QUEENSLAND FLOODS
COMMISSION OF INQUIRY

STATEMENT OF DONALD JOHN RIVERS

I, **DONALD JOHN RIVERS,** of c/- Department of Public Works, 80 George Street, Brisbane in the State of Queensland, solemnly and sincerely affirm and declare:

Role and qualifications

1. I am the General Manager of Project Services, a business unit of the Department of Public Works ("DPW").

2. I hold a Diploma in Architecture (Queensland Institute of Technology) and a Graduate Diploma in Building Project Management (Queensland University of Technology).

3. I was appointed General Manager, Project Services on 17 May 2007. Prior to that, I held positions of Client Manager, Health, TAFE, Law & Order Portfolio, Project Services, DPW (commenced July 1999) and Director, Health, Law & Order Portfolio, Project Services, DPW (commenced August 2003).

4. As such, I have no personal knowledge of the matters raised in the Requirement dated 5 December 2011 issued by the Queensland Floods Commission of Inquiry ("Requirement").

Background

5. The Suncorp Stadium redevelopment commenced more than 10 years ago and involved multiple Queensland Government agencies, including the former Department of Communication and Information, Local Government, Planning and Sport (the Sport and Recreation Portfolio of which is now part of Department of Communities), the former Department of State Development incorporating the office of the Coordinator-General (the relevant part of that Department for the purposes of the Suncorp Stadium redevelopment is now part of the Department of Employment, Economic Development and Innovation) and DPW.

6. Based upon a review of the relevant documents which I have been able to obtain, I note that key personnel involved in the matters raised by the Commission, have left the employ of the Queensland Government. For example, the DPW officers who undertook the roles of Project Manager, [redacted] and Project Director, [redacted], for the Lang Park Redevelopment Project (the "Project") are no longer working with the Queensland Government.

7. Accordingly, the information that is provided in this statement is sourced from DPW's files and records which have been located in the short time available to respond to the Requirement.

[redacted]

8. It may be that there are further documents relevant to this Requirement, spread across the other agencies and departments referred to in paragraph 5 which have been through multiple machinery of government changes since the time of their involvement in the Project. I will arrange for enquiries to be made of those agencies in an endeavour to secure any further relevant documents. If any relevant documents are identified and made available to me, I will supply them to the Commission.

DPW's role in the Project

9. DPW's direct involvement in the Project did not commence until September 2000 when Project Services within DPW was engaged to carry out project management services for the Project. Project Services provided the Project Manager, Peter Teys. Prior to that time, DPW had been involved as a member of a stadium working group, which comprised representatives from a number of departments and agencies, which undertook preliminary planning studies that established the notional brief, budget and site for the Project.

10. From approximately May 2001, DPW's role in the Project was increased to include Project Director and Principal's Representative.

Requirement from Queensland Floods Commission of Inquiry

Items 1, 2 and 7

11. Items 1, 2 and 7 of the Requirement concern matters which were under the responsibility of other agencies or departments. Accordingly neither I nor any other officer of DPW is in a position to respond to these items.

Item 3. The Queensland Government's role in the selection of the final site of the Milton Zone Substation at Suncorp Stadium on the corner of Milton Road and Castlemaine Street, Milton ("the site").

12. The Lang Park Stadium Redevelopment Assessment Report ("Assessment Report") dated August 2000 was compiled by the Coordinator General, Department of State Development (Attachment **DR-1**). The purpose of the Assessment Report was to inform the Assessment Manager, Brisbane City Council, of the findings of the Coordinator-General on the Environmental Impact Statement ("EIS") prepared for the Project.

13. The Assessment Report states on page 17 that:

> *"There is a need to recognise future planning and infrastructure requirements for electricity supply as the Energex site fronting Milton Road is to be acquired to cater for the extension of the southern plaza. This site is strategically located in relation to a number of substations including the substations servicing the CBD and has potential for the development of a further major substation thereon.*
>
> *The future planning and infrastructure development requirements for meeting power supply demands in the region should be discussed with Energex during*

[redacted]

the detailed design stage of the stadium. This could relate principally to the design and siting issues involving the southern plaza."

14. Recommendation 13, set out in the Assessment Report, recommends that the proponent (which was the then Department of Communication and Information, Local Government, Planning and Sport) discuss with Energex, relocating the originally intended electricity supply infrastructure for the property currently owned by Energex fronting Milton Road (and to be acquired for the stadium) to an alternative location within the redevelopment.

15. By facsimile dated 15 January 2001, the Project Manager advised Energex that the northern and southern plaza options had been reviewed with the consultant team. Documents indicate that the Project Manager advised that the northern plaza option was considered unworkable mainly to do with problems identified in the EIS; that is, the problem related to putting a facility like the large substation closer to the residential area than it would be if it were in the south. The Project Manager identified issues related to increasing work related traffic and the noise generated by the substation. The Project Manager advised that the southern end had already been recognised as a substation site. The Project Manager also advised that he understood the technical considerations from Energex's point of view made the northern site more attractive. (Attachment **DR-2**)

16. In the same facsimile, the Project Manager also advised Energex that the 81 metres x 15 metres footprint requested by Energex in the southern plaza could be provided. The Project Manager advised that he was keen to get a copy of Energex's volumetric space requirements so that he could work with the consultant team and secure agreement on Energex's area.

17. By facsimile dated 26 February 2001, the Project Manager advised Energex that he could not see an alternative for Energex to the "South Plaza" option and advised that with the imminent approval of the "Stadium project", it was important that Energex be in a position to move forward quickly. The Project Manager advised that there was certain flexibility as to how Energex may be accommodated in the southern plaza and looked forward to discussing options in the near future. (Attachment **DR-3**)

18. By email dated 9 May 2001, the Project Manager advised Energex that the southern plaza was likely to be reduced so that the Energex substation facility would be a standalone facility without the plaza being built over the top. The Project Manager sought advice from Energex on which direction they were going "in delivering this facility". (Attachment **DR-4**)

19. On 30 May 2001, the Project Manager advised Sinclair Knight Merz (environmental planning consultant) that Energex was definitely coming into the southern plaza as shown on the Developed Design plans and that the Department of State Development had agreed to grant Energex a 99 year lease on a volumetric basis. (Attachment **DR-5**)

20. By memorandum dated 10 July 2001, the Project Manager advised the Department of State Development that the current situation was that a site for the Energex facility had been allocated in the southern plaza and that DPW had

received concept plans from Energex as to what they required. The memorandum also stated that there seemed to be a need for agreement between the Queensland Government and Energex on a number of matters including the tenure of the proposed site. (Attachment **DR-6**)

21. On 24 September 2001, the Project Manager advised Energex via email (Attachment **DR-7**), amongst other things, that his understanding of the current situation was as follows:

    - Energex's intended site in Chippendall Street was removed from Energex's control and was to be incorporated into infrastructure works for the new stadium development.
    - Energex had been allocated a site on Castlemaine Street within the Lang Park Redevelopment precinct.
    - Energex examined various alternative sites and elected to take the offer of the Castlemaine Street site.
    - Energex requested the Stadium team design and construct the substation shell on behalf of Energex prior to fitout by Energex.
    - Energex provided the brief including sketch layouts of what was required.

Item 4. The consideration given to alternative sites for the substation, either within the Suncorp Stadium precinct or elsewhere, and the reasons for discounting these sites.

22. I have already referred to alternative sites as part of my response to the preceeding item, but supplement this issue as follows.

23. On 30 November 2000, Connell Wagner, the electrical consultant recorded minutes of a meeting with Energex and other parties (Attachment **DR-8**). The draft minutes provided :

    "2.0 Energex advise the proposed location 110/11kV Milton Zone Substation. Current location, under the southern Plaza adjacent Castlemaine Street, has technical limitations including restricted cable access and clash with existing 110kV cables...
    2.1... Meeting agreed to investigate possible other sites in the Castlemaine, Black, Cordova Streets area, noting that whilst it would be preferable to be adjacent the existing cable locations, a short diversion would be acceptable".

24. On 3 January 2001, HOK Sport, the architect, advised that further to the Project Manager's request they had examined the possible location of the Energex substation facility onto the northern plaza with the most likely position at the north west corner with a service access from Castlemaine Street (Attachment **DR-9**). HOK Sport further advised that:

    "...Irrespective of the elevation treatments it would be impossible to mask the significant mass of such a building. The massing impact would be oppressive and would totally overpower the Plaza and the surrounding buildings and the Streetscape without any opportunity for relief to building. The demand for volume as well as footprint for this facility does not allow for a creative solution to such a large problem. Additional issues regarding the operational

noise levels and the requirement to ventilate to natural air would also preclude this location when the EIS conditions in relation to noise control are applied. We recommend that no further consideration be given to this location as a possible site for the Substation as it is totally unsuitable and its impact upon the surrounding residential area and the Northern Plaza is totally unacceptable."

25. By letter dated 17 January 2001(Attachment **DR-10)**, Energex responded, and relevantly advised that the southern plaza location had "potential" to be "suitable".

26. Records reveal that Energex did not agree with the consultant's assessment as to the look and amenity of locating their site at the northern part of the precinct, close to residential areas. (Attachment **DR-10 above and DR-11).**

27. By facsimile dated 26 February 2001(Attachment **DR-3)**, the Project Manager advised Energex that:

"I have spoken to Public Works (QBuild) regarding their property in Cribb Street and they advise that this is a strategic property as a Works Depot with a long term future... I see no alternative for Energex to the South Plaza option mentioned in my fax. With the imminent approval of the Stadium project, it is important that Energex be in a position to move quickly."

28. By email dated 15 March 2001(Attachment **DR-12)**, Energex advised the Project Manager that they were awaiting advice about Cribb Street.

29. By email dated 18 September 2001(Attachment **DR-13)**, the Project Manager provided the Department of State Development with a background as to why the proposed location for the substation on Castlemaine Street was the best possible location.

30. In the email dated 18 September 2001, the Project Manager advised the Department of State Development that:

"...In preparation for construction of their substation in Chippendall Street, Energex have constructed a cable tunnel under the Konica carpark and have already run 110kV cables from various locations to this vicinity. Energex advised us that every 100 metres that the substation was moved from its originally proposed location would cost an additional $1.5 million. The currently proposed site is on the corner of Castlemaine and Chippendall Streets and utilises the existing service tunnel as well as being immediately adjacent to existing in-ground cables.

Despite the additional cost, an option was examined in the North Plaza on Castlemaine Street and this was rejected for EIS reasons (noise and industrial impact) in that the site was immediately adjacent to residential areas. Other sites in the industrial properties along Castlemaine Street were considered but their financial viability could not compare with the current site that was already under the control of the Government.

[redacted]

Paul Davis (Energex Property Manager) advised that Energex had explored other options in the local area but his Board rejected these as being too expensive compared to the current site. I am aware that negotiations took place to buy the Public Works Depot on Cribb Street but again the purchase price of the land and cost of additional cable runs proved cost prohibitive."

Item 5. The reasons for the site being selected.

31. I have already referred to this issue as part of my responses to the preceeding items, but supplement this issue as follows.

32. By facsimile dated 15 January 2001, the Project Manager advised Energex that the northern and southern plaza options had been reviewed with the consultant team. The Project Manager advised that the northern plaza option was considered unworkable mainly to do with the problems identified within the EIS. As identified in the previous response, the Project Manager advised that the problem related to putting a facility like the large substation closer to the residential area than it would be if it were in the south. The Project Manager identified that the issues related to increasing work related traffic and the noise generated by the substation and noted that the southern end however, had already been recognised as a substation site. (Attachment **DR-2**)

33. I refer to attachments **DR-3** and **DR-11** which refer to this issue.

34. As stated above, by email dated 18 September 2001 (Attachment **DR-13**) the Project Manager provided the Department of State Development with background information as to why the proposed location for the substation on Castlemaine Street was the best possible location.

35. In that email (18 September 2001), the Project Manager stated amongst other things that Energex advised that the Energex Board had rejected other sites as being too expensive compared to the current site.

Item 6. The flood risk information for the site that was known, or taken into account, when selecting the site or granting approval for the development of the substation.

36. I am aware that the EIS for the Project identified flooding in respect of the broader site of the redevelopment as an issue to be considered in progressing the Project.

37. By memorandum dated 18 January 2001, (Attachment **DR-11**) Energex advised the Project Manager that the proposed southern plaza site was well below the Q100 predicted flood level creating problems in housing sensitive and expensive equipment above that level. Energex advised the Project Manager that the Brisbane City Council had advised it that "...given the value of the infrastructure being considered it may be appropriate to assign a greater flood immunity than that provided by the design Q100 flood level". Energex also advised:

"Given the disadvantages of the southern site, such as flood susceptibility and difficult cable access, ENERGEX still favours the northern site. However, a new substation layout based on the parameters you have suggested for the

southern site is being designed now. To consider the effect of the southern site on the 110kV and 11kV cables, we need to consider details of existing infrastructure and property boundaries, proposed property boundaries and proposed foundations for the plaza, bus station and substation..."

38. Apart from the documents referred to in paragraphs 36 and 37 above, I have been unable to locate any documents which show the level of flood risk information that was known in relation to the substation site or the extent to which flood risk information was taken into account in the selection of the substation site.

Item 8. Energex's role in the development of the substation at the site.

39. I am aware that Energex prepared the Design Brief for the Milton Substation. (Attachment **DR-14**).

40. I am also aware that Energex engaged Project Services to, through the Managing Contractor (Lang Park Redevelopment Joint Venture consisting of Multiplex Constructions Pty Ltd and Watpac Australia Pty Ltd), design, document and construct the substation works.

41. I am advised the Managing Contractor completed the construction of the substation in accordance with Energex's requirements and then Energex provided the fitout of the substation. There was regular involvement between Energex and the Managing Contractor throughout the design and construction stages to ensure that the Managing Contractor delivered the substation in accordance with Energex's requirements.

I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867*.

Signed [redacted]

Taken and declared before me, at Brisbane this 12th day of December 2011

[redacted]

Solicitor/~~Barrister~~/~~Justice~~ of the Peace/Commissioner for Declarations

[redacted]

LANG PARK STADIUM REDEVELOPMENT

ASSESSMENT REPORT

by

THE COORDINATOR-GENERAL

August 2000

Compiled by the Department of State Development

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1. INTRODUCTION

Lang Park was declared a "significant project" on 16 December 1999. The purpose of this Assessment Report is to inform the Assessment Manager, the Brisbane City Council (BCC), of the findings of the Coordinator-General on the Environmental Impact Statement (EIS) prepared for the proposed redevelopment of the Lang Park Stadium.

This report examines the proposed development, outlines the EIS process followed, discusses the more significant issues addressed in the EIS, summarises the strategies and actions arising out of its findings, considers the necessary development approvals and licences identified and advises the Concurrence Agency conditions applicable to the development as determined by the Coordinator-General. A favourable Coordinator-General's Report will permit the project to proceed through to the *Integrated Planning Act 1997 (IPA)* process.

Lang Park was chosen by the Queensland Government on 31 August 1999 as its preferred site for the development of a rectangular pitch stadium. The provision of an international standard stadium has been a recognised priority of successive Queensland Governments and the BCC in recent years.

The redevelopment of the existing Lang Park Stadium is contingent on a number of factors including the successful completion of major planning studies, an Environmental Impact Statement (EIS) under the provisions of section 29 of the *State Development and Public Works Organisation Act 1971 (SDPWOA)* and development approval under the *IPA* and other relevant legislation. Final approval by the Queensland Government will be conditional on hiring agreements with major tenants.

Within the Queensland Government, the Department of Communication and Information, Local Government, Planning and Sport (DCILGPS) is the project manager of the impact assessment and other studies and the proponent for the project. The Lang Park Trust will be the applicant for the purpose of the approvals required. The Department of State Development coordinated the preparation of the EIS for the project on behalf of the Coordinator-General.

As the project has been declared a "significant project" under S29B of the *SDPWOA* by the Coordinator-General, the EIS and associated public consultation will satisfy part of the statutory requirements for development approvals required under the *IPA*.

Further public consultation will not apply to any future development application requiring impact assessment for this project. Any properly made submission received on the draft EIS will be considered a properly made submission for any future development application that requires impact assessment under the *IPA*.

If the project is to proceed, the Lang Park Trust will seek the relevant development approvals from the BCC in accordance with the requirements of the *IPA*.

This report is based on the following documentation lodged by the DCILGPS:

- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 1 (Executive Summary), prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 2 (Introduction, Description of Project, Alternatives to Proposal) prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 3 (Planning Context, Existing Environment), prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 4 (Environmental Impacts, Transport Impacts), prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 5 (Consultation, Mitigation & Management Plans, Approvals & Licencing), prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 6 (Conclusions, Appendices – A Terms of Reference & B Study Team), prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Draft Environmental Impact Statement, Volume 7 (Technical Appendices), prepared by Sinclair Knight Merz (May 2000).
- Lang Park Stadium Proposal Review, Environmental Impact Statement, Volume 8 (Addendum Report) prepared by Sinclair Knight Merz (July 2000).

2. BACKGROUND

2.1 Existing facility

Lang Park is a cultural icon of long standing as the "home of rugby league" in Queensland. Since the commencement of the lease to the Queensland Rugby League in the mid 1950s, Lang Park has undergone a series of transformations with the objective of providing a high quality ground dedicated to the game of rugby league.

Lang Park is known nationally and internationally as a venue for rectangular pitch football games, such as rugby league, rugby union and soccer. The existing stadium at Lang Park has a capacity of approximately 42,000 patrons and in recent years, capacity crowds have only attended Lang Park for major events such as the State of Origin interstate rugby league matches and recent rugby union internationals.

The existing Lang Park Stadium is inadequate for staging major sporting events involving a large crowd. Even with a small crowd of less than 10,000 (eg Rugby 7s), the impacts on the local residential area are still significant. If the existing Lang Park Stadium was to increase its events schedule with the inclusion of additional major events, the impacts on the immediate residential areas would be severe.

2.2 Project need

In 1997, the Queensland Government determined that there was a need for a world class stadium for rectangular pitch sporting events in Brisbane to complement the redevelopment of "The Gabba" cricket ground. Upon completion of a site selection process in 1999, Lang Park was selected as the preferred site.

The EIS was conducted concurrently with a number of related investigations to assist the Queensland Government in making its final decision on the acceptance of this project including:

- transport strategy;
- commercial analysis and feasibility; and
- master planning and concept design analysis.

Lang Park is to be a part of a broader strategy that will:

- complement the Queensland Government's City West vision;
- provide a focus for a sports and entertainment precinct to operate 7 days per week; and
- provide a venue which will enhance Queensland's major events strategy.

The Stadium proposal will also assist the State Government's Integrated Regional Transport Plan aimed at reducing the public's reliance on private transport.

3. PROJECT DESCRIPTION

3.1 Site Location

The existing Suncorp-Metway Stadium (Lang Park) is on a site bounded by Hale Street, Caxton Street, Castlemaine Street and Chippendall Street. The site is in close proximity to the Brisbane CBD.

3.2 The design/development concept

The development concept considered in the EIS proposes that the stadium will be developed into a world class rectangular pitch with high quality public spectator facilities and seating for 52,500 patrons, excluding media, management and disabled patrons and their carers. It is to provide a fully enclosed seating bowl in three main tiers, supported by six internal levels within the building.

The proposal involves retaining the existing western grandstand and replacing the northern, eastern and southern facilities with a new continuous grandstand around the field to connect with the western stand. The stadium is to have at least 80% roof coverage with design provision for a future closing roof.

Two pedestrian plazas (northern and southern ends) are planned with concourses linked to dedicated pedestrian walkways to the CBD and Roma Street Station via Milton Road, Petrie Terrace and the rail corridor to the north of Roma Street, and via Caxton Street, Petrie Terrace and the rail corridor. These facilities are to provide all hours pedestrian movement through the precinct.

3.3 Public transport strategy

Maximising public transport and pedestrian access and circulation is a strategic priority. Consideration has been given to a range of new public transport infrastructure developments together with improved pedestrian facilities, based on the objectives outlined in the State Government's Integrated Regional Transport Plan.

The EIS and the consultation processes undertaken discussed the possible extension of light rail to service the stadium and also provided for a scenario of light rail not proceeding. This approach proved to be advantageous as the Queensland Government has recently announced a decision to defer the development of the Brisbane Light Rail Project.

Heavy rail is to be promoted as the major mode of travel to/from the stadium, potentially catering for 44% of patrons. Other modes of transport are to include special shuttle bus services, taxis and charter coaches. Service promotion initiatives are to include integrated event and public transport ticketing, pre-event publicity, parking restrictions around Lang Park and pre-event public education regarding public transport options and services. On-site car parking in the stadium is to be restricted in keeping with the public transport strategy.

The Queensland Government has accepted a number of project modifications (which had already been addressed in the EIS) to improve the overall performance of the proposal and greatly assist in mitigating the key impacts. These modifications include:

- a larger southern pedestrian plaza extending over Chippendall Street and the land between Chippendall Street and Milton Road;
- a larger integrated transport station to be situated under the southern pedestrian plaza, on land bounded by Chippendall, Hale and Castlemaine Streets and Milton Road; and
- direct flow pedestrian access from the enlarged southern pedestrian plaza to a walkway to Milton Station.

A further modification (also discussed in the EIS) involves the creation of a pedestrian plaza and public space on land situated between Petrie Terrace and the railway corridor to the south-east of the former Police Barracks, including the Hogs Breath Café. This modification is being examined along with other issues concerning the pedestrian walkways and are discussed later in this report.

3.4 Stadium usage

The anticipated events schedule for the proposed stadium is as follows:

Events	Frequency	Crowd Size
National Rugby League fixtures	13 per annum	25,000 – 35,000
State of Origin Rugby League	1 – 2 per annum	45,000 – 52,500
Rugby League international match	1 per annum	45,000 – 52,500
Rugby Union Super 12 fixtures	6 per annum	25,000 – 35,000
Rugby Union international match	1 – 2 per annum	35,000 – 45,000
Major cultural event	1 per 2 – 3 years	15,000 – 25,000
Other major cultural events	3 per annum	10,000 – 15,000

The stadium is to have the capacity to hold large-scale entertainment and public events. The stadium's corporate facilities may host small conferences and hospitality functions outside of the major event times.

Potential exists for the Stadium to be developed as an integrated community sport and recreation facility accommodating existing facilities (i.e. Ozsports and PCYC) and the beach volleyball courts adjacent to Sports House.

3.5 Project timing

If the proposal is to proceed, development approvals (refer to Attachment 4) are proposed to be sought from BCC as soon as practicable in 2000 with construction proposed to start in early 2001 and proceed over a 24 month period.

4. THE EIS PROCESS

The EIS was prepared in accordance with the *SDPWOA*. The project was declared a significant project under S29B and appropriate gazette notices were made. Accordingly, the Department of State Development was responsible for the coordination of the impact assessment process.

Draft Terms of Reference (TOR) for the EIS were made available to the community for comment from 30 November 1999 until 15 February 2000. During this preliminary stage, consultants were engaged to:

(a) assist the community to understand the nature of the proposal and assessment processes so that they could respond to the draft TOR for the EIS;

(b) identify all stakeholders and their respective concerns and suggestions and feed this information into the preliminary studies being conducted; and

(c) identify appropriate ways to consult with the community in the subsequent stages of the process.

A total of 100 submissions on the draft TOR were received from individuals, community groups, local businesses, Government agencies and the BCC. All submissions were considered in finalising the TOR which was approved by the Coordinator-General on 7 March 2000.

4.1 Preparation of EIS

The preliminary draft of the EIS was submitted to the Department of State Development on 9 May 2000. The preliminary draft EIS was assessed by the Coordinator-General and was found to adequately address the TOR. The draft EIS was subsequently released for public comment.

4.2 Public notification of EIS

The draft EIS was advertised in the *Courier Mail* on 15 May 2000 and the local *Westside News* on 17 May 2000 for public comment. Summary documentation on the proposal and a copy of the advertisement was placed on the Internet sites of the Department of State Development and the Department of Communication and Information, Local Government, Planning and Sport. All documentation was made available at no cost to the public. The public comment period closed on 26 June 2000. The proponent has complied with the process outlined in the *SDPWOA*.

4.3 Making submissions on EIS

During the submission period, 54 submissions were received. Of those, 46 were considered properly made submissions and 8 did not conform to the requirements outlined in the advertisement (see Attachment 3). All public submissions made on the draft EIS have been appropriately addressed in Volume 8 (EIS Addendum). It should be noted that only properly made submissions retain 3rd party appeal rights under the *IPA* should an application for impact assessment be lodged with BCC.

5. PROJECT IMPACTS

The project impacts described in the EIS documentation and the comments received thereon have raised many and varied issues. For the purposes of this report, these issues have been collated under generic headings reflective of their principal focus.

ONLY IN SITUATIONS WHERE IMPACTS ARE REGARDED AS BEING INSUFFICIENTLY MITIGATED OR WHERE FURTHER DETAILED DESIGN WORK IS REQUIRED, RECOMMENDATIONS HAVE BEEN MADE (REFER ATTACHMENT 1) OR CONCURRENCE AGENCY DEVELOPMENT CONDITIONS ESTABLISHED (REFER ATTACHMENT 2) BY THE COORDINATOR-GENERAL AS PART OF THE EVALUATION PROCESS.

This report uses certain terminologies in making recommendations and determining development conditions. The following information has been provided to assist in understanding these terminologies and their importance in progressing this development proposal.

Construction and Operation Environment Management Plans

Construction and Operation Environment Management Plans will need to be developed by the proponent to facilitate compliance of the project with the conditions of the development approval under the *IPA* and other environmental management approvals under relevant legislation, in particular the *Environmental Protection Act 1994*. This requirement is reflected in the Development Conditions attached to this report.

These plans will need to be approved by the relevant Agencies (principally the Environmental Protection Agency) prior to the commencement of both construction and operation activities. Recommendations have been made in the following sections of this report on the inclusion of impact mitigation strategies within the Construction and Operation Environment Management Plans.

Development Condition No3. refers to the need for the proponent to prepare a Site Management Plan (SMP). A SMP is a document recognised in the *Environmental Protection Act 1994* to deal specifically with the matters of managing contaminated land. The SMP in this instance could form part of the Construction Environment Management Plan mentioned above.

Liaison and Advisory Groups

It is concluded that there is an ongoing need to continue with community consultation through the establishment of both a Community Liaison Group and a Stadium Management Advisory Committee.

It is strongly suggested that the Community Liaison Group should:

- be representative of all views, interests and concerns in the local area;
- have a committee of about 5 members who are elected and are representative of those views etc;
- be formally incorporated in order for it to receive funds;
- be involved in any monitoring programs on operational matters; and
- receive support from Stadium Management for the maintenance of committee functions.

The functions of the Community Liaison Group would include meeting with stadium management on a regular basis in order to identify particular issues, discuss possible mitigation measures, monitor new initiatives, and to "debrief" after particular events.

The proposed Stadium Management Advisory Committee should be structured to provide effective stakeholder coverage in the ongoing development of the stadium. Its membership should include (but not be restricted to) representation from:

- City Police;
- BCC;
- Emergency Services;
- major user groups (eg QRL, QRU, ARU, ARL);
- a residents' association;
- a local business association;
- a member of the Community Liaison Group; as well as
- stadium management.

The function of the Stadium Management Advisory Committee would be to:

- assist in monitoring the effects of the construction phase on local residents;
- advise on the development of management plans as identified in the EIS;
- contribute to monitoring and evaluating the effectiveness of these management plans and recommend appropriate changes;
- advise on the coordination of local arrangements for Stadium events; and
- advance and promote other matters of mutual interest pertaining to stadium management including interpretation of hospitality management with local licensed venues.

Recommendation 1: That the proponent establish a Community Liaison Group and a Stadium Management Advisory Committee, prior to the commencement of demolition works.

5.1 Land Acquisitions

Land will need to be acquired to accommodate the southern plaza and pedestrian walkways following the Queensland Government's decision that the enhanced mitigation proposal is to proceed. Such acquisitions will also include "air rights" for pedestrian links over Hale Street, Chippendall Street and Milton Road.

Recommendation 2: That the proponent undertake to determine the appropriate legislation to acquire the identified properties and air rights in consultation with the Department of Natural Resources.

NOTE: Other issues affecting State land have been identified by the Department of Natural Resources. The Development Conditions attaching to this report address these issues.

5.2 Planning Issues

The Lang Park re-development is subject to the Brisbane Town Plan 1987. The site is zoned "Sport and Recreation", "Particular Development 92 – in accordance with the Lang Park Trust Act", "Service Trades", "Special Uses (Utility Installation)" and "Particular Development 52 – District Nurses Home". The proposed use of the stadium would be considered as "commercial outdoor sport and recreation", which is subject to an "impact assessable" development application.

Impact assessment confers appeal rights on third parties who have lodged "properly made submissions" to this EIS in respect of those components of the application requiring such assessment.

It is anticipated that the Brisbane City Plan 2000, a new IPA planning scheme, will come into effect in October 2000. The proposed planning scheme identifies the site as "Special Purpose Centres – Major Sporting Stadium" area. It is concluded the proposed use, as a major sports stadium, would be consistent under the Brisbane City Plan 2000 with the future planning intent for the site.

Under the Brisbane City Plan 2000, the proposed development would be subject to a "code assessable" development application. An application subject to code assessment does not confer appeal rights on third parties.

5.3 Noise and Vibration

The EIS concludes that noise levels at the source of earthmoving equipment used during construction would be above background levels. However, the consultants evaluation indicates that for nearby residents this construction noise will be below background levels. The noise impacts for nearby residents will be greatest during "out of hours" construction work.

It is concluded that the enclosed design of the stadium should assist in reducing noise impacts during events below those currently experienced by local residents and businesses. The walkways leading patrons to Milton Station, Roma Street or bus pick-up zones should also mitigate pedestrian noise as these walkways are to be located away from residential zones. Minimal noise impacts are expected from the public transport station located at the southern end of the stadium. Short-term noise impacts are anticipated from any access to the site by emergency helicopters.

NOTE: Noise, vibration and hours of operation issues have been identified by the Environmental Protection Agency. The Development Conditions attaching to this report address these issues.

5.3.1 Fireworks

The noise and smoke from fireworks will potentially impact on the residential areas surrounding Lang Park. The use, frequency and duration of fireworks is an operational issue that will need to be managed by the proponent in consultation with the Community Liaison Group.

The Community Liaison Group is also to be informed of the event schedule for fireworks and other forms of entertainment to ensure that this information is disseminated across the local community.

Recommendation 3: That the Operation Environment Management Plan manage the use of fireworks, provide for the impacts to be monitored and if there are adverse impacts that the Stadium Management Advisory Committee in consultation with the Community Liaison Group develop strategies to minimise those impacts.

5.4 Air Quality

The EIS concludes that the only likely operational air quality impact expected is fumes from long distance coaches stored in the non-residential areas immediately to the west of the stadium. This could be alleviated by requesting the drivers of these coaches to delay the starting of the motors for as long as possible.

Air and wind are to be monitored for certain activities and local residents advised of the findings.

Recommendation 4: That the Operation Environmental Management Plan incorporate a strategy for the delayed starting of long distance coach motors and that it also, together with the Construction Environment Management Plan, monitor air quality and establish appropriate mitigation strategies.

5.4.1 Dust Suppression

The EIS suggests that standard construction techniques of watering and truck baths are proposed to be used to minimise dust as a result of the construction work undertaken.

Recommendation 5: That the Construction Environment Management Plan address dust suppression strategies.

5.5 Flora and Fauna

The EIS concludes that as the area surrounding Lang Park is highly developed, there is a mix of native and exotic flora. Flora on Lang Park itself includes planted trees and shrubs commonly found in the area. There are two fig trees adjacent to the north-west corner of the stadium which are estimated to be in excess of 40 years old but are not covered by a vegetation protection order issued by the BCC.

The EIS identified that the Neal Macrossan Playground has a number of trees covered by a vegetation protection order issued by the BCC including small leafed fig, Queensland blue gum and hoop pine. The Baroona School on Milton Road contains some well established fig and frangipanni trees of cultural heritage value.

In the course of preparing the EIS, nineteen bird species were observed in and around the Lang Park area, none of which are listed in conservation agreements or conventions. According to Queensland Museum and Wildnet data, although not observed, flying foxes, gliders, bandicoots and possums are expected in the vicinity of the site. The above fauna species are typically found in urban Brisbane.

The EIS reports that the areas of greatest flora and fauna impact are expected to be in the grounds of Baroona Special School as one of the pedestrian walkways is to be constructed along the Milton Road side of that facility. All vegetation in Lang Park itself is to be removed with the exception of the fig trees identified in the north western corner which are to be relocated to the northern pedestrian plaza. As a result, the EIS suggests that some fauna species should be able to relocate but the ability of some less mobile species including reptiles, smaller mammals and amphibians to successfully locate new areas of habitat is likely to be limited.

To avoid damage to important vegetation in Milton Road, the EIS concludes that the detailed design avoid root zones. It is also proposed in the EIS to use nesting boxes for a variety of species and the establishment of locally occurring native species in landscaping to assist in minimising the impact on local animals once trees have been removed.

5.6 Heritage and related factors

The EIS reports that prior to urban development in the 1870's, this area was used by the Turrbal people. However, there is no record of it being used for ceremonies by indigenous people. From 1843 until 1900 the site was used as the major burial ground for Brisbane. Most of the headstones and remains have been relocated to the Toowong Cemetery, although several headstones remain as evidence of the earlier use of the site.

The EIS identifies that this area was also formerly used as a rubbish dump. As a consequence of previous uses, the land contamination may comprise warehouse rubbish, garbage, military waste and car bodies. No comprehensive site investigations have been undertaken to date.

NOTE: Contaminated land management issues have been identified by the Environmental Protection Agency. The Development Conditions attaching to this report address these issues.

The lease for the site was granted in 1954 to the Queensland Rugby League. In 1962 the Lang Park Trust Act commenced and has since been amended in 1994. The Trust continues to manage the site and stadium today.

Lang Park is not listed in the Queensland Heritage Register, however, its connection with rugby league and athletics over the years gives it considerable cultural heritage value.

The EIS discusses a number of sites in the immediate surrounding area which are included on the cultural heritage register and which will potentially be visually or materially affected by the proposed new stadium including:

- Christ Church and environs, abutting the site in Hale Street;
- Part of the Baroona Special School property required for the extension of a pedestrian walkway; and
- Former Police Barracks site on Petrie Terrace, part of which is required for the extension of a pedestrian walkway.

There is some concern regarding the potential for structural damage to the adjoining Christ Church (including the memorial reserve and rectory), Baroona Special School and the former Police Barracks. The EIS has recognised the need to undertake a structural audit of the Christ Church.

NOTE: Cultural Heritage and vibration issues have been identified by the Environmental Protection Agency including the development of a Conservation Management Plan for the Church. The Development Conditions attaching to this report address these issues.

The pedestrian flow around the church and via the Hale Street pedestrian plaza could reduce its cultural heritage value. However, the planned pedestrian plaza should restore a connection with Petrie Terrace. The EIS highlights the fact that the effects of overshadowing on the church and cemetery over the winter months is considerable and requires further investigation and discussion with the church administrators.

Recommendation 6: That the proponent establish an on-going consultative relationship with the Christ Church to undertake further investigation and detailed design to seek to minimise the impacts of overshadowing on the church, rectory and memorial reserve.

The noise levels expected during construction and event times could potentially have a detrimental effect on the flexibility of church services available. The proponent should liaise closely with the construction manager to minimise the negative impacts on the church and its congregation.

Recommendation 7: That the proponent provide the Christ Church with the anticipated construction schedule, which is as far as practicable, to be negotiated around church events.

Given the former use of the project site as a burial ground, potential exists to uncover human remains during the construction phase of the project.

NOTE: Cultural Heritage issues have been identified by the Environmental Protection Agency. The Development Conditions attaching to this report address these issues.

Concern has also been expressed that the proposed re-orientation of a classroom building at Baroona Special School and the planned construction of the pedestrian walkway could reduce the school's cultural heritage value unless care is taken to protect the architectural features of the building and the surrounding vegetation.

NOTE: The EPA requires the development of a Conservation Management Plan for the School. The Development Conditions attaching to this report address this issue.

The EIS also concludes that the pedestrian flow through the former Police Barracks site is unlikely to reduce its existing cultural heritage value given it is currently used as a car park site and night clubs immediately surround the site.

The recommended project modifications detailed in the EIS include the removal of the Hogs Breath Café. This building has some historical connections with the former Police Barracks site which is a listed place of cultural heritage significance. Detailed design studies may resolve the need to remove this building or may present a range of interpretive measures to ensure that the historical connection can be observed.

5.6.1 Brisbane Arts Theatre

The Brisbane Arts Theatre is the oldest surviving Arts Theatre in Brisbane and has been operating from its current location since 1936.

The EIS revealed that the proposed parking restrictions on event nights may compromise the viability of the Brisbane Arts Theatre. In particular, Saturday afternoon matinees usually attract a full house, representing a significant source of income for the Theatre. Given the demography of the Theatre's patronage, public transport is unlikely to be an attractive or viable option. The Theatre currently receives complaints from patrons about difficulties in finding parking on event nights at Lang Park.

During the consultation process it was revealed that car parking demand from the Brisbane Arts Theatre impacts upon local streets and that the behaviour of patrons from the theatre restaurant has impacted upon local residents.

As part of a broader mitigation strategy, it has been suggested that theatre patrons be issued with parking permits with theatre tickets to attend performances. Further consultation with the BCC will be required to determine the most appropriate and effective means of controlling car parking in the vicinity of local businesses such as the theatres and restaurants. There is a consultation process associated with the preparation of the local law necessary to implement the parking scheme. The Community Liaison Group and the wider community should be encouraged to participate in this process.

Recommendation 8: That the proponent negotiate an appropriate strategy for the parking of vehicles owned by theatre patrons in consultation with the Brisbane Arts Theatre and the BCC and that the Community Liaison Group monitor the effects of the proposed parking scheme on the theatre during the stadium construction and operation and report its findings to the Stadium Management Advisory Committee and the BCC.

Concerns regarding noise were also raised in the EIS. Disturbances of performances are already experienced on State of Origin evenings at Lang Park. The stage area would need to be soundproofed to prevent noise from events disrupting performances. This has been recognised in discussions between the proponent and the Brisbane Arts Theatre. The acoustic performance of the proposed stadium design is predicted to be a substantial improvement on the existing situation, such that noise nuisance at the theatre should not be as noticeable.

Board members of the Brisbane Arts Theatre felt that the future of the Theatre would be placed under considerable strain unless mitigation strategies were developed and implemented.

Recommendation 9: That the proponent continue to negotiate appropriate noise mitigation strategies with the Brisbane Arts Theatre.

5.6.2 La Boite Theatre

The EIS revealed that the La Boite Theatre is to be impacted by the proposed stadium during its construction and operation. The main concern by theatre management is competition for or restricted access to car parking, similar to the issues raised by the Brisbane Arts Theatre.

The proponent has suggested the possible issue of parking permits with theatre tickets for the duration of a theatre performance that coincides with an event at the stadium. This is similar to the arrangement discussed with the Brisbane Arts Theatre and covered in Section 5.6.1. Such an arrangement would appear to be acceptable to the management of La Boite Theatre. Further consultation with the BCC will be required to determine the most effective means of controlling car parking near the theatres.

It should be noted that car parking by theatre patrons has in the past and will possibly continue to impact upon the local streets of Petrie Terrace to the east of Hale Street.

The operational needs of the La Boite Theatre must be considered in the mitigation and management planning for the stadium redevelopment proposal. The potential impacts upon the La Boite Theatre will need to be resolved.

Recommendation 10: That the proponent negotiate an appropriate strategy for the parking of vehicles owned by theatre patrons in consultation with the La Boite Theatre and the BCC and that the Community Liaison Group monitor the effects of the proposed parking scheme on the theatre during the stadium construction and operation and report its findings to the Stadium Management Advisory Committee and the BCC.

5.7 Visual Amenity

The EIS has identified a number of visual impacts of the proposed stadium. It also predicts that the impacts on the local landscape values and access to vistas from certain localities adjacent to the site are to be significant.

For example, the residential area to the east of Hale Street will loose its views to regional landscape features (eg Mt Coot-tha, southern ranges) and some of the residences lower on the slopes of Red Hill are to have their views through the existing open stadium affected. The proposed stadium could also block some views of the CBD for residential properties to the west (eg Heussler Terrace area).

The EIS suggests that some measures to improve the visual amenity include the location of structural elements under the roof, which itself is reduced to a thin flat plane, the use of screens and a range of materials along the eastern and western facades to reduce the apparent height of the building, and the introduction of design elements relating to the building texture of the surrounding areas.

The visual aspects of the walkways have also been expressed in the EIS as a concern. Appropriate forms of landscaping along the pedestrian routes should be considered to provide visual relief and shade. Landscape concepts should be prepared which concentrate on introducing softer edges to the site and some of the other elements within the stadium proposal.

Other measures in the EIS suggest that the rear portion of the roof could be lowered and split from the main roof structure to reduce the height at the building perimeter, thus reducing the shadow cast by the elevations. The effects of the shadow cast over the Christ Church could be further reduced by cutting the roof back in the south-east corner and by utilising an elevation treatment comprising a glass curtain wall behind the church.

The heritage value of the church is to be affected by the proposed stadium, however the acquisition of land to the south of the church which is currently occupied by light industry and the development of the southern plaza should make the church more prominent from a number of view points.

Recommendation 11: (a) That the proponent in finalising the master plan and concept design, together with the landscape design, seek to minimise the positive visual impacts of the proposed stadium on the local environs for inclusion with the development application/s to the BCC.

(b) That the proponent, in consultation with church administrators, prepare a detailed design maximising the use of such alternative materials which would minimise the effects of the stadium on the church and which would also assist to maintain its cultural heritage values.

5.8 Lighting

The existing stadium is a shallow open bowl with lighting from four towers at each corner of the ground with additional lighting on the Ron McAuliffe Stand to the east of the ground. Consequently, this open design results in local residents, particularly in Hale and Castlemaine Streets, experiencing light spills.

The stadium design provides for a roof covering 80% of the stadium and with careful positioning of major light sources under the roof overhang, limited impacts from lighting should be experienced.

The EIS suggests that during construction, there is to be some light spill from security and flood lighting in particular during out of hours construction work. Careful positioning of lighting equipment should assist to minimise those impacts. Construction is proposed to be limited to 6.30am to 6.30pm on week days and 7.00am to 3.00pm on Saturday in keeping with the requirements of the EPA. A monitoring program is to be set in place to assess the impacts of light spill during out of hours construction work.

Recommendation 12: That the Construction Environment Management Plan address the positioning of security and flood lighting during construction to minimise light spill impacts on surrounding residents.

5.9 Electricity Infrastructure

There is a need to recognise future planning and infrastructure requirements for electricity supply as the Energex site fronting Milton Road is to be acquired to cater for the extension of the southern plaza. This site is strategically located in relation to a number of substations including the substations servicing the CBD and has potential for the development of a further major substation thereon.

The future planning and infrastructure development requirements for meeting power supply demands in the region should be discussed with Energex during the detailed design stage of the stadium. This could relate principally to the design and siting issues involving the southern plaza.

Recommendation 13: That the proponent discuss with Energex, relocating the originally intended electricity supply infrastructure for the property currently owned by Energex fronting Milton Road (and to be acquired for the stadium) to an alternative location within the redevelopment.

5.10 Stadium Management

The Stadium Management proposal identified in the EIS includes a professional approach to facility management and specifically crowd management. The key features to this approach include:

- Code of Behaviour to be implemented and monitored at all times;
- Evictions and arrests policy to ensure repeat violations of this code is minimised;
- Surveillance by Closed Circuit Television (CCTV) before, during and after events; and
- Strategy to manage the sale and use of alcohol on the premises.

Recommendation 14: That the Operation Environment Management Plan address the matters of crowd behaviour and control through the development of a "Code of Behaviour".

5.11 Parking

The EIS provides for a parking scheme to be implemented over the local area with resident visitor permits and extended stay areas for businesses. Parking arrangements for local theatre patrons were discussed earlier in this report.

The recommended car parking scheme detailed in the EIS is derived from experiences taken from a number of other stadia in Australia and New Zealand, borrowing on those aspects of greatest similarity to the circumstances of Lang Park. There has been extensive consultation on the car parking scheme and the statutory processes which accompany the making of local laws should provide a further opportunity for consultation.

Effective implementation of the car parking scheme is to entail monitoring the effects at the fringes of the controlled area, and monitoring the effects on local business areas. Some submissions have put forward good suggestions for improving the scheme in relation to the local business areas. These suggestions are considered worthy of support and should be discussed with the BCC.

Overall, the EIS suggests that the car parking scheme is considered to be workable, and represents a realistic measure for achieving the multiple objectives.

Recommendation 15: That the proponent continue discussions with the BCC on the refinement of the parking strategy to include monitoring the impacts immediately outside controlled parking zones and surrounding local businesses.

5.12 Transport Strategy

There is no dedicated public transport infrastructure directly servicing Lang Park. The closest railway stations to the stadium are Milton (650m) and Roma Street (1km). There are a range of regular buses that service the local area and the western corridor. Busway stations are planned at Roma Street and Countess Street as part of the Inner Northern Busway project due for completion by 2003.

The public transport strategy proposed in the EIS is based on the Integrated Regional Transport Plan which attempts to reduce the reliance of private vehicles. Under the strategy outlined in the EIS, heavy rail would cater for 44% of patrons (66% Roma Street and 44% Milton Station), 36% on coaches and 20% using private vehicles.

The EIS recognises the need for a strong education and marketing program which should actively encourage patrons to use public transport and the introduction of associated disincentives to deter private vehicle usage and parking in and around the stadium's vicinity.

The strategy is proposed to include event-based parking restrictions in local areas, special train services to/from Milton and Roma Street, direct bus services from regional centres, shuttle buses, charter coaches and taxis. An integrated ticketing system is proposed to be implemented for public transport and event entry, and pre-event publicity on parking restrictions and transport options available.

As a result of the deferment of the Brisbane Light Rail project, the conclusions drawn in the EIS remain valid such that a workable transport system can be provided to the Lang Park Stadium without light rail. Detailed transport and pedestrian planning and operational design of a "no light rail" transport strategy should now be conducted by Queensland Transport.

Recommendation 16: That the proponent continue to negotiate with Queensland Transport regarding the transport strategy excluding the light rail. This strategy is to include consideration of a strong education and marketing program and an integrated ticketing system.

5.13 Transport Infrastructure

The EIS concludes that the Roma Street Station's existing transport infrastructure is considered adequate to manage event crowds. Milton Station is expected to carry an increased volume of patrons and will require enhanced platform capacity and improved pedestrian access.

New structures suggested in the EIS include:

- Bus and coach facilities, including an 11 bay bus station under the southern pedestrian plaza for shuttle services to the CBD;
- Pedestrian route improvements surrounding the stadium and linking to Roma Street and Milton railway stations;
- Bus priority measures on Milton Road and Upper Roma Street on the route between the stadium and the CBD;
- Suitable facilities at the planned Countess Street busway station;
- Taxi facility in Castlemaine Street to the north Heussler Terrace intersection;
- Passenger set down facility in the northern plaza; and

- On-site carpark (200 capacity), including parking for the disabled.

5.14 Traffic

Lang Park is located in close proximity to two major arterial roads; Hale Street and Milton Road carrying 45,000 and 50,000 vehicles per day respectively. This traffic volume is expected to increase once the BCC's Inner City Bypass is completed in 2002. Milton Road already experiences congestion during peak hour traffic at a number of intersections. The stadium is also accessible from commercial areas such as Caxton Street, Given Terrace and Castlemaine Street. Many small residential streets in the area could potentially be used to access the stadium which could cause further traffic disruption during events at Lang Park.

The EIS provides for special traffic arrangements to be made to assist in minimising the local impacts of traffic congestion caused by on-street car parking for residents during major events at Lang Park. Over fifty percent of event patrons currently use private vehicles to travel to Lang Park. The most significant form of public transport used is rail, predominantly from Milton Station. For major events, 30% of patrons come from outside the Brisbane area. Buses are also an important mode of transport to Lang Park including shuttle buses, local buses and charter buses for regional areas. The existing set down areas for buses are kerbside locations in and around the stadium. The EIS suggests that an overflow of coach parking from the preferred area immediately to the west of the stadium could occur in the non-residential area accessed via Cribb Street. Coach parking in this area should not involve street closures and the street would remain open to normal traffic.

Considerable conflict and pedestrian congestion occurs after games due to inadequate footpaths to carry the volume of pedestrians particularly along the eastern boundary of the site, along Milton Road toward the CBD and around the station, and along Upper Roma Street to the CBD. Pedestrian spill over often occurs on traffic lanes on Milton Road and Upper Roma Street. This causes further traffic congestion and significant safety issues.

The preparation of a Traffic Management Operational Plan, Parking Management and Enforcement Operational Plan and Public Transport Operation Management Plan can alleviate these impacts.

Recommendation 17: That the proponent develop a Traffic Management Operational Plan, Parking Management and Enforcement Operational Plan and Public Transport Operation Management Plan in consultation with the BCC.

5.14.1 Construction Traffic

Possible construction traffic routes have been identified in the EIS, however a detailed plan indicating the haulage and vehicle movements and preferred routes have not been determined but are to be identified in the detailed design of the project.

Delivery routes and road conditions are to be designated and road conditions monitored with regard to noise impacts along Milton Road, Castlemaine Street, Hale Street and Coronation Drive. Local residents are to be advised of all late night deliveries.

Recommendation 18: That the proponent develop a Construction Traffic Management Plan in consultation with the BCC. The plan should limit delivery times during peak hour traffic flows in the area, determine means to reduce noise impacts of late night deliveries and determine appropriate shuttle bus transfer parking locations for construction personnel.

5.14.2 Local Traffic

As Caxton Street is intended to provide pedestrian access post major event, the re-routing of the local bus service using Caxton Street is possible. The proposal as outlined in the EIS does not require any further road closures around the stadium that would impact on local buses. There could be potential for delays to bus services in the area of approximately one hour before and after events. However, it is noted in the EIS that the contra-flow bus priority lane on Upper Roma Street proposed to be constructed in conjunction with the stadium proposal should improve bus operations into the CBD.

The EIS concludes that a private vehicle set-down area within the northern plaza should assist to alleviate traffic congestion on Caxton Street and minimise the use of residential streets for this purpose.

Concerns were raised during public consultation on the vulnerability of local streets in the vicinity of Isaac Street for use by set-down and pick-up traffic particularly traffic approaching from the west. However, the EIS concludes that the barricading of these streets would represent a very restrictive measure which may impinge adversely on accessibility for residents.

The use of "No Standing" restrictions on vulnerable street sections in this precinct, where residential kerbside parking is not likely to occur should be examined further. The identification of temporary set-down/pick-up zones on Cribb Street to cater for western traffic could also be incorporated in this detailed plan.

The EIS also identified the Castlemaine Street – Milton Road intersection as in need of further examination to improve traffic flow. The development of the southern plaza provides this opportunity.

Recommendation 19: That an Operation Traffic Management Plan identify further temporary set-down/pick-up zones eg Cribb Street and include provision for further investigation and monitoring of the Castlemaine Street – Milton Road intersection for the purposes of developing an improved intersection to facilitate increased traffic flow.

5.15 Pedestrian Walkways

The concerns raised in public consultation in relation to the pedestrian walkways relate to the possible safety risks associated with their use outside event times.

The safety concerns are recognised and the EIS suggests that these need to be considered further in the detailed design phase including the adoption of the principles of Crime Prevention Through Environmental Design (CPTED) for the walkways and pedestrian plazas. Any section of the walkway system and the plazas which cannot attain an acceptable level of public safety outside event times, should be closed to public use during those times.

The EIS also concludes that the urban design of the walkways and plazas should also take into account the potential visual impacts. The plazas especially should be designed to be open, attractive and friendly places to which the community can come for wider forms of recreation as well as to events at the proposed stadium.

Recommendation 20: That the proponent undertake further investigations in consultation with the BCC and the Community Liaison Group to ensure that the walkways and the southern and northern plazas are designed and constructed in full recognition of CPTED principles.

Concerns expressed in the EIS relating to the visual impact of the pedestrian walkways, particularly along Roma Street are also noted. Further design work to improve the appearance of the walkways is needed (refer to Section 5.9 in regard to landscaping).

5.16 Emergency Services and Public Safety

Road closures could potentially restrict access to local streets in emergency situations during the construction period. The EIS suggests that the Construction Manager should liaise with the BCC to ensure the availability of emergency vehicle access to local streets and adjacent areas.

Recommendation 21: That the Operation Environment Management Plan ensure that provision is made for emergency vehicle access to the area surrounding Lang Park at all times.

A number of submissions drew attention to public safety issues such as a spill over of loud and possibly inebriated patrons in the residential areas looking for their cars or waiting for taxis on Castlemaine Street. The perceived risk to public safety on the pedestrian walkways (discussed in Section 5.17 above) was also a concern.

Some of the strategies to limit local residents' exposure to the potential anti-social behaviour of patrons include:

- quickly moving patrons away from the area using public transport from the southern plaza which isolates them from nearby residents;
- controlling alcohol consumption during the game; and
- maintaining 24 hour surveillance cameras on walkways with direct reporting to City Police.

Details of crowd control have been covered in Recommendation 14.

5.17 Waste Management

Potential exists during construction for soil erosion and sedimentation, however, standard techniques are to be implemented to control its extent. The EIS suggests that a site Waste Management Strategy be established.

The EIS also highlighted the fact that during preparatory earthworks and demolition, there is potential for contaminated leachates and residues from landfill to be released.

The levels of nutrient enrichment from run-off waters and their impacts on surface and ground water is expected to be similar to other sporting facilities of this type. The EIS notes that a reduction from the current levels of runoff from the existing stadium is anticipated due to the extended roof and removal of landfill. Monitoring of runoff and groundwater conditions is to be undertaken to detect such impacts.

Recommendation 22: That the Construction and Operation Environment Management Plans provide for the monitoring of the water quality of groundwater and drainage with regard to leachate.

The consultation phase highlighted the need for a Pest Management Strategy to be developed to prevent the breeding of mosquitos and other biting insects, general insect pests and vermin given the number of food outlets proposed in the stadium and its close location to surrounding residential areas.

NOTE: Pest management issues have been identified by the Department of Health. The Development Conditions attaching to this report address these issues.

5.18 Socio-Economic

5.18.1 Social Impacts

There has been considerable objection to the socio-economic impacts of the proposed development on local residents. These issues have been appropriately addressed in the EIS Volume 8 Addendum Report.

The community consultation program also indicated that a number of local community members were in support of the project and actively participated in the developmental stages of the proposal.

Parking restrictions are proposed to be in place to assist in the reduction of the number of patrons using private vehicles and hence the number of patrons roaming the local neighbourhood and traffic congestion leaving the stadium.

There is some concern that parking restrictions will not work to deter private vehicle use which may result in local residents having to plan their activities around event times to a greater extent than they currently do.

Rubbish bins are also proposed to be located along the pedestrian walkways and a clean-up program is proposed to address the potential for litter in the nearby residential areas and walkways to public transport facilities.

No new retail outlets are expected to develop as a result of the proposed stadium. Restaurants and cafes may expect to experience a change in activity patterns of patrons due to the parking restrictions that may coincide with busy Friday and Saturday night trading.

The EIS notes that the temporary closure of Castlemaine Street may result in businesses located in this area suffering a reduced number of customers. Staff employed in those businesses may not be able to park close to their workplace during events. This should be further examined as part of the event parking strategy to be developed in consultation with the BCC.

Shuttle buses to off-site car parks are planned to be available and on-site parking is to be provided for up to 180 event staff.

5.18.2 Economic Impacts

The EIS notes that during construction, the proposed stadium should create 496 direct jobs and up to 836 associated jobs. During operation the project should create 15 full-time jobs and up to 400 part-time and casual jobs for events. Economic studies undertaken as part of the EIS indicate that new direct income for Queensland of $25million per major event could result from the proposed stadium redevelopment.

The EIS suggests that land and property rental values have been steadily increasing in the study area. The proposed stadium is not expected to have a significant influence on the long-term trend of increasing inner city residential property values, as architecturally the structure and immediate surrounds of the new stadium are to be better designed and visually more appealing than the existing facility.

There are three shopping precincts within a 300-metre radius. Cafes/restaurants, bars/hotels and specialty shops on Petrie Terrace and Given Terrace should benefit from event patrons while those businesses on Park Road and at Rosalie may receive some spill-over trade. However, there is a need to monitor parking restrictions on main roads and residential streets to ensure there are no adverse trading effects being experienced by these businesses on event days.

The EIS concludes that the Lang Park Stadium proposal could potentially enhance non-residential property values by encouraging higher value land uses that can exploit the inherent advantages of the area in terms of location, accessibility and existing profile as a specialty shopping/dining/entertainment precinct.

Properties involved in lower valued land uses (the workshops and warehouses in Chippendall Street) are to be resumed for the construction of the southern plaza. In the short term, this could mean a loss of business activity and jobs from the local area. However, these businesses are likely to be replaced by stadium-related activities.

5.19 Community Consultation Program

A preliminary community consultation program was undertaken in December 1999 and concluded in February 2000. One hundred submissions were received in relation to the TOR for the project. All comments were considered in finalising the TOR.

The EIS team undertook further extensive consultation. This involved workshops, consultation clinics, individual interviews with local residents, focus group discussion, newsletters, an information telephone line and a survey of local and Greater Brisbane residents. The work involved is considered to be in excess of that normally undertaken to meet statutory requirements.

Some community members expect that some of the current impacts (noise impacts and light spillage) may be improved by the proposed redevelopment and the proposal is to provide better quality facilities, more coherent pedestrian links, increased exposure for some businesses, and improved public transport options. The proposal may also provide a wider community benefit in terms of attracting better games and increasing the profile of sports.

It was also recognised in the EIS that events at a new Lang Park Stadium would be larger and more frequent than for the current stadium with the inevitable swell of people in and out of the suburb and that this could intensify current impacts such as traffic congestion, pedestrian flows, litter and pedestrian noise. Many residents are seriously concerned that the redevelopment is likely to have negative effects on their quality of life.

6. SUMMARY OF POSITIVE AND NEGATIVE IMPACTS

6.1 Positive Impacts of Proposed Redevelopment

The positive impacts of the Lang Park Stadium Proposal are expected to include infrastructure, economic and social benefits. These benefits are:

- increased capacity from 40,000 patrons to 52,500 patrons in individual seating, with approximately 80% of seats under cover of the roof.
- the expected economic benefits of the construction phase include approximately 496 jobs associated with direct income of $60 million. Special events at the proposed stadium, such as a Bledisloe Cup rugby union match, could result in economic benefits to Queensland in the order of $25 million.
- the proposed stadium is to provide vastly superior patron seating and viewing conditions, facilities, comfort, safety and levels of accessibility when compared with the existing stadium, and other venues in Brisbane.
- the increased capacity and vastly improved patron and hirer facilities and accessibility should position the proposed stadium as an attractive venue for a number of major events. These could include the Bledisloe Cup for rugby union internationals played between Australia and New Zealand and possibly soccer internationals, in addition to the rugby league internationals already held at the existing facility.
- the implementation of the public transport strategy and the provision of transport infrastructure is to result in substantial improvements in the accessibility of the proposed stadium. Benefits that would result from the proposed improvements to the transport infrastructure include:
    - convenient and accessible pedestrian linkages to the CBD and to Milton Station. These linkages should provide benefits to the local residents, provided that public safety issues are addressed in the detailed designs;
    - improvements to Milton Station, with benefits for everyday commuter use;
    - a bus station at the southern end of the proposed stadium is to represent a significant improvement to current provisions for bus travellers to Lang Park. Bus operations concentrated in this location have a minimal impact on road network efficiency;
    - Countess Street bus station facilities which should provide the local community with a quality busway station earlier than programmed;
    - improved pedestrian accessibility and safety between the proposed stadium and transport nodes;

- upgraded pedestrian routes for local community use and accessibility generally to the CBD and Southbank; and
- the provision of a contra-flow bus lane on Upper Roma Street, and associated bus-priority and pedestrian improvements at the intersection of Upper Roma Street/Milton Road/Petrie Terrace to the proposed stadium yield travel benefits for public transport vehicles for both stadium and general use.

- noise levels from events in the proposed stadium are predicted to be substantially improved on the existing facility and are considered to be acceptable;
- stadium lighting impacts are to be substantially improved on the existing facility and should be limited to a reflected glow from the pitch, with all lighting suspended within the arena and beneath the roof line, noting that security lighting and pedestrian lighting, if properly designed and installed, should not impact on adjoining properties;
- there are not expected to be any adverse impacts on air quality arising from the proposed stadium, noting that fireworks displays are of short duration and, with appropriate management, can be largely contained within the stadium;
- substantial improvement with car parking in the local street network with the effective implementation of the recommended parking control scheme;
- substantial improvement in the standard of crowd behaviour inside and outside the proposed stadium with the effective implementation of the recommended code of behaviour and the managed sale of alcohol;
- the provision of a pedestrian plaza over Hale Street is to have a beneficial impact on the Christ Church by making it more accessible, more visible, and by restoring its links back to the historic Petrie Terrace residential area;
- providing the principal address of the proposed stadium to the southern end and shifting the focus from the Caxton Street interface with the residential areas of Paddington and Red Hill;
- achieving improved control and management in pedestrian movements to and from the proposed stadium, such that surges and crowding should be able to be better managed and minimised;
- providing improved functionality for the integrated transport station and Milton Station;
- providing enhanced public spaces are to be available for community use outside event times;
- achieving high standards in urban design, particularly adjacent to the Christ Church precinct, Baroona Special School, the former Police Barracks at Petrie Terrace, and along the pedestrian walkways linking the proposed stadium with the CBD, Roma Street and Milton Station; and
- mitigating cultural heritage impacts by more effectively restoring the Christ Church precinct connections with the Petrie Terrace area and presenting the former Police Barracks site in an attractive public setting.

6.2 Negative Impacts of Proposed Redevelopment

The negative impacts of the Lang Park Stadium Proposal during construction are defined as follows:

- noise from plant and equipment if operated outside the standard work hours (6.30 am to 6.30 pm on weekdays and 7.00 am to 3.00pm on Saturdays), noting that background noise levels measured in the locality of the site are for the most part higher than the predicted noise levels from nominated plant and equipment;
- noise impacts could arise from heavy vehicles making special, over-night deliveries of major construction items;
- without adequate control and management, air quality impacts, particularly from dust, have the potential to extend across the immediate locality;
- traffic impacts from heavy vehicles accessing the site could affect Castlemaine Street and Milton Road, such that road surfaces may require regular maintenance and traffic management for early morning deliveries of major items will be required;
- without adequate control, construction workforce car parking could impact on the local street network;
- without effective site management and liaison, construction could impact severely on the activities of the Christ Church community with regards to access, noise, vibration, and dust;
- the cultural heritage values of Christ Church and the Baroona Special School could be affected by inappropriate construction techniques leading to structural damage, or irreparable damage to the setting of these places;
- without effective site management and liaison, the construction impacts set out above could severely affect the amenity and lifestyle of the residents of the immediate locality.

The negative impacts of the Lang Park Stadium Proposal during operation are defined as follows:

- potential widespread parking problems in local streets, including blocked or constrained access to streets and private properties and local businesses;
- widespread social impacts caused by inappropriate and offensive behaviour by patrons as they move through the local streets before and after the event;
- anti-social behaviour from patrons of Caxton Street and Given Terrace licensed premises well after the completion of an event when Police resources have left to attend other areas;
- excessive noise breakout from crowd noise, pre-match entertainment and the public address system;
- excessive intrusion from light spill, with particularly severe conditions for matches requiring lighting standards for television broadcasting;
- occasional use of helicopters for live broadcasting purposes;

- occasional noise impacts from crowds moving along the pedestrian walkways back to the CBD, where such impacts are likely to be most noticeable on the three residential buildings along Milton Road between Hale Street and Petrie Terrace;
- the over-shadowing of the Christ Church by the roof of the proposed stadium is to have an adverse impact on the utility, and the cultural heritage values, of the church;
- the visual impact of the proposed stadium upon the residential area immediately to the east of Hale Street is to be adverse and not readily mitigated, such that the proposed stadium could present a façade of overwhelming length, height and bulk; and
- the increased frequency of events at the proposed Lang Park Stadium is to impact adversely on some of the residents of the immediate locality because of:
  - the operation of the controlled parking scheme;
  - the crowds moving along the major thoroughfares during commuter times (for mid-week games);
  - the incidence of drunken behaviour well after events as patrons leave nearby bars and hotels, noting that such behaviour occurs at least twice weekly whether or not an event is staged at Lang Park; and
  - the change to the built environment and the loss of views presently available to some residents.

The traffic and transport impacts of the proposed stadium transport strategy are:

- the proposed controlled parking scheme is to impact on patrons and employees of businesses in the area who wish to park in the street for longer than 2 hours during an event and on businesses located in residential streets;
- regular rail services are to be more heavily utilised in conjunction with events and special train services should be required;
- provision of pre-event special direct bus services and shuttle services are to require use of some reserve buses from the Brisbane Transport fleet for events that coincide with commuter peaks;
- there is to be minimal overall impact on the regional road network however, there is to be localised congestion at the Milton Road/Cribb Street intersection before and after major events. Police control will be used to resolve traffic and pedestrian priorities at this and other key locations. Local traffic congestion is not forecast to occur on a widespread basis as experienced currently for major events;
- the management of traffic use of Caxton Street between Petrie Terrace and Hale Street both prior to and after events to provide pedestrian access improvements could possibly result in delays for local traffic for short periods;
- the proposed Caxton Street temporary traffic/pedestrian traffic management is to impose restrictions on accessibility to frontage properties. Accessibility for streets in the precinct south of Caxton Street such as between Petrie Terrace and the Hale Street service road including Chapel Street, Judge Street and Weetman Street would be maintained, although more difficult, during all events;

- the continued use of local streets west of Lang Park for coach parking may result in some adverse impacts on nearby residential local areas due to coach movements via Heussler Terrace post-event;
- the continued provision of a taxi rank on Castlemaine Street may result in some adverse impacts on nearby residences post-event due to the period of operation; and
- on-site car parking and access arrangements are to be improved compared to the current situation.

There are only a few impacts expected as a consequence of the development of the southern plaza. These impacts include:

- the economic and social losses caused by the resumption or acquisition of the existing businesses in Chippendall Street;
- the creation of a large public space which might not be used all of the year;
- the need for additional security to ensure that petty crime and vandalism does not arise in and around this space;
- the potential to attract undesirable elements in the absence of effective policing of the area;
- possible loss of views to Christ Church arising from the construction of bridges over Milton Road; and
- overly exposing the Christ Church to views and public interaction such that the privacy and spirituality of the place would be diminished.

7. CONCLUSION

The *State Development and Public Works Organisation Act 1971* states that the Coordinator-General must have regard to detailed information about the project, relevant planning schemes, the potential effect of the project, the level of investment necessary and the strategic significance of the project when considering the EIS process and outcomes. The Coordinator-General must also have regard to comment received in respect of draft Terms of Reference for an EIS and must accept properly made submissions in respect of an EIS.

Having regard to the extensive documentation and information provided to me, I consider the EIS prepared for the Lang Park Stadium Redevelopment to be a comprehensive, well researched and presented document that very effectively meets the requirements of the Queensland Government for impact assessment in accordance with the provisions of section 29 of the *State Development and Public Works Organisation Act 1971.*

I am convinced that the environmental impact assessment process undertaken in this instance will result in best practice environmental design leading to an acceptable outcome for the redevelopment of the stadium. However, it is essential that the recommendations of this report and the development conditions attached thereto be followed by the proponent in the development of the new stadium.

This report will be forwarded to the BCC, as stipulated in S29P of the *SDPWOA*, for consideration with the proponent's development application, pursuant to the *IPA.*

8. APPROVALS REQUIRED

Attachment 4 includes details of the approvals that will need to be obtained prior to the commencement of the particular activity to which they relate.

[redacted]

Ross Rolfe
Coordinator-General

ATTACHMENT 1: Summary of the Coordinator-General's EIS Assessment Report Recommendations

Recommendation 1: *That the proponent establish a Community Liaison Group and a Stadium Management Advisory Committee, prior to the commencement of demolition works.*

Recommendation 2: *That the proponent undertake to determine the appropriate legislation to acquire the identified properties and air rights in consultation with the Department of Natural Resources.*

NOTE: Other issues affecting State land have been identified by the Department of Natural Resources. The Development Conditions attaching to this report address these issues.

Recommendation 3: *That the Operation Environment Management Plan manage the use of fireworks, provide for the impacts to be monitored and if there are adverse impacts that the Stadium Management Advisory Committee in consultation with the Community Liaison Group develop strategies to minimise those impacts.*

Recommendation 4: *That the Operation Environmental Management Plan incorporate a strategy for the delayed starting of long distance coach motors and that it also, together with the Construction Environment Management Plan, monitor air quality and establish appropriate mitigation strategies.*

Recommendation 5: *That the Construction Environment Management Plan address dust suppression strategies.*

Recommendation 6: *That the proponent establish an on-going consultative relationship with the Christ Church to undertake further investigation and detailed design to seek to minimise the impacts of overshadowing on the church, rectory and memorial reserve.*

Recommendation 7: *That the proponent provide the Christ Church with the anticipated construction schedule, which is as far as practicable, to be negotiated around church events.*

Recommendation 8: *That the proponent negotiate an appropriate strategy for the parking of vehicles owned by theatre patrons in consultation with the Brisbane Arts Theatre and the BCC and that the Community Liaison Group monitor the effects of the proposed parking scheme on the theatre during the stadium construction and operation and report its findings to the Stadium Management Advisory Committee and the BCC.*

Recommendation 9: *That the proponent continue to negotiate appropriate noise mitigation strategies with the Brisbane Arts Theatre.*

Recommendation 10: That the proponent negotiate an appropriate strategy for the parking of vehicles owned by theatre patrons in conjunction with the La Boite Theatre and the BCC and that the Community Liaison Group monitor the effects of the proposed parking scheme on the theatre during the stadium construction and operation and report its findings to the Stadium Management Advisory Committee and the MCC.

Recommendation 11: (a) That the proponent in finalising the master plan and concept design, together with the landscape design, seek to minimise the positive visual impacts of the proposed stadium on the local environs for inclusion with the development application/s to the BCC.

(b) That the proponent, in consultation with church administrators, prepare a detailed design maximising the use of such alternative materials which would minimise the effects of the stadium on the church and which would also assist to maintain its cultural heritage links.

Recommendation 12: That the Construction Environment Management Plan address the positioning of security and flood lighting during construction to minimise light spill impacts on surrounding residents.

Recommendation 13: That the proponent discuss with Energex, relocating the originally intended electricity supply infrastructure for the property currently owned by Energex fronting Milton Road (and to be acquired for the stadium) to an alternative location within the redevelopment.

Recommendation 14: That the Operation Environment Management Plan address the matters of crowd behaviour and control through the development of a "Code of Behaviour".

Recommendation 15: That the proponent continue discussions with the BCC on the refinement of the parking strategy to include monitoring the impacts immediately outside controlled parking zones and surrounding local businesses.

Recommendation 16: That the proponent continue to negotiate with Queensland Transport regarding the transport strategy excluding the light rail. This strategy is to include consideration of a strong education and marketing program and an integrated ticketing system.

Recommendation 17: That the proponent develop a Traffic Management Operational Plan, Parking Management and Enforcement Operational Plan and Public Transport Operation Management Plan in consultation with the BCC.

Recommendation 18: That the proponent develop a Construction Traffic Management Plan in consultation with the BCC. The plan should limit delivery times during peak hour traffic flows in the area, determine means to reduce noise impacts of late night deliveries and determine appropriate shuttle bus transfer parking locations for construction personnel.

Recommendation 19: That an Operation Traffic Management Plan identify further temporary set-down/pickup zones eg Cribb Street and include provision for further investigation and monitoring of the Castlemaine Street – Milton Road intersection for the purposes of developing an improved intersection to facilitate increased traffic flow.

Recommendation 20: That the proponent undertake further investigations in consultation with the BCC and the Community Liaison Group to ensure that the walkways and the southern and northern plazas are designed and constructed in full recognition of CPTED principles.

Recommendation 21: That the Operation Environment Management Plan ensure that provision is made for emergency vehicle access to the area surrounding Lang Park at all times.

Recommendation 22: That the Construction and Operation Environment Management Plans provide for the monitoring of the water quality of groundwater and drainage with regard to leachate.

ATTACHMENT 2: The Coordinator-General (Concurrence Agency) Development Approval Conditions.

A. PRIOR TO DEVELOPMENT APPLICATION

1. That the proponent commit to developing the project in accordance with the Queensland Government's preferred Mitigation Strategy (enhanced southern plaza proposal) and incorporate the further impact mitigation issues identified through the EIS process into the ongoing detailed design of the stadium and the supporting transport infrastructure.

2. That the proponent pay a levy and fee for building and construction work to the Department of Employment, Training and Industry Relations in compliance with the Building and Construction Industry (Portable Long Service Leave) prior to the lodgement of a development application under the IPA.

B PRIOR TO COMMENCING OR UNDERTAKING WORKS

3. That the proponent prepare a Site Management Plan (SMP) and that this be approved by the Environmental Protection Agency (EPA) in accordance with Part 9B of the Environmental Protection Act (EP Act) 1994 prior to any demolition or construction works being conducted on the site,

(a) In order to have a SMP approved, the proponent is required to provide sufficient information in accordance with Part 9B of the EP Act and the draft Guidelines for the Assessment and Management of Contaminated Land in Queensland (DEH, 1998) to the EPA at least 60 days prior to the commencement of demolition; and
(b) The SMP is to specifically address the management of contaminated land issues during demolition, construction and post construction, including the works involving the removal of any contaminated soils.

4. That the proponent comply with the approved Site Management Plan before commencing or undertaking works in relation to the development, the subject of the application, and at all times thereof while the use continues and the land, the subject of the application is on the Environmental Management Register (EMR).

5. That the proponent undertake a cultural heritage survey in order to identify places and items of the Queensland Estate which may be impacted on before commencing works in relation to the redevelopment of the stadium site. A permit to undertake such a survey should be applied for pursuant to the provisions of the Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987. A Cultural Heritage Management Plan is to be prepared to the satisfaction of the EPA and implemented as part of the Construction Environment Management Plan to avoid or minimise such impact.

6. *That the proponent carry out an audit of the structural condition of all structures on the Christ Church site and the Baroona Special School site before commencing any works. Similarly, a post construction audit of these structures is to be undertaken and a report prepared detailing any impact that has occurred to the structures. A copy of the report is to be provided to the Cultural Heritage Branch of the EPA.*

7. *That the proponent prepare Conservation Management Plans for the Christ Church site (including the rectory and graveyard) and the Baroona Special School site before commencing or undertaking works which would impact on these sites.*

8. *That the proponent note that if blasting is to occur, the effects of airblast overpressure on the structural integrity of structures on the Christ Church and Baroona Special School sites are to be predicted. Mitigation measures to minimise effects should be detailed in the Construction Environment Management Plan.*

9. *That the proponent establish, prior to the commencement of works, vibration criteria for heritage listed buildings which protect the structures from vibration related impacts.*

10. *That the proponent conduct and anaylyse, a baseline vibration survey at Christ Church and the Baroona Special School and sources of background vibration should be identified before commencing works in relation to the development.*

11. *That the proponent consult with the Department of Natural Resources on any issues involving the construction of structures above or below State land, including the road network.*

12. *That any application made by the proponent to the Department of Natural Resources to close road areas in strata be submitted in consultation with the Department of Natural Resources and contain the name(s) in which a lease in strata would be held and payment of any annual rental.*

13. *That the contractors responsible for the development at Lang Park be advised that as a requirement of the Queensland Government's "Breaking the Unemployment Cycle",*

    (a) 10% of the workforce on building and construction sites must be undertaken by apprentices, trainees or cadets engaged in structured training; and
    (b) compliance with the Queensland Code of Practice for the Building and Construction Industry which establishes minimum standards for training, safety and industrial relations in the industry and encourages best practice and value adding activity

14. *That the proponent develop and provide shade and protected queuing areas for entry and egress, footpaths, bridges and walkways.*

15. *That the proponent provide directional signs, notices and communication devices for emergency use by patrons.*

16. *That the proponent adopt the Queensland Government's Local Industry Policy and that full compliance be observed during the construction of the stadium. Further information is available from the Department of State Development.*

C DURING DEMOLITION AND CONSTRUCTIONCONSTRUCTION

17. *That the standard work hours for demolition and construction noise are to be limited to the hours between 6.30am and 6.30pm six days a week. No demolition or construction work to be carried out on Sundays and Public Holidays.*

18. *That the maximum adjusted sound pressure level (LAmax,adj) measured 4m from the façade of a noise sensitive place, over any period not less than 15 minutes when construction and/or demolition is in progress, must not exceed the background noise level measured as LA90, also over 15 minutes by more than 10 dBA.*

19. *That the proponent monitor ground vibration from construction activities such as blasting (if it occurs),.piledriving, jackhammering and rock drilling at Christ Church and the Baroona Special School and compare this data with the criteria in Condition 9 and with the data from the baseline vibration survey established by Condition 10.*

D PRIOR TO COMMENCEMENT OF USE

20. *That the proponent ensure that the design and fit-out of all food catering outlets proposed are compliant with the Food Act 1981 and the Food Hygiene Regulation 1989.*

21. *That the proponent ensure all catering contractors are competent in food handling and that each develop and implement food safety programs compliant with the Food Act 1981.*

22. *That the proponent ensure the development of an integrated pest management strategy to prevent the breeding and harbourage of mosquitos and other biting insects, general insect pests and vermin to the satisfaction of the Department of Health.*

23. *That the proponent develop a strategy for restrictions on the supply and consumption of alcohol and tobacco and the provision of "Alcohol Free and Tobacco Free Zones" in the Stadium.*

ATTACHMENT 3: Responses to EIS

SUBMITTER BY GENERIC ISSUE

	Amenity	Community	Construction & Operation	Consultation Process	Cost	Cultural Heritage	Design	Economic	EIS & Assess Process	Environmental	Flora & Fauna	Mitigation Measures	Noise, Vibration & Light	Safety	Site Select & Project Justification	Town Planning	Transport, Traffic & Access
1. Ken Fraser		X															
2. Moffat & Norman																	X
3. James Meehan		X													X		X
4. Ellen O'Reilly													X	X	X		X
5. DNR		X															
6. Michael Yeates																	X
7. Terence Gill															X		
8. NP Assoc of Qld		X									X		X				X
9. CONFIDENTIAL																	X
10. DATSIPD		X															
11. Cent Hlth & Sports															X		
12. D Emerg Services			X														
13. QPS														X			X
14. G'borough & C'ello	X	X						X					X		X		X
15. Christ Church	X	X				X							X				X
16. Baroona ALP	X												X	X		X	X
17. P 'Tce Res Assoc		X	X	X	X										X	X	X
18. CONFIDENTIAL			X														
19. CONFIDENTIAL		X		X					X								
20. Sally Grimes	X		X	X	X						X		X	X	X		X
21. B & L Johnson	X	X											X				X
22. Dept of Education			X											X			
23. R & D Burns		X			X										X		X
24. F Burns		X			X										X		X
25. QP-CYWA		X												X			X
26. D Turnbull		X			X				X			X			X		X
27. B Purdon		X			X										X		
28. People for Padd'ton	X	X	X			X			X			X	X		X		X
29. RAPI (Qld)		X			X	X	X		X			X		X	X		X
30. QUT	X						X							X	X		X
31. S Fihelly															X		X
32. Dept of Housing													X	X		X	X
33. EPA			X			X				X			X				X
34. A Reid		X		X	X	X						X	X	X	X		X
35. Dept of Health			X						X					X			
36. R Groves		X			X	X	X		X					X	X		X
37. AIUS	X	X					X							X			X
38. B'bane Arts Theatre													X		X		X
39. M Christensen		X										X					X
40. G Aitchison	X	X				X	X	X	X		X	X	X		X	X	X
41. E M Exley					X	X									X		
42. M Shepherdson		X															X
43. DMR (no issues)																	
44. La Boite		X											X				X
45. D Scott	X	X													X		X
46. A Sinnamon															X		X
47. Property Cl Aust					X			X					X		X		X
48. Cr Hinchliffe	X																X
49. DETIR								X									
50. J Cannon	X			X	X	X			X					X	X	X	X
51. RAIA		X				X	X		X			X					X
52. P'ton Traders Assoc			X	X										X			X
53. Anthony Johns Grp																	X
54. BCC		X	X			X	X	X	X	X	X	X	X		X		X
	12	27	10	6	12	11	7	5	10	2	4	8	16	15	25	5	40

ATTACHMENT 3:Responses to EIS

PLANNING

(a) Strategic Planning

- Stronger links between City West vision, Town Plan 1987, draft City Plan and SEQ (RFGM) Regional Framework for Growth Management; and
- No coverage of stadium in relation to other major project including Roma Parklands and Inner Northern Busway.

(b) Planning Processes

- Should cover possibility of ministerial call in;
- Public notifications on code vs. impact assessment;
- Should be an opportunity for BCC to request more information other than in decision stage due to formative nature of proposal, allowing more room for public consultation; and
- The level of impacts identified for the proposal indicates site proposal is wrong.

(c) Local Planning Issues

- Comment on compliance with maximum building height and maximum plot ratios with reference to BCC Centres Code, also comment in relation to Centre Design Code Performance Criteria (sic) 6;
- Church, school and Hogs Breath proposals need another look re town plan;
- Include uses within the stadium for other interest groups;
- Revise assessment that urban character impacts will be offset by community amenity benefits;
- Should ensure that northern plaza is dedicated as park land;
- Funding for open space options throughout Paddington/Red Hill/Petrie Terrace; and
- Upgrade Ithaca Pool.

(d) Urban Design Issues

- Reconsider impact of scale of structure;
- Stronger architectural design to reduce visual impact;
- Consideration of visual impacts on the community of Petrie Terrace should be a primary consideration in design, in particular the design of the plaza over Hale Street;
- Relocate proposed Light Rail station to reduce visual impact;
- Design to ensure southern plaza is not a wasteland at non-event times;
- Pedestrian bridges must have quality design; and
- Improve pedestrian links along the Terraces.

LANDSCAPE & VISUAL IMPACT

(a) Landscape Issues

- Walkways should not screen school from view;
- Need to assess impacts on views to the CBD and vista to Mt Coot-tha;
- Should include a Landscape Concept Plan to depict internal and external screening, landscaping, retaining works; and
- Include streetscape design of Chippendall Street as part of redevelopment.

(b) Visual Impacts

- Design fails to mitigate visual appearance and bulk - if visual impact can't mitigate, it is an indication of over-development of the site;
- Need to assess visual impact of walkways;
- Light rail station and structures will impose significant visual impacts;
- Proposal and mitigation measures should have gone further to recommend that the design treatments on all sides are more sensitive to the particular combinations of impacts produced on each side; eg. bulk and noise refraction along Hale Street frontage, big dead plaza to the south, blank face to the north;
- Screening to facades of building may accentuate building length rather than mitigate visual impacts;
- Building facades need vertical elements in screens;
- Need graphics of shadows;
- Impacts on green edge along Milton Road;
- Recognise local qualities in streetscape, and quality of Castlemaine streetscape inadequately described; and
- Should graphically indicate detail of pedestrian environment particularly to address plinth, walkways and plazas.

CULTURAL HERITAGE

(a) Church

- Audit of structural condition of church and rectory;
- Measures to minimise damage to buildings and vegetation;
- Church requires an irrevocable guarantee to remedy any damage and clean up the site after construction;
- Consult with parish in design of construction schedule;
- Conservation of church, rectory, garden and fencing should be integrated with the redevelopment;
- Establish plaques or other means in the cemetery showing sites of all denominations and pioneers;
- Provide plaques on headstones and a sign to note that it is a Pioneer cemetery;
- Parking bays for parishioners within stadium;
- Insurance in perpetuity against all loss, damage and injury;
- Conditions on method and times of operation of lighting;
- Consultation with Parish re timing of events;
- Incorporation in stadium design of a community hall, conference reason and officers for use by Parish;
- Consider use of church as an interdenominational chapel for Lang Park;
- Dispute resolution processes should be established up front; and
- Negative impacts of shadowing on church.

(b) Baroona Special School

- Strongly oppose disturbance to buildings or trees within school site;
- Detailed cultural heritage assessment should be carried out, which would be subject to *Queensland Heritage Act 1992* provisions for public notice by Queensland Heritage Council prior to development;
- 9 metre walkway would also infringe on building on eastern end of school site;
- Impacts of re-orienting school buildings and the loss or relocation of historic tram shelter on Milton Road; and

- Need to adequately describe the extent of works proposed to various buildings, trees and structures – need better graphic representation.

(c) Other Heritage Issues

- The brick drain in Castlemaine Street (Cultural Record Act 1987) has heritage significance;
- Need to assess church, Baroona school, Jacksons' Granary and masonry structures on Police Barracks site for potential for damage from construction;
- Hogs Breath demolition and school re-orientation would be contrary to the planning scheme (transitional);
- Failed to consider impacts to bridge over Petrie Terrace and Milton Road corner which may be affected;
- Provide a display of the history of the site and surrounding area within the design; and
- Historic character of the local area should be valued more highly than the cultural value of Lang Park.

ECONOMIC

- No justification for the reduction in seating capacity from 60,000 to 52,500;
- Need better examination of impacts of weekday events on surrounding businesses;
- More consideration of impacts on IT industry – a cost benefit analysis is required;
- More consideration of impacts on businesses from temporary road closures and parking restrictions, including from temporary closures during construction;
- Assess economic impacts of parking restrictions on Given Terrace and La Trobe Terraces;
- Scale back the suggested estimate of 1241 jobs (due to under-utilisation of labour in Queensland post-GST and post-Olympics);
- Full time employment (operational) should account for existing staff;
- PCYC, La Boite and OzSports job losses should be identified;
- Further consideration needed on mitigation of parking impacts on businesses;
- Qualify the loss from resumption and demolition of heritage buildings;
- Project costs a serious omission; and
- Discussion of alternatives doesn't investigate a high cost alternative.

SOCIAL

- Identify social impacts of out-of-hours construction work;
- Identify cumulative social impacts;
- No mitigation possible for losses to local amenity (9.4.4);
- Cumulative impacts should be recognised and mitigated (eg. through provision of real green space, child care facilities, better access to transport, provision of new community facilities);
- Consideration should be given to restriction of alcohol consumption, alcohol free zones, tobacco free zones (Tobacco Act should be listed in Table 10.1);
- Mitigation for residents in Clifton Street fronting Milton Road walkway, particularly resumptions;
- Fails to discuss impacts on use of Ozsports and PCYC, and impacts of relocation (volleyball noise and lights etc.);
- Consideration of further community benefits within the stadium, eg other community uses to allow the building to be used more than event times;
- Removal of "icon" terminology in references to Lang Park;
- Upgrade to 50 metres and heat the Ithaca pool;

- On-going community involvement and regular community information through newspaper is required to be carried through during construction, and implemented in an ongoing fashion;
- Monitoring of patrons evicted from the stadium essential for all games and ensured in perpetuity;
- Consideration of impacts on property values of adjacent residential community;
- More consideration of the needs and constraints on young families in accessing Lang Park; and
- Consider and plan for minimisation of disruption to existing facilities (sports+theatres) during construction, and loss of revenue.

ACOUSTIC

- Need more monitoring sites and more frequent monitoring to get a true picture;
- Should assess and define appropriate pedestrian noise criteria;
- Should recommend that amplified entertainment (other than sporting events) be banned or recommend specifications for the public address system and provide an assessment of their impacts undertaken;
- Should assess noise impacts from goods trains operating later as a result of commuter rail congestion;
- Proposal should include state of the art public address systems to minimise intrusion of noise;
- The use of helicopters should be banned, or limitations on helicopters should be more detailed;
- Noise from Good Year Blimp should be assessed;
- Inclusion of double glazing and insulation to the dwellings of noise-affected residents;
- Impact of noise from light rail construction will be completely unacceptable, if working in the early hours;
- Fireworks assessment required;
- Location map for acoustic monitoring sites and describe monitoring equipment;
- For construction phase, management plans will need strict controls on vibrations;
- Consideration of parabolic effect part. on Hale Street to be provided;
- Question re use of acoustic baselines;
- Difficult to attenuate noise from waste collection dock due to size of openings in building;
- Noise criteria for haulage and construction activities out-of-hours;
- Mitigation of construction noise on Church and La Boite; and
- page 5-84, Table 5.4.2 acoustic levels require clarification and possible correction.

OTHER ENVIRONMENTAL ISSUES

(a) Flora & Fauna

- The removal of trees from Lang Park and the Baroona Special School;
- Affected vegetation should be identified on a layout plan;
- Mature trees should be relocated on site;
- Inadequate description of impact to vegetation;
- Fauna assessment lacking habitat analysis; and
- Impact on fauna from loss of vegetation.

(b) Contaminated Land Issues

- Contaminated land – up to 100 000 m3 of landfill – requirement for information request not received.

(c) Lighting

- more discretion (smaller range) in describing light spill (9-100 lux);
- lighting impacts from pedestrian walkways; and
- lighting from proposed stadium will affect nearby residences more often.

(c) Miscellaneous Environmental Issues

- Shadow diagrams need to be included in EIS; and
- Need for integrated pest management strategy.

INFRASTRUCTURE

- Need to coordinate power needs with the possible decommissioning date for Hale Street sub-station;
- Need to recognise future planning and infrastructure needs for power supply;
- While the concept of water reuse and storage is supported in principle, details should be included in the EIS; and
- if local drainage augmentation has not been committed to by BCC there will be storm water inundation.

TRAFFIC & TRANSPORT

(a) Pedestrian Walkways

- Pedestrian walkways require examination in relation to capacity and CPTED issues;
- Pedestrian connections to Roma St are considered unworkable and unacceptable due to the neglect of CPTED principles;
- The elevated walkway along Roma Street should be deleted – alternatives to be assessed include providing a connection via easement adjacent to the Transit Centre or closing traffic lanes during major events;
- Consider connecting the pedestrian bridge over Countess Street directly to rail platforms;
- Consider improving pedestrian access from southern plaza under the railway line to the Bicentennial Bikeway;
- Pedestrian path on north-western side of Milton Road should be deleted because the impacts on Baroona Special School will be unacceptable;
- Need to adequately discuss how the pedestrian walkway to Milton Station in the rail corridor is accommodated;
- Reference should be made to the long-term pedestrian connection from Victoria Barracks to Roma Street Parklands as proposed in the Parklands Master Plan;
- A pedestrian bridge between Petrie Terrace and Roma Street Parklands should be included;
- Pedestrian routes to Countess Street bus station are not clearly defined;
- Consider aligning the pedestrian bridge from the transition plaza to line with Skew Street to provide more direct link to William Jolly Bridge;
- Consider the impact of pedestrian furniture on walkway capacity calculations; and
- Pedestrian walkways are uncovered and will not provide adequate shelter.

(b) Transport Infrastructure

- Rail station upgrade should be of much better quality than recent upgrades;
- Impacts to Railway Terrace businesses from Milton Station upgrade not discussed;
- The strategic role of the contra-flow bus and light rail corridor in Upper Roma Street should be examined;

- Pedestrian movements at the bus station not adequately addressed;
- Inadequate space for public transport terminal;
- Ferry terminal at Park Road should be considered;
- Hale Street should remain open;
- Milton Road works that include widening of the road reserve on Milton Road are not described;
- The benefits of the Countess Street bus station are not considered; and
- Ensure improved transport options are permanent and not just for games.

(c) Traffic Impacts during Construction

- Allowable routes for construction vehicles & means of control to be identified;
- Haulage through residential and mixed use streets should be prohibited;
- Failed to assess impacts of construction traffic on local intersections;
- Specify the number of trucks accessing site out-of-hours;
- Deliveries by heavy vehicles are illegal out-of-hours;
- Measures should be proposed to prevent parking of construction vehicles in residential streets; and
- Details of the Contractor off-site parking arrangements should be provided now.

(d) Light Rail

(NOTE: light rail is not proceeding – this information is included only for completeness of detail)

- Evaluate viability of light rail;
- Reconsider or relocate light rail;
- Proposed light rail from Milton should have a separate impact assessment;
- Reconsider acceptance of QT policy on light rail;
- Further consideration of community benefits of light rail in planning and design; and
- Light rail benefits are questionable – there should be more emphasis on heavy rail access and associated connections to the stadium.

(e) Traffic Management and Impacts in the Local Environs

- Impact on local bus services not sufficiently addressed;
- Review set-down areas for passengers being dropped off – in particular, the passenger set-down area on the Caxton Street frontage should be omitted;
- Implement a ban on traffic except for residents before during and after events - provide barricades at Guthrie Street, Heussler Terrace, Hall Street, Nairne Street and Patrick Street;
- Review management of traffic approaching from north west and west, including Isaac Street's vulnerability to set-down and pick up traffic;
- Blaxland Street is inappropriate as a taxi feeder/limousine parking area due to its residential nature – consider alternatives;
- Taxi rank in Castlemaine Street should be reconsidered as it must bring people into residential areas;
- Heussler Terrace should not be used for a taxi rank;
- No definition provided of allowable routes for taxis;
- Capacity improvements should be considered at Caxton/Castlemaine and Milton/Castlemaine intersections;
- Identify the reasoning for banning the right turn out of Castlemaine Street post-event;

- Consider the right turn movement for returning shuttle buses from Milton Road to Castlemaine Street;
- Address the impacts of interference to traffic flow restricting from closures, increased traffic and parking and pedestrian flows;
- Road and pedestrian path upgrades on Given and Latrobe Terraces should be considered;
- Traffic activity in Castlemaine Street has not been addressed;
- Access and egress to off-street public parking stations in the Park Road retail precinct and Coronation Drive office park should be maintained – potential impacts of coach parking;
- Alternative on-site vehicle access should be provided from Hale Street;
- Mitigation could exacerbate impacts for businesses – eg, construction - closure of Castlemaine Street, pavement deterioration in Castlemaine Street; interruption to water service; also operational impacts;
- Details of implementation of traffic management plans are required;
- Adoption of traffic movement management plans which ensure local and industrial business issues are addressed, to be developed in consultation and to form part of construction and operation contracts; and
- Proposed mechanisms for dealing with public complaints should be included.

(f) Accessibility and Cyclists

- The provision of only 40 parking spaces for disabled patrons is disappointing;
- Cycling has been ignored in the design;
- Fails to consider legislation requiring equity of access;
- Walking connectivity and access for those with access disabilities and cyclists needs review;
- Links to Roma Street Parkland for pedestrians and cyclists should be included; and
- Links to the River should be included.

PARKING

- Council considers the introduction of the proposed parking restriction scheme to be very necessary, however, the cost of administering the scheme must be fully funded by the stadium operator;
- A special permit system for Rosalie Village and Paddington Traders should be considered;
- Parking restrictions in Petrie Terrace area would prevent regular audiences from attending the Brisbane Arts Theatre and La Boite Theatre;
- The impact of the parking scheme on employee parking needs should be assessed;
- The basis for selection of the parking cordon should be confirmed;
- Signs for parking must conform with the Manual of Uniform Traffic Control Devices to enable police enforcement;
- Legislative changes associated with the Transport Operations and Road Use Management Regulations (1995) may be required if Police are expected to support BCC Traffic Enforcement Officers in patrolling the parking area due to the quantum of the parking penalty;
- Integrate the proposed parking system with existing BCC residential parking scheme;
- Only impose restrictions on parking in streets where residents don't have off-street parking;

- There are some additional commercial areas that are suitable for 2 hour parking limits;
- Details on the monitoring of the parking scheme are required;
- Failed to consider illegal backyard parking; and
- On-site parking numbers – the plans and text feature inconsistencies.

POLICE AND EMERGENCY SERVICES

- Clear and unobstructed vantage point for Police and Emergency Services;
- Access to close and unobstructed parking;
- Command car parking operating from a structure vantage point with good communications;
- Effective monitoring capacity;
- CCTV and surveillance system essential;
- Recommend acceptance of mitigation measures for crowd control and traffic management;
- Review of the master plan to incorporate the above; and
- Recommend relocation of PCYC as per PCYC submission.

CONSTRUCTION

- No construction should be permitted on Saturdays, Sundays or after hours;
- No out-of-hours truck movements should be permitted;
- Noise impacts of construction will be unacceptable;
- There is an inconsistency in construction hours, construction workforce numbers and parking numbers in the draft EIS;
- Feasibility of moving dust monitoring equipment during construction;
- Important for objectives and criteria to be met by soil and erosion plan be proposed in the EIS;
- Need to develop drainage issues into mitigation strategies;
- Reiterate lighting standards in mitigation section; and
- No Construction or Environmental Management Plan (inc. cultural heritage management plan) included in the draft EIS.

DESIGN MITIGATION

General Design Issues

- Stadium design needs to change to ameliorate the social, environmental and economic & crime impacts of the structure, and better reflect the reality of its context & different environments on each side;
- Easy to achieve world-class stadium design but not easy to achieve world-class access to stadium – proposal fails on the latter designs;
- Some walkways do not provide convenient access for people with disabilities, and the location itself discourages people with disabilities from attending;
- Caxton Street frontage needs to present a living address and link with Given Terrace;
- Community art spaces should be considered, and use of artists in design treatments;
- Bulk, scale and lifelessness of building are aggressive;
- Northern plaza should reinforce "green buffer" between Caxton Street and Given Terrace;
- Church interface is over-whelming and needs redesign for vertical and horizontal separation;

- Building design should take into account the existing interruption to telecommunications reception – should be strengthened;
- Shade and protection from elements should be included; and
- Provide reasonable advertising/facilities within the ground to mitigate loss of advertising, increased operating costs and other costs.

GENERAL MITIGATION

- Government should guarantee that mitigation measures are reflected in final iterations, ...";
- (6.2.2) More clarity on "other events" and their impacts and outlaw concerts;
- Ensure there are no unmitigated issues (through financial reparation or design changes);
- Ensure light rail is a pre-requisite to development;
- Mitigation measures not measurable;
- No mitigation suggested for La Boite or Brisbane Arts Theatre;
- Need details re availability of toilet facilities and water supply (6-110 & 9-42); and
- Proposal should include food safety plans eg. Food Act 1981 & Food Hygiene Regulation 1989.

REQUESTS FOR FURTHER CONSULTATION

- Future consultation is required regarding structures to be placed over public roads;
- Consultation is sought regarding indigenous interests for interpretative measures for open space;
- Further consultation is sought regarding the need for pedestrian and cycling connectivity through the site, and the possible connectivity of the future light rail link;
- Further consultation is sought regarding future traffic disruption and economic impacts, especially during construction;
- Further consultation is sought regarding the impacts of construction and possible relocation of existing uses;
- Further consultation is sought regarding the preparation of Operational Management Plans and detailed design issues (police facilities, accessibility and surveillance);
- Ongoing consultation is sought regarding impacts on Christ Church;
- Further consultation is sought regarding the possible use of the Broadwalk on Hale architects concept;
- Further consultation is sought by the community regarding construction and operational impacts; and
- Further consultation is sought by La Boite and Brisbane Arts Theatre regarding construction and operational impacts.

COMMERCIAL STRATEGY

- Commercial justification for the proposal required with EIS for public scrutiny;
- Elaboration of financial arrangements, including a market feasibility study required;
- Need detailed synopsis of financial viability, suitability and conformity with local authority plans;
- Reconsider viability of major cultural events given supply of venues in the CBD;
- Material in EIS doesn't make a strong case for the redevelopment to proceed; and
- Re-examine conclusion of EIS, mitigation measures and total cost of the project.

ATTACHMENT 4: Significant Approvals, Licences/Permits and Statutory Requirements

APPROVALS

Environmental Protection Act 1994 Environmental Protection Regulations 1998 Planning, Design, Construction and Operation	Level 2 Environmentally Relevant Activity (ERA) Number 39 – Constructing Premises or Civil Engineering Structures (constructing or demolishing). "Notifiable activities" Schedule 3 of the EP Act likely to cause land contamination include landfill and included in Environmental Management Register (EMR). A Contaminated Land Register (CLR) is kept of actual contaminated land. "Change of landuse" is a trigger for investigation.	Approval for ERA devolved to Local Government. Contaminated site investigation in accordance with EP Act required and approved site management plan required. Approval for the removal of contaminated soil.
Queensland Heritage Act 1992 Planning, Design and Construction	Provides for a register of cultural heritage places and regulates their development. "Development" includes substantial alteration to the appearance of a registered place.	Development by the Crown requires the approval of the Heritage Council only to the extent of altering a place listed on the Register.
Land Act 1994 Planning, Design and Construction	Registration of land titles. Making State land available in fee simple/lease/permit/reserve.	Land titles and leases may restrict land use or have restrictive covenants or easements. Approvals to obtain unallocated State land in accordance with Chapter 4, Part 1 of the *Land Act 1994*.
Land Act 1994/Land Regulation 1995 Planning, design, construction	Permanent and temporary closure of roads.	Approvals to be obtained from the Minister under Chapter 3, Part 2, Division 2 of *the Land Act 1994* for the permanent or temporary closure of roads.
Transport Infrastructure Act 1994	Entering Railway land to carry out works (including pedestrian structure), temporary use of land.	Approvals required to enter QR land in accordance with the *Transport Infrastructure Act 1994*.
Transport Operation (Road Management) Act 1995 Construction and Operation	Regulation of transport of dangerous goods.	Approval processes and regulations as prescribed by Transport Operations (Road Use Management – Dangerous Goods) Regulation 1998.

Approvals continued

Integrated Planning Act 1997; *Building Act 1975;* City of Brisbane Town Plan 1987.	BCC – Assessment Manager under the Integrated Development Assessment System (IDAS).	1. Development Permit – Building work (Demolition) under *the Building Act 1975* (subject to Code Assessment). 2. Development Permit – material change of use and preliminary building work under the Planning Scheme (subject to impact assessment). 3. Development Permit – building work under the *Building Act 1975* (subject to Code Assessment).

LICENCES/PERMITS

Cultural Records (Landscape Queensland and Queensland Estate) Act 1987	Cultural heritage assessment survey Collection of artefacts.	Permit from EPA (s 27) for survey.
Local Government Act 1993 BCC Local Laws Operation	Responsibility covered by Local Laws include a wide range of powers to control issues such as: • street maintenance; • protection of vegetation; • control of advertisements; and entertainment venues and events.	The Local Law Policy (Entertainment and Events) 1999 is particularly relevant to the control of major sporting venues. All entertainment venues and events require a Permit. The permit covers health, safety, environment and amenity issues for the surrounding community. It is noted however, that if the owner ofthe venue holds a Liquor License, then a permit is not required.
Explosives Act 1952 Operation	Carriage, Storage and Use of explosives.	Licence or permit required for storage and carriage of explosives. Temporary storage approved by chief inspector of explosives in accordance with conditions. People using explosives are licensed.
Transport Operations (Road Use Management) Act 1995	Queensland Department of Transport and Department of Main Roads.	Wide Load permits if oversize equipment and machinery needs to be trucked to the site. This is obtained from the Dept of Main Roads office nearest to the point of departure. Permits may be required for mass transport by road or rail.

Licences/Permits continued

Liquor Act 1992 Operation	Sale of liquor.	General Purpose Permit (for Organisations which do not hold a liquor licence). Public Function Permit (for licensees catering for a one-off public event away from their main licensed premise). Permit issued by the Liquor Licensing Division, Department of Tourism and Racing.

STATUTORY REQUIREMENTS

Environmental Protection Act 1994 Environmental Protection Regulations 1998	General Environmental Duty. Duty to Notify of Environmental Harm.	Reasonable and practicable measures to prevent or minimise environmental harm. The EPA must be notified of any event where environmental harm is caused or threatened.
Environmental Protection (Water) Policy 1997 Planning, Design, Construction and Operation	Management of wastewater and stormwater and contamination of water from specified agents, including build up of sediments. Section 31 prohibits the deposition, release or placement of identified waste materials and chemicals which could reasonably be washed into gutters, stormwater drains or watercourses. Section 32 prohibits the deposition of sand silt or mud which could reasonably be washed into gutters, stormwater drains or watercourses.	There are no specific approvals. Compliance with general environmental duty in accordance with the standards established in the EPP. EMP to specify actions to prevent pollution of waters from any activity associated with construction and operation of the stadium.
Environmental Protection (Air) Policy 1997 Planning, Design, Construction and Operation	Defines unreasonable release of contaminants. Establishes indicators and air quality goals for environmental values.	There are no specific approvals. Provides guidance to the approval of environmental authorities or ERAs. Administering authorities are obliged to respond to complaints. Provides for "show-cause" and "abatement notices". Compliance with general environmental duty in accordance with the indicators and goals established in the EPP.

Statutory Requirements continued

Environmental Protection (Nuisance) Regulation 1999 Construction and Operation	Unreasonable local or amenity interference with an environmental value caused by noise, dust, odour or light. Amenity is defined as "public, community and individual well-being and a pleasant, harmonious lifestyle". Qualities of an acceptable acoustic environment are: • Free from annoying intrusive noise; • Conducive to undisturbed sleep; • Conducive to passive recreation; and • Conducive to conversation without undue interference from noise.	Provides local and state governments with powers to resolve nuisance complaints. Does not apply to outdoor sporting events. Abatement notice can be issued for outdoor concerts if it exceeds 55dB(A) over a 15 minute interval outside an affected noise sensitive place. Unreasonable release of a contaminant from commercial premises such as smoke is an infringement notice offence. (Such an application could possibly apply to Firework displays).
Cultural Records (Landscape Queensland and Queensland Estate) Act 1987 Planning and Construction	A person shall not take, destroy, damage, deface, excavate, expose, conceal or interfere with an item of the Queensland Estate unless done under the authority of the Act (S.56 (2)). Item includes any structure or object that is evidence of man's occupation of Queensland at any time that is at least 30 years in the past. Penalties apply for unauthorised interference (s. 56).	Sites identification, risk management, Cultural Heritage Management Planning within the EMP. Work to stop and the EPA (Regional Manager, Cultural Heritage) notified of any sites found in the course of the project.
Acquisition of Land Act 1967/State Development & Public Works Organisation Act 1971 Planning, design, construction	Acquisition of land for public purposes.	Acquisition of land by the contracting authority pursuant to the *Acquisition of Land Act 1967* or, alternatively, by the Coordinator-General under Part 6, Division 78 *SDPWOA*.
Workplace Health and Safety Act	State Department of Employment, Training and Industrial Relations.	Registration of workplace with three or more employees. Portable Long Service Leave. Legislation provides for Construction Workplace Registration and Industrial Workplace Registration.
Health Act 1937 (and associated regulations) Design and Operation	Vermin Control.	Prevent the entry of vermin into buildings. Prevent access to food by vermin.
Lang Park Trust Act 1994	Restrictions on selling Trust land without Governor-in-Council approval.	Part 3, *Lang Park Trust Act 1994*.

Statutory Requirements continued

Transport Infrastructure Act 1994	Carry out changes to rail system.	In accordance with parameters and responsibilities under the *Transport Infrastructure Act.*
Traffic Act 1949 and Traffic Regulation 1962 Construction and operation	Use of motor vehicles in the construction and operation phase.	Regulation of motor vehicles and their use.
Liquor Act 1992 Operation	Patron behaviour, in and around an event's licensed or permitted area. Duty of care towards event patrons.	Penalties for licensees. Event Management Plans to minimise community disruption and harm.
Integrated Planning Act 1997	Minister/s.	Designation of community infrastructure.

DTSR-STADIUM

COMMAND #102

	DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	STATUS
001	1/15	11:12	617 34074613	EC--S	00' 27"	001	OK

Queensland Government

FACSIMILE

To:	[redacted]	**Fax:**	3407 4613
	Energex		
CC			PF052/1.9
From:	[redacted]	**Date:**	15 Jan 01
	Project Manager, Lang Park Redevelopment	**No. of Pages:**	1 *(including this page)*
Subject:	Lang Park Substation		

Message

Paul,

I have reviewed the Northern and Southern Plaza options with the consultant team. The Northern Plaza option is unworkable from our point of view mainly to do with problems with the EIS. The problem relates to putting a facility like this large substation closer to the residential area than it would be if it were in the south. Issues relate to increasing work related traffic and the noise generated by the substation. The southern end however, has already been recognised as a substation site. I understand the technical considerations from Energex's point of view that make the northern site more attractive.

For Brian's information, we can provide the 81 metres by 15 metres footprint requested in the Southern Plaza. My reading of the height issue is that the bus platform is at RL 3.5 with the plaza above at RL 12.9. We can allow significant areas of the substation to go as high as RL 16.0.

I am keen to get a copy of your volumetric space requirements so that I can work with our consultant team and get agreement with on your area.

Regards,

[redacted]

PS. Thanks for the site inspection at Woolloongabba the other day.

Sport and Recreation Queensland

Stadium Development Group

Ground Floor CSR House 18 Little Cribb Street MILTON QLD 4064 PO Box 187 ALBERT STREET BRISBANE QLD 4002

Telephone (07) 3235 9084 *Facsimile* (07) 3008 2610 *Website* www.sportrec.qld.gov.au

DTSR STADIUM

COMMAND #226

	DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	STATUS
001	2/26	13:54	617 34074613	EC--S	00' 27"	001	OK

Queensland Government

FACSIMILE

To:	[redacted]	**Fax:**	[redacted]
	Energex		
CC			PF094/1.9
From:	[redacted]	**Date:**	26 Feb 01
	Project Manager, Lang Park Redevelopment	**No. of Pages:** *(including this page)*	1
Subject:	Milton Zone Substation		

Message

Paul,

I refer to our recent conversation as well as my fax of 15 January and Brian Murray's fax of 21 February.

I have spoken to Public Works (QBuild) regarding their property in Cribb Street and they advise that this is a strategic property as a Works Depot with a long term future. In fact current refit work is being carried out to allow staff to relocate from Mineral House.

I see no alternative for Energex to the South Plaza option mentioned in my fax. With the imminent approval of the Stadium project, it is important that Energex be in a position to move forward quickly.

My fax of 15 January sought Energex's preliminary volumetric space requirements so that any site constraints could be discussed with our consultants. In this regard, we have not seen any information, but Brian's fax of 21 February is seeking detailed design information from our side that does not yet exist. We will not be designing to the level of detail requested by Brian until we have a better understanding of how Energex can be accommodated on the site.

We have certain flexibility as to how Energex may be accommodated in the South Plaza and look forward to discussing options in the near future.

Regards,

[redacted]

Sport and Recreation Queensland

Stadium Development Group

Ground Floor CSR House 16 Little Cribb Street MILTON QLD 4064 PO Box 187 ALBERT STREET BRISBANE QLD 4002
Telephone (07) 3235 9084 *Facsimile* (07) 3008 2610 *Website* www.sportrec.qld.gov.au

[redacted]

From: [redacted]
Sent: Wednesday, May 09, 2001 9:23 AM
To: [redacted]
Subject: Lang Park

PE151/1.9
[redacted]

We were given Ministerial advice through the DG of Public Works that the project is to proceed and that we are to go to tender immediately.

Consequently, we will be releasing tender documents for the main contract on Thursday 10 May with tenders closing on 31 May. We are hoping to appoint a Contractor by 7 June.

The first issue for Energex is the existing substation in the area of the McAuliffe Stand. This needs to be de-livened (if that is the correct term). My understanding is that Energex require up to 16 weeks to effect this result. We will work around that timeframe starting from today.

The second issue is the proposed substation which I still have in the South Plaza. In regard to this, we are likely to .educe the plaza so that the Energex facility will be a standalone facility without plaza over the top. We need your advice on which direction you are going in delivering this facility.

Lastly, I am now prepared to issue any drawings that Energex may require. If someone could let me know what you require, we will get them for you.

Regards,

[redacted]

Project Manager
Brisbane Football Stadium at Lang Park

Level 4B, 60 George Street
Brisbane Qld 4000
GPO Box 2906
Business (07) 3224 4424
[redacted]

Quality Assured to ISO 9001:1994
A Business Unit of the Queensland Government Email: Peter.Teys@projectservices.qld.gov.au

Project Services
Queensland Government
Department of Public Works

Brisbane Office: GPO Box 2906, Qld 4001

Facsimile

To:	[redacted] Sinclair Knight Merz	**Fax No:**	3244 7306
From:	[redacted] Project Manager Lang Park Redevelopment	**Phone No:** **Fax No:**	[redacted]
Date:	30 May 2001	**Ref:**	PF156/3.27

No of pages: 4 (incl) If all pages are not received please phone: 07 3224 4424

[redacted]

It is the intention of Department of Public Works to engage SKM to provide planning services during the construction stage of the project.

I agree with the scope items listed in your email to me dated 16 May. In addition, you should include assistance that is required from Yin & Jeremy Weeks. Keeping in mind in this latter area, that the bulk of the responsibility will be upon the contractor. Also, there is a role for you in liaising with UQASU and providing input into their work. (In this regard, I have attached their proposal dated 23 May. Can you please look at it and comment on its suitability)

With regard to Energex, they are definitely coming into the South Plaza as shown on the DD plans. State Development have agreed to grant Energex a 99 year lease on a volumetric basis. Whilst design and construction of this facility is the responsibility of Energex, they are going to sublet this work to the Managing Contractor and his design team. They will need to get whatever approvals are necessary and I have advised Energex that you will do the bulk of this work on their behalf under your contract with us.

Can you now flesh this out to a more complete scope of work and provide us with the basis of your fee for consideration and approval.

[redacted]

Project Services
Queensland Government
Department of Public Works

Memorandum

To: [redacted] State Development

From: [redacted]

Position: Project Manager

Division: Suncorp Metway Stadium

Phone: [redacted]

Date: 10 July 2001 **Ref:** PM185/1.9

Copies: [redacted]

Subject: **Suncorp Metway Stadium - Energex**

Nev,

We need an agreement with Energex that will enable us to move forward with their proposed facility.

The current situation is that a site for the Energex facility has been allocated in the South Plaza and we have received concept plans from Energex as to what they require. The proposal is for the Managing Contractor to design and price the basic shell, our audit QS to check the price, Energex to accept and then the contractor to construct as a variation to their contract with Public Works. Public Works would then claim the cost back from Energex.

We seem to need agreement between the Government and Energex on the following:

- Takeover of the existing Energex site in Chippendall Street
- Tenure of the proposed site
- Public Works subcontracting of the facility via the Managing Contractor
- Payment system

Additionally [redacted] tells me that we need an approved Material Change of Use for the site. This can either happen by a DA or by a specific designation for Energex use through the Government. The latter is obviously a lot quicker.

[redacted]

[redacted]

To: [redacted]
Subject: FW: Suncorp Metway Stadium

FYI

-----Original Message-----
From: [redacted]
Sent: Monday, 24 September 2001 1:46 PM
To: [redacted] (E-mail)
Cc: [redacted] (E-mail)
Subject: Suncorp Metway Stadium

PE253/1.9

[redacted]

I understand that [redacted] was kind enough to handover resolution of the Milton 110KV Substation to you in his absence.

My understanding of the current situation is as follows.

- Energex's intended site in Chippendall Street has been removed from Energex control and is to be incorporated into infrastructure works for the new stadium development.
- Energex has been allocated a site on Castlemaine Street within the site area currently controlled by the Stadium.
- Energex examined various alternative sites and elected to take the offer of the Castlemaine Street site.
- State Development (Nev Hore) is preparing a lease document giving Energex tenure for 99 years.
- State Development is seeking to redesignate the site from Community Infrastructure to Energex Use.
- Energex requested that the Stadium team Design and Construct the substation shell on behalf of Energex prior to fitout by Energex. On behalf of the project team, I have agreed with this approach.
- The mechanism of project delivery was:
    - Energex to provide a Brief,
    - The Stadium contractor to provide a price which is to be checked by the Stadium Cost Auditor
    - Upon acceptance by Energex, an order is to be placed on Dept of Public Works
    - Dept of Public Works to issue an order on the contractor, supervise and certify work under this contract
- To the extent that the Stadium project wished to enhance your Brief (aesthetics, etc), the Stadium project would carry this cost.

Energex duly provided the Brief including sketch layouts of what was required. This has been costed and is ready for submission to Energex. Included in this price is a line item of $96,000 which is an enhancement on the Energex Brief for additional facade treatment. This latter cost is not a cost to Energex.

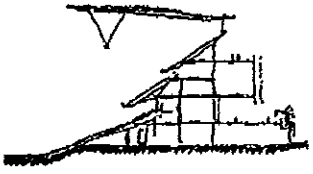
Paul Davis informed me last Friday that Energex did not want to pay for the project outlined in the Energex Brief, but wanted to pay for an undefined project of lesser value. The difference in value appeared to be in the order of $2 million.

There seems little point in lodging a price if the process is still not defined. It may well be better to hand the site to Energex for design and construction by Energex outside the Stadium contract.

Please advise how you wish to proceed.

Regards,

[redacted]
Project Manager
Suncorp Metway Stadium



Project Services
Level 4B 60 George Street Brisbane Qld 4000

Connell Wagner Pty Ltd
ABN 054 005 139 873

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(Locked Bag 1800)
Spring Hill
Queensland 4004
Australia

Telephone: +61 7 3246 1000
Facsimile: +61 7 3246 1001
Email: cwbne@conwag.com

Connell Wagner

1.(9)

Project: Lang Park	Reference: 772103BX/alec

To:	Copy:	Circulate:	Name:	Organisation:	Location/Facsimile:
✓			[redacted]		
	✓			Project Services	[redacted]
	✓			HOK Sport	
				Energex	
	✓			OAP	
				DLA	
	✓			RCP	
		✓	RAL		

From: [redacted]	Date: 1 December 2000	Total Pages: 3

Subject: **Energex**

Meeting

Attached draft copy of my minutes from the meeting from yesterday. Please advise any comments prior to issue to Energex.

[redacted]
Associate
[redacted]

COPY

Telephone:
Facsimile:
Email:
www.conwag.com

Connell Wagner

Meeting Record

Project:	Lang Park Redevelopment	Reference:	772103bx
Location:	Energex L16, 150 Charlotte Street Brisbane	Date:	30 November 2000

Present:	Apology:	Copy:	Circulate:	Name:	Organisation:	Location/Facsimile:
✓				[redacted]	AP SDG	
✓					RM RCP	
✓					PP Energex	
✓					PD Energex	
✓					BM Energex	
✓					BW OAP	
✓					RL CW	
✓					RH CW	
		✓			AR HOK	

Recorded By: [redacted]	Total Pages: 2
Subject: Energex Issues	

Details:	Action By/Date:
1.0 The underground 110kV cables running adjacent site in Castlemaine Street and Milton Road are the major electrical supply to the CBD. The cables were replaced recently to ensure security of supply. Energex have planned augmentation by a new feeder from Victoria Park to the city by the end of 2002. Energex to advise on the possibility of advancing this construction to provide greater security of supply during the Lang Park Road widening.	PP,BM
1.1 Energex advised that OAP proposal to examine relocation/realignment of the cables to align with proposed alterations to Milton Road would require a significant number of joints in the cable and present an unacceptable risk to the security of supply to the CBD.	Note
1.2 Energex alternative option of installation of new cables on an alternative route to avoid Milton Road either via Caxton street or to south of QR a high cost option, alternatives to be considered.	Note
1.3 Energex confirmed that the cables could remain in situ, with the detail design of the roadworks modified to allow for protection of the cables both during construction and on completion. They require confirmation from the owner of the road, BCC or main Roads, that access to the cables will be provided (eg in case of repair, a partial road closure).	BW, BM
Meeting agreed to pursue this course of action.	
2.0Energex advise the proposed 110/11kV Milton Zone Substation. Current location, under the southern Plaza adjacent Castlemaine Street has technical limitations including restricted cable access and clash with existing 110kV cables. Whilst acknowledging that the detail design would provide solutions, the site is not ideal and they would prefer another site,	

Connell Wagner

Details:	Action By/Date:
providing the approval process could be expedited.	
2.1 AP advised that BCC wanted Energex off the stadium site and the proposed substation was seen by BCC as an issue that may delay the approval process. Whilst this was seen as a political objection, the SDG believed that an alternate site for the substation may be the best course of action. Meeting agreed to investigate possible other sites in the Castlemaine, Black, Cordova Streets area, noting that whilst it would be preferrable to be adjacent the existing cable locations, a short diversion would be acceptable.	AP, PD, RM, BM
2.2 RM noted that the substation development would require a separate EIS, both in the current location on the stadium site and for an alternate site. Confirmation of early approval by BCC would be required prior to decision to relocate.	Note
2.2 The current proposed location to be developed further addressing BCC concerns regarding the bulk and height of the western wall, focussing on terracing, modulation of the wall and landscaping.	AR, RH, BM,
2.3 Energex confirmed that existing supply capacity would not be adequate support the stadium and that the substation will be required to be on line by early 2003, to allow time for cutover, testing and commissioning prior to completion of the stadium. Energex advised the draft programme for planning, design and construction of he substation, indicated as 24 months from December 2000 was tight but achievable, however approval to proceed required ASAP.	Note
3.0 Demolition Works. Energex to proceed with planning and procurement for relocation of existing UG & OH cable and substations Eastern stand and Chippendall Street to enable demolitions to proceed from February on the basis of current advice. SDG to formalise request ASAP	PP, BM, RM

(1.9)

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Tel: +61 7 3210 2530
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web: www.hok.com

HOK POWELL DODS & THORPE P·D·T SPORT
architects in association

Facsimile

To:	[redacted]	Company:			To:	cc:
			Stadium Development Group	07 [redacted]	☐	■
			Project Services	07	■	☐
			Davis Langdon Australia	07	☐	☐
			Ove Arup & Partners	07	☐	☐
			Lincoln Scott	07	☐	☐
			Queensland Transport	07	☐	☐
			RCP	07	☐	■
			Sinclair Knight Mertz	07	☐	☐
			Sinclair Knight Mertz	07	☐	☐
			Connell Wagner	07	☐	☐
			Connell Wagner	07	☐	■
From:	[redacted]	Project:	Redevelopment of Lang Park – Stage 2 Study – Energex at Northern Plaza			
Sent by:	nle	Project No:	00.2001.00			
Total Pages:	1	Time:				
Date:	3 January, 2001	Reference:	q:\00-2001-00_b2d-communications\d3-outgoing correspondence\d3.1-client\sdg010103l peter leys.doc			

Dear [redacted]

Further to your request, we have examined the possible location of the Energex Substation facility onto the Northern Plaza. The most likely location was considered at the North-West corner with a service access from Castlemaine Street. Due to the space requirements the building would extend from the cable gallery at Level 1 carparking up to above the top seating level. Please refer to the attached sketches.

Irrespective of the elevation treatments it would be impossible to mask the significant mass of such a building. The massing impact would be oppressive and would totally overpower the Plaza and the surrounding buildings and the Streetscape without any opportunity for relief to building.

The demand for volume as well as footprint for this facility does not allow for a creative solution to such a large problem. Additional issues regarding the operational noise levels and the requirement to ventilate to natural air would also preclude this location when the EIS conditions in relation to noise control are applied. We recommend that no further consideration be given to this location as a possible site for the Substation as it is totally unsuitable and it's impact upon the surrounding residential area and the Northern Plaza is totally unacceptable.

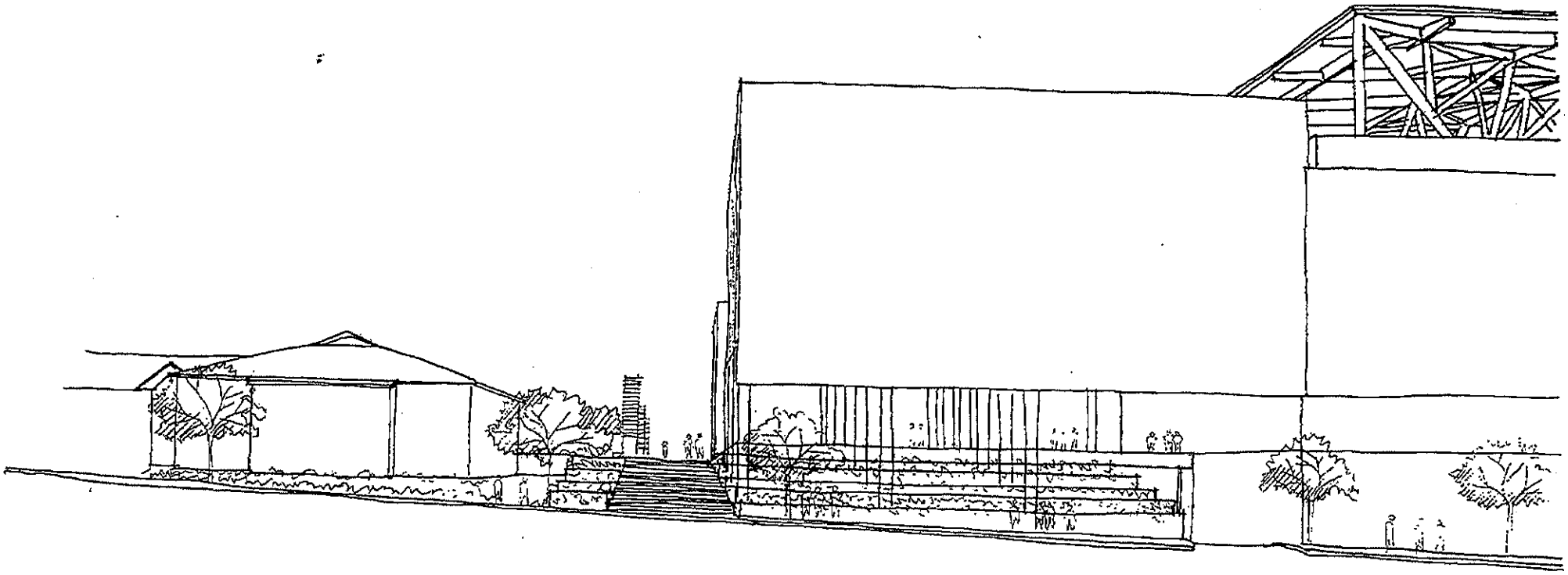
Please advise if you require any further work done on this proposal.

Yours sincerely

[redacted]

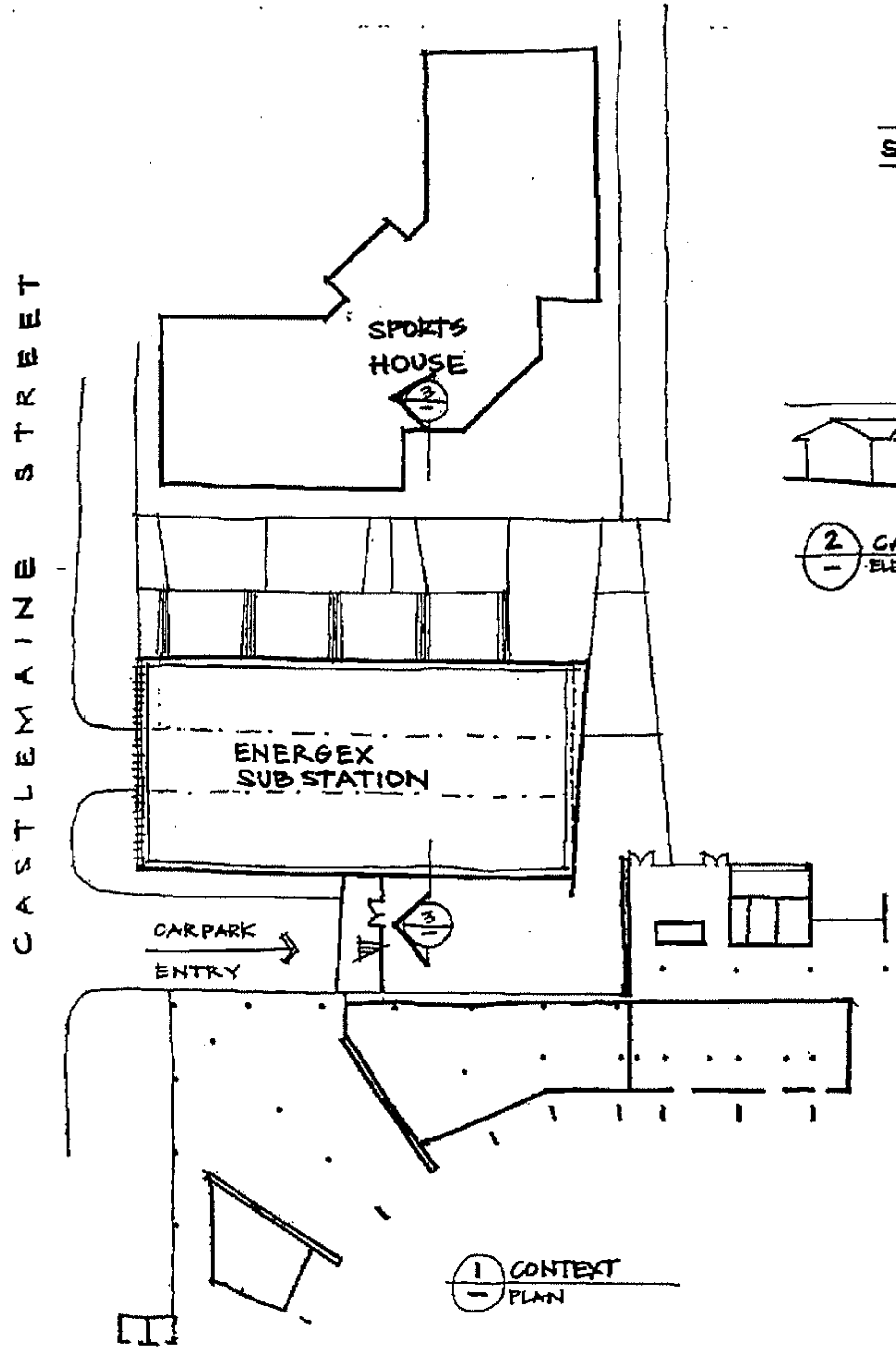
Project Coordinator
HOK Sport

1.9

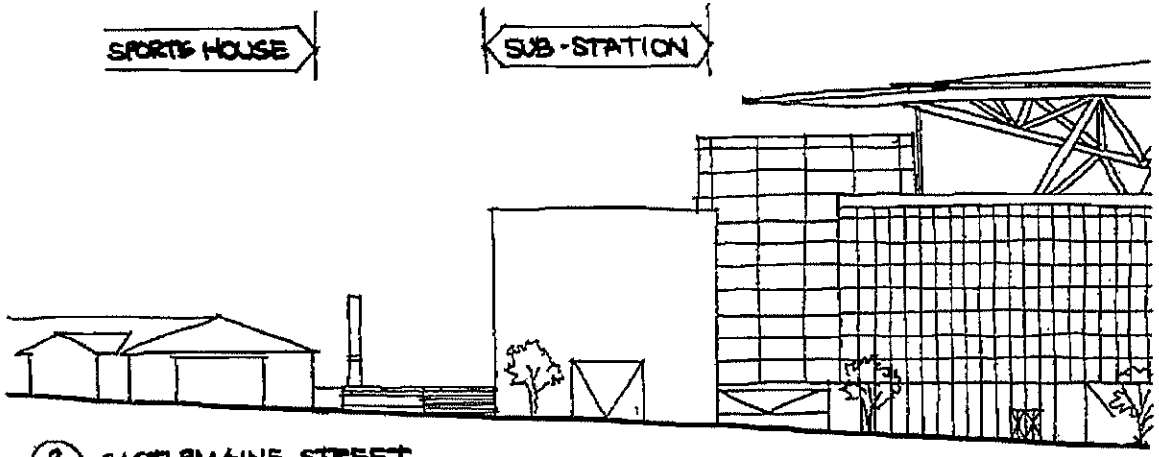


DATE: 21-12-00	PROJECT NUMBER: 00.2001.00	LANG PARK REDEVELOPMENT STAGE 2	
SCALE: N/A		DRAWING TITLE: ENERGEX NORTH PLAZA STUDY / 12 SPORTS FACILITY	
DRAWING NUMBER:	REV:		

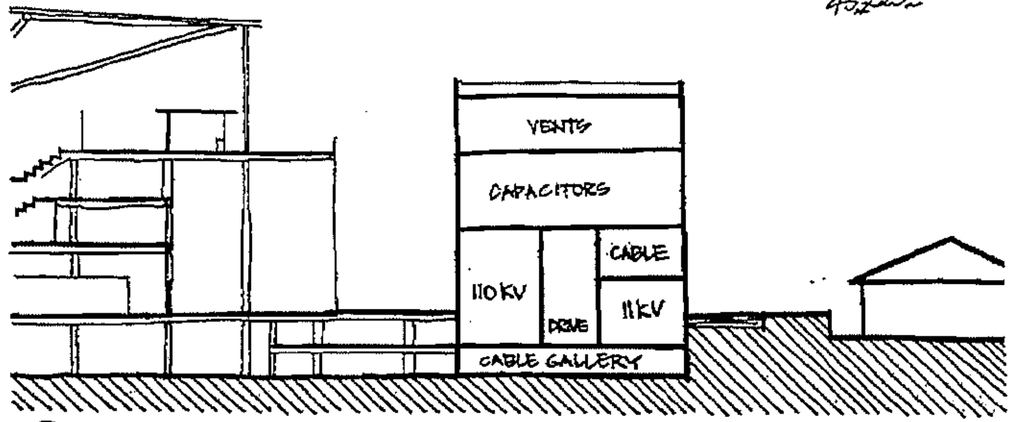
HOK SPORT | POWELL DODS & THORPE | PDT PROFESSIONAL ARCHITECTS



1 CONTEXT
PLAN



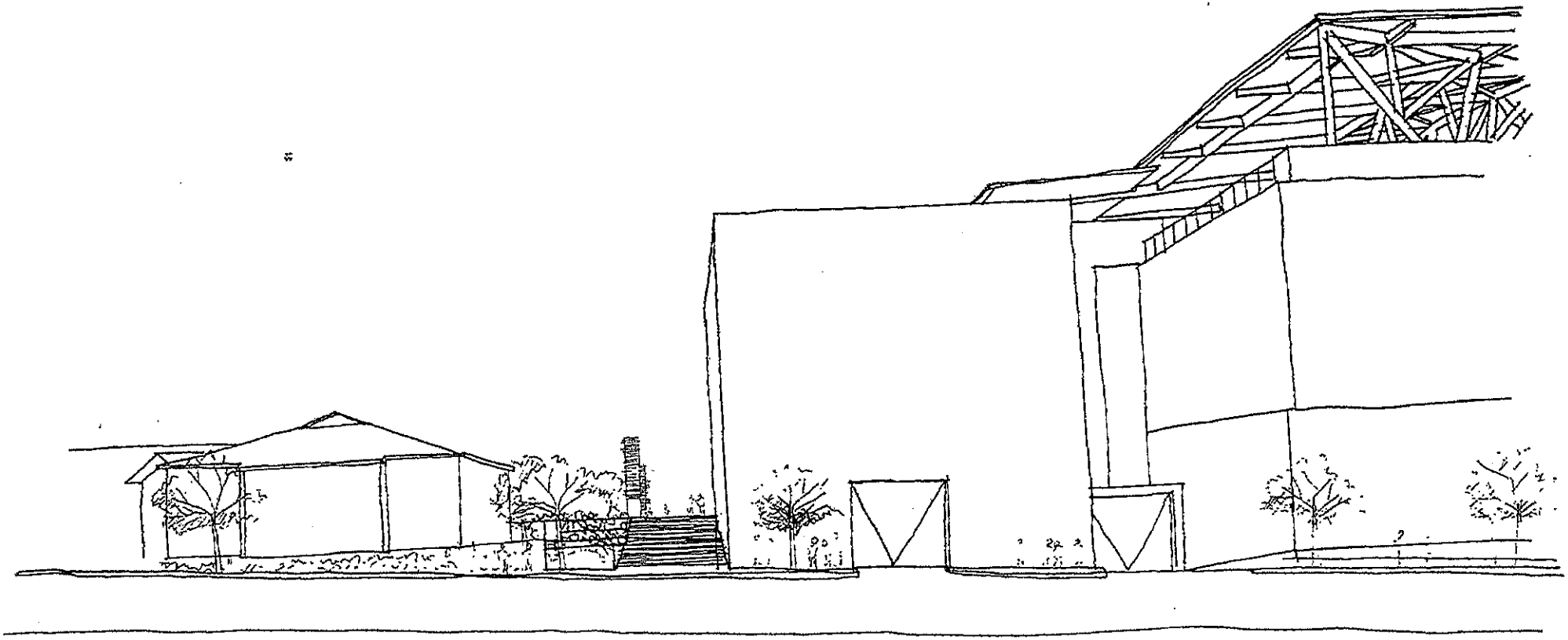
2 CASTLEMAINE STREET
ELEVATION 1:500



3 CONTEXT
SECTION

45x25

POWELL DODDS & THORPE / P·D·T PROFESSIONAL ARCHITECTURE / SPORT ... in association	DATE 21-12-00	PROJECT NUMBER 00.2001.00	LANG PARK REDEVELOPMENT STAGE 2
	SCALE 1:500 @ A3		DRAWING TITLE ENERGEX SUB STATION STUDY -NORTHERN PLAZA.
	DRAWING NUMBER SD-SK-81	REV.	



h+k POWELL DODS & THORPE P·D·T PROFESSIONAL ARCHITECTURE SPORT architects in association	DATE 21·12·00	PROJECT NUMBER 00.2001.00
	SCALE N/A	
	DRAWING NUMBER SD-SK-83	REV

LANG PARK REDEVELOPMENT
STAGE 2

DRAWING TITLE
ENERGEX NORTH PLAZA STUDY
ENERGEX SUB STATION

FACSIMILE
RECEIVED/DESPATCHED
17 JAN 2001
TIME 4.08

1.9

INFORMATION CONSULTANT SYSTEMS
RECEIVED

energex

17 January 2001

RECEIVED
23 JAN 2001
BY: R.

Sport & Recreation Queensland
Stadium Development Group
PO B ox 187
ALBERT STREET BRISBANE Q 4002

Attention M[redacted]

Dear [redacted]

Lang Park Substation

Thank you for your facsimile of 15 January 2001. It is good to see that the matter regarding the consideration of ENERGEX's requirements is finally being addressed. I have referred your request through to Brian Murray and no doubt Brian will reply as soon as possible.

Regarding your statement that "the problem (of placing the substation on the Northern Plaza) relates to putting a facility like this large substation closer to the residential area ..." is questionable.

I will be only too willing to take up with you the issue of such a substation being developed in residential areas. However, seeing as we do have a potential for a suitable site in the Southern Plaza location we can let this rest for another time.

Yours sincerely

[redacted]

Manager Property & Environment

P.S.

It is unfortunate that you could not stay for the final sign-off for the Woolloongabba project.

INTERNATIONAL QUALITY MANAGEMENT SYSTEM

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ENERGEX Limited
ABN 40 078 849 055

Reference 715/MLT Pt2

1.9

energex

Attention	[redacted]
Company	Stadium Development Group
Fax Number	[redacted]
Copies	[redacted]
Date	18 January, 2001 **Number of Pages**
Subject	Milton Zone Substation

Dear [redacted]

Thank you for your prompt response to problems of negotiating a satisfactory alternative site for ENERGEX's proposed Milton zone substation, which were sent to [redacted] in your facsimile of 15 January 2001.

In relation to the two issues which you describe as working against acceptance of the northern plaza site, we disagree with your consultant team's assessment. We consider that as the transformers would be totally enclosed in the building, there would be no noticeable noise above existing ambient sound levels and that once the substation was operational, any work related traffic there would be insignificant, compared to local traffic. In fact, traffic would be considerably less than that generated by a sports centre, which we understand was the original proposal. The building could be designed to look like anything but a substation.

The southern plaza site has only been considered by ENERGEX as a possible alternative to the original site at the corner of Milton Rd and Hale St, subject to satisfactory arrangements for accommodating substation equipment and underground cable access. The guarantee of 81 m x 25 m footprint for the southern plaza site and an increase in height from RL12.9 to RL16.0 for significant areas of the site makes it acceptable, although extremely crowded, from the point of accommodating all substation equipment. The site is well below the Q100 predicted flood level, creating problems in housing sensitive and expensive equipment above this level, and in ensuring access at all times. The Brisbane City Council has advised that ".. given the value of the infrastructure being considered it may be appropriate to assign a greater flood immunity than that provided by the design Q100 flood level."

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ENERGEX Limited
ABN 40 078 849 055

The problems of security for the 110 kV cables supplying the Brisbane CBD and cable access to the southern site remain. At the corner of Milton Rd and Castlemaine St, the 110 kV cables deviate onto the footpath, into a large cable pit used for cable joints. At this stage, it is not clear where the proposed plaza, bus station and substation foundations are in relation to the cables and what effect they would have on security of the cable route, particularly in the construction stage. The southern site is also constrained by large storm water drainage pipes close to the surface and close to the footpath, which restricts cable access. Allowance must be made also for distribution from the substation by up to forty 11 kV feeder cables, which may need cable tunnels and road crossings.

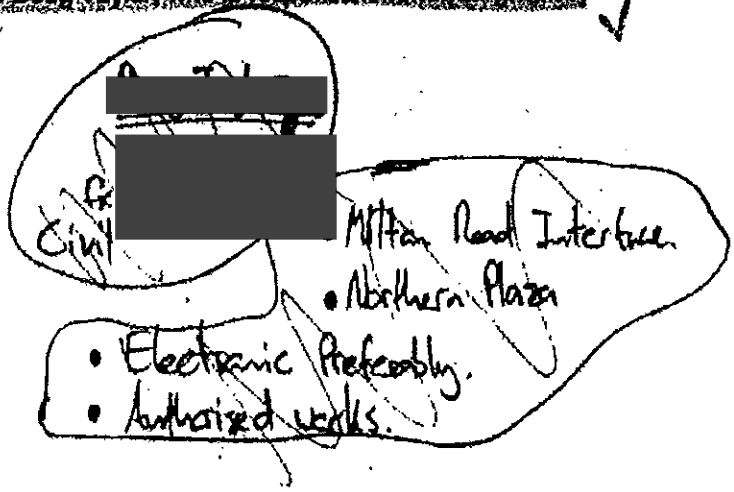
On the subject of security of the 110 kV supply to the CBD, ENERGEX has expressed concern at the effect of other proposed work in Milton Rd, which is independent of substation location. We assume that the decision made at a previous meeting on 30 November 2000, to re-profile Milton Rd along the 110 kV cable route into Upper Roma St, to avoid disturbing the cable, still stands.

Given the disadvantages of the southern site, such as flood susceptibility and difficult cable access, ENERGEX still favours the northern site. However, a new substation layout based on the parameters you have suggested for the southern site is being designed now. To consider the effect of the southern site on the 110 kV and 11 kV cables, we need to consider details of existing infrastructure and property boundaries, proposed property boundaries and proposed foundations for the plaza, bus station and substation [redacted] suitable drawings be made available to Doug Taylor, who is responsible for the [redacted] cable design.

Yours sincerely

[redacted]

Planning Services Engineer Metro



1.9

[redacted]

From: [redacted]
Sent: Monday, March 19, 2001 2:59 PM
To: [redacted]
Cc:
Subject: RE: Lang Park Redevelopment

[redacted]

what concerns me is that the delayed release of the documents will substantially curtail our time constraints to respond on the level of detail necessary to ensure adequate infrastructure involvement.The analysis of requirements to meet supply delivery standards will take considerable time to evaluate,therefore if any preliminary drawings can be maybe available time constraints would be reduced.

We are a major player and if cable alterations/ordering new cable, work scheduling etc.is required then lead times of several months must be acknowledged.
Energex's involvement needs to be considered up front not as a tag alone wherein it is assumed that supply will automatically happen.
I would like to discuss this issue in person please give me a call. — meeting held 29/3
aul.

-----Original Message-----
From: [redacted]
Sent: Monday, 19 March 2001 2:40 PM
To: 'DAVIS Paul'
Subject: RE: Lang Park Redevelopment

PE119/1.9

Paul,

The documents mentioned in your email are part of a design set that has not yet been approved by the client. As such we are happy for you to view them (as the boys have done) but we do not want to release documents until they are approved. Hopefully, this will be in the near future.

I have authority to release documents when the time is right. I will keep you informed of progress.

Regards,
[redacted]

-----Original Message-----
From: [redacted]
Sent: Thursday, March 15, 2001 4:42 PM
To: [redacted]
Cc: DAVIS Paul
Subject: Lang Park Redevelopment

[redacted]

Several of our engineers had discussions with your [redacted] regarding the 110kV cable requirements for the Lang Park development, and in particular, the proposed widening of Milton Road. It is the Milton Road works which cause us much concern as they will affect our cables from Castlemaine Street through to Roma Street.

[redacted] was reluctant to release the necessary drawings, as I believe he did not have the authority to do so. In order for ENERGEX to fully consider its position and to ensure there are no unforeseen infrastructure hurdles in relation to the proposed widening, the following documents are required as a matter or urgency:

All drawings contained in:

* Development Design - Volume D - Part 4 - Structural & Civil Drawings.

We require:

* 1 full size set of all these drawings; and
* 1 A3 set of the drawings for use on site as we check the cable route.

* 1 copy of:

* Development Design - Volume B - Technical Reports

Regarding the issue of Cribb Street, I am currently awaiting valuation advice, town planning advice, survey advice, flood plain levels, and a review of the cable ingress and egress routes.

I will again talk to you as soon as this information is available.

Look forward to the provision of necessary drawings, etc.

Cheers

[redacted]

Thank you.

D9005

[redacted]

From: [redacted]
Sent: Tuesday, 18 September 2001 15:09
To: [redacted]
Subject: Suncorp Metway Stadium - Energex

Suncorp Metway Stadium

Memorandum

To:

[redacted], Director IP&LMP&I
State Development

From:

[redacted]

Position:

Project Manager

Division:

Suncorp Metway Stadium

Phone:

[redacted]

Date:

18 September 2001

Ref:

PM251/3.30

Subject:

Energex Substation – Suncorp Metway Stadium

[redacted]

The purpose of this memo is to provide you with a background as to why the proposed location for the substation on Castlemaine Street is the best possible location.

The proposed Energex Substation is a Zone Substation that handles up to 28 sets of cables carrying 110kV. The substation will be a major supplier to the CBD, the adjacent QR corridor and the surrounding industrial and residential areas. The new stadium will be fed by two of these cables. Energex was planning to build this substation on an adjacent site in Chippendall Street within the next three years in line with electricity demand. The construction of the new stadium has forced Energex to bring this timeframe forward.

In preparation for construction of their substation in Chippendall Street, Energex have constructed a cable tunnel under the Konica carpark and have already run 110kV cables from various locations to this vicinity. Energex advised us that every 100 metres that the substation was moved from its originally proposed location would cost an additional $1.5 million. The currently proposed site is on the corner of Castlemaine and Chippendall Streets and utilises the existing service tunnel as well as being immediately adjacent to existing in-ground cables.

Despite the additional cost, an option was examined in the North Plaza on Castlemaine Street and this was rejected for EIS reasons (noise and industrial impact) in that the site was immediately adjacent to residential areas. Other sites in the industrial properties along Castlemaine Street were considered but their financial viability could not compare with the current site that was already under the control of the Government.

[redacted](Energex Property Manager) advised that Energex had explored other options in the local area but his Board rejected these as being too expensive compared to the current site. I am aware that negotiations took place to buy the Pubic Works Depot on Cribb Street but again the purchase price of the land and cost of additional cable runs proved cost prohibitive.

Regards,

[redacted]

DESIGN BRIEF

FOR THE MILTON SUBSTATION

BUILDING ESTIMATE

Revision Review for VERSION #4 of the MILTON DESIGN BRIEF:
Revision Date : 18/10/2001

AMDT NO	ISSUED TO	ISSUE DATE	DETAILS
1.	LPJRV	06/08/2001	**ROOM 4 : RADIATOR #2 & ROOM 6 : RADIATOR #1 - page 4 of 7** *Section 7.0 - Fixed Equipment / Pulling Eyes* : The pulling eyes referred to should be **capable of a 200kN loading.**
2.	LPJRV	06/08/2001	**ROOM 3 : TRANSFORMER #2 & ROOM 5 : TRANSFORMER # 1 - page 4 of 7** *Section 7.0 - Fixed Equipment / Pulling Eyes* : The pulling eyes referred to should be **capable of a 200kN loading – not** 33kN as specified.
3.	LPJRV	06/08/2001	**ROOM 13 : TRANSFORMER LOADING BAY - page 4 of 7** *Section 7.0 - Fixed Equipment / Monorails* : The I-beam referred to **should be deleted from the brief** – as existing ENERGEX products can achieve safe access/exit to the Oil Dump Tank.
4.	LPJRV	06/08/2001	**ROOM 13 : TRANSFORMER LOADING BAY - page 4 of 7** *Section 8.0 - Light & Power / Miscellaneous Requirements* : The text should read **one AC supply for the roller door not** two as specified.
5.	LPJRV	09/08/2001	**DRAWING NUMBER : 13281-A1 (Sheet 1, 2 and 3)** This drawing of the *"MILTON CABLE TUNNEL LAYOUT PLAN SECTION AND DETAIL"* was issued on this date, and forms part of the Design Brief.
6.	LPJRV	17/08/2001	**ROOM 2 : 110kV SWITCHGEAR ROOM - page 3 of 7** *Section 5.0 - Loadings* : This section has been amended to clarify that the **loadings specified are for a single panel only.** The ultimate configuration will have nine of these panels.
7.	LPJRV	18/10/2001	**ROOM 2 : 110kV SWITCHGEAR ROOM - page 3 of 7** *Section 6.0 - Internal Finishes / Floor* has been amended to clarify that there should be no columns in this room that interfere with the operation of the 10 tonne travelling crane - as indicated on drawing number: NMN1000003-SSMLT-SK006-06, Amendment 2.
8.	LPJRV	18/10/2001	**ROOM 3 : TRANSFORMER #2 & ROOM 5 : TRANSFORMER # 1 - page 4 of 7** *Section 8.0 - Light & Power / Miscellaneous Requirements,* should read "3-phase supply for **2 tonne** crane - Required" - **not** 70 tonne crane as specified.
9.	LPJRV	18/10/2001	**ROOM 7 : 11kV SWITCHROOM - page 3 of 7** *Section 6.0 - Interior Finishes / Remarks* : The tolerance in the floor should be no greater than ±8mm from any wall to the centre of the room.
10.	LPJRV	18/10/2001	**ROOM 13 : TRANSFORMER LOADING BAY - page 4 of 7** *Section 8.0 - Light & Power / Outlet* : In addition to the outlets specified, **a 3-phase, 5-pin 100A supply should be installed in this room.**

AMDT NO	ISSUED TO	ISSUE DATE	DETAILS
11.	LPJRV	18/10/2001	**DRAWING NUMBER : NMN1000003-SSMLT-SK006-06** This drawing has been amended to include a *"Column Free Zone"*(indicated by a hatched area) in ROOM 2 - 110kV Switchgear Room, for the path of the 10 tonne travelling crane. Consequently this drawing has changed to Amendment 2 and has been dated 16/10/2001.
12.	LPJRV	18/10/2001	**APPENDIX : ISSUED CORRESPONDENCE** This appendix contains memorandums issued to LPJRV detailing amendments to Version #3 of the Design Brief - prior to LPJRV finalising the building estimate.
13.	LPJRV	18/10/2001	**CREATION OF DOCUMENT REVISION REVIEW** This section was created to detail the changes of each revision. The changes are indicated by writing the text in bold-italics and by a vertical line marking in the extreme right side of the line being modified.

Design Brief for the Milton Substation Building Estimate

The following sections and attached Room Data Sheets specify the minimum ENERGEX requirements for the construction of the Milton Substation building as part of the Lang Park Redevelopment Project.

The drawings that should be referenced when preparing the building estimate are:

Drawing Name	Drawing Number
MLT MILTON 110/11kV PROPOSED SUBSTATION GENERAL ARRANGEMENT	*NMN1000003-SSMLT-SK006-06* *AMENDMENT: 2*
MLT MILTON 110/11kV PROPOSED SUBSTATION SECTIONS	*NMN1000003-SSMLT-SK006-03* *AMENDMENT: 1*
MLT MILTON 110/11kV PROPOSED SUBSTATION FLOOR PENETRATIONS AND STAIR DETAILS	*NMN1000003-SSMLT-SK007-01* *AMENDMENT: 1*
SSMLT - MILTON SUBSTATION CONDUIT LAYOUT WITHIN STADIUM AREA CASTLEMAINE STREET MILTON PROJECT # NMN1000003	4389-B1 *AMENDMENT: A*
SSMLT - MILTON SUBSTATION EXTERNAL CONDUIT OVERVIEW CASTLEMAINE STREET, MILTON PROJECT - NMN1000003	4390-B1 *AMENDMENT: A*
MILTON CABLE TUNNEL	***13281-A1 (SHEET 1)*** ***AMENDMENT : B***
	13281-A1 (SHEET 2) ***AMENDMENT : B***
	13281-A1 (SHEET 3) ***AMENDMENT : A***

1.0 Earthing Requirements

1.1 Site Requirements

An earthgrid will have to be installed at the site before any building construction is commenced (as the grid is under the building). The earthgrid (37/2.03 copper conductor) is normally buried to a depth of 500 mm. Multiple 12.5 mm diameter copper rods are driven to a depth in the ground (depending on the soil resistivity) and are attached at several locations to this grid. The construction of the earthgrid shall be by the Building contractor (Note: This construction is a specialised area and should be performed by a qualified contractor. ENERGEX can provide a list of previously used contractors for these earthgrid works.)

1.2 Room Requirements

Before pouring each room's concrete slab, a 37/2.03 (120 mm^2) PVC covered green-yellow earthing conductor should be placed around the perimeter of the room on the reinforcing metal – 300 mm from the wall. The 37/2.03 (120 mm^2) PVC covered earthing conductor shall:

- be bonded to the reinforcing in multiple locations;
- have approximately 150 – 2 x 120mm^2 earthgrid risers (conductors from the soil) attached to it;
- provide approximately 4 – 2 x 120mm^2 earthing connection points in each room.

1.3 Inspection Points

ENERGEX will require several penetrations in the Cable Basement floor (Room 16), for designated earthing electrode inspection points. The inspection points are required so as the integrity of the earthing rods can be periodically tested as the rods will be buried in acid sulphate soils.

2.0 Requirements for Light and Power

The light and power for all stairways an walkways should be as follows:

Light and Power	**2.1 Requirement**
Switch Socket Outlet:	
• Single-phase 10A, double	2 Required
• Single-phase 15A, single	1 Required
• Three-phase 32A, 5-pin	NONE
Illumination:	
• AC Lighting:	50 LUX Type: Fluorescent 2x36W luminaries, IP56, RCD.
Emergency Lighting:	
• DC Lighting:	110V DC – 10W / 50m^2
• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door

3.0 Fire Equipment

ENERGEX is responsible for organising the installation of all specialist fire systems for the Milton Substation building. That is:

- ENERGEX will arrange for a contractor to supply and install all the PYROGEN – Fire Extinguishing Aerosol System's in the substation;
- ENERGEX will purchase the SERGI System (Explosion and Fire Prevention) as part of the transformer plant contract;
- ENERGEX will arrange for a contractor to supply and install all the Emulsification System's following the successful installation of both transformer and radiator bank's.

The building contractor shall provide all normal fire systems and equipment for the Brisbane City Council approval of the building (ie. Hose reels, EXIT lighting etc). Also the building contractor shall provide water reticulation suitable for, and available to, the emulsification systems in Room 3, Room 4, Room 5 and Room 6. In Room 4, and Room 6 a single 5inch diameter penetration should be allowed for in one wall for the emulsification system. In Room 3, and Room 5 three 5inch diameter penetrations should be allowed for in one wall for the emulsification system and the SERGI system.

4.0 Building Security

All keyed locks in the building are to be manufactured by LOCKWOOD, and will be assigned a level of security (using the ENERGEX hierarchical system of S1, S2 and S3 keys) as indicated by *"Master Keyed"* in the Room Data sheets.

The building contractor is not required to supply or install the electronic security systems for the Milton substation. However, the building contractor is required to make provisions in their designs for the mounting and installation of these security systems (see Section 17.0 of all Room Data Sheets)

Following the construction and handover of the building, ENERGEX will engage a contractor to supply and install all the security systems detailed in Section 17.0 of all Room Data Sheets.

The external building security requirements are:

ITEM	ROOM DATA	
17.0	Security	
	Video Camera	Required – As per section's 2.3.1, 2.3.2, 2.3.4 NB: Video Camera should cover all external doors.
	Motion Detector	Required
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

5.0 Multicore Cable Loads

The following table includes the approximate weight and the distances (they will traverse) of the multicore cables for Milton substation.

Equipment:	Distance to Control Room:	Approximate Weight of Multicores:
Transformer #1	70 m	400 kg
Transformer #2	50 m	300 kg

110kV Switchgear	40 m	1800 kg
11kV Switchgear	20 m	1500 kg
Capacitors	20 m	300 kg
Main AC Board	82 m (nom. building length)	700 kg

It is anticipated that the multicore cables will be run on the Bus Station side of the building with the supporting cable trays being either suspended from the roof or fastened to the wall.

Generally, a multicore cable loading of 100kg/m should be allowed for in the design of each room. The following table provides an indication of the main multicore cable runs' passing through the rooms:

Room	Multicores through Room:	Distributed Weight
11kV Switchgear	• Transformer #1, • Transformer #2, • 110kV Switchgear • Capacitors • 11kV Switchgear • Main AC Board	100 kg / metre
• 110kV Switchgear • Switchgear Loading Bay	• Transformer #1, • Transformer #2, • 110kV Switchgear • Main AC Board	100 kg / metre
Transformer #1	• Transformer #1, • Transformer #2,	100 kg / metre
• Transformer #2, • Transformer Loading Bay	Transformer #2,	100 kg / metre

6.0 Hardstand for 200 tonne Crane

It is necessary to use a high capacity crane when delivering or removing a power transformer to or from a substation (Note: this is not an often occurrence – maybe once every twenty years). For the transformers being installed at Milton substation, it is expected that a 200 tonne crane would be used.

The building contractor shall provide sufficient infrastructure in the ground (ie. a hardstand) suitable to support the footprint of a 200 tonne crane – taking into account the adjacent Brisbane City Council water mains. The hardstand shall be on the Castlemaine St side of the building – outside of the transformer / radiator rooms, as indicated on drawing *NMN100003-SSMLT-SK006-06*.

The building contractor is required to obtain a written agreement from the Brisbane City Council stating that is acceptable for the two transformers to be delivered via Castlemaine St, and unloaded using the crane and hardstand arrangement mentioned above.

7.0 Louvres in the Substation

The louvres installed in the Capacitor Room (Room 8), 11kV Switchroom (Room 7), and the Cable Basement (Room 16) shall be weather proof and be installed with fire dampers.

The louvres installed in the wall's of Radiator Rooms (Room 4 and Room 6) shall:

- be weather proof (but allow the specified air movement);
- be removable – in panel type sections;
- have no fire dampers installed;
- be bird/animal proof.

The louvre arrangement installed in the roof of the Radiator Rooms (Room 4 and Room 6) shall:

- be weather proof, and allow minimal rain - only under severe weather conditions, to enter the compound (but allow the specified air movement);
- be removable – in panel type sections;
- have no fire dampers installed;
- be bird/animal proof

8.0 Wall between the Radiator and Transformer Rooms

The building contractor shall include in their design the capability for the wall, between each Transformer Room and each Radiator Room to be removable.

Given the timing and logistics of the transformer and radiator installation, it is anticipated that the sequence of works would be as follows:

- the building is constructed by the building contractor, and is handed over to ENERGEX;
- ENERGEX occupies the building and installs each transformer and radiator bank;
- the building contractor returns to the substation site and erects the removable wall between the transformer and radiator bank.

9.0 Building Maintenance

9.1 Waste Removal

ENERGEX will provide routine maintenance on the inside of the building as part of an identified maintenance schedule. Part of that schedule will include the removal of waste and the handling of that waste will be as follows:

- solid waste removal (ie. paper, and other general rubbish) will be performed by ENERGEX staff;
- waste water removal from the Toilet and Meals Room sink will be via the Brisbane City Council Sewerage System;
- waste water removal of non-contaminated water will be via the Brisbane City Council Storm Water System;
- waste water removal of contaminated water will be by ENERGEX through the normal disposal of contaminated water – in compliance with Environmental and Local Government Authority requirements.

(Note: The Oil Dump Tank has several level switches that send alarms to the ENERGEX Control Centre notifying the need to pump this tank. The Oil Dump Tank will be pumped by an authorised/accredited mobile waste removal tanker and be disposed at a designated waste dumping station.)

9.2 External Maintenance

The substation buildings that ENERGEX has designed and constructed over many years are designs that have been refined to require minimal internal and external maintenance. ENERGEX understands that the precinct, which the Milton substation is part of, has some expectation of the aesthetics that the building requires. However, ENERGEX does not require the building *"dressings"* as part of their core business to supply energy, and for security purposes we would not like to advertise that fact that this is a substation responsible for supply a large portion of the Brisbane CBD.

ENERGEX would like to negotiate a maintenance agreement with the Lang Park Trust that would see the Trust' maintaining the exterior of the building (including the roof) – at similar intervals to which they maintained the other areas of the precinct.

The building contractor is responsible for arranging the maintenance agreement or understanding between the Lang Park Trust and ENERGEX.

9.3 General Requirements

The building contractor shall provide the whole of life cost for all maintenance requirements for the substation building on the Milton site.

10.0 Access through the Brisbane City Council Bus Station

It has been communicated by the building contractor that the Bus Station, during non-game days, will be locked so as to prevent vehicle and pedestrian access. However, the Bus Station provides entry to the ENERGEX Transformer Loading Bay, via a roller shutter door.

The building contractor is responsible for ensuring that during non-game days, that ENERGEX is provided vehicle access to their Transformer Loading Bay via the Bus Station. This shall be provided by a written agreement with the Brisbane City Council, and some common access (dual) key or electronic code.

11.0 Additional Design Requirements

There are no additional ENERGEX requirements for the lightning performance of the Milton substation building, however the building shall be in accordance with current building codes and regulations.

ENERGEX does not require any additional seismic rating above the Australian Standard, to be applied to the Milton substation building.

The Oil Dump Tank (Room 17) requires vertical hatches (entry from the Transformer Loading Bay – Room 13) as there will be equipment in that tank requiring maintenance.

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		Room:	**Control Room**
		Room No:	Room 1 (& Rm 9, 20, 23, 24)
Size	Length:	min clear:	7500 mm (See Section 4)
	Width:	min clear:	10800 mm (See Section 4)
	Head Room:	min clear:	3300 mm (See Section 4)

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Air Conditioned (via a Split System A/C), Forced ventilation and exhaust over batteries
	Maximum Room Temperature:	25°C ±2°C
	Air Changes:	In accordance with AS2676.2 and AS3011.2
	Peak Heat Load Time: (Operations) (Control Centre)	N/A
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	Batteries (preferably 20 - 30°C)
	Heat output of Equipment:	Control Equipment = 5KW AFLC = 15kW (7.5kW per unit)
	Max Noise Allowable: (in the room)	40dB (A) Meal room 50dB (A) Elsewhere
	Remarks:	Sealed L/A batteries - Under abnormal operating conditions some hydrogen gas and acid misting may occur.
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: Control Room

Room No: Room 1 (& Rm 9, 20, 23, 24)

Size **Length:** **min clear:** 7500 mm (See Section 4)

Width: **min clear:** 10800 mm (See Section 4)

Head Room: **min clear:** 3300 mm (See Section 4)

ITEM	ROOM DATA					
3.	**Fire Safety**					
	Fire Rating Requirement:	2 hour				
	Thermal Alarms:	ENERGEX Supplied – PYROGEN system				
	Smoke Detectors:	ENERGEX Supplied – PYROGEN system				
	Sprinklers:	ENERGEX Supplied – PYROGEN system				
	Hand Held Fire Extinguishers:	ENERGEX Supplied				
	Automatic Principal System:	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)				
	Special Requirements	N/A				
4.	**Physical Constraints**					
	Room	Room 1 Control	Room 9 AFLC	Room 20 Battery	Room 23 Meals	Room 24 W/C
	Height Clearance Required (Approx):	3,300 H	3,300 H	3,300 H	3,300 H	3,300 H
	Critical Dimensions (Approx):	7,500 L 10,800 W	3,000 L 5,000 W	7,500 L 2,700 W	4,400 L 3,200 W	4,000 L 1,200 W
	Remarks:	N/A	N/A	N/A	N/A	N/A

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		Room:	**Control Room**
		Room No:	Room 1 (& Rm 9, 20, 23, 24)
Size	Length:	min clear:	7500 mm (See Section 4)
	Width:	min clear:	10800 mm (See Section 4)
	Head Room:	min clear:	3300 mm (See Section 4)

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	AFLC 4,000 kg (2 x 2,000 kg)
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	Uniform Distributed = 5.0kPa Live Load Point = 4.5kN Point Load
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Vinyl Covered Finish
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: Control Room

Room No: Room 1 (& Rm 9, 20, 23, 24)

Size **Length:** min clear: 7500 mm (See Section 4)

Width: min clear: 10800 mm (See Section 4)

Head Room: min clear: 3300 mm (See Section 4)

ITEM	ROOM DATA		
7.	**Fixed Equipment**		
	Cranage	N/A	
	Pulling Eyes	1 x 33kN - Required on Landing Area – closest to Switchgear Loading Bay (Room 14)	
	Monorails	N/A	
8.	**Light and Power**		
	Outlets:	Control Room	Meals Room
	• Three-phase 32A, 5-pin	1 Required	NONE
	• Single-phase 10A, double	4 Required	2 Required
	• Single-phase 15A, single	1 Required	1 Required
	Sump Pump:	NONE	NONE
	Illumination:		
	• AC Lighting:	400 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:		
	• DC Lighting:	110V DC – 10 W / 50m^2	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door	NONE
	Miscellaneous Requirements:	Supply for Air-conditioning – Required	NONE
9.0	**Water**		
		Control Room	Meals Room
	Hot:	N/A	Require for Meal Room sink
	Cold:	N/A	Require for Meal Room sink
	Deluge Shower:	N/A	N/A

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Room: **Control Room**

Room No: Room 1 (& Rm 9, 20, 23, 24)

Size Length: min clear: 7500 mm (See Section 4)

Width: min clear: 10800 mm (See Section 4)

Head Room: min clear: 3300 mm (See Section 4)

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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		Room:	**Control Room**
		Room No:	Room 1 (& Rm 9, 20, 23, 24)
Size	Length:	min clear:	7500 mm (See Section 4)
	Width:	min clear:	10800 mm (See Section 4)
	Head Room:	min clear:	3300 mm (See Section 4)

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (Entry/Exit): Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Latched
	Door 2 (Landing Area): Double Door, Hinged A Removable rail is required on Landing Area (Rail closest to the Switchgear Loading Bay :Room 14)	2 hrs	Size: 2040 H x 1600 W (CLEAR OPENING) Master Keyed
	Door 3: (Meals) Hinged	2 hrs	Size: 2040 H x 820 W Master Keyed
	Door 4: (Meals/Exit) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Master Keyed
	Door 5: (Toilet) Hinged	------	Size: 2040 H x 820 W Latch (with SNIB)
	Door 6 (Battery Room): Hinged	2 hrs	Size: 2040 H x 820 W Latch
0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	Vinyl Covered Finish	

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		Room:	**Control Room**
		Room No:	Room 1 (& Rm 9, 20, 23, 24)
Size	Length:	min clear:	7500 mm (See Section 4)
	Width:	min clear:	10800 mm (See Section 4)
	Head Room:	min clear:	3300 mm (See Section 4)

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	Required. See Section 2.2.3 of Security Report.
	Intrusion Detector	Required. See Section 2.2.3 of Security Report.
	Intercom System	Required. See Section 2.1 of Security Report.
	Alarm Contact	N/A
	Remote Activaiton	N/A

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Room:	110kV Switchroom	
Room No:	Room 2	
Size Length:	min clear:	16800 mm
Width:	min clear:	10930 mm
Head Room:	min clear:	9500 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 Floor area minimum
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	15KW
	Max Noise Allowable: (in the room)	50dB(A) GIS makes minimal noise
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **110kV Switchroom**

Room No: Room 2

Size Length: min clear: 16800 mm

Width: min clear: 10930 mm

Head Room: min clear: 9500 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	N/A
	Smoke Detectors:	Required - ENERGEX Supplied
	Sprinklers:	N/A
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	N/A
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	9,500 H
	Critical Dimensions (Approx):	16,800 L x 10930 W
	Remarks:	N/A

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Room: **110kV Switchroom**

Room No: Room 2

Size Length: min clear: 16800 mm

Width: min clear: 10930 mm

Head Room: min clear: 9500 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	3.5 tonne ***per panel (nine panels in total).***
	Maximum Dynamic (Vert):	5 tonne ***per panel (nine panels in total).***
	Maximum Dynamic (Horiz)	1.5 tonne ***per panel (nine panels in total).***
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard Finish There will be a 600mm x 700mm penetration in the floor under each Switchgear Bay for cable entry (8 in total). ***There should be no columns in the floor that interfere with the normal operation of the 10 tonne travelling crane. Consequently a "Column Free Zone" has been established and has been included on drawing number:*** ***NMN1000003-SSMLT-SK006-06, Amendment 2, dated 16/10/2001.***
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	The floor may require embedded channels cast into the floor, which the GIS mounting rails sit on. Floor tolerance max ±3mm depth on the level of each embedded base from standard level.

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Room: **110kV Switchroom**

Room No: Room 2

Size Length: min clear: 16800 mm

Width: min clear: 10930 mm

Head Room: min clear: 9500 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	10 tonne Gantry Crane is required. Crane shall be *close-coupled* type.
	Pulling Eyes	• 4 x 33kN – Required (on Bus Station Roadway side of building) • 2 x 33kN – Required (on each side of transformer room) • 2 x 33kN – Required (on Castlemaine St side of building)
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	1 Required
	• Single-phase 10A, double	4 Required (with RCD)
	• Single-phase 15A, single	1 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	400 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	3-phase supply for 10 tonne crane - Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room:	110kV Switchroom	
Room No:	Room 2	
Size Length:	min clear:	16800 mm
Width:	min clear:	10930 mm
Head Room:	min clear:	9500 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	Opening and closing of 110kV circuit breaker is <125dBA at 1m from equipment.
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: 110kV Switchroom

Room No: Room 2

Size Length: min clear: 16800 mm

Width: min clear: 10930 mm

Head Room: min clear: 9500 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (To Fire Stairs): Double Door, Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australian Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	There will be a 600mm x 700mm penetration in the floor under each Switchgear Bay for cable entry (8 in total);	

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Room: 110kV Switchroom

Room No: Room 2

Size Length: min clear: 16800 mm

Width: min clear: 10930 mm

Head Room: min clear: 9500 mm

ITEM	ROOM DATA	
17.0	Security	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activaiton	N/A

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		Room:	**Transformer #2**
		Room No:	Room 3 (& Room 18)
Size	Length:	min clear:	8400 mm (See Section. 4)
	Width:	min clear:	5200 mm (See Section. 4)
	Head Room:	min clear:	8500 mm (See Section. 4)

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 - Floor area minimum
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	24KW
	Max Noise Allowable: (in the room)	50dB(A)
	Remarks:	• Ventilation system to be designed to ensure level of noise emanating from the area to the outside of the building (50Hz noise) complies with AS1055 and BCC Regulation • Calculated loss dissipation by tank at 60MVA (Transformer) = 24KW • Heat Dissipation required (Earthing Transformer) = 2.0kW
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: Transformer #2

Room No: Room 3 (& Room 18)

Size **Length:** **min clear:** 8400 mm (See Section. 4)

Width: **min clear:** 5200 mm (See Section. 4)

Head Room: **min clear:** 8500 mm (See Section. 4)

ITEM	ROOM DATA		
3.	**Fire Safety**		
	Room	**Transformer (+1B03)**	**Earthing Transformer (+1B18)**
	Fire Rating Requirement:	2 hour	2 hour
	Thermal Alarms:	ENERGEX supplied (SERGI)	ENERGEX supplied (PYROGEN)
	Smoke Detectors:	ENERGEX supplied (SERGI)	ENERGEX supplied (PYROGEN)
	Sprinklers:	ENERGEX supplied : Emulsification system (High Pressure water spray)	ENERGEX supplied (PYROGEN)
	Hand Held Fire Extinguishers:	ENERGEX Supplied	ENERGEX Supplied
	Automatic Principal System:	ENERGEX supplied : SERGI system - Explosion and Fire Prevention	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A	N/A
4.	**Physical Constraints**		
	Room	**Transformer (+1B03)**	**Earthing Transformer (+1B18)**
	Height Clearance Required (Approx):	8,500 H	2,500 H
	Critical Dimensions (Approx):	8400 L x 5200 W	8400 L x 2730 W
	Remarks:	N/A	N/A

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Room:	**Transformer #2**	
Room No:	Room 3 (& Room 18)	
Size Length:	min clear:	8400 mm (See Section. 4)
Width:	min clear:	5200 mm (See Section. 4)
Head Room:	min clear:	8500 mm (See Section. 4)

ITEM	ROOM DATA		
5.	**Loadings**		
	Maximum Static: With area of application or point load centres	**Transformer (+1B03)**	**Earthing Transformer (+1B18)**
		68,000 kg	2,400 kg (2 Required)
		Base Dims 4200 x 1850 mm	1,500 mm x 2,000 mm (each)
		Projected Floor Area 6500 x 3300mm	
	Maximum Dynamic (Vert):	N/A	
	Maximum Dynamic (Horiz)	N/A	
	General	N/A	
	Remarks:	Transformer dimensions and mass may vary from above with application of SERGI equipment.	
6.	**Internal Finishes**		
	Floor:	Rough Broom Finish • There will be a 600mm x 400mm penetration in the floor under each 11kV bank of transformer cables for cable exit (2 in total); • There will be a 400mm x 400mm penetration in the floor under each 110kV transformer cable entry (3 in total);	
	Walls:	Standard Finish There will be a three 5inch penetrations in the wall for reticulation of the emulsification and SERGI fire systems.	
	Ceilings	Standard Finish	
	Remarks:	N/A	

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Room: **Transformer #2**

Room No: Room 3 (& Room 18)

Size Length: min clear: 8400 mm (See Section. 4)

Width: min clear: 5200 mm (See Section. 4)

Head Room: min clear: 8500 mm (See Section. 4)

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	2 Tonne (DEMAG) Overhead crane to be provided in power transformer / earthing transformer room. Crane shall be *close-coupled* type. Infrastructure to be provided outside of the building suitable for the outriggers of 200 tonne crane to land on (approximate weight of transformer is 70 tonne).
	Pulling Eyes	• 2 x ***200kN*** – Required (on Bus Station Roadway side of building) • 2 x ***200kN*** – Required (either side of transformer room)
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	2 Required (1 required for crane)
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	1 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	• AC Distribution Board – 1 Required • DC Sub Board – 1 Required • Ventilation Fan with temperature control – 1 Required • 24V DC operated – 2 Required • 3-phase supply for ***2 tonne*** crane - Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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		Room:	**Transformer #2**
		Room No:	Room 3 (& Room 18)
Size	Length:	min clear:	8400 mm (See Section. 4)
	Width:	min clear:	5200 mm (See Section. 4)
	Head Room:	min clear:	8500 mm (See Section. 4)

ITEM	ROOM DATA			
10.0	**Earthing Requirement**			
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.		
11.0	**Confined Space Requirement**			
	Gas Test Permanent:	N/A		
12.0	**Noise Output**			
	Equipment:	**Power Transformer Sound Level (dBA):**		
			Power	Pressure
		Without Fans (ONAN)	74.6 dBA	54.7 dBA
		With Fans (ONAF)	85.5 dBA	62.3 dBA
		Earthing Transformer Sound Level (dBA):		
			66 dBA	---
13.0	**Hazardous Substances**			
	Transformer Oil - Diala "B"	MS Data Sheets Supplied		
	SF6 - Gas	MS Data Sheets Supplied		

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Room: **Transformer #2**

Room No: Room 3 (& Room 18)

Size Length: min clear: 8400 mm (See Section. 4)

Width: min clear: 5200 mm (See Section. 4)

Head Room: min clear: 8500 mm (See Section. 4)

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (To TR Loading Bay) Hinged	2 hrs	Size: 2040 H x 1120 W (NB: 1120W is a 300mm panel and a 820mm door) Escape Door (BCA), Latch
	Door 2 (Door to Radiator) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latch
	Door 3 (Earthing Transformer #2) Double Door, Hinged	2 hrs	Size: 2800 H x 2000 W (CLEAR OPENING) Escape Door (BCA), Latch
	Door 4 (To Transformer #2) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latch
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	NONE, however there will be a: • 600mm x 400mm penetration in the floor under each 11kV bank of transformer cables for cable exit (2 in total); • 400mm x 400mm penetration in the floor under each 110kV transformer cable entry (3 in total);	

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		Room:	**Transformer #2**
		Room No:	Room 3 (& Room 18)
Size	Length:	min clear:	8400 mm (See Section. 4)
	Width:	min clear:	5200 mm (See Section. 4)
	Head Room:	min clear:	8500 mm (See Section. 4)

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Natural Ventilation – Removable louvre arrangement on Castlemaine St side of building is preferred
	Maximum Room Temperature:	40°C
	Air Changes:	Minimum 4L/sec/m^2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	429KW
	Max Noise Allowable: (in the room)	To meet BCC regulations
	Remarks:	To maintain 5°C difference between room temperature and ambient air flow require 4L/sec/m^2
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	ENERGEX supplied : SERGI system
	Smoke Detectors:	ENERGEX supplied : SERGI system
	Sprinklers:	ENERGEX supplied : Emulsification system (High Pressure water spray)
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	ENERGEX supplied : SERGI system - Explosion and Fire Prevention
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	8,500 H
	Critical Dimensions (Approx):	8,400 L x 5,200 W
	Remarks:	N/A

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	Mass of Radiators (mounted on 4 feet) = 12,000 kg Area of Radiators = 6,500 mm x 2,450 mm
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Rough Broom Finish
	Walls:	Standard Finish+ There will be a single 5inch penetrations in the wall for reticulation of the emulsification fire extinguishing system.
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	Infrastructure to be provided outside of the building suitable for the outriggers of 200 tonne crane to land on (approximate weight of transformer is 70 tonne).
	Pulling Eyes	2 ***x 200kN*** - Required (on Castlemaine St side of building)
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	NONE
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	NONE
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	NONE
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA		
10.0	**Earthing Requirement**		
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.	
11.0	**Confined Space Requirement**		
	Gas Test Permanent:	N/A	
12.0	**Noise Output**		
	Equipment:		Power / Pressure
		Without Fans (ONAN)	74.6 dBA / 54.7 dBA
		With Fans (ONAF)	85.5 dBA / 62.3 dBA
13.0	**Hazardous Substances**		
	Transformer Oil - Diala "B"	MS Data Sheets Supplied	
	SF6 - Gas	MS Data Sheets Supplied	

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	N/A	

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Room: **Radiator #2**

Room No: Room 4

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 - Floor area minimum
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	24KW
	Max Noise Allowable: (in the room)	50dB(A)
	Remarks:	• Ventilation system to be designed to ensure level of noise emanating from the area to the outside of the building (50Hz noise) complies with AS1055 and BCC Regulation • Calculated loss dissipation by tank at 60MVA (Transformer) = 24KW • Heat Dissipation required (Earthing Transformer) = 2.0kW
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA		
3.	**Fire Safety**		
	Room	**Transformer (+1B05)**	**Earthing Transformer (+1B19)**
	Fire Rating Requirement:	2 hour	2 hour
	Thermal Alarms:	ENERGEX supplied (SERGI)	ENERGEX supplied (PYROGEN)
	Smoke Detectors:	ENERGEX supplied (SERGI)	ENERGEX supplied (PYROGEN)
	Sprinklers:	ENERGEX supplied : Emulsification system (High Pressure water spray)	ENERGEX supplied (PYROGEN)
	Hand Held Fire Extinguishers:	ENERGEX Supplied	ENERGEX Supplied
	Automatic Principal System:	ENERGEX supplied : SERGI system - Explosion and Fire Prevention	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A	N/A
4.	**Physical Constraints**		
	Room	**Transformer (+1B05)**	**Earthing Transformer (+1B19)**
	Height Clearance Required (Approx):	8,500 H	2,500 H
	Critical Dimensions (Approx):	8400 L x 5200 W	8400 L x 2730 W
	Remarks:	N/A	N/A

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Room:	**Transformer #1**	
Room No:	Room 5 (& Room 19)	
Size Length:	min clear:	8400 mm (See Section 4)
Width:	min clear:	5200 mm (See Section 4)
Head Room:	min clear:	8500 mm (See Section 4)

ITEM	ROOM DATA		
5.	**Loadings**		
	Maximum Static: With area of application or point load centres	**Transformer (+1B05)**	**Earthing Transformer (+1B19)**
		68,000 kg	2,400 kg (2 Required)
		Base Dims 4200 x 1850 mm	1,500 mm x 2,000 mm (each)
		Projected Floor Area 6500 x 3300mm	
	Maximum Dynamic (Vert):	N/A	
	Maximum Dynamic (Horiz)	N/A	
	General	N/A	
	Remarks:	Transformer dimensions and mass may vary from above with application of SERGI equipment.	
6.	**Internal Finishes**		
	Floor:	Rough Broom Finish • There will be a 600mm x 400mm penetration in the floor under each 11kV bank of transformer cables for cable exit (2 in total); • There will be a 400mm x 400mm penetration in the floor under each 110kV transformer cable entry (3 in total);	
	Walls:	Standard Finish There will be a three 5inch penetrations in the wall for reticulation of the emulsification and SERGI fire systems.	
	Ceilings	Standard Finish	
	Remarks:	N/A	

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	2 Tonne (DEMAG) Overhead crane to be provided in power transformer / earthing transformer room. Crane shall be *close-coupled* type. Infrastructure to be provided outside of the building suitable for the outriggers of 200 tonne crane to land on (approximate weight of transformer is 70 tonne).
	Pulling Eyes	• 2 x ***200kN*** – Required (on Bus Station Roadway side of building) • 2 x ***200kN*** – Required (either side of transformer room)
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	2 Required (1 required for crane)
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	1 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	• AC Distribution Board – 1 Required • DC Sub Board – 1 Required • Ventilation Fan with temperature control – 1 Required • 24V DC operated – 2 Required • 3-phase supply for ***2 tonne*** crane - Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

<table>
<tr><th>ITEM</th><th colspan="3">ROOM DATA</th></tr>
<tr><td>10.0</td><td>Earthing Requirement</td><td colspan="2"></td></tr>
<tr><td></td><td></td><td colspan="2">• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers
• Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.</td></tr>
<tr><td>11.0</td><td>Confined Space Requirement</td><td colspan="2"></td></tr>
<tr><td></td><td>Gas Test Permanent:</td><td colspan="2">N/A</td></tr>
<tr><td>12.0</td><td>Noise Output</td><td colspan="2"></td></tr>
<tr><td></td><td>Equipment:</td><td colspan="2">Power Transformer Sound Level (dBA):
<table>
<tr><th></th><th>Power</th><th>Pressure</th></tr>
<tr><td>Without Fans (ONAN)</td><td>74.6 dBA</td><td>54.7 dBA</td></tr>
<tr><td>With Fans (ONAF)</td><td>85.5 dBA</td><td>62.3 dBA</td></tr>
</table>
Earthing Transformer Sound Level (dBA):
<table>
<tr><td></td><td>66 dBA</td><td>---</td></tr>
</table></td></tr>
<tr><td>13.0</td><td>Hazardous Substances</td><td colspan="2"></td></tr>
<tr><td></td><td>Transformer Oil - Diala "B"</td><td colspan="2">MS Data Sheets Supplied</td></tr>
<tr><td></td><td>SF6 - Gas</td><td colspan="2">MS Data Sheets Supplied</td></tr>
</table>

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (To TR Loading Bay) Hinged	2 hrs	Size: 2040 H x 1120 W (NB: 1120W is a 300mm panel and a 820mm door) Escape Door (BCA), Latch
	Door 2 (Door to Radiator) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latch
	Door 3 (Earthing Transformer #2) Double Door, Hinged	2 hrs	Size: 2800 H x 2000 W (CLEAR OPENING) Escape Door (BCA), Latch
	Door 4 (To 110kV Switchgear) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latch
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	NONE, however there will be a: • 600mm x 400mm penetration in the floor under each 11kV bank of transformer cables for cable exit (2 in total); • 400mm x 400mm penetration in the floor under each 110kV transformer cable entry (3 in total);	

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		Room:	**Transformer #1**
		Room No:	Room 5 (& Room 19)
Size	Length:	min clear:	8400 mm (See Section 4)
	Width:	min clear:	5200 mm (See Section 4)
	Head Room:	min clear:	8500 mm (See Section 4)

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 - Floor area minimum
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	24KW
	Max Noise Allowable: (in the room)	50dB(A)
	Remarks:	• Ventilation system to be designed to ensure level of noise emanating from the area to the outside of the building (50Hz noise) complies with AS1055 and BCC Regulation • Calculated loss dissipation by tank at 60MVA (Transformer) = 24KW • Heat Dissipation required (Earthing Transformer) = 2.0kW
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA		
3.	**Fire Safety**		
	Room	**Transformer (+1B05)**	**Earthing Transformer (+1B19)**
	Fire Rating Requirement:	2 hour	2 hour
	Thermal Alarms:	ENERGEX supplied (SERGI)	ENERGEX supplied (PYROGEN)
	Smoke Detectors:	ENERGEX supplied (SERGI)	ENERGEX supplied (PYROGEN)
	Sprinklers:	ENERGEX supplied : Emulsification system (High Pressure water spray)	ENERGEX supplied (PYROGEN)
	Hand Held Fire Extinguishers:	ENERGEX Supplied	ENERGEX Supplied
	Automatic Principal System:	ENERGEX supplied : SERGI system - Explosion and Fire Prevention	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A	N/A
4.	**Physical Constraints**		
	Room	**Transformer (+1B05)**	**Earthing Transformer (+1B19)**
	Height Clearance Required (Approx):	8,500 H	2,500 H
	Critical Dimensions (Approx):	8400 L x 5200 W	8400 L x 2730 W
	Remarks:	N/A	N/A

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA		
5.	**Loadings**		
	Maximum Static: With area of application or point load centres	**Transformer (+1B05)**	**Earthing Transformer (+1B19)**
		68,000 kg	2,400 kg (2 Required)
		Base Dims 4200 x 1850 mm	1,500 mm x 2,000 mm (each)
		Projected Floor Area 6500 x 3300mm	
	Maximum Dynamic (Vert):	N/A	
	Maximum Dynamic (Horiz)	N/A	
	General	N/A	
	Remarks:	Transformer dimensions and mass may vary from above with application of SERGI equipment.	
6.	**Internal Finishes**		
	Floor:	Rough Broom Finish • There will be a 600mm x 400mm penetration in the floor under each 11kV bank of transformer cables for cable exit (2 in total); • There will be a 400mm x 400mm penetration in the floor under each 110kV transformer cable entry (3 in total);	
	Walls:	Standard Finish There will be a three 5inch penetrations in the wall for reticulation of the emulsification and SERGI fire systems.	
	Ceilings	Standard Finish	
	Remarks:	N/A	

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		Room:	**Transformer #1**
		Room No:	Room 5 (& Room 19)
Size	**Length:**	**min clear:**	8400 mm (See Section 4)
	Width:	**min clear:**	5200 mm (See Section 4)
	Head Room:	**min clear:**	8500 mm (See Section 4)

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	2 Tonne (DEMAG) Overhead crane to be provided in power transformer / earthing transformer room. Crane shall be *close-coupled* type. Infrastructure to be provided outside of the building suitable for the outriggers of 200 tonne crane to land on (approximate weight of transformer is 70 tonne).
	Pulling Eyes	• 2 x *200kN* – Required (on Bus Station Roadway side of building) • 2 x *200kN* – Required (either side of transformer room)
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	2 Required (1 required for crane)
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	1 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	• AC Distribution Board – 1 Required • DC Sub Board – 1 Required • Ventilation Fan with temperature control – 1 Required • 24V DC operated – 2 Required • 3-phase supply for *2 tonne* crane - Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: **Transformer #1**

Room No: Room 5 (& Room 19)

Size Length: min clear: 8400 mm (See Section 4)

Width: min clear: 5200 mm (See Section 4)

Head Room: min clear: 8500 mm (See Section 4)

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	**Power Transformer Sound Level (dBA):**

	Power	Pressure
Without Fans (ONAN)	74.6 dBA	54.7 dBA
With Fans (ONAF)	85.5 dBA	62.3 dBA

Earthing Transformer Sound Level (dBA):

	66 dBA	---

13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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		Room:	**Transformer #1**
		Room No:	Room 5 (& Room 19)
Size	**Length:**	**min clear:**	8400 mm (See Section 4)
	Width:	**min clear:**	5200 mm (See Section 4)
	Head Room:	**min clear:**	8500 mm (See Section 4)

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (To TR Loading Bay) Hinged	2 hrs	Size: 2040 H x 1120 W (NB: 1120W is a 300mm panel and a 820mm door) Escape Door (BCA), Latch
	Door 2 (Door to Radiator) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latch
	Door 3 (Earthing Transformer #2) Double Door, Hinged	2 hrs	Size: 2800 H x 2000 W (CLEAR OPENING) Escape Door (BCA), Latch
	Door 4 (To 110kV Switchgear) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latch
0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	NONE, however there will be a: • 600mm x 400mm penetration in the floor under each 11kV bank of transformer cables for cable exit (2 in total); • 400mm x 400mm penetration in the floor under each 110kV transformer cable entry (3 in total);	

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		Room:	**Transformer #1**
		Room No:	Room 5 (& Room 19)
Size	Length:	min clear:	8400 mm (See Section 4)
	Width:	min clear:	5200 mm (See Section 4)
	Head Room:	min clear:	8500 mm (See Section 4)

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

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		Room:	**Radiator #1**
		Room No:	Room 6
Size	Length:	min clear:	8400 mm
	Width:	min clear:	5200 mm
	Head Room:	min clear:	8500 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Natural Ventilation – Removable louvre arrangement on Castlemaine St side of building is preferred
	Maximum Room Temperature:	40°C
	Air Changes:	Minimum 4L/sec/m^2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	429KW
	Max Noise Allowable: (In the room)	To meet BCC regulations
	Remarks:	To maintain 5°C difference between room temperature and ambient air flow require 4L/sec/m^2
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Radiator #1**

Room No: Room 6

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	ENERGEX supplied : SERGI system
	Smoke Detectors:	ENERGEX supplied : SERGI system
	Sprinklers:	ENERGEX supplied : Emulsification system (High Pressure water spray)
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	ENERGEX supplied : SERGI system - Explosion and Fire Prevention
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	8,500 H
	Critical Dimensions (Approx):	8,400 L x 5,200 W
	Remarks:	N/A

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Room: **Radiator #1**

Room No: Room 6

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	Mass of Radiators (mounted on 4 feet) = 12,000 kg Area of Radiators = 6,500 mm x 2,450 mm
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Rough Broom Finish
	Walls:	Standard Finish There will be a single 5inch penetrations in the wall for reticulation of the emulsification fire extinguishing system.
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Radiator #1**

Room No: Room 6

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	Infrastructure to be provided outside of the building suitable for the outriggers of 200 tonne crane to land on (approximate weight of transformer is 70 tonne).
	Pulling Eyes	2 ***x 200kN*** - Required (on Castlemaine St side of building)
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	NONE
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	NONE
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	NONE
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: Radiator #1

Room No: Room 6

Size **Length:** **min clear:** 8400 mm

Width: **min clear:** 5200 mm

Head Room: **min clear:** 8500 mm

ITEM	ROOM DATA		
10.0	**Earthing Requirement**		
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.	
11.0	**Confined Space Requirement**		
	Gas Test Permanent:	N/A	
12.0	**Noise Output**		
	Equipment:		Power / Pressure
		Without Fans (ONAN)	74.6 dBA / 54.7 dBA
		With Fans (ONAF)	85.5 dBA / 62.3 dBA
13.0	**Hazardous Substances**		
	Transformer Oil - Diala "B"	MS Data Sheets Supplied	
	SF6 - Gas	MS Data Sheets Supplied	

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Room: **Radiator #1**

Room No: Room 6

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Hinged	2 hrs	Size: 2040 H x 820 W Escape Door (BCA), Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	N/A	

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Room: **Radiator #1**

Room No: Room 6

Size Length: min clear: 8400 mm

Width: min clear: 5200 mm

Head Room: min clear: 8500 mm

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

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Room: **11kV Switchroom**

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 minimum – AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C Electronic relay operating temperature = -10 to 50°C
	Heat output of Equipment:	• 20KW • 11kV Switchgear = Minimal • Electronic relays = 30 x 5.5 – 12W each ; Quiescent 105.5kW • Fused Switchgear (FSG) = Minimal
	Max Noise Allowable: (in the room)	50 dBA
	Remarks:	• AFLC equipment is sealed (to alleviate noise) and therefore needs to be separately ventilated
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **11kV Switchroom**

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	ENERGEX Supplied - PYROGEN system
	Smoke Detectors:	ENERGEX Supplied - PYROGEN system
	Sprinklers:	ENERGEX Supplied - PYROGEN system
	Hand Held Fire Extinguishers:	ENERGEX Supplied - PYROGEN system
	Automatic Principal System:	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	4,000 H
	Critical Dimensions (Approx):	10,500 L x 10,500 W
	Remarks:	N/A

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Room: 11kV Switchroom

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	800A panel (20 of) – 1000kg each (1000x20 = 20,000kg, distributed) 2000A panel (6 of) – 1250kg each (1250x6 = 7,500kg, distributed) 4 panel FSG – 500kg (distributed) Total Distributed Load = 28,000kg (ie. 20 + 7.5 + 0.5)
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard finish - **NOT PAINTED** • There will be a 200mm x 400mm penetration in the floor under each Feeder Bay for cable entry (20 in total); • There will be a 600mm x 400mm penetration in the floor under each Transformer Bay for cable entry (4 in total)
	Walls:	Standard finish
	Ceilings	Standard finish
	Remarks:	***The tolerance in the floor should be no greater than ±8mm from any wall to the centre of the room.***

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Room: 11kV Switchroom

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	NONE
	Pulling Eyes	NONE
	Monorails	NONE
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	1 Required
	• Single-phase 10A, double	6 Required (with RCD)
	• Single-phase 15A, single	2 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	400 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC ; Combined – 2m from EXIT door
	Miscellaneous Requirements:	AC Distribution Board – 1 Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: 11kV Switchroom

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	• Opening and Closing of 11kV Circuit Breaker ~75dBA at 5m from front of panel • Local Transformer sound power level = 60 dBA
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS.Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **11kV Switchroom**

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (To S/gear Loading Bay) Double Door	2 hrs	Size: 4000 H x 3000 W CLEAR OPENING Latched
	Door 2 (To Capacitor Room) Double Door	2 hrs	Size: 4000 H x 3000 W CLEAR OPENING Latched
	Door 3 (To Fire Escape) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Master Keyed
	Door 4 (To Fire Escape) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Master Keyed
	Door 5 (ENTRY to Castlemaine St) Hinged, Heavy Duty Door as described in Section 1.2 of Security Report Alarm Contacts as described in Section 2.2.1 of Security Report	2 hrs	Size : 2040 H x 820 W Escape Door, Locked, Steel Sheeted, Master Keyed.
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	Separate for AFLC unit	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australian Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	NONE, however there will be a: • 200mm x 400mm penetration in the floor under each Feeder Bay for cable entry (20 in total); • 600mm x 400mm penetration in the floor under each Transformer Bay for cable entry (4 in total)	

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Room: **11kV Switchroom**

Room No: Room 7

Size Length: min clear: 10500 mm

Width: min clear: 10500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	Required
	Alarm Contact	N/A
	Remote Activaiton	N/A

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		Room:	**Capacitor Banks**
		Room No:	Room 8
Size	Length:	min clear:	9800 mm
	Width:	min clear:	13800 mm
	Head Room:	min clear:	4,000 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 floor area minimum - AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C Capacitors – 5 to +50°C
	Heat output of Equipment:	64 kW (8kW per bank - room has 8 banks)
	Max Noise Allowable: (in the room)	50dB (A)
	Remarks:	Air to be blown directly onto each bank of capacitors to ensure cooling of all individual capacitor calls
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Capacitor Banks**

Room No: Room 8

Size Length: min clear: 9800 mm

Width: min clear: 13800 mm

Head Room: min clear: 4,000 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	ENERGEX Supplied – PYROGEN system
	Smoke Detectors:	ENERGEX Supplied – PYROGEN system
	Sprinklers:	ENERGEX Supplied – PYROGEN system
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	4,000 H
	Critical Dimensions (Approx):	9,800 L x 13,800 W
	Remarks:	N/A

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Room: **Capacitor Banks**

Room No: Room 8

Size Length: min clear: 9800 mm

Width: min clear: 13800 mm

Head Room: min clear: 4,000 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	40,000kg (i.e. 5,000kg for each bank – 8 banks in the ultimate arrangement) Area of Each bank = 2,500 mm x 2,800mm
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard Finish There will be a 200mm x 400mm penetration in the floor under each Capacitor Bank for cable entry (8 in total).
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Capacitor Banks**

Room No: Room 8

Size Length: min clear: 9800 mm

Width: min clear: 13800 mm

Head Room: min clear: 4,000 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	NONE
	Pulling Eyes	1 x 33kN – Required on each wall of the Capacitor Room (4 total)
	Monorails	NONE
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	1 Required
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	1 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	400 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	Ventilation Fan with temperature control – 1 Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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		Room:	Capacitor Banks
		Room No:	Room 8
Size	Length:	min clear:	9800 mm
	Width:	min clear:	13800 mm
	Head Room:	min clear:	4,000 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	During AFLC injection there is noise from reactors
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **Capacitor Banks**

Room No: Room 8

Size Length: min clear: 9800 mm

Width: min clear: 13800 mm

Head Room: min clear: 4,000 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (To Stairs) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Master Keyed
	Door 2 (To Stairs) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Master Keyed
	Door 3 (To Milton Rd) Hinged, Heavy Duty Door as described in Section 1.2 of Security Report Alarm Contacts as described in Section 2.2.1 of Security Report	2 hrs	Size : 2040 H x 820 W Escape Door, Locked, Steel Sheeted, Master Keyed. NO LEVER ON OUTSIDE OF DOOR.
15.0	**Acoustic Requirements**		
	Ventilation Ducts:		
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	There will be a 200mm x 400mm penetration in the floor under each Capacitor Bank for cable entry (8 in total).	

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Room: **Capacitor Banks**

Room No: Room 8

Size Length: min clear: 9800 mm

Width: min clear: 13800 mm

Head Room: min clear: 4,000 mm

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contacts	N/A
	Remote Activation	N/A

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Room: **Pilot Room**

Room No: Room 10

Size Length: min clear: 4200 mm

Width: min clear: 3700 mm

Head Room: min clear: 3300 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 floor area minimum - AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	5°C
	Heat output of Equipment:	1KW
	Max Noise Allowable: (in the room)	50dBA
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Pilot Room**

Room No: Room 10

Size Length: min clear: 4200 mm

Width: min clear: 3700 mm

Head Room: min clear: 3300 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	ENERGEX Supplied – PYROGEN System
	Smoke Detectors:	ENERGEX Supplied – PYROGEN System
	Sprinklers:	ENERGEX Supplied – PYROGEN system
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	3,300 H
	Critical Dimensions (Approx):	4,200 L x 3,700 W
	Remarks:	N/A

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Room: **Pilot Room**

Room No: Room 10

Size Length: min clear: 4200 mm

Width: min clear: 3700 mm

Head Room: min clear: 3300 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	N/A
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	Uniform Distributed = 3.0kPa Point Load = 4.5kN
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	A timber lining (Marine PLY is preferred) of the room is REQUIRED. (ENERGEX will provide drawings in the detailed design phase)
	Walls:	A timber lining (Marine PLY is preferred) of the room is REQUIRED. (ENERGEX will provide drawings in the detailed design phase)
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Pilot Room**

Room No: Room 10

Size Length: min clear: 4200 mm

Width: min clear: 3700 mm

Head Room: min clear: 3300 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	N/A
	Pulling Eyes	N/A
	Monorails	N/A
8.	**Light and Power**	
	Outlet:	
	• Single-phase 10A, double	NONE
	• Single-phase 15A, single.	NONE
	• Three-phase 32A, 5-pin	NONE
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	N/A
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: **Pilot Room**

Room No: Room 10

Size Length: min clear: 4200 mm

Width: min clear: 3700 mm

Head Room: min clear: 3300 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **Pilot Room**

Room No: Room 10

Size Length: min clear: 4200 mm

Width: min clear: 3700 mm

Head Room: min clear: 3300 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Hinged, Frame Isolated from Reinforcing	2 hrs	Size: 2040 H x 820 W Lock, Master Keyed
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australian Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	Wooden (see Section 6 – Internal Finishes)	

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		Room:	**Pilot Room**
		Room No:	Room 10
Size	Length:	min clear:	4200 mm
	Width:	min clear:	3700 mm
	Head Room:	min clear:	3300 mm

ITEM	ROOM DATA	
17.0	Security	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activaiton	N/A

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Room: **Store Room #1**

Room No: Room 11

Size Length: min clear: 6500 mm

Width: min clear: 2200 mm

Head Room: min clear: 5000 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 floor area minimum - AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	5°C
	Heat output of Equipment:	1KW
	Max Noise Allowable: (in the room)	50dBA
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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		Room:	**Store Room #1**
		Room No:	Room 11
Size	**Length:**	**min clear:**	6500 mm
	Width:	**min clear:**	2200 mm
	Head Room:	**min clear:**	5000 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	N/A
	Smoke Detectors:	N/A
	Sprinklers:	N/A
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	N/A
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	5,000 H
	Critical Dimensions (Approx):	6,500 L x 2,200 W
	Remarks:	N/A

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Room: **Store Room #1**

Room No: Room 11

Size Length: min clear: 6500 mm

Width: min clear: 2200 mm

Head Room: min clear: 5000 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	N/A
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	Uniform Distributed = 7.2kPa Point = 7.0kN
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard Finish
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Store Room #1**

Room No: Room 11

Size Length: min clear: 6500 mm

Width: min clear: 2200 mm

Head Room: min clear: 5000 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	N/A
	Pulling Eyes	N/A
	Monorails	N/A
8.	**Light and Power**	
	Switch Socket Outlet:	
	• Single-phase 10A, double	4 Required (with RCD)
	• Single-phase 15A, single	2 Required (with RCD)
	• Three-phase 32A, 5-pin	NONE
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	100 LUX Type: Fluorescent 2x36W luminaries, IP56, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	N/A
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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		Room:	Store Room #1
		Room No:	Room 11
Size	Length:	min clear:	6500 mm
	Width:	min clear:	2200 mm
	Head Room:	min clear:	5000 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **Store Room #1**

Room No: Room 11

Size Length: min clear: 6500 mm

Width: min clear: 2200 mm

Head Room: min clear: 5000 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Double Door, Hinged	2 hrs	Size: 2800 H x 2000 W Latched
	Door 2 Double Door, Hinged	2 hrs	Size: 2800 H x 2000 W Latched
	Door 3 (Escape Door) Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	N/A	

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Room: **Store Room #1**

Room No: Room 11

Size Length: min clear: 6500 mm

Width: min clear: 2200 mm

Head Room: min clear: 5000 mm

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activaiton	N/A

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		Room:	Transformer Loading Bay
		Room No:	Room 13
Size	Length:	min clear:	3500 mm
	Width:	min clear:	4430 mm
	Head Room:	min clear:	-------

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 floor area minimum - AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	5°C
	Heat output of Equipment:	1KW
	Max Noise Allowable: (In the room)	50dBA
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Transformer Loading Bay**

Room No: Room 13

Size Length: min clear: 3500 mm

Width: min clear: 4430 mm

Head Room: min clear: -------

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	N/A
	Smoke Detectors:	N/A
	Sprinklers:	N/A
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	N/A
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	Building roof height
	Critical Dimensions (Approx):	3,500 L x 4,430 W
	Remarks:	N/A

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Room: **Transformer Loading Bay**

Room No: Room 13

Size Length: min clear: 3500 mm

Width: min clear: 4430 mm

Head Room: min clear: .....

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	3.5 tonne
	Maximum Dynamic (Vert):	5 tonne
	Maximum Dynamic (Horiz)	1.5 tonne
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard Finish (Provision to be made for inspection/escape hatch for Oil Dump Tank below)
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Transformer Loading Bay**

Room No: Room 13

Size Length: min clear: 3500 mm

Width: min clear: 4430 mm

Head Room: min clear: -------

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	N/A
	Pulling Eyes	N/A
	Monorails	***N/A***
8.	**Light and Power**	
	Outlet:	
	• Single-phase 10A, double	2 Required
	• Single-phase 15A, single	1 Required
	• Three-phase 32A, 5-pin	NONE
	• ***Three-phase 100A, 5-pin***	***1 Required***
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	100 LUX Type: Fluorescent 2x36W luminaries, IP56, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	Supply for roller shutter door – ***1 Required***
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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	Room:	**Transformer Loading Bay**
	Room No:	Room 13
Size	Length: min clear:	3500 mm
	Width: min clear:	4430 mm
	Head Room: min clear:	-------

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **Transformer Loading Bay**

Room No: Room 13

Size Length: min clear: 3500 mm

Width: min clear: 4430 mm

Head Room: min clear: -------

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (from Bus Station) Roller door – heavy duty as described in Security Report 1.1	------	Size: 4000 H x 4000 W (CLEAR OPENING) Electronic Operation, Master Keyed
	Door 2 (Entry from Bus Station) Hinged, Heavy Duty Door as described in Section 1.2 of Security Report Alarm Contacts as described in Section 2.2.1 of Security Report	2 hrs	Size : 2040 H x 820 W Escape Door, Steel Sheeted, Master Keyed.
	Door 3 Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Latch
	Door 4 (To Castlemaine St) Hinged, Heavy Duty Door as described in Section 1.2 of Security Report Alarm Contacts as described in Section 2.2.1 of Security Report	2 hrs	Size : 2040 H x 820 W Escape Door, Steel Sheeted, Master Keyed. NO LEVER ON OUTSIDE OF DOOR.
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australian Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	Standard Finish (Provision to be made for inspection/escape hatch for Oil Dump Tank below)	

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Room: **Transformer Loading Bay**

Room No: Room 13

Size Length: min clear: 3500 mm

Width: min clear: 4430 mm

Head Room: min clear: -------

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	See Security Report section 2.3
	Intercom System	See Security Report section 2.1
	Alarm Contact	See Security Report section 2.2.2
	Remote Activaiton (of Roller Shutters)	See Security Report section 2.2.6
	Code Pads to enable arming and disarming of security system.	See Security Report section 2.2.5

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Room: **Switchgear Loading Bay**

Room No: Room 14

Size Length: min clear: 3500 mm

Width: min clear: 3600 mm

Head Room: min clear: .....

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 floor area minimum - AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	5°C
	Heat output of Equipment:	1kW
	Max Noise Allowable: (in the room)	50dBA
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Switchgear Loading Bay**

Room No: Room 14

Size Length: min clear: 3500 mm

Width: min clear: 3600 mm

Head Room: min clear: --------

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	N/A
	Smoke Detectors:	N/A
	Sprinklers:	N/A
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	N/A
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	Building roof height
	Critical Dimensions (Approx):	3,500 L x 3,600 W
	Remarks:	N/A

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Room: **Switchgear Loading Bay**

Room No: Room 14

Size Length: min clear: 3500 mm

Width: min clear: 3600 mm

Head Room: min clear: --------

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	The floor structure should be design to support 80 tonne (estimated load for a mobile substation on a *low-loader* transport vehicle).
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard Finish
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: Switchgear Loading Bay

Room No: Room 14

Size **Length:** **min clear:** 3500 mm

Width: **min clear:** 3600 mm

Head Room: **min clear:** --------

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	10 tonne travelling crane provided from 110kV GIS Switchgear room.
	Pulling Eyes	N/A
	Monorails	N/A
8.	**Light and Power**	
	Switch Socket Outlet:	
	• Single-phase 10A, double	2 Required
	• Single-phase 15A, single	1 Required
	• Three-phase 32A, 5-pin	NONE
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	100 LUX Type: Fluorescent 2x36W luminaries, IP56, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	Supply for roller shutter door – 1 Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: **Switchgear Loading Bay**

Room No: Room 14

Size Length: min clear: 3500 mm

Width: min clear: 3600 mm

Head Room: min clear: --------

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **Switchgear Loading Bay**

Room No: Room 14

Size Length: min clear: 3500 mm

Width: min clear: 3600 mm

Head Room: min clear: ---

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 (from Castlemaine St) Roller door – heavy duty as described in Security Report 1.1	------	Size: 5500 H x 5000 W (CLEAR OPENING) Electronic Operation, Master Keyed
	Door 2 (Entry from Castlemaine St) Hinged, Heavy Duty Door as described in Section 1.2 of Security Report Alarm Contacts as described in Section 2.2.1 of Security Report	2 hrs	Size : 2040 H x 820 W Escape Door, Steel Sheeted, Master Keyed.
	Door 3 Hinged	2 hrs	Size: 2040 H x 820 W Escape Door, Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australian Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	N/A	

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Room: **Switchgear Loading Bay**

Room No: Room 14

Size Length: min clear: 3500 mm

Width: min clear: 3600 mm

Head Room: min clear: --------

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	
	Intrusion Detector	
	Intercom System	

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Room: **Cable Basement**

Room No: Room 16

Size **Length:** **min clear:** 80000 mm

Width: **min clear:** 13800 mm

Head Room: **min clear:** 4000 mm (see section 4)

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	N/A
	Air Changes:	Minimum 4L/sec/m^2 for floor area – as per AS1688.2.
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	N/A
	Heat output of Equipment:	Maximum heat output of cables is 75°C.
	Max Noise Allowable: (in the room)	50dB(A) – as per AS2107:2000
	Remarks:	Air Exhaust Ducts (fans) are required at either end of the Cable Basement as indicated on the drawing **NMN1000003-SSMLT-SK006-06**. Air Inlets Ducts are required at either ends and the middle of the cable basement as indicated on the drawing **NMN1000003-SSMLT-SK006-06**.
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	2 Sump Pumps Required.

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Room: **Cable Basement**

Room No: Room 16

Size Length: min clear: 80000 mm

Width: min clear: 13800 mm

Head Room: min clear: 4000 mm (see section 4)

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	ENERGEX Supplied – PYROGEN system
	Smoke Detectors:	ENERGEX Supplied – PYROGEN system
	Sprinklers:	ENERGEX Supplied – PYROGEN system
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	ENERGEX Supplied – PYROGEN (Fire Extinguishing Aerosol System)
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	There are several roof heights, depending on the floor above the basement. However , the minimum height required at any point in the Cable Basement is 2,000 mm.
	Critical Dimensions (Approx):	80,000 mm x 13,800 mm
	Remarks:	N/A

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Room: **Cable Basement**

Room No: Room 16

Size Length: min clear: 80000 mm

Width: min clear: 13800 mm

Head Room: min clear: 4000 mm (see section 4)

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	N/A
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	Uniform Distributed = 3.0kPa Point Load = 4.5kN
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Coarse Broom Finish
	Walls:	Standard Finish. There will be several penetrations in the wall for conduits to exit and enter the substation as indicated on drawing **4389-B1**.
	Ceilings	Standard Finish
	Remarks:	The floor should be sloped towards a spoon drain, so as water can drain sufficiently into a sump for pumping.

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Room: **Cable Basement**

Room No: Room 16

Size Length: min clear: 80000 mm

Width: min clear: 13800 mm

Head Room: min clear: 4000 mm (see section 4)

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	NONE
	Pulling Eyes	16 Required
	Monorails	NONE
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	NONE
	• Single-phase 10A, double	10 Required (with RCD)
	• Single-phase 15A, single	4 Required (with RCD)
	Sump Pump:	2 Required
	Illumination:	
	• AC Lighting:	100 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	• Ventilation Fan with temperature control – 1 Required • 24V DC operated fire damper – 4 Required
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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		Room:	**Cable Basement**
		Room No:	Room 16
Size	Length:	min clear:	80000 mm
	Width:	min clear:	13800 mm
	Head Room:	min clear:	4000 mm (see section 4)

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid required under building foundation (no soil resistivity tests available – grid size and number of penetrating earth rods is to be determined) • Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
		N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: Cable Basement

Room No: Room 16

Size **Length:** **min clear:** 80000 mm

Width: **min clear:** 13800 mm

Head Room: **min clear:** 4000 mm (see section 4)

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Hinged,	2 hrs	Size : 2040 H x 820 W Escape Door, Latched
	Door 2 Hinged,	2 hrs	Size : 2040 H x 820 W Escape Door, Latched
	Door 3 Hinged,	2 hrs	Size : 2040 H x 820 W Escape Door, Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australian Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	The floor should have a course broom fininsh and be sloped towards a spoon drain, so as water can drain sufficiently into a sump for pumping.	

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Room: **Cable Basement**

Room No: Room 16

Size Length: min clear: 80000 mm

Width: min clear: 13800 mm

Head Room: min clear: 4000 mm (see section 4)

ITEM	ROOM DATA	
17.0	**Security**	
	Video Camera	N/A
	Intrusion Detector	Required. Doors accessing footpath, see section 2.2
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

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Room: **Store Room #2**

Room No: Room 21

Size Length: min clear: 7830 mm

Width: min clear: 2200 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 floor area minimum - AS1668.2
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	5°C
	Heat output of Equipment:	1KW
	Max Noise Allowable: (in the room)	50dBA
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: **Store Room #2**

Room No: Room 21

Size Length: min clear: 7830 mm

Width: min clear: 2200 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Fire Rating Requirement:	2 hour
	Thermal Alarms:	N/A
	Smoke Detectors:	N/A
	Sprinklers:	N/A
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	N/A
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	4,000 H
	Critical Dimensions (Approx):	7,830 L x 2,200 W
	Remarks:	N/A

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Room: **Store Room #2**

Room No: Room 21

Size Length: min clear: 7830 mm

Width: min clear: 2200 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	N/A
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	Uniform Distributed = 7.2kPa Point = 7.0kN
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Standard Finish
	Walls:	Standard Finish
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: **Store Room #2**

Room No: Room 21

Size Length: min clear: 7830 mm

Width: min clear: 2200 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	N/A
	Pulling Eyes	N/A
	Monorails	N/A
8.	**Light and Power**	
	Switch Socket Outlet:	
	• Single-phase 10A, double	4 Required (with RCD)
	• Single-phase 15A, single	2 Required (with RCD)
	• Three-phase 32A, 5-pin	NONE
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	100 LUX Type: Fluorescent 2x36W luminaries, IP56, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC : Combined – 2m from EXIT door
	Miscellaneous Requirements:	N/A
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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		Room:	Store Room #2
		Room No:	Room 21
Size	Length:	min clear:	7830 mm
	Width:	min clear:	2200 mm
	Head Room:	min clear:	4000 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

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Room: **Store Room #2**

Room No: Room 21

Size Length: min clear: 7830 mm

Width: min clear: 2200 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Double Door, Hinged	2 hrs	Size: 2800 H x 2000 W Latch
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	N/A	

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		Room:	**Store Room #2**
		Room No:	Room 21
Size	Length:	min clear:	7830 mm
	Width:	min clear:	2200 mm
	Head Room:	min clear:	4000 mm

ITEM	ROOM DATA	
17.0	Security	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activaiton	N/A

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Room: Station Service Transformer

Room No: Room 22

Size **Length:** **min clear:** 3200 mm

Width: **min clear:** 3500 mm

Head Room: **min clear:** 4000 mm

ITEM	ROOM DATA	
1.	**Ventilation**	
	Type:	Forced Ventilation
	Maximum Room Temperature:	40°C
	Air Changes:	4L/sec/m^2 - Floor area minimum
	External Ambient Temperature:	35°C
	Temp Rise Allowable:	3°C
	Heat output of Equipment:	3KW
	Max Noise Allowable: (in the room)	50dB(A)
	Remarks:	N/A
2.	**Hydraulics**	
	Fixtures	N/A
	Outlets	N/A
	Remarks	N/A

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Room: Station Service Transformer

Room No: Room 22

Size **Length:** min clear: 3200 mm

Width: min clear: 3500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
3.	**Fire Safety**	
	Room	2 hour
	Fire Rating Requirement:	N/A
	Thermal Alarms:	N/A
	Smoke Detectors:	N/A
	Sprinklers:	N/A
	Hand Held Fire Extinguishers:	ENERGEX Supplied
	Automatic Principal System:	N/A (Dry Type Transformers)
	Special Requirements	N/A
4.	**Physical Constraints**	
	Height Clearance Required (Approx):	4,000 H
	Critical Dimensions (Approx):	3200 L x 3500 W
	Remarks:	N/A

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Room: Station Service Transformer

Room No: Room 22

Size **Length:** **min clear:** 3200 mm

Width: **min clear:** 3500 mm

Head Room: **min clear:** 4000 mm

ITEM	ROOM DATA	
5.	**Loadings**	
	Maximum Static: With area of application or point load centres	4,000kg (2 x 2,000 kg)
	Maximum Dynamic (Vert):	N/A
	Maximum Dynamic (Horiz)	N/A
	General	N/A
	Remarks:	N/A
6.	**Internal Finishes**	
	Floor:	Rough Broom Finish There will be a 200mm x 400mm penetration in the floor for cable entry into to the transformer (2 in total).
	Walls:	2 - Standard Finish. However, the wall closest to the Switchgear Loading Bay (Room 14) will be a removable grill – to allow for equipment access.
	Ceilings	Standard Finish
	Remarks:	N/A

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Room: Station Service Transformer

Room No: Room 22

Size Length: min clear: 3200 mm

Width: min clear: 3500 mm

Head Room: min clear: 4000 mm

ITEM	ROOM DATA	
7.	**Fixed Equipment**	
	Cranage	N/A
	Pulling Eyes	N/A
	Monorails	N/A
8.	**Light and Power**	
	Outlets:	
	• Three-phase 32A, 5-pin	1 Required
	• Single-phase 10A, double	1 Required (with RCD)
	• Single-phase 15A, single	1 Required (with RCD)
	Sump Pump:	NONE
	Illumination:	
	• AC Lighting:	200 LUX Type: Fluorescent 2x36W luminaries, IP56, wall mounted, RCD.
	Emergency Lighting:	
	• DC Lighting:	110V DC – 10 W / 50m^2
	• Exit Lighting:	240AC / 110V DC ; Combined – 2m from EXIT door
	Miscellaneous Requirements:	N/A
9.0	**Water**	
	Hot:	N/A
	Cold:	N/A
	Deluge Shower:	N/A

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Room: Station Service Transformer

Room No: Room 22

Size **Length:** **min clear:** 3200 mm

Width: **min clear:** 3500 mm

Head Room: **min clear:** 4000 mm

ITEM	ROOM DATA	
10.0	**Earthing Requirement**	
		• Earthgrid to be connected to the building's metallic reinforcing via earthgrid risers • Earthgrid risers to be made available inside the room for earthing of indoor metalwork and plant.
11.0	**Confined Space Requirement**	
	Gas Test Permanent:	N/A
12.0	**Noise Output**	
	Equipment:	N/A
13.0	**Hazardous Substances**	
	Transformer Oil - Diala "B"	MS Data Sheets Supplied
	SF6 - Gas	MS Data Sheets Supplied

energex

Room: Station Service Transformer

Room No: Room 22

Size **Length:** **min clear:** 3200 mm

Width: **min clear:** 3500 mm

Head Room: **min clear:** 4000 mm

ITEM	ROOM DATA		
14.0	**Door Hardware**		
	Type:	**Fire Rating:**	**Hardware:**
	Door 1 Hinged	2 hrs	Size: 2040 H x 820 W Latched
15.0	**Acoustic Requirements**		
	Ventilation Ducts:	N/A	
	External Noise Levels:	(to meet local authority requirements and stadium requirement)	
16.0	**Durability Requirements**		
	Steel Work	All steel work to be galvanised as per Australia Standards.	
	Concrete	Minimum concrete strength shall be 32 MPa N	
	Floor Seal	There will be a 200mm x 400mm penetration in the floor for cable entry into to the transformer (2 in total).	

energex

Room: Station Service Transformer

Room No: Room 22

Size **Length:** **min clear:** 3200 mm

Width: **min clear:** 3500 mm

Head Room: **min clear:** 4000 mm

ITEM	ROOM DATA	
17.0	Security	
	Video Camera	N/A
	Intrusion Detector	N/A
	Intercom System	N/A
	Alarm Contact	N/A
	Remote Activation	N/A

APPENDIX

5:19pm: TAMED 6/8/2001

energex

Attention	[redacted]		
Company	Lang Park Redevelopment Joint Venture		
Fax Number	(07) [redacted]	**Reference**	MLT004-01.doc
Date	6 August, 2001	**Number of Pages**	1
Subject	Amendments to the ***DESIGN BRIEF FOR THE MILTON SUBSTATION BUILDING ESTIMATE***		

Dear [redacted]

As discussed please amend the ***DESIGN BRIEF FOR THE MILTON SUBSTATION BUILDING ESTIMATE*** with the following particulars:

1. The I-beam located in the Transformer Loading Bay (Room 13) **should be removed from the brief** – as existing ENERGEX products can achieve safe access/exit to the Oil Dump Tank.

2. In Room 13 there should only be one (1) AC supply for the roller door (see Miscellaneous Requirements) **not** two (2) as specified.

3. The pulling eyes requested for the Milton substation building should be:
   - **All pulling eyes in the Transformer and Radiator Rooms (Room 3, Room 4, Room 5 and Room 6) should be capable of a 200kN loading** – not 33kN as documented in the brief;
   - All other pulling eyes should be capable of a 33kN loading.

Yours sincerely

[redacted]

INTERNATIONAL QUALITY MANAGEMENT SYSTEM

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Corporate Office
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Brisbane Qld 4000
GPO Box 1461
Brisbane Qld 4001
Telephone 07 3407 4000
Facsimile 07 3407 4609
www.energex.com.au

ENERGEX Limited
ABN 40 078 849 055

faxed : 2:30pm, 8/8/2001

energex

Attention	[redacted]		
Company	Lang Park Redevelopment Joint Venture		
Fax Number	(07) 3368 1875	**Reference**	MLT006-01.doc
Date	8 August 2001	**Number of Pages**	1 of 5
Subject	Information on 33kN and 200kN ~~cable~~ pulling eyes.		

→ Rang [redacted] to remove.

Dear Craig

As discussed, please find attached information on the pulling eyes for Milton substation, as mentioned in the ***DESIGN BRIEF FOR THE MILTON SUBSTATION BUILDING ESTIMATE***.

The drawings are:

- **LOSTD-CV017-01** – Pulling Eye 15/33kN, Mounting Details
- **LOSTD-CV025-03** – Hauling Bollard 200kN, Fabrication Details
- **LOSTD-CV025-02** – Hauling Bollard 200kN, Jig Plate & Anchor Fabrication Details
- **LOSTD-CV025-01** – Hauling Bollard 200kN, Installation Details

Yours sincerely

[redacted]

Engineer Substations Design
Substation Projects

INTERNATIONAL QUALITY MANAGEMENT SYSTEM

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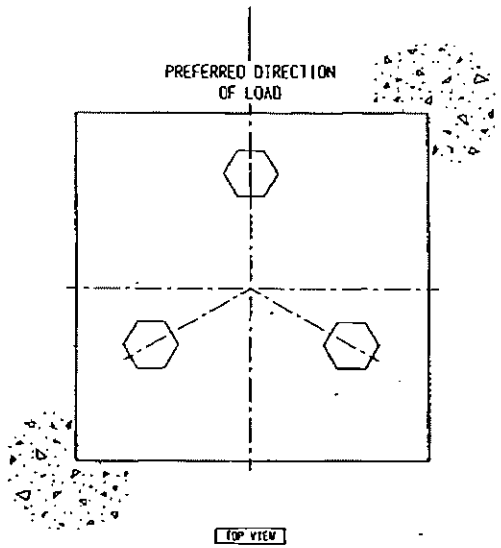
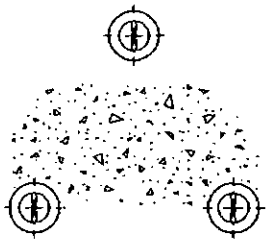
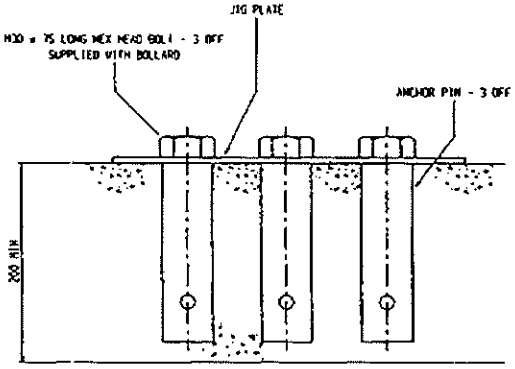
ENERGEX Limited
ABN 40 078 849 055



TOP VIEW

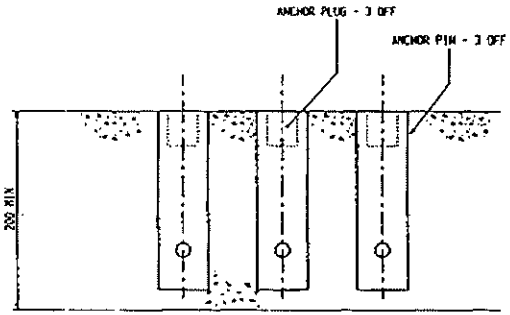


TOP VIEW



FRONT VIEW

DETAIL A INSTALLATION
SCALE 1:2.5



FRONT VIEW

DETAIL B AFTER CONCRETE SETS
SCALE 1:2.5

NOTES:

1. ALL DIMENSIONS ARE MILLIMETRES.
2. COAT THE INSTALLATION JIG PLATE WITH CONCRETE RELEASE AGENT "CALIFORM MR" AVAILABLE FROM "CEMENTAID".
3. ENSURE THAT ANCHOR PINS ARE CLEAN AND FREE OF RELEASE AGENT.
4. INSTALL ASSEMBLY IN CONCRETE WITH THE UNDERSIDE OF THE JIG PLATE FLUSH WITH THE LEVEL OF THE CONCRETE FLOOR.
5. WHEN CONCRETE HAS SET REMOVE BOLTS AND PLACE IN AREA TO BOLLARD. THE JIG PLATE IS TO BE REMOVED AND RECOVERED.
6. INSTALL THE ALUMINIUM PLATES FLUSH WITH THE TOPS OF THE ANCHOR PINS.

DRAWING REFERENCE

1. BOLLARD FABRICATION DETAILS LUS10-CH025-03
2. JIG PLATE & ANCHOR FABRICATION DETAILS LUS10-CH025-02

APPROVED

	DRAWN BY	CHECKED BY	ACCEPT'D BY	APPRV'D BY	DATE
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

INFORMATION TAKEN FROM 2917-01

ENERGEX Limited
STANDARD CIVIL
ANCHOR
MAULING BOLLARD 200KN
INSTALLATION DETAILS

SCALE 1 : AT SHOWN

ORIGINATING DEPARTMENT
PROJECT SUPPORT

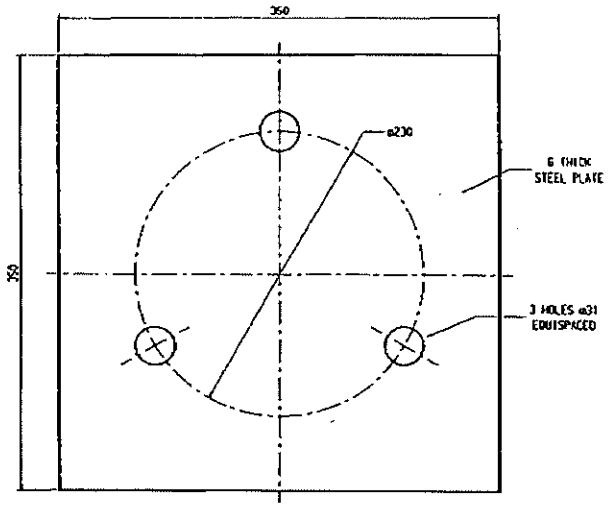
A1

LUS10-CH025-01

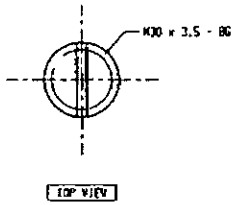
NEXT SHEET 02

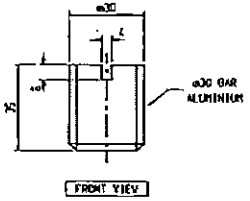
AMENDMENT A

SCALE 1:1

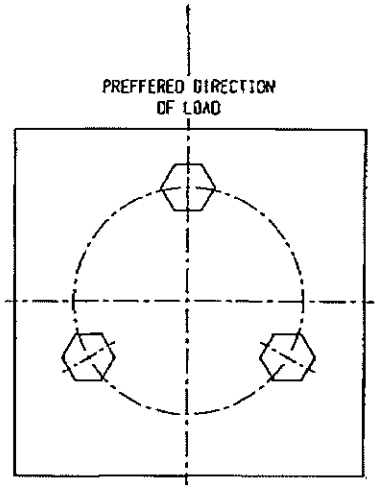


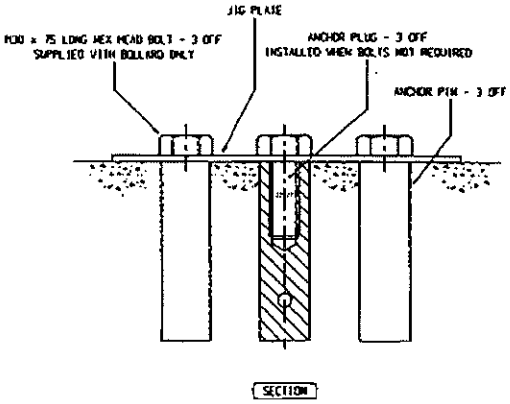
DETAIL A JIG PLATE
SCALE 1:2



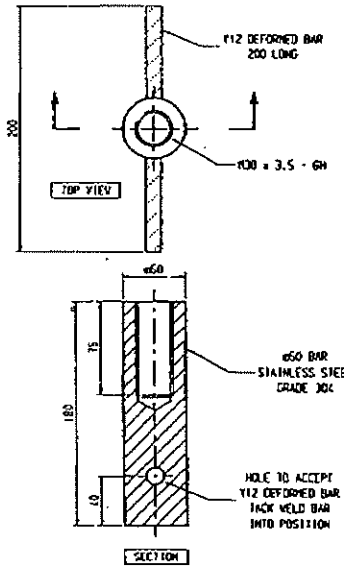


DETAIL C ANCHOR PIN PLUG
SCALE 1:1





ASSEMBLY
SCALE 1:2.5



DETAIL B ANCHOR PIN
SCALE 1:2

Y12 DEFORMED BAR
200 LONG

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES.
2. STEEL PLATE TO BE HOT DIP GALVANISED AFTER FABRICATION.
3. PIPE CONNECTION IS TO BE MANUFACTURED IN ACCORDANCE WITH THE FOLLOWING QUALITY ASSURANCE SHEETS:
   DRGNR-F0004-01 : FASTENERS - BOLTS
   DRGNR-M0001-01 : MATERIALS - ALUMINIUM BAR, STAINLESS STEEL
   DRGNR-M0001-02 : MATERIALS - STEEL
   DRGNR-F1001-01 : FABRICATION - TOLERANCING
   DRGNR-F1001-02 : FABRICATION - WELDING, FINISH

DRAWING REFERENCE

1. BOLLARD FABRICATION DETAILS LOSTD-C1025-01
2. BOLLARD & ANCHOR INSTALLATION DETAILS LOSTD-C1025-01

DRAWN BY	CHECKED BY	RECOM'D BY	APPRV'D BY	DATE
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]

PLATE REVISED

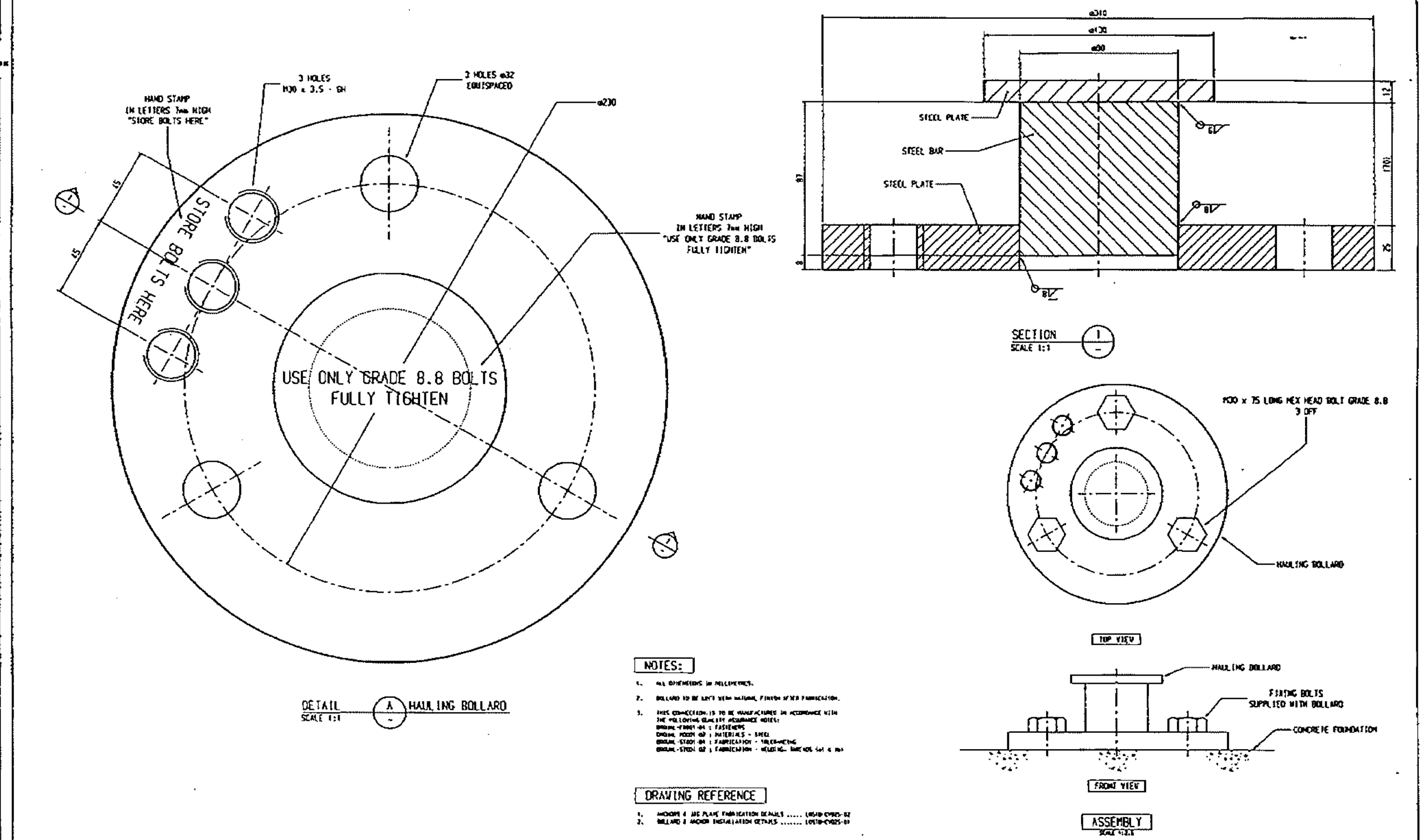
ENERGEX Limited

STANDARD CIVIL
ANCHOR
MAULING BOLLARD 200KN
JIG PLATE & ANCHOR
FABRICATION DETAILS

SCALE 1 : AS SHOWN | ORIGINATING DEPARTMENT: PROJECT SUPPORT | A1

LOSTD-C1025-02

NEXT SHEET 03 | AMENDMENT B



NOTES:

1. ALL DIMENSIONS IN MILLIMETRES.
2. BOLLARD TO BE LEFT WITH NATURAL FINISH AFTER FABRICATION.
3. THIS CONNECTION IS TO BE MANUFACTURED IN ACCORDANCE WITH THE FOLLOWING QUALITY ASSURANCE NOTES:

DRAWING REFERENCE

1. ANCHOR & TIE PLATE FABRICATION DETAILS LOSTD-CV025-02
2. BOLLARD & ANCHOR INSTALLATION DETAILS LOSTD-CV025-01

DRAWN BY	CHECKED BY	RECOM'D BY	APPR'D BY	DATE
				01-12-95
				15-05-96

FIRST REVISED

APPROVED

ENERGEX Limited

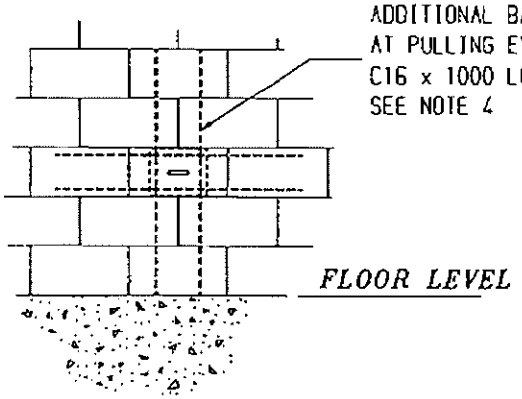
STANDARD CIVIL
ANCHOR
HAULING BOLLARD 200KN
FABRICATION DETAILS

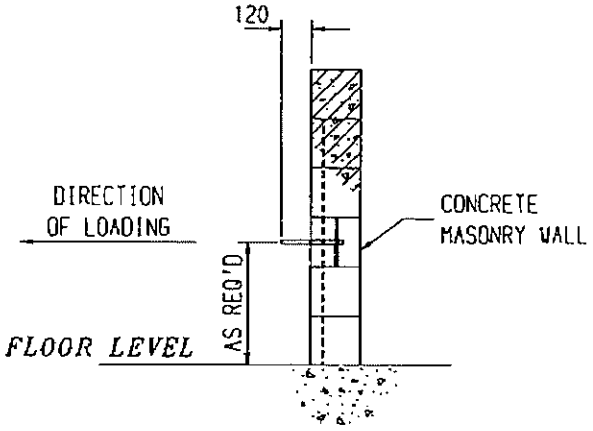
SCALE: AS SHOWN
ORIGINATING DEPARTMENT: PROJECT SUPPORT
A1

LOSTD-CV025-03

NEXT SHEET -
AMENDMENT B

A0022199





MAXIMUM LOADING

CONCRETE MASONRY WALL: 15kN (1500kg)
REINFORCED CONCRETE WALL: 33kN (3300kg)

NOTE:

1. ALL DIMENSIONS IN MILLIMETRES.
2. THESE NOTES ARE TO BE READ IN CONJUNCTION WITH THE FOLLOWING QUALITY ASSURANCE NOTES:
   ORQUAL-MD001-02 : STEEL - STRUCTURAL
   ORQUAL-ST001-01 : TOLERANCING - FABRICATION
   ORQUAL-ST001-02 : WELDING AND FINISH
   ORQUAL-ST001-03 : PROTECTIVE COATINGS - HOT DIP GALVANISING
3. FOR MANUFACTURING DETAILS OF ANCHOR PULLING EYE SEE LOSTD-ST006-01.
4. ENSURE BARS ARE ADEQUATELY TIED TO BLOCKWALL REINFORCEMENT TO THE SATISFACTION OF THE ENGINEER.

APPROVED

	DRAWN BY	CHECKED BY	RECOM'D BY	APPRV'D BY	DATE
	D.WILSON	R.SIMMONS	I.CAMERON	N.LOGOTHETIS	10-10-94
A	D.WILSON	R.SIMMONS	I.CAMERON	N.LOGOTHETIS	10-10-94

INFO TAKEN FROM 2111-A2

ENERGEX Limited

STANDARD CIVILWORK
ANCHOR
PULLING EYE 15/33KN
MOUNTING DETAILS

SCALE : AS SHOWN

ORIGINATING DEPARTMENT
PROJECT SUPPORT

A3

LOSTD-CV017-01

NEXT SHEET -

AMENDMENT A

SCALE : 1:20
0 200 400 600 800 1000 2000

SENT TO [redacted]
1:00pm 9/8/2001

energex

Substation Projects

Phone: (07) 3407 4481
Fax: (07) 3407 4611

To: [redacted]

From: **Engineer Substations Design**

Copies: [redacted]

Date: **9 August, 2001** Ref: **MLT007-01**

Subject: **MILTON CABLE TUNNEL DRAWINGS**

Duncan,

Please find enclosed four (4) copies of the Cable Tunnel at Milton.

The drawings are:

1. **MILTON CABLE TUNNEL LAYOUT PLAN SECTION AND DETAIL : 13281-A1 (Sheet 1 of 3)**
2. **MILTON CABLE TUNNEL LAYOUT PLAN SECTION AND DETAIL : 13281-A1 (Sheet 2 of 3)**
3. **MILTON CABLE TUNNEL LAYOUT PLAN SECTION AND DETAIL : 13281-A1 (Sheet 3 of 3)**

Could you please acknowledge the receipt of these drawings by faxing me in 3407 4611 .

Thanks

[redacted]

Engineer Substations Design

energex

Attention	[redacted] (LPRJV)		
Copies	[redacted] (ENERGEX), [redacted] (LPRJV),		
Company	Lang Park Redevelopment Joint Venture		
Fax Number	(07) [redacted]	**Reference**	MLT008-01.doc
Date	17 August, 2001	**Number of Pages**	1
Subject	Equipment loadings for *Room 2 - 110kV GIS Switchroom*		

Duncan,

As per our telephone conversation today, I am writing to ensure that we have a common understanding for the loading of the equipment in *Room 2 – 110kV GIS Switchroom.*

The equipment in Room 2 is divided up into several panels. Consequently the loadings mentioned in the brief reflect the construction of the equipment and are indicated for a single panel only. That is, there will be nine panels, in Room 2, **each** with the loadings indicated in *Section 5* of the *Room Data Sheets* for *Room 2 – 110kV GIS Switchroom.*

Although, in our discussions, you stated that this will not affect the estimate, I thought it would be beneficial to clarify, for your engineering staff, that this is our loading requirement.

Could you please also forward a copy of this fax to [redacted]

Yours sincerely

[redacted]

Engineer Substations Design
Substation Projects

Enquiries [redacted]
Telephone [redacted]
Facsimile [redacted]
Email [redacted]
@energex.com.au

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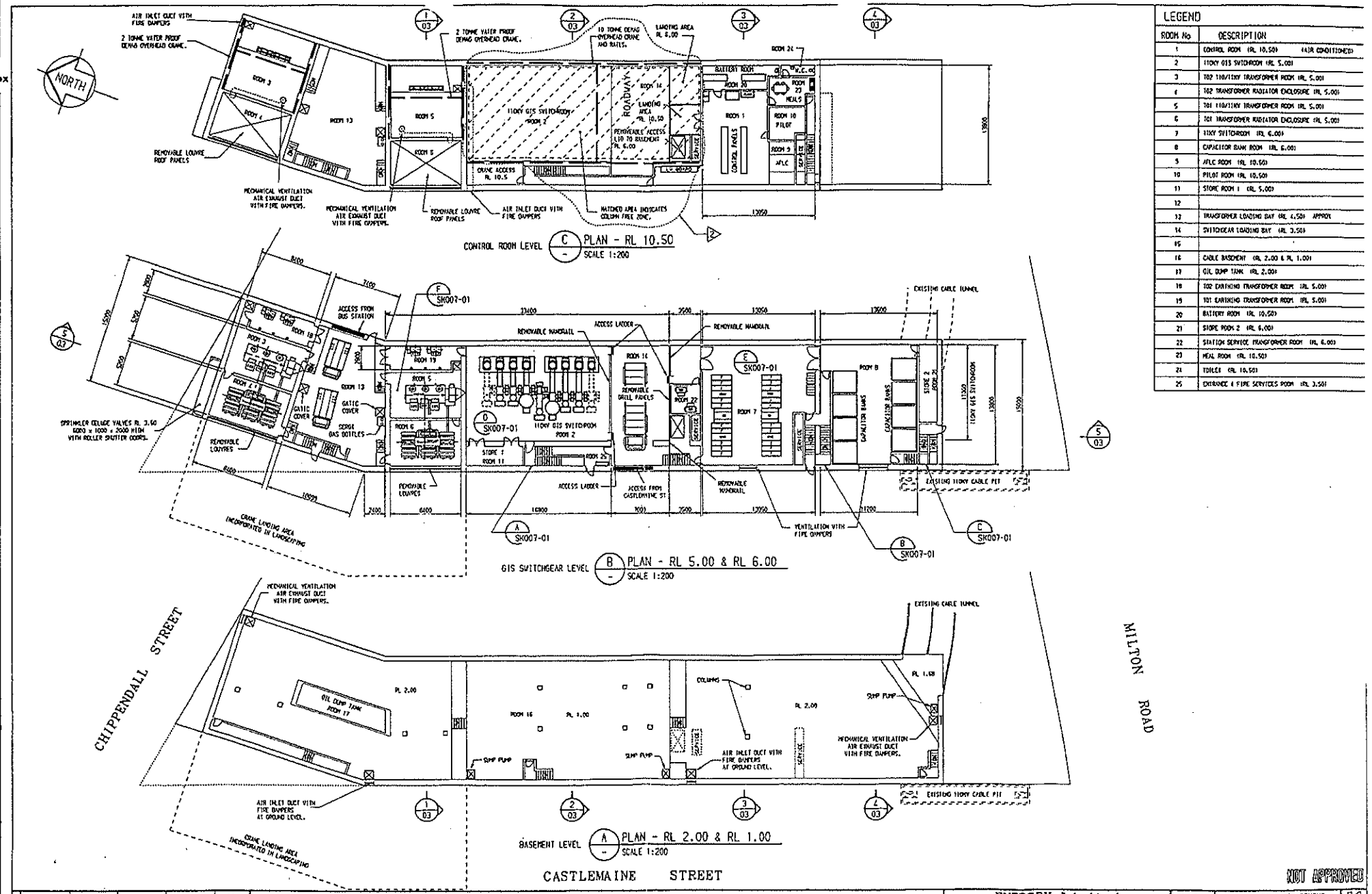
Telephone 07 3407 4000
Facsimile 07 3407 4609
www.energex.com.au

ENERGEX Limited
ABN 40 078 849 055



LEGEND

ROOM No	DESCRIPTION
1	CONTROL ROOM (RL 10.50) (AIR CONDITIONED)
2	11KV GIS SWITCHROOM (RL 5.00)
3	T02 110/11KV TRANSFORMER ROOM (RL 5.00)
4	T02 TRANSFORMER RADIATOR ENCLOSURE (RL 5.00)
5	T01 110/11KV TRANSFORMER ROOM (RL 5.00)
6	T01 TRANSFORMER RADIATOR ENCLOSURE (RL 5.00)
7	11KV SWITCHROOM (RL 6.00)
8	CAPACITOR BANK ROOM (RL 6.00)
9	AFLC ROOM (RL 10.50)
10	PILOT ROOM (RL 10.50)
11	STORE ROOM 1 (RL 5.00)
12	
13	TRANSFORMER LOADING BAY (RL 4.50) APPROX
14	SWITCHGEAR LOADING BAY (RL 3.50)
15	
16	CABLE BASEMENT (RL 2.00 & RL 1.00)
17	OIL DUMP TANK (RL 2.00)
18	T02 EARTHING TRANSFORMER ROOM (RL 5.00)
19	T01 EARTHING TRANSFORMER ROOM (RL 5.00)
20	BATTERY ROOM (RL 10.50)
21	STORE ROOM 2 (RL 6.00)
22	STATION SERVICE TRANSFORMER ROOM (RL 6.00)
23	MESS ROOM (RL 10.50)
24	TOILET (RL 10.50)
25	ENTRANCE & FIRE SERVICES ROOM (RL 3.50)

DRAWN BY	CHECKED BY	RECOM'D BY	APPRV'D BY	DATE
1 L.TAYLOR	M.PEARCE	A.MEHAT.JOHN	M.MEHTA	15-08-01
2 L.TAYLOR				

COLUMN FREE ZONE FOR 10 TONNE CRANE ADDED. — SIGNATURES IN OCS

PRELIMINARY PRINT

REVISED 16/10/2001

REFERENCE DRAWINGS

SECTIONS NNN1000003-SSMLT-SK006-03
FLOOR PENETRATIONS NNN1000003-SSMLT-SK007-01

ENERGEX Limited

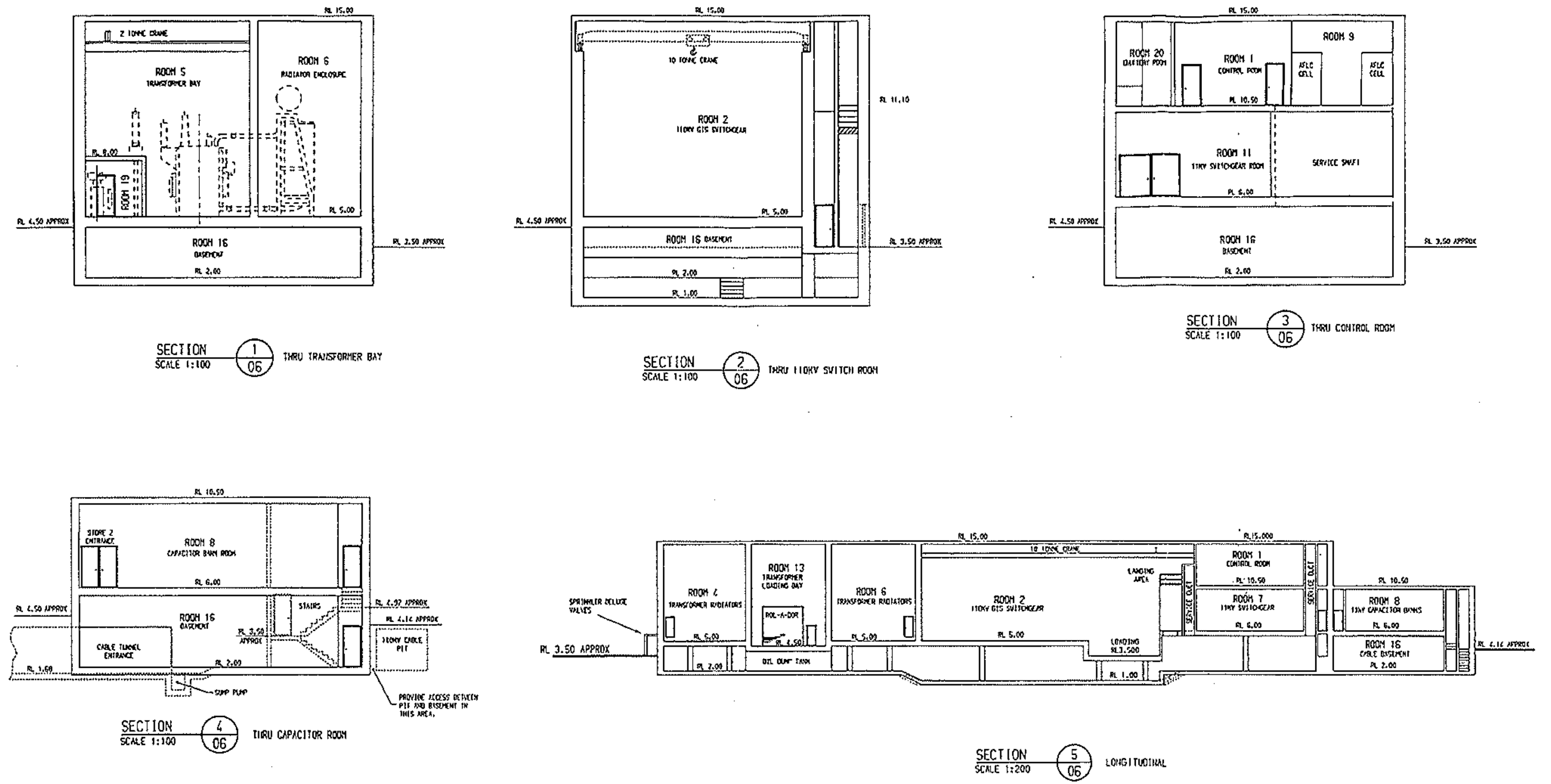
MLT MILTON
110/11KV PROPOSED SUBSTATION
GENERAL ARRANGEMENT

SCALE : AS SHOWN — ORIGINATING DEPARTMENT: PROJECT SUPPORT — A1

NNN1000003-SSMLT-SK006-06

NEXT SHEET - — AMENDMENT 2

NOT APPROVED



DRAWN BY	CHECKED BY	RECOM'D BY	APPRV'D BY	DATE
I.TAYLOR	K.PEARSE	A.MCPHEE.JOHN	H.MEHTA	16-08-01
1 I.TAYLOR	K.PEARSE	A.MCPHEE.JOHN	H.MEHTA	16-08-01

PRELIMINARY PRINT

REVISED 12/07/2001

REFERENCE DRAWINGS

ARRANGEMENT NMN1000003-SSMLT-SK005-06
FLOOR PENETRATIONS NMN1000003-SSMLT-SK007-01

ENERGEX Limited

MLT MILTON
110/11KV PROPOSED SUBSTATION
SECTIONS

SCALE : AS SHOWN | ORIGINATING DEPARTMENT: PROJECT SUPPORT | A1

NMN1000003-SSMLT-SK006-03

NEXT SHEET 04 AMENDMENT 1

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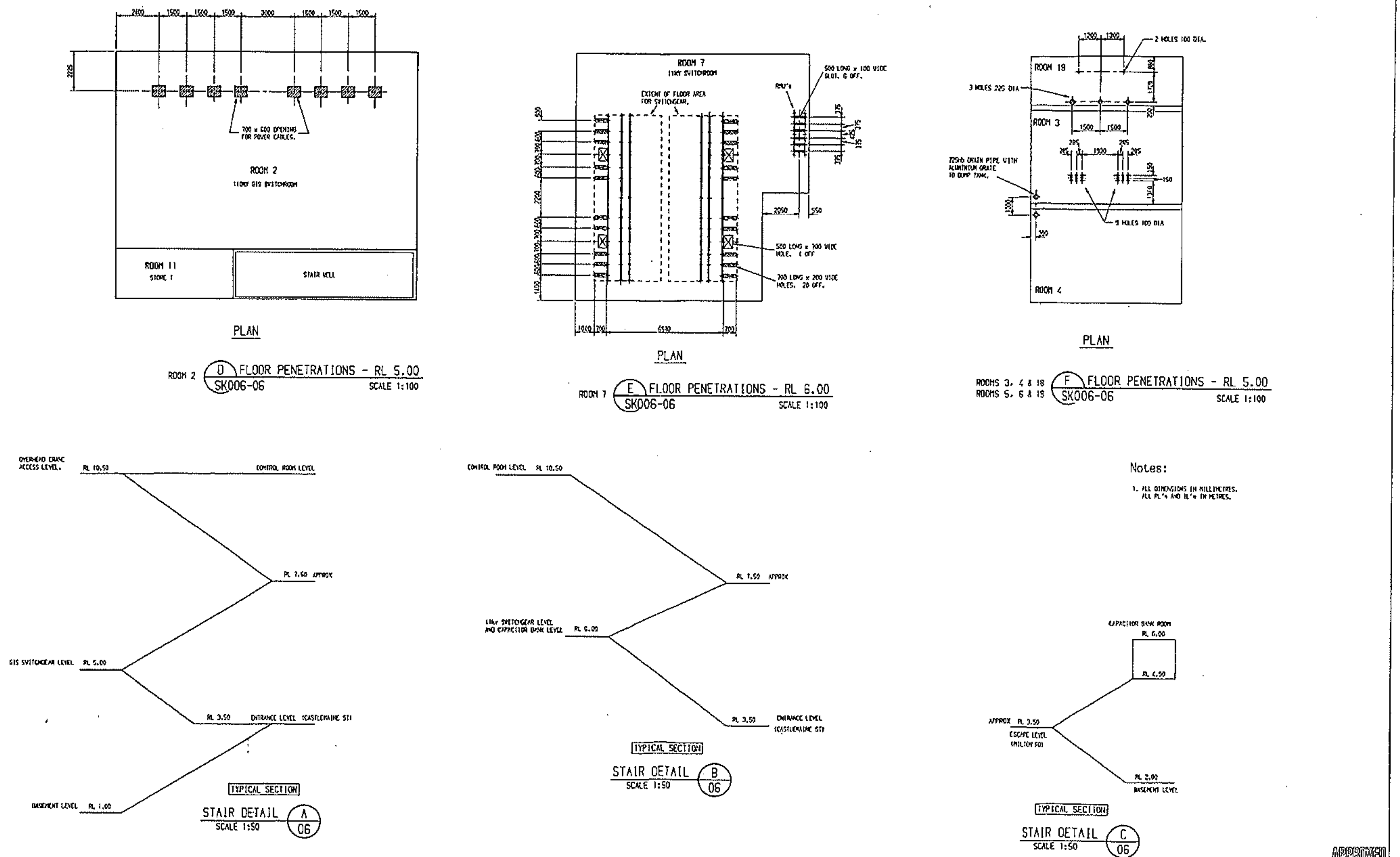

Notes:

1. ALL DIMENSIONS IN MILLIMETRES. ALL RL'S AND IL'S IN METRES.

APPROVED

DRAWN BY	CHECKED BY	RECOM'D BY	APPRV'D BY	DATE
T.TAYLOR	K.PEARSE	A.MEIKLEJOHN	H.MEHTA	10-00-01
T.TAYLOR	K.PEARSE	A.MEIKLEJOHN	H.MEHTA	10-00-01

REFERENCE DRAWINGS

ARRANGEMENT NMN1000003-SSMLT-SK006-06
SECTIONS NMN1000003-SSMLT-SK006-03
WALL PENETRATIONS .... NMN1000003-SSMLT-SK007-02 & 03

ENERGEX Limited

MLT MILTON
110/11KV PROPOSED SUBSTATION
FLOOR PENETRATIONS AND STAIR DETAILS

SCALE : AS SHOWN
ORIGINATING DEPARTMENT: PROJECT SUPPORT
A1

NMN1000003-SSMLT-SK007-01

NEXT SHEET 02
AMENDMENT 1

SCALE : 1:50 1:100