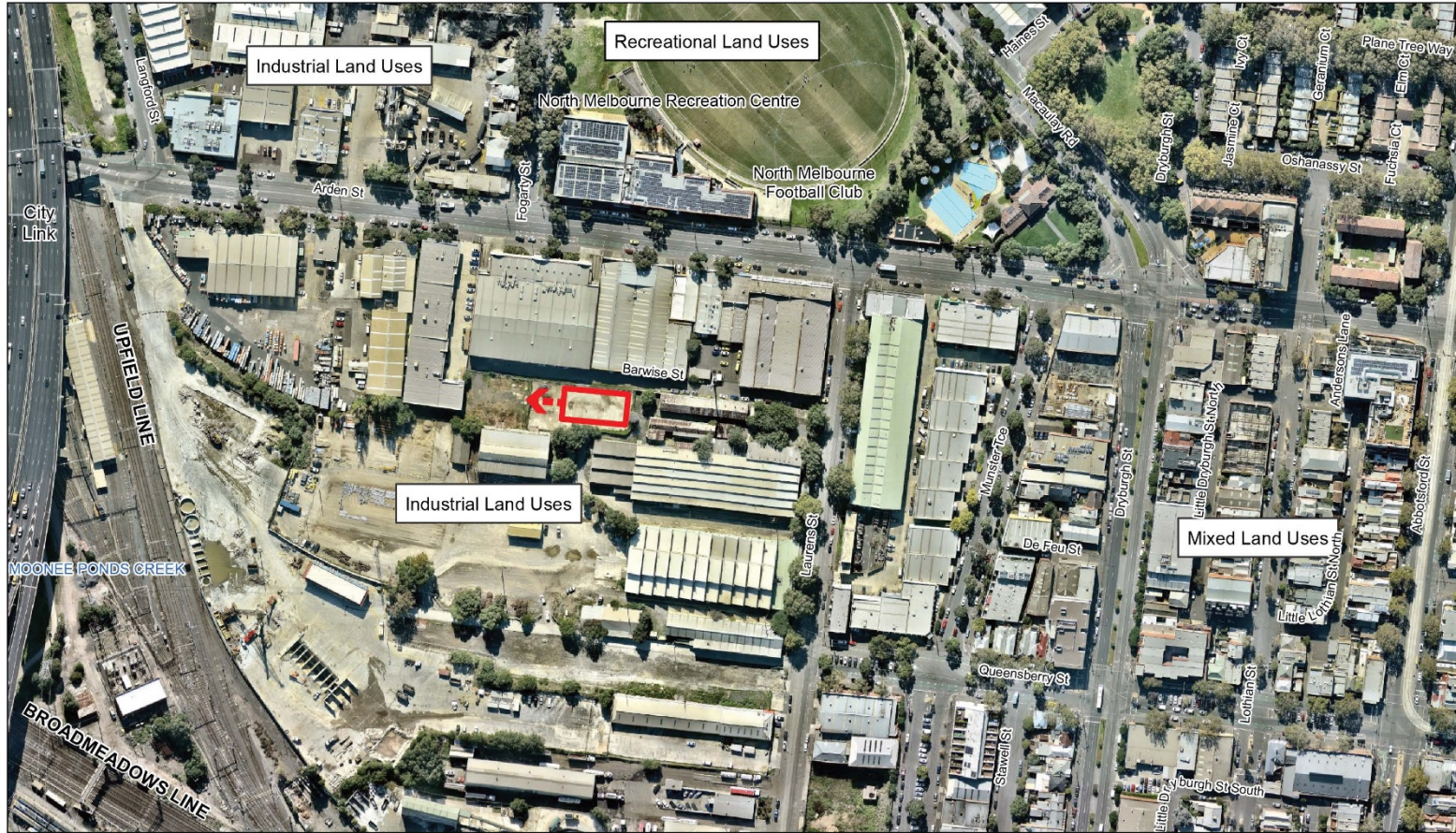


Figure 2 Arden temporary substation location and site context



Figure 3 Domain temporary substation location and site context

3 COMMUNITY AND STAKEHOLDER ENGAGEMENT

Beon recognises that the Construction Power Supply Infrastructure works for both the Arden and Domain substations are of interest to a number of different stakeholders. Of note, the substations are expected to be the first element of the overall establishment of the Melbourne Tunnel Project construction compounds at the Domain and Arden precincts.

Beon is committed to working with the relevant stakeholders throughout the design and construction process to ensure the relevant communities are aware of the works being planned in this area.

3.1 SUMMARY OF CONSULTATION

In preparing the draft Development Plan, Beon consulted with CoM, OVGA, Heritage Victoria and Melbourne Water around one or more of the siting, design and construction considerations for each substation within the designated project area provided by MMRA. Beon continues to consult with these key stakeholders as well as consulting with VicRoads, PTV/DEDJTR and the EPA.

As mentioned in Section 1.4, the draft Development Plan was exhibited for 15 business days, commencing on 19 July 2017 and ending on 8 August 2017. It was made available for public comment and inspection on MMRA's website during that time and a public advertisement of the draft Development Plan was placed in The AGE on 19 July 2017, the day it was made publically available. Following the exhibition period, Beon reviewed and considered comments received and updated the draft Development Plan in response to relevant feedback prior to submitting to the Minister for Planning for approval.

Further detail on the consultation process undertaken in association with this Development Plan, including key issues raised during consultation and the project response, is documented in a separate Consultation Summary Report.

4 PROPOSED WORKS

The Construction Power Supply Infrastructure Project comprises design and construction works to deliver:

- ▶ Arden substation: a temporary 22kV/11Kv 20MVA substation south of Barwise Street, North Melbourne in the Arden precinct
- ▶ Domain substation: a temporary 22kV/11Kv 20MVA substation at the Edmund Herring Memorial Oval, Domain Road, South Yarra in the Domain precinct.

Operation, maintenance, decommissioning and reinstatement of these substations is outside the scope of this Development Plan. Both substations will form part of broader construction compounds at both locations during the Metro Tunnel Project.

4.1 WORKS DESCRIPTION

Proposed works are described below and shown in the Site Layout Plans in Appendix A, subject to design development with technical requirements. Works will occur over a period of approximately six months.

Tree protection

Beon has considered the trees lining Domain Road in the design and siting of the Domain substation infrastructure in accordance with City of Melbourne guidelines. No trees will be removed and the works boundary has been measured and offset from the trees so that works are located outside of Tree Protection Zones as far as is practicable. This approach forms part of the design and construction hierarchy that has been adopted as part of the Tree Protection Plan for the Construction Power Supply Infrastructure Project to minimise potential impacts to trees as a result of the works. Although impacts are considered unlikely, the hierarchy also includes mitigation measures (as specified in the Tree Protection Plan) to be implemented in the event works may potentially impact Tree Protection Zones, including installation of Tree Protection fencing.

Site access

Site access will be from Barwise Street (Arden substation) and Dallas Brooks Drive (Domain substation) and is located to minimise disturbance to road and pedestrian users. Site access points and access routes from Barwise Street and Dallas Brooks Drive will be secured with temporary fencing to prevent public access. Access routes will be levelled and appropriate surface covering materials applied to accommodate construction and haulage vehicles as outlined in Section 4.2 and Appendix A.

Site preparation

The site perimeter will be fenced with secure fencing to prevent public access.

As noted above, no trees will be removed and the works boundary has been measured and offset from the trees so that works are located outside of Tree Protection Zones as far as is practicable. In accordance with the Tree Protection Plan, tree protection fencing will be installed around Tree Protection Zones.

Each site will be levelled and appropriate surface covering materials applied to accommodate the temporary substation infrastructure.

Haulage and installation of infrastructure

Once constructed, the substation footprint is approximately 1560 square metres. The primary site features will consist of secure perimeter fencing, two transformers, firewalls and a control room.

The majority of site features will be prefabricated offsite, requiring installation and connection only at the site.

Haulage of infrastructure to the sites is expected to occur in a number of stages.

Connection to power supply

Power supply will be connected via trenching and cabling to existing offsite CitiPower cables located on Domain Road (Domain substation) and on Arden Street (Arden substation).

As per Tree Protection above, no trees will be removed and the works boundary has been measured and offset from the trees so that works are located outside of Tree Protection Zones as far as is practicable. In accordance with the Tree Protection Plan, tree protection fencing will be installed around Tree Protection Zones.

The substation infrastructure will also include cables for eventual connection to the respective TBMs.

4.2 MATERIALS AND EXTERNAL FINISHES

Beon has considered and selected materials and external finishes for the temporary substations in accordance with the EPRs, UDS and in consultation with CoM, Heritage Victoria and OVGA (see Sections 5 and 6 for further detail). Consideration of the materials and external finishes has taken into account the temporary substations within the broader construction compounds of the PPP contractor. Once the PPP contractor commences works, the substations will be less visible to the public and will become enclosed by the construction activity within the broader compound.

The materials and external finishes to be used in design and construction of the temporary substations are described below. Further information on materials and external finishes is provided in Appendix A and Appendix B.

Fencing

Secure fencing and access gate (such as welded mesh, cyclone fencing) will be installed around the substation compound. Hoarding will be installed along the offset line as specified in the Tree Protection Plan.

Other fencing of a temporary nature (such as chain mesh fencing) will be used along the access route, at the access point and for Tree Protection purposes as specified in the Tree Protection Plan.

Existing pedestrian and bicycle access to substation surrounds will not be prevented by the Construction Power Supply Infrastructure Project.

Substation infrastructure

Substation infrastructure (such as the control room, transformers and firewalls) will be installed within the substation compound in general accordance with the plans shown in Appendix A and B. The control room cladding will be Colorbond metal in Colorbond trademarked colours as shown in Appendix B.

Surface coverings

If not already appropriate, ground surface coverings (such as gravel) will be applied to the substation compound and to access routes to accommodate construction and haulage vehicles. A concrete base and bunding will be constructed to house the transformers within the substation compound.

Lighting

Lighting at night will be minimal and operated on sensor-only basis. Final placement of lighting features will be determined during detailed design.

Signage

Given the purpose and secure nature of the substations (i.e. no public access), signage for the substation compound will be limited to standard safety signage required for electrical substations. Tree protection fencing will also be signed in accordance with the Tree Protection Plan.

5 COMPLIANCE WITH URBAN DESIGN STRATEGY

The UDS was approved in February 2017 by the Minister for Planning to guide the design of the overall Metro Tunnel project. As the Construction Power Supply Infrastructure Project involves development of temporary above-ground structures in the Arden and Domain precincts and does not involve development of permanent works or structures, only Section 3.5 *Design to help manage construction impacts* of the UDS is considered relevant to this Development Plan.

Section 3.5 of the UDS describes aims, objectives and Design Guidelines relating to managing temporary design and construction impacts of the Metro Tunnel Project. This section of the UDS aims to manage construction in a manner which minimises and mitigates adverse impacts on the valued fabric of the city and ongoing urban activities.

Beon is developing an Urban Design Plan in response to the EPRs and supports compliance with the UDS. Beon’s Urban Design Plan will guide design and construction of elements such as hoardings, fencing and other material finishes. As part of development of the Urban Design Plan, Beon are engaging with the Urban Design & Architectural Advisory Panel (UDAAP), OVGA and the CoM regarding design outcomes for both substations. This is in addition to Beon’s ongoing conversations with Heritage Victoria and the heritage permit granted under the provisions of the *Heritage Act 1995* for the construction of a temporary substation for Domain Parklands.

Table 2 summarises Beon’s response to the Design Guidelines outlined in Section 3.5 of the UDS.

TABLE 2: BEON RESPONSE TO RELEVANT KEY DIRECTIONS AND URBAN DESIGN GUIDELINES

Key Direction	Urban Design Guidelines	Response
Design to Help Manage Construction Impacts	Maintain circulation and transport operations during the construction process	<p>A transport management plan will be developed in consultation with MMRA in line with the Traffic and Transport Working Group (TTWG). A core objective of the plan is to maintain circulation of transport safely and efficiently for the duration of construction works.</p> <p>Impacts on local cycling and pedestrian traffic will be minimised through safe and accessible detours with way-finding signage, noting that planned staging of works has been undertaken to minimise potential impacts to vehicular traffic.</p> <p>Works will be coordinated with CoM to plan construction schedules around major public events. Broader stakeholder engagement will be undertaken in accordance with the Community and Stakeholder Engagement Plan (CSEMP) prepared by Beon.</p>

Key Direction	Urban Design Guidelines	Response
	<p>Protect the viability of, and amenity for, activities at and near construction work sites</p>	<p>While both substations are temporary in nature and are due to be removed once the TBM work has been completed, the siting and design features of the substation infrastructure have been developed in consultation with OVGA, CoM and Heritage Victoria to address safety concerns as well as minimise impact to visual and surrounding user amenity.</p> <p>This includes the use of welded mesh or cyclone security fencing, use of Colorbond palettes for the exterior of the control room, and firewalls that can incorporate visually pleasing features such as patterns and colour. Beon will engage with UDAAP regarding design outcomes such as these.</p> <p>Where possible, construction impact will be managed through engagement with key stakeholders and the management measures as set out in the Construction Environmental Management Plan (CEMP). In addition, the construction period is anticipated to be relatively short (approximately 6 months) in relation to the broader Metro Tunnel Project works.</p>
	<p>Protect features from damage</p>	<p>Beon has considered the trees lining Domain Road in the design and siting of substation infrastructure in accordance with City of Melbourne guidelines. No trees will be removed and the works boundary has been measured and offset from the trees so that works are located outside of Tree Protection Zones as far as is practicable. This approach forms part of the design and construction hierarchy that has been adopted as part of the Tree Protection Plan for the Construction Power Supply Infrastructure Project to minimise potential impacts to trees as a result of the works. Although impacts are considered unlikely, the hierarchy also includes mitigation measures (as specified in the Tree Protection Plan) to be implemented in the event works may potentially impact Tree Protection Zones.</p> <p>Impacts on historical and Aboriginal cultural heritage values are considered unlikely as a result of delivery of the Construction Power Supply Infrastructure Project. The location of the Arden substation is not in the vicinity of identified heritage values and the heritage impact assessment undertaken at the Domain substation concluded that impacts to heritage values (e.g. Domain Parklands) were unlikely. Works will be conducted in accordance with MMRA’s CHMP, a CEMP which outlines management and mitigation measures for heritage and conditions of any heritage permit issued by Heritage Victoria (for works at Domain substation).</p> <p>Any changes to street fabric (such as bluestone kerbing) as a result of the construction works will be reinstated in agreement with the relevant authority.</p>

Key Direction	Urban Design Guidelines	Response
	<p>Maintain an attractive presentation to surrounding areas</p>	<p>The Construction Power Supply Infrastructure Project will be undertaken in a manner that aims to maintain an attractive presentation to surrounding areas during construction works. The CEMP will assist in achieving this objective by requiring implementation of measures to minimise potential impacts to amenity of the surrounding area.</p> <p>MMRA branded screens and signage will be used to assist with presentation of the construction works associated with the temporary substations and to provide consistency across the Metro Tunnel Project.</p>

6 ALIGNMENT WITH THE ENVIRONMENTAL PERFORMANCE REQUIREMENTS

6.1 METRO TUNNEL PROJECT ENVIRONMENTAL MANAGEMENT FRAMEWORK

MMRA has developed an EMF for the Metro Tunnel Project to address the requirement of Clause 4.7 of the Incorporated Document. The Minister of Planning approved the EMF in March 2017. MMRA will implement and enforce the requirements of the EMF and the EPRs on behalf of the State through the contractual arrangements for the delivery of the Project.

The EMF was informed by the environmental risk assessment and specialist environmental studies completed for the Metro Tunnel EES and provides a transparent and integrated governance framework to manage environmental aspects associated with the Metro Tunnel Project. The EMF also identifies accountabilities for the delivery and monitoring actions required to achieve the outcomes of the EPRs.

Beon are required to comply with the requirements of the EMF and the EPRs, as relevant to Beon's works for the Construction Power Supply Infrastructure Project.

Beon's ISO 14001 certified Environmental Management System (EMS) will govern all works carried out by Beon. Beon has developed the following plans to facilitate implementation of and ensure compliance with the relevant EPRs:

- ▶ CEMP that contains management and mitigation measures to address any potential environmental impacts and incorporates requirements of the relevant EPRs.
- ▶ CSEMP that addresses the requirements of EPR SC4.
- ▶ Tree Protection Plan that outlines requirements for tree protection during works.
- ▶ Transport Management Plan that contains management and mitigation measures to address potential impacts to circulation of transport and pedestrians.

Beon will carry out regular environmental site inspections to monitor conformance with these plans. Beon will also arrange monthly environmental audits to be carried out during construction works with audit reports prepared. Corrective and preventative actions identified during site inspections and audits will be recorded and responsibilities and timeframes assigned to close these out. Close out of actions in accordance with required timeframes will be monitored and checked through subsequent inspections and audits.

In addition, an independent environmental auditor has been engaged, as required by EPR EMF3, to carry out audits of compliance with the CEMP, EPRs and approval conditions.

6.2 BEON RESPONSE TO EPRs

The Construction Power Supply Infrastructure Project comprises development of temporary infrastructure to support construction and forms a relatively small part of the overall Metro Tunnel Project with respect to both scale and duration of works. Beon has reviewed the EPRs in consultation with MMRA and identified those that are relevant to the Construction Power Supply Infrastructure Project. The following sections outline the methodology behind Beon's response to the EPRs.

6.2.1 EPRs NOT RELEVANT TO THE CONSTRUCTION POWER SUPPLY INFRASTRUCTURE PROJECT

The Construction Power Supply Infrastructure Project will involve design and construction works for the temporary substations in only two precincts, Arden and Domain.

Accordingly, EPRs for other precincts, those that specifically apply to works such as tunnelling and stations and those relating to operation phase are not relevant to the Construction Power Supply Infrastructure Project scope and have not been considered further.

The EPRs that are not relevant to the Construction Power Supply Infrastructure Project are listed as follows:

AE4 to AE6, B5, B6, CH11 to CH17, CH19 to CH22, EMI1, EMI2, LU3, NV2, NV12, NV14 to NV17, NV19, NV20, SC5, SC9 and T7 to T9.

In addition to the above, a number of additional EPRs are not relevant to the Construction Power Supply Infrastructure Project, however have warranted some further discussion to justify this position.

The remainder of EPRs are considered relevant to the Construction Power Supply Infrastructure Project (both design and construction phases) and are detailed further in Section 6.2.2 and Tables 3 and 4 below.

6.2.2 EPRs RELEVANT TO THE CONSTRUCTION POWER SUPPLY INFRASTRUCTURE PROJECT

In considering the EPRs, it is recognised that whilst the focus of this Development Plan is on design outcomes of the temporary works, the scope of the Construction Power Supply Infrastructure Project is limited to construction of temporary infrastructure.

Consequently, both design and construction EPRs have been considered in Beon's responses as outlined below.

DESIGN

Table 3 describes how Beon has responded to EPRs that apply to design. In some instances, EPRs that are designated as design EPRs also include a construction element, in which case both of the design and construction considerations have been considered in Beon's responses in Table 3.

CONSTRUCTION

As outlined above, it is recognised that whilst the focus of this Development Plan is on design outcomes of the temporary works, the scope of the Construction Power Supply Infrastructure Project is limited to construction of temporary infrastructure. Accordingly, a high level summary of Beon's response to EPRs that are specific to construction is presented in Table 4.

TABLE 3: BEON RESPONSE TO DESIGN EPRS

Category	Design EPRs	Beon Construction Power Supply Infrastructure Project Response
Environmental Management Framework (EMF)	EMF1	Beon operates in accordance with an ISO 14001 Certified EMS. The works will be delivered in accordance with Beon EMS.
	EMF2	<p>An environmental risk assessment will be carried out for the construction phase of the works in order to identify and control risks and to inform the development of a CEMP and Construction Environmental Implementation Management Plans (CEIMP). The CEIMPs will fulfil the intent of the Site Environment Implementation Plans referenced in EMF2.</p> <p>The CEMP will reference the EMF, EPRs, MMRA Environmental Policy and Beon EMS and be prepared in accordance with EPA Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996). It will provide a framework for the identification, control, responsibility, review and auditing of environmental risks.</p> <p>Beon has consulted and will continue to consult with key stakeholders including Councils, Heritage Victoria, VicRoads, Melbourne Water, PTV/DEDJTR, and EPA Victoria.</p>
Aquatic Ecology and River Health (AR)	AE1	The CEMP will require construction works to meet the EPR best practice performance objectives for achieving compliance with the SEPP (Waters of Victoria). The CEMP will include measures for managing stormwater quality such as (where relevant): vehicle wheel wash and rumble bars where required, appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring.
	AE7	The CEMP will include best practice sedimentation and pollution control measures for construction works to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996). The substations will include bunding around transformers in accordance with EPA guidelines to minimise impacts on stormwater quality through design.
Aboriginal Cultural Heritage (AH)	AH1	The Construction Power Supply Infrastructure Project will be delivered in accordance with MMRA Cultural Heritage Management Plan (CHMP) approved under the <i>Aboriginal Heritage Act 2006</i> and prepared as per the provisions set out in the Aboriginal Heritage Regulations 2007. Should a site of cultural heritage value be discovered during works, the procedures set out in the CHMP will be followed.

TABLE 3: BEON RESPONSE TO DESIGN EPRS

Category	Design EPRs	Beon Construction Power Supply Infrastructure Project Response
Arboriculture (AR)	AR1	Beon has considered the trees lining Domain Road in the design and siting of substation infrastructure in accordance with CoM guidelines. No trees will be removed and the works boundary has been measured and offset from the trees so that works are located outside of Tree Protection Zones as far as is practicable. This approach forms part of the design and construction hierarchy that has been adopted as part of the Tree Protection Plan for the Construction Power Supply Infrastructure Project that will be implemented to minimise potential impacts to trees as a result of the works. Although impacts are considered unlikely, the hierarchy also includes mitigation measures to be implemented in the event works may potentially impact Tree Protection Zones.
	AR4	A Tree Protection Plan has been developed by a qualified arborist in accordance with AS4970-2009 <i>Protection of Trees on Development Sites</i> and AS4373-2007 <i>Pruning of Amenity Trees</i> and will be complied with during works.
Business (B)	B1	This EPR is not relevant as Beon’s works will not disrupt businesses through direct acquisition or temporary occupation of land.
	B2	Beon’s works will primarily involve prefabrication of components offsite and the balance of works will predominately occur within substation compounds. Based on this impacts to businesses are not anticipated and a stand alone Business Disruption Plan has not been prepared. Beon has developed a CSEMP, which considers Businesses as a key stakeholder group. The CSEMP outlines the communication and engagement activities to be undertaken in the event potential impact to businesses was predicted.
Contaminated Land and Spoil Management (C)	C3	A Remedial Management Plan has not been prepared as Beon’s works are limited to surface works and trenching works for cable connections and hence contaminated land and groundwater is not expected to be encountered.
Cultural Heritage (Historical) (CH)	CH1	Beon engaged with Heritage Victoria for the Heritage Permit at Domain which has been granted under the provisions of the <i>Heritage Act 1995</i> . Beon consulted CoM and OVGA on the design of the temporary substations at both locations.

TABLE 3: BEON RESPONSE TO DESIGN EPRS

Category	Design EPRs	Beon Construction Power Supply Infrastructure Project Response
	CH2	<p>The proposed location at Arden is not in the vicinity of identified historical heritage values and hence a Heritage Management Plan has not been prepared for this substation.</p> <p>The siting of the temporary substation at the Edmund Herring Memorial Oval is within Domain Parklands which is listed on the Victorian Heritage Register and is subject to a heritage overlay planning control. A Heritage Management Plan has not been prepared for this substation given a heritage impact statement undertaken for the Domain site (as part of the Heritage Permit process) concludes that impact to heritage considerations is unlikely. This conclusion is based on the micro-siting of the substation location to avoid the heritage protected Shrine of Remembrance, broader Domain Parkland, La Trobe’s Cottage and established trees of Domain Road.</p> <p>The works will be delivered in accordance with the heritage permit conditions and the CEMP, which will contain measures to be adopted to avoid or minimize impacts on heritage considerations.</p>
	CH3	<p>Potential noise and vibration impacts on heritage places have been considered in the design and proposed construction method of the temporary substations. This has considered relevant electricity industry standards and guidelines which include consideration of noise and vibration impacts. Works will be carried out in accordance with relevant EPRs. Noise and vibration impacts from the temporary substation are expected to be less than those that could be reasonably expected of other construction activities occurring during the construction phase of the Metro Tunnel project.</p> <p>As Beon’s works predominantly involve surface works and trenching works associated with installation of temporary infrastructure, ground movement is not expected and is not expected to impact on any heritage places. Accordingly, condition assessments have not been carried out.</p> <p>Works will be conducted in accordance with the Beon CEMP, which will contain heritage management and contingency measures. In the unlikely event damage should occur to a heritage place as a result of works, rectification works will be undertaken in accordance with the requirements of EPR CH3.</p>
	CH8	<p>Beon’s works are temporary to support the construction phase and hence this EPR is not relevant. This EPR will be addressed as part of the broader Main Works package.</p>

TABLE 3: BEON RESPONSE TO DESIGN EPRS

Category	Design EPRs	Beon Construction Power Supply Infrastructure Project Response
	CH10	The substations are temporary fixtures however, as per response to EPR LU1, the CoM and OVGA have been consulted in relation to the design for the Domain substation at Edmund Herring Memorial Oval to ensure the location minimizes impacts to the surrounds and the heritage characteristics of the area.
Greenhouse Gas (GHG)	GHG1	Where possible and where relevant to the temporary substation infrastructure, Beon will aim to meet Melbourne Tunnel Project sustainability targets during delivery of the Construction Power Supply Infrastructure Project. Where feasible, sustainability initiatives will be adopted including efforts to source materials from local suppliers and appropriate re-purposing of surplus materials.
	GHG2	Where possible and where relevant to the temporary substation infrastructure, Beon will implement sustainability initiatives identified in the Concept Design during detailed design.
Ground Movement and Land Stability (GM)	GM1	GM1 is not relevant as Beon’s works predominantly involve surface works, offsite pre-fabrication and trenching works associated with installation of temporary infrastructure and hence are not expected to result in ground movement.
	GM2	GM2 is not relevant as Beon’s works predominantly involve surface works, offsite pre-fabrication and trenching works associated with installation of temporary infrastructure and hence are not expected to result in ground movement.
	GM4	GM4 is not relevant as Beon’s works predominantly involve surface works, offsite pre-fabrication and trenching works associated with installation of temporary infrastructure and hence are not expected to result in ground movement.
Groundwater (GW)	GW1	As Beon are not constructing tunnels or underground structures, changes to groundwater levels, flows or quality are not expected. The CEMP will contain contingency measures to manage groundwater should it be encountered during works.
	GW2	As Beon are not constructing tunnels or underground structures, changes to groundwater levels, flows or quality are not expected, hence groundwater modelling has not been undertaken. The CEMP will contain contingency measures to manage groundwater should it be encountered during works.

TABLE 3: BEON RESPONSE TO DESIGN EPRS

Category	Design EPRs	Beon Construction Power Supply Infrastructure Project Response
	GW3	As Beon are not constructing tunnels or underground structures, changes to groundwater levels, flows or quality are not expected, hence a Groundwater Management Plan has not been prepared. The CEMP will contain contingency measures to manage groundwater should it be encountered during works.
Land Use and Planning (LU)	LU2	OVGA, CoM And Heritage Victoria have been consulted during the preliminary design phase for the temporary substations. Beon has considered the MMRA Urban Design Strategy, in the context of temporary nature of these works, and are developing an Urban Design Plan for the Construction Power Supply Infrastructure Project.
	LU4	Beon has consulted key stakeholders regarding the requirements of this EPR and the associated design response to the UDS as part of the preliminary design. Beon is developing an Urban Design Plan to ensure the design and construction of the Construction Power Supply Infrastructure Project responds to the UDS. Beon will engage with the UDAAP, OVGA and CoM in relation to the Urban Design Plan and design outcomes for both substations. This is in addition to ongoing conversations with Heritage Victoria and the heritage permit granted on 1 September 2017 under the provisions of the <i>Heritage Act 1995</i> for the construction of the temporary substation for Domain.
Landscape and Visual (LV)	LV2	LV2 is not relevant to Beon’s works. Re-instatement of the substation sites will be undertaken by the PPP contractor once the power supply infrastructure is no longer required.
Noise and Vibration (NV)	NV3	Noise and vibration modelling has not been undertaken as Beon considers the risk of noise and vibration impact to be minimal. This is based on Beon’s experience with construction and installation of substations and associated works, and due to the location and scale of the proposed infrastructure, construction method (which includes offsite pre-fabrication of the majority of site features) and expected duration, and implementation of mitigation measures in the CEMP.

TABLE 3: BEON RESPONSE TO DESIGN EPRS

Category	Design EPRs	Beon Construction Power Supply Infrastructure Project Response
	NV8	<p>Beon will comply with the noise and vibration guideline targets as specified in the EPRs during delivery of the Construction Power Supply Infrastructure Project. The substations will be designed in accordance with relevant electricity industry standards. In addition, the CEMP contains management measures to manage potential noise and vibration impacts, including monitoring and reporting requirements.</p> <p>Noise and vibration impacts associated with the substation are expected to have a lesser impact than those that could be reasonably expected of other construction activities occurring during the construction phase of the Metro Tunnel project, based on factors such as the construction type (i.e. prefabricated elements) and scale of the proposed infrastructure.</p>
	NV18	<p>The temporary substation infrastructure includes fixed plant that is expected to be in use for a period of approximately 5 years. The substations will be designed in accordance with relevant electricity industry standards. Delivery of the Construction Power Supply Infrastructure Project will comply with the SEPP N-1.</p>
Social and Community (SC)	SC8	<p>SC8 is not relevant as Beon’s works are limited to construction of the temporary substations. Improving community access to open and recreational space and re-establishment of sites is outside the scope of Beon’s works.</p>
Surface Water (SW)	SW1	<p>The temporary substations have been designed and sited to provide appropriate protection from floodwaters and overland stormwater flows. This has been undertaken during the design and siting process, in consultation with CoM and Melbourne Water. The CEMP outlines requirements for management and treatment of stormwater and overland flow during construction.</p>
Transport (T)	T10	<p>This EPR is not relevant as Beon’s works will not impact on waste collection services.</p>

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Environmental Management Framework (EMF)	EMF3 and EMF4	<p>Beon has engaged an independent environmental auditor prior to the finalisation of the plans to assess compliance with the EPR requirements. The independent environmental auditor has been engaged to complete audits to assess compliance with the EMF, EPRs and approved CEMP.</p> <p>Beon will manage all feedback complaints in accordance with the Metro Tunnel complaints management approach documented in the Metro Tunnel Community and Stakeholder Engagement Management Framework (MMRA CSEMF) (refer EPR SC4). The Metro Tunnel complaints management approach developed by MMRA includes protocols prepared in accordance with the Australian Standards AS/NZS 10002:2014 Guidelines for Complaint Management in Organisations and addresses requirements set out in the Business Support Guidelines for Construction.</p> <p>The Beon CSEMF details a complaints management process, also consistent with the above Australian Standard and relevant requirements of the Business Support Guidelines for Construction.</p>
Aquatic Ecology and River Health (AE)	AE2 and AE3	<p>Beon will develop and implement a CEMP that contains relevant best practice sedimentation and pollution control measures to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996). This will include stormwater, spoil and hazardous materials management measures to mitigate potential risks to stormwater. In the unlikely event of groundwater interception, the CEMP will contain a dewatering procedure and requirements to manage groundwater in accordance with AE3.</p>
Air Quality (AQ)	AQ1 to AQ3	<p>Proposed works are not expected to impact air quality given the scale and type of works (i.e. mostly prefabricated components). The CEMP will contain air quality management measures. Protocol for mitigation of any dust emissions are included in the air quality management measures in the CEMP, including monitoring and reporting actions to be undertaken and notification requirements in accordance with the Stakeholder Communication and Engagement Plan.</p> <p>Beon will ensure all works are carried as per the CEMP. The CEMP will set out the site-specific detailed actions to ensure compliance with the EPA Publication 480 and the SEPPs for Air Quality Management and Ambient Air Quality.</p>

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Arboriculture (AR)	AR2, AR3 and AR5	<p>AR2 and AR3 are not relevant as no trees will be removed and the works boundary has been measured and offset from trees so that works are located outside of Tree Protection Zones as far as is practicable. This approach forms part of the design and construction hierarchy that has been adopted as part of the Tree Protection Plan for the Construction Power Supply Infrastructure Project that will be implemented to minimise potential impacts to trees as a result of the works. Although impacts are considered unlikely, the hierarchy also includes mitigation measures to be implemented in the event works may potentially impact Tree Protection Zones.</p> <p>In line with the requirements of EPR AR5, the value and duration of the bank guarantee or bond for trees to be retained and protected will be agreed with City of Melbourne and settled prior to commencement of works.</p>
Business (B)	B3 and B4	<p>The CEMP will contain measures to manage potential noise and air quality impacts associated with the construction works. The construction site will be managed in accordance with noise and air quality industry guidelines and standards, including EPA Noise Control Guidelines Publication 1254 and EPA Publication 480, Environmental Guidelines for Major Construction Sites. In the unlikely event that businesses may be impacted by the works, potentially impacted businesses would be notified and any complaints managed in accordance with the CSEMP. B4 is not relevant as Beon’s works are not occurring in a location where they might impact access to hospitals or key health and medical facilities.</p>
Contaminated Land and Spoil Management (C)	C1, C2 and C4	<p>As Beon’s works are predominantly surface works with the exception of trenching for cable connections, spoil generation is expected to be minimal and so a stand-alone Spoil Management Plan and an Acid Sulfate Soil and Rock Management Sub-Plan have not been prepared. The CEMP contains requirements for management of spoil in accordance with EPA requirements and hazardous materials, including for safe handling and storage of hazardous substances. As per response to EPR EMF2, Beon is consulting and will continue to consult with key stakeholders including CoM, Heritage Victoria, VicRoads, Melbourne Water, PTV/DEDJTR, and EPA Victoria regarding preparation of the CEMP. An OH&S Management Plan will also be prepared and implemented prior to construction works in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of WorkSafe and in consultation with EPA Victoria.</p>

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Cultural Heritage - Historical (CH)	CH4 to CH7, CH9, CH18 and CH23 to CH24	<p>All works will be carried out to avoid heritage places and tree protection zones as far as practicable. No trees will be removed and minimal works will be required in roadways and streets. Impacts to historical values as a result of construction works are not considered likely (see response to EPR CH2 and CH3). No ground movement is expected as a result of Beon’s works. CH4, CH5, CH18 and CH24 are therefore not relevant to Beon’s works.</p> <p>Heritage Victoria and City of Melbourne have been consulted to ensure all necessary consents, exemptions and permits are obtained prior to works commencing. This process has informed development of the CEMP and the associated heritage impact management considerations.</p> <p>The Tree Protection Plan and CEMP will contain measures to avoid, minimise and mitigate impacts on heritage fabric and trees. All works will be carried out in accordance with these plans and the conditions of the heritage permit required for the Domain substation. In addition, the CEMP contains a protocol for managing previously unidentified historical archaeological sites discovered during the project works, including ceasing works, implementing a buffer protection zone and notification to the relevant authorities.</p> <p>In the unlikely event that archaeological sites are to be disturbed, an archaeological investigation and management plan will be undertaken in accordance with <i>Heritage Act 1995</i> and the Guidelines for Investigating Historical Archaeological Artefacts and Sites. In the event impact does occur, reinstatement works will also be undertaken as soon as possible following construction works however; some reinstatement works will not be possible until after the Main Works for the Metro Tunnel are completed.</p> <p>Reinstatement will be done to original condition and to VicRoads specifications, except where explicitly agreed with MMRA, Heritage Victoria or the CoM. Any bluestone kerbing removed shall be reinstated to original condition. Surfaces or roads and footpaths shall be reinstated with asphalt as soon as practicable following the works. Beon shall undertake a site inspection following works to ensure reinstatement has been completed in line with Stakeholder’s expectations. Requirements for reinstatement will be implemented as per specifications to be agreed upon with Heritage Victoria and CoM.</p>
Flora and Fauna – Terrestrial (FF)	FF1 to FF3	No native vegetation or trees will be removed. The CEMP will include measures to avoid the spread or introduction of weeds and pathogens during construction.

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Ground Movement and Land Stability (GM)	GM3, GM5 and GM6	GM3, GM5 and GM6 are not relevant as Beon’s works predominantly involve surface works and trenching works associated with installation of temporary infrastructure and hence are not expected to result in ground movement.
Groundwater (GW)	GW4 and GW5	As Beon are not constructing tunnels or underground structures, changes to groundwater levels, flows or quality are not expected and so a Groundwater Disposal Strategy and groundwater monitoring plan have not been prepared. The CEMP will contain contingency measures to manage groundwater should it be encountered during works.
Land Use and Planning (LU)	LU1	<p>All works will be carried out in accordance with the CEMP. The CEMP will contain measures to minimise impacts on existing land use and amenity. Notifications will be issued, where required, in accordance with the CSEMP.</p> <p>Consultation has been undertaken by City of Melbourne with affected sport clubs and other formal users of the Edmund Herring Oval. The use of the Edmund Herring Memorial Oval and impact to affected sport clubs and other formal users of the recreational facility will be managed by MMRA via MMRA arrangements for relocation.</p> <p>The substations are temporary fixtures however the design and siting for the Domain substation at the Edmund Herring Memorial Oval has undergone a number of iterations – with consultation from CoM and OVGA – to minimise impact in this public space. The final siting of this substation was selected to:</p> <ul style="list-style-type: none"> •Not impinge on the Shrine Heritage site •Not impact on the Domain Road Heritage trees •Minimise the size and therefore footprint of this substation in line with all relevant standards & requirements. <p>An Urban Design Plan is being developed by Beon which will consider the design and construction of the temporary substation in the context of the UDS, which includes the requirement to manage construction in a manner which minimises and mitigates adverse impacts on existing land uses. Beon will engage with the UDAAP, the OVGA and the CoM for the Urban Design Plan.</p>

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Landscape and Visual (LV)	LV1, LV3 and LV4	<p>Beon has consulted with OVGA, CoM and HV during the preliminary design phase for the temporary substations. This included consideration of temporary landscape and other features or structures during construction to minimise impacts to visual amenity. Where possible, temporary visual amenity solutions and sustainability and reuse opportunities will be considered. The Urban Design Plan, which has been developed by Beon and is still being developed in consultation with key stakeholders, will guide amenity considerations for temporary landscape and other features or structures during construction. Beon has engaged with the UDAAP, the OVGA and the CoM on the Urban Design Plan and design outcomes for both substations.</p> <p>Potential lighting impacts have been considered in the design phase to minimise potential light spillage during the construction and operation of the temporary substations. In addition, construction works will occur within the times specified by MMRA and lighting at night will be sensor operated and for emergency maintenance works only.</p>
Noise and Vibration (NV)	NV1, NV4 to NV7, NV9 to NV11, NV13 and NV21	<p>Potential sources of noise and/or vibration will be minimised by the largely above ground construction works, prefabricated elements involved, location (i.e. in an industrial area or surrounded by open space) and scale of the proposed infrastructure. Works are not occurring in residential areas.</p> <p>The CEMP will contain measures to manage and mitigate noise and vibration impacts as a result of construction works in accordance with EPA Publication 1254 and AS/NZS 2107:2000. Noise and vibration modelling and pre-construction noise and vibration has not been undertaken as Beon considers the risk of noise and vibration impact to be minimal. This is based on Beon’s experience with similar works, and due to the location and scale of the proposed infrastructure, construction method and implementation of mitigation measures in the CEMP. Similarly, a stand-alone Construction Noise and Vibration Management Plan has not been prepared as the CEMP will include relevant construction noise and vibration measures for Beon’s works and will require compliance with the noise and vibration guideline targets.</p> <p>The CEMP has been developed in consultation with relevant key stakeholders during the preliminary design phase, with review by an independent auditor (as required by EMF2 and EMF3).</p> <p>The CSEMP contains requirements for notification of community stakeholders and land owners regarding any potential noise and vibration impacts and for management of complaints.</p>

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Social and Community (SC)	SC1 - SC4, SC6 to SC7 and SC10 to SC12	<p>SC1 and SC2 are not relevant to Beon’s works as residences will not be disrupted due to direct acquisition or temporary occupation.</p> <p>MMRA is responsible for developing a Community and Stakeholder Engagement Management Framework (CSEMF) as required by SC3 that outlines the principles and approach to advising potentially affected stakeholders of the construction activities across the Metro Tunnel Project. As per SC4, the Construction Power Supply Infrastructure Project CSEMP has been developed in accordance with Metro Tunnel Project CSEMF and will be updated as necessary during the delivery of the works.</p> <p>The CSEMP outlines Beon’s approach to the processes required to identify people, groups or organisations that could influence or be impacted by the project, to analyse stakeholder expectations and their influence on the project, and to develop appropriate management strategies for effectively engaging and informing stakeholders about project decisions and execution. A key aim of the plan will be to work with MMRA to ensure that communications are coordinated across the Arden and Domain precinct. Written notice provisions, where required, will be undertaken in accordance with MMRA notification timelines and process.</p> <p>Beon will continue to engage with City of Melbourne to understand, plan for and manage construction schedules during major public events that could impact or be impacted by the Construction Power Supply Infrastructure Project. It is expected the construction phase of the Construction Power Supply Infrastructure Project will be complete within approximately six months.</p> <p>The use of the Edmund Herring Memorial Oval and impact to affected sport clubs and other formal users of the recreational facility will be managed by MMRA via MMRA arrangements for relocation.</p> <p>MMRA will establish Community Reference Groups for all Metro Tunnel works. Beon will participate in the Domain and Arden Community Reference Groups once established in the manner to be nominated by MMRA. Any feedback from the Community Reference Groups will be communicated by Beon to the Construction Power Supply Infrastructure Project team for response and action as appropriate.</p>

TABLE 4: BEON RESPONSE TO CONSTRUCTION EPRS

Category	Construction EPRs	Beon Construction Power Supply Infrastructure Project Response
Surface Water (SW)	SW2	<p>Beon has consulted with City of Melbourne and Melbourne Water regarding surface water considerations for the substations and those bodies agree that the above ground design of the substation infrastructure is not expected to change the existing stormwater catchment characteristics in either precinct nor is it expected to impact on the existing flood risk. Flood modelling has not been undertaken for the temporary substation construction.</p> <p>The CEMP will require construction works to meet the EPR AE1 best practice performance objectives for achieving compliance with the SEPP (Waters of Victoria). The CEMP will include measures for managing stormwater quality such as (where relevant): vehicle wheel wash and rumble bars where required, appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring.</p>
Transport (T)	T1 to T6	<p>Beon will provide relevant information to the Metro Tunnel Traffic and Transport Working Group (TTWG) for review and feedback such as the construction approach and transport management measures to be implemented for the Construction Power Supply Infrastructure Project. This will include consideration of Barwise Street, Domain Road, the entrance to the Edmund Herring Memorial Oval and provision of a turnaround as well as construction truck routes (in particular avoidance of Miller Street, North Melbourne in relation to construction of the Arden substation).</p> <p>Beon will develop a Transport Management Plan (TMP) in consultation with MMRA and the TTWG. The TMP will outline the methodology to manage traffic hazards associated with the early preparatory works for the project and the project-specific activities that will be implemented to manage vehicle, pedestrian and cycling traffic throughout delivery of the Construction Power Supply Infrastructure Project. The TMP will provide the framework, plans and procedures for scenarios such as lane closure, potential routes for construction vehicles travelling to and from, parking options for construction workers, wayfinding signage for pedestrians (where necessary), and provision of routes for cyclists (where necessary). It will also contain provision for minimising impacts during Beon’s works to road transport, pedestrians and cyclists where these are in the vicinity of and may be impacted by construction of the substations.</p> <p>Where relevant, the TMP will recognise other Metro Tunnel Project works being undertaken by the Early Works Managing Contractor as well as any other projects being undertaken at the same time as and in close proximity to the Construction Power Supply Infrastructure Project.</p> <p>MMRA is responsible for developing and implementing a Travel Demand Management Strategy to manage the cumulative impacts of all Metro Tunnel works. Beon will support the Metro Tunnel Travel Demand Management Strategy where appropriate and relevant to the Construction Power Supply Infrastructure Project.</p>

APPENDIX A. SITE LAYOUT PLANS

NOTE – the following site layout plans are indicative pending detailed design.

ARDEN



PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

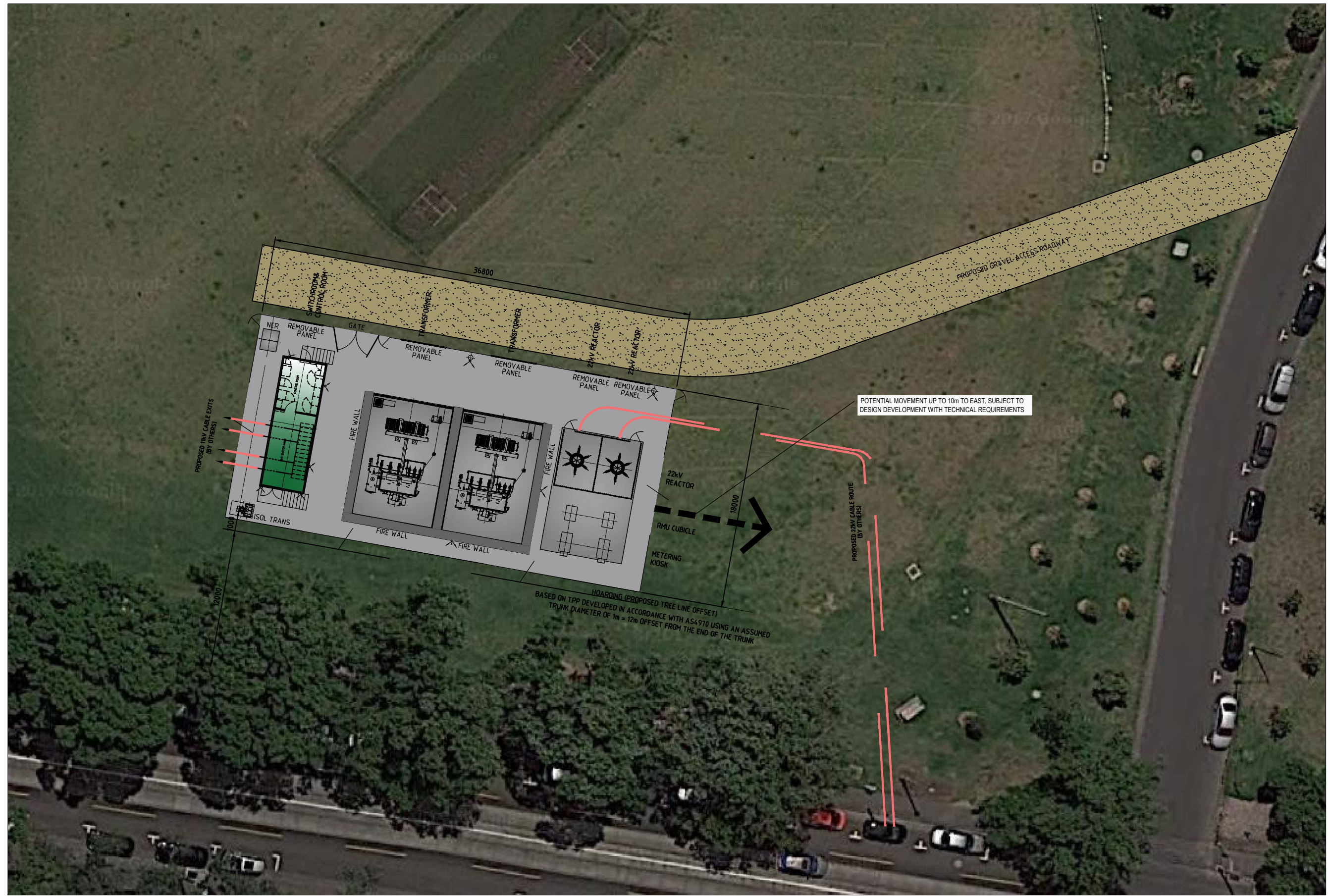
REFERENCE	
-	
-	
-	
-	
-	



SCALE 1:100 REVISION -

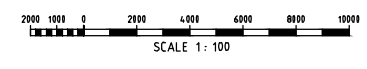
	DRAWING NUMBER ARD 104 3 -	SHEET 1 OF 1
	MELBOURNE METRO RAIL PROJECT 22/11kV SUBSTATION (ARDEN)	
SITE LAYOUT PLAN		
DRAWN	DRAFTING CHECK	DESIGNER
		DESIGN APPROVAL
		PROJECT MANAGER

DOMAIN



PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

REFERENCE	
-	
-	
-	
-	
-	



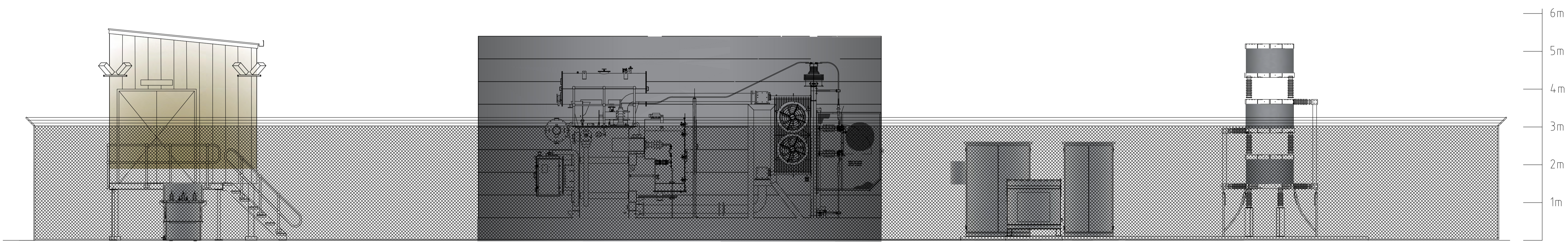
SCALE 1:100 REVISION -

	DRAWING NUMBER	DOM	104	3	-	SHEET 1 OF 1
	MELBOURNE METRO RAIL PROJECT 22/11kV SUBSTATION (DOMAIN)					
SITE LAYOUT PLAN						
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER		

APPENDIX B. SUPPORTING MATERIAL

NOTE – the following plans are indicative pending detailed design

ARDEN



NORTH ELEVATION

PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

SCALE 1:50

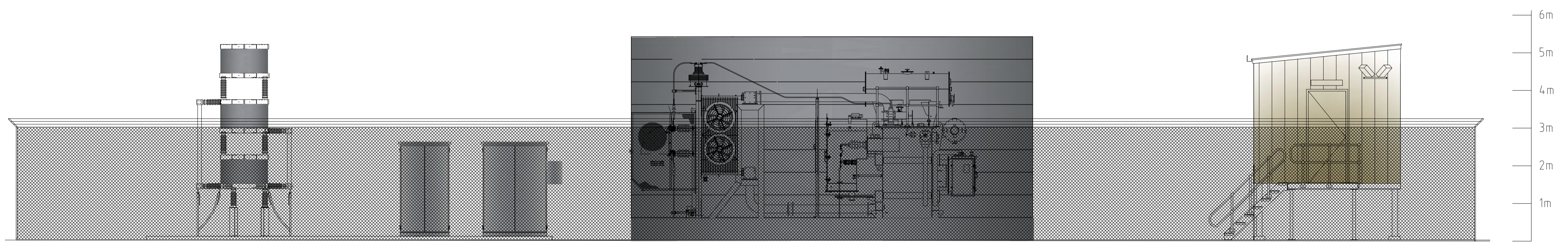
REVISION	-				
DRAWING NUMBER	ARD	104	4	4	-
ZONE SUBSTATION ARD - ARDEN NORTH ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER	



REFERENCE		

1 2 3 4 5 6 7 8 9 10 11

A
B
C
D
E
F
G



SOUTH ELEVATION

PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

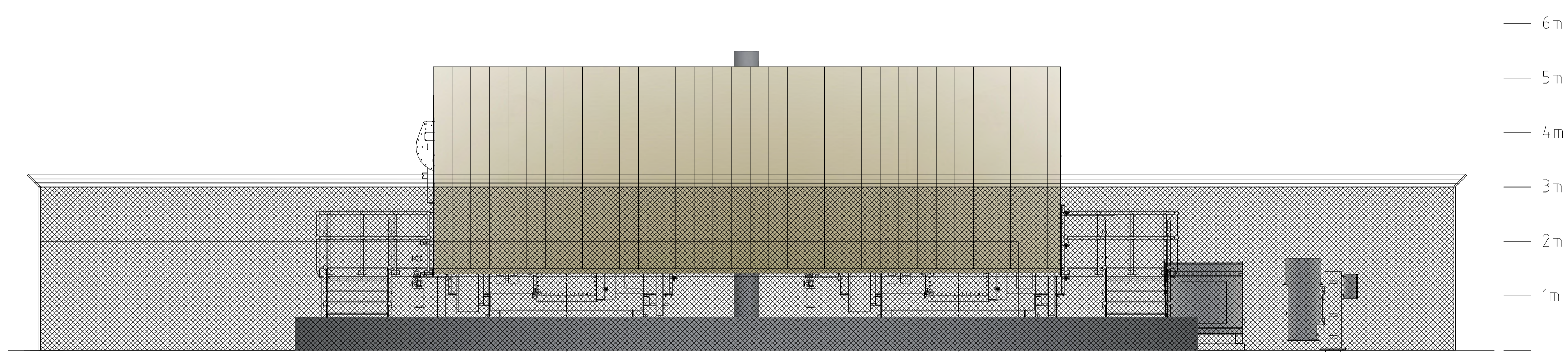
REFERENCE	
-	
-	
-	
-	
-	
-	

SCALE 1:50 REVISION -

	DRAWING NUMBER	ARD	104	4	3	-
	ZONESUBSTATION ARD - ARDEN SOUTH ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER		

1 2 3 4 5 6 7 8 9 10 11

A
B
C
D
E
F
G



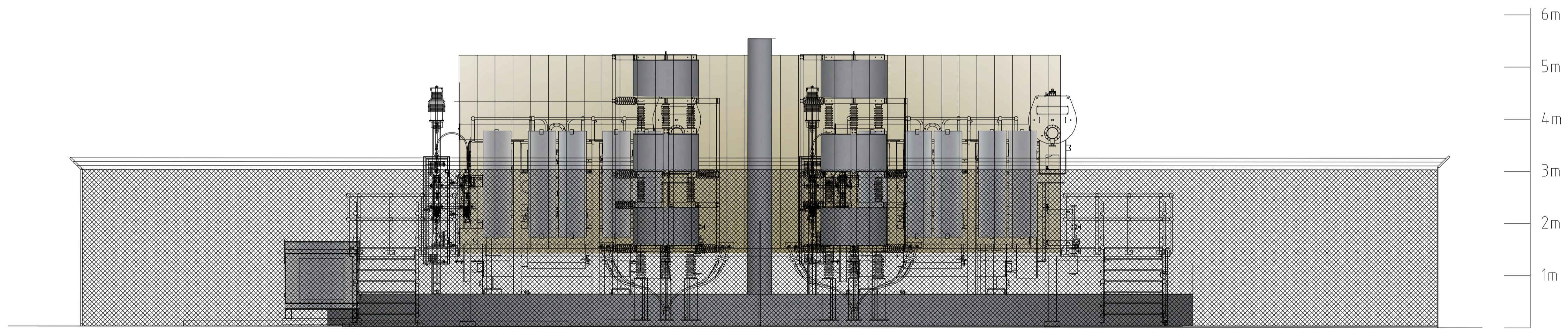
EAST ELEVATION

**PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION**

SCALE 1:50 REVISION -

REFERENCE	
-	
-	
-	
-	
-	
-	

	DRAWING NUMBER	ARD	104	4	1	-	
	ZONE SUBSTATION ARD - ARDEN EAST ELEVATION URBAN DESIGN & LANDSCAPE PLAN						
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER			



WEST ELEVATION

PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

REFERENCE	
-	
-	
-	
-	
-	
-	

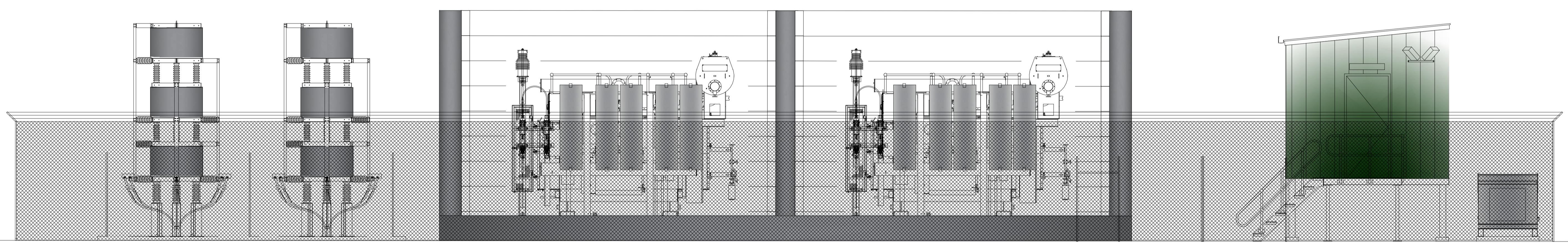
SCALE 1:50 REVISION -

	DRAWING NUMBER	ARD	104	4	2	-
	ZONE SUBSTATION ARD - ARDEN WEST ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER		

DOMAIN

1 2 3 4 5 6 7 8 9 10 11

A
B
C
D
E



NORTH ELEVATION

PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

SCALE 1:50 REVISION -

REFERENCE	
-	
-	
-	
-	
-	

	DRAWING NUMBER	DOM	104	4	2	-
	ZONE SUBSTATION DOM - DOMAIN NORTH ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER		

1 2 3 4 5 6 7 8 9 10 11

A

B

C

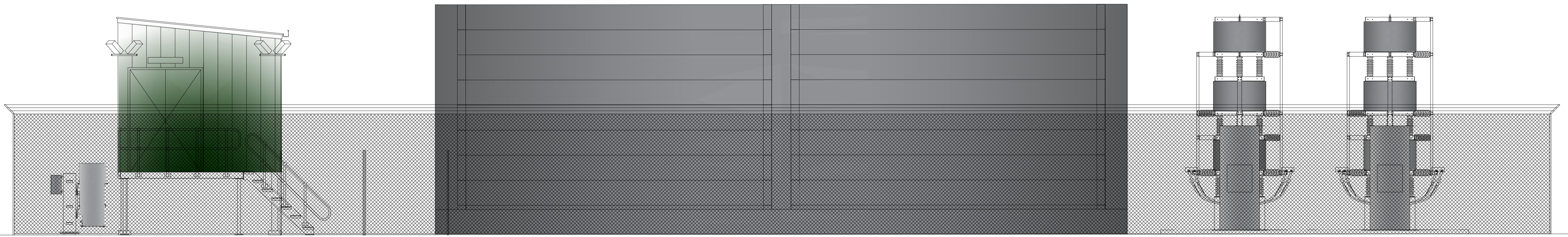
D

E

F

G

A1



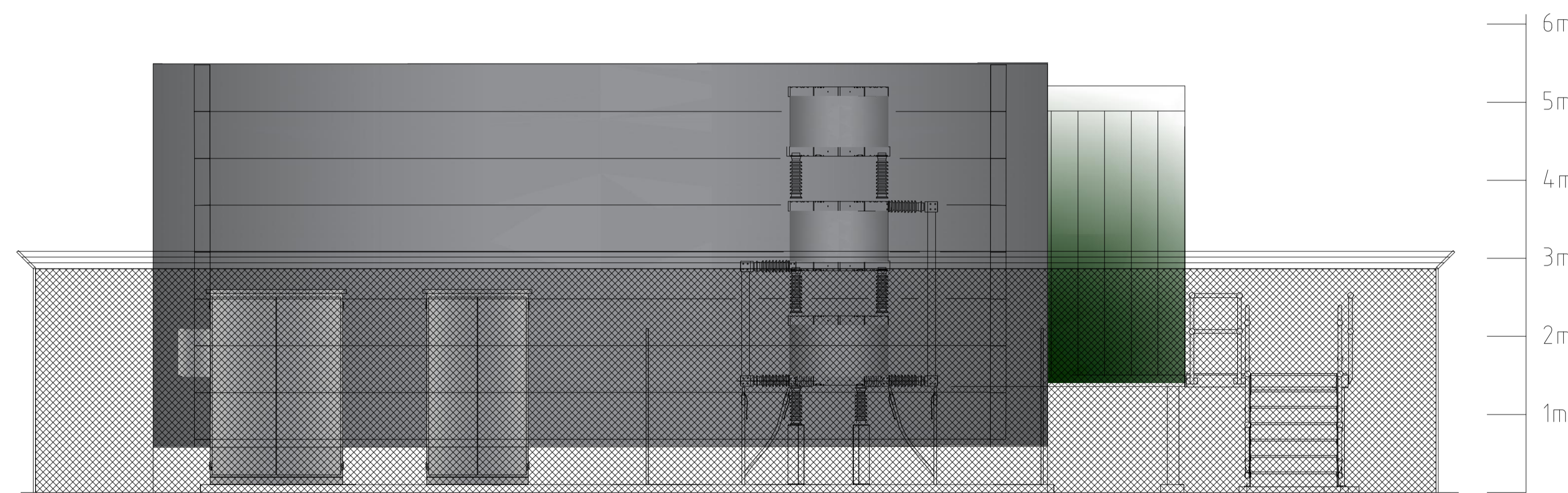
SOUTH ELEVATION

PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

SCALE 1:50 REVISION -

REFERENCE	
-	
-	
-	
-	
-	

	DRAWING NUMBER	DOM	104	4	4	-
	ZONE SUBSTATION DOM - DOMAIN SOUTH ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
	DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER	



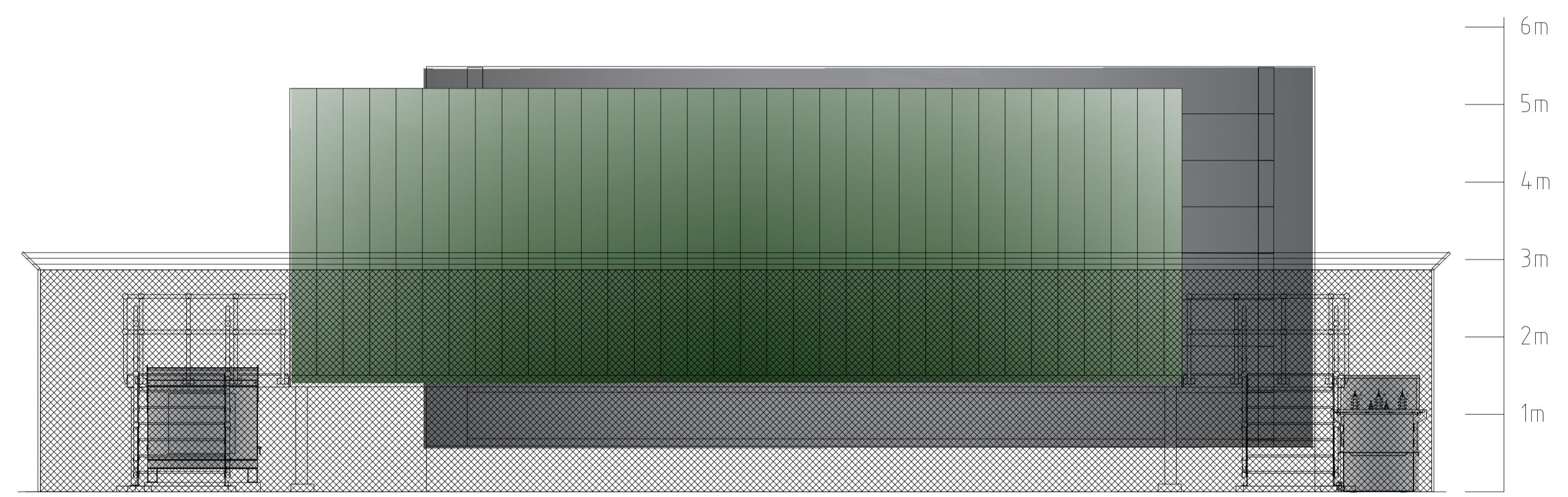
EAST ELEVATION

PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

SCALE 1:50 REVISION -


REFERENCE	

	DRAWING NUMBER	DOM	104	4	3	-
	ZONESUBSTATION DOM - DOMAIN EAST ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER		



WEST ELEVATION

**PRELIMINARY FOR INFORMATION ONLY
NOT FOR CONSTRUCTION**

SCALE 1:50	REVISION	-				
	DRAWING NUMBER	DOM	104	4	1	-
	ZONE SUBSTATION DOM - DOMAIN WEST ELEVATION URBAN DESIGN & LANDSCAPE PLAN					
	DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER	

REFERENCE	

