DEVELOPMENT GUIDELINES

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Kimberley Ports Authority
DEVELOPMENT GUIDELINES

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DEFINITIONS AND ABBREVIATIONS

DEFINITIONS

Type 1 Development	Type 1 developments include uncomplicated minor developments that have a low risk to future development, the environment, and or port safety. Generally, these developments are less than $1M in value.
Type 2 Development	Type 2 developments are relatively uncomplicated developments that have the potential to create low to medium risk to future development, the environment, and or port safety. Type 2 developments require focussed planning, substantial design, environmental impact assessment (including consultation with the EPA), and or other relevant regulatory authorities approvals
Type 3 Development	Type 3 developments are those that have the potential to create significant impacts to port controlled waters and or land and require assessment by other State or Commonwealth regulatory authorities. Other regulatory authorities may include the DEC, Emergency Services, Customs, National Native Title Tribunal, DIA, or the Commonwealth Department of Environment and Heritage
Developer	An individual or company who combines raw land, roads, utilities, buildings, financing, and promotion into a completed operating property.
Proponent	With respect to a project: persons, bodies, authorities, governments, or donors that propose the project, are responsible for preparation of the project, including the environmental assessment or are responsible for project implementation
Development	The development or use of any land or Port controlled waters, including: • Any demolition, erection, construction, alteration of or addition to any building or structure on the land; and • The carrying out on the land of any excavation (including dredging) or other works.
State Significant Proposal:	A proposal that is deemed by Cabinet to be critical to the advancement of the State of Western Australia or the nation based on environmental, social, economic or heritage considerations. They are likely to be Level 3 proposals according to the criteria detailed in this document.

ABBREVIATIONS

AHD	Australian Height Datum
AMG	Australian Map Grid
ARI	Assessment on Referral Information
AS	Australian Standard
BCA	Building Code of Australia
CSMP	Construction Safety Management Plan
DA	Development Application
DEC	Department of Environment and Conservation
DIA	Department of Indigenous Affairs
DOCEP	Department of Consumer and Employment Protection
DOIR	Department of Industry and Resources
KPA	Kimberley Ports Authority
BPDP	Broome Port Development Plan
DPI	Department of Planning and Infrastructure
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPS	Environmental Protection Statement
ERMP	Environmental Review and Management Program
HMP	Heritage Management Plan
HP	Horizon Power
MRWA	Main Roads of Western Australia
MSDS	Material Safety Data Sheet
NPER	National Professional Engineers Register
OHSE	Occupational Health, Safety and Environment
PER	Public Environmental Review
PUEA	Proposal Unlikely to be Environmentally Acceptable
QA	Quality Assurance
SoB	Shire of Broome
WAB	Work Activity Breakdown
WC	Water Corporation

1. PURPOSE

1.1 Introduction

These guidelines have been prepared to assist developers and proponents with the implementation and operational aspects of development on Port lands and waters. They are intended to assist designers, engineers, architects and other specialists in preparing designs to be submitted with the development application for consideration by the Kimberley Ports Authority (KPA).

Circumstances stemming from WA State policies including the Lead Agency Framework and regulatory requirements require developers to pay special attention to particular design issues including environmental and cultural and heritage considerations. The lead agency within State Government departments with responsibility for developments that fall into port authority areas of management is normally the Department of Transport (DoT). Normally the port authority will manage development proposals and involve the DoT as required under the *Port Authorities Act WA 1999*. Large developments require the Minister's approval.

The Tier 1, 2 or 3 level into which a development proposal falls will determine the level of case management provided by the lead agency and the type of reporting required by both the lead agency and the proponent.

These guidelines may not be fully definitive however they do provide a guide to the basic requirements when preparing construction and operational Environmental Management Plans (EMPs), Safety Management Plans (SMPs) and Quality Management Plans (QMPs).

1.2 Lead Agency Framework

The 2009 WA State Government Lead Agency Framework applies to approvals for State initiated proposals, such as the Kimberley Browse LNG Precinct and the Ord-East Kimberley Expansion Plan. Lead agency responsibilities are shown at figure 1-1.

The Lead Agency Framework applies to all major proposals, and the levels of assistance provided by lead agencies are determined by applying the criteria detailed at figure 1-2. The level of complexity, the significance of the project to the State or the level of impact the project will have on the environment and infrastructure determines how assessment of those projects is tailored to meet requirements. For instance, a proposal to build a new desalination plant requiring many separate approvals from several agencies requires a thorough, in-depth environmental, social and economic assessment. This may require the lead agency to appoint a senior project officer (perhaps a senior project team) to monitor the progress of the project.

The lead agency approach requires that assistance with, or coordination of, approvals for a proposal is administered by one department. This agency is responsible for providing proponents with information on statutory requirements and coordinating the necessary approval processes. This includes assisting proponents to identify the potential impacts of the proposal on matters such as infrastructure, the environment and regional communities as well as the social considerations that arise from the proposal.

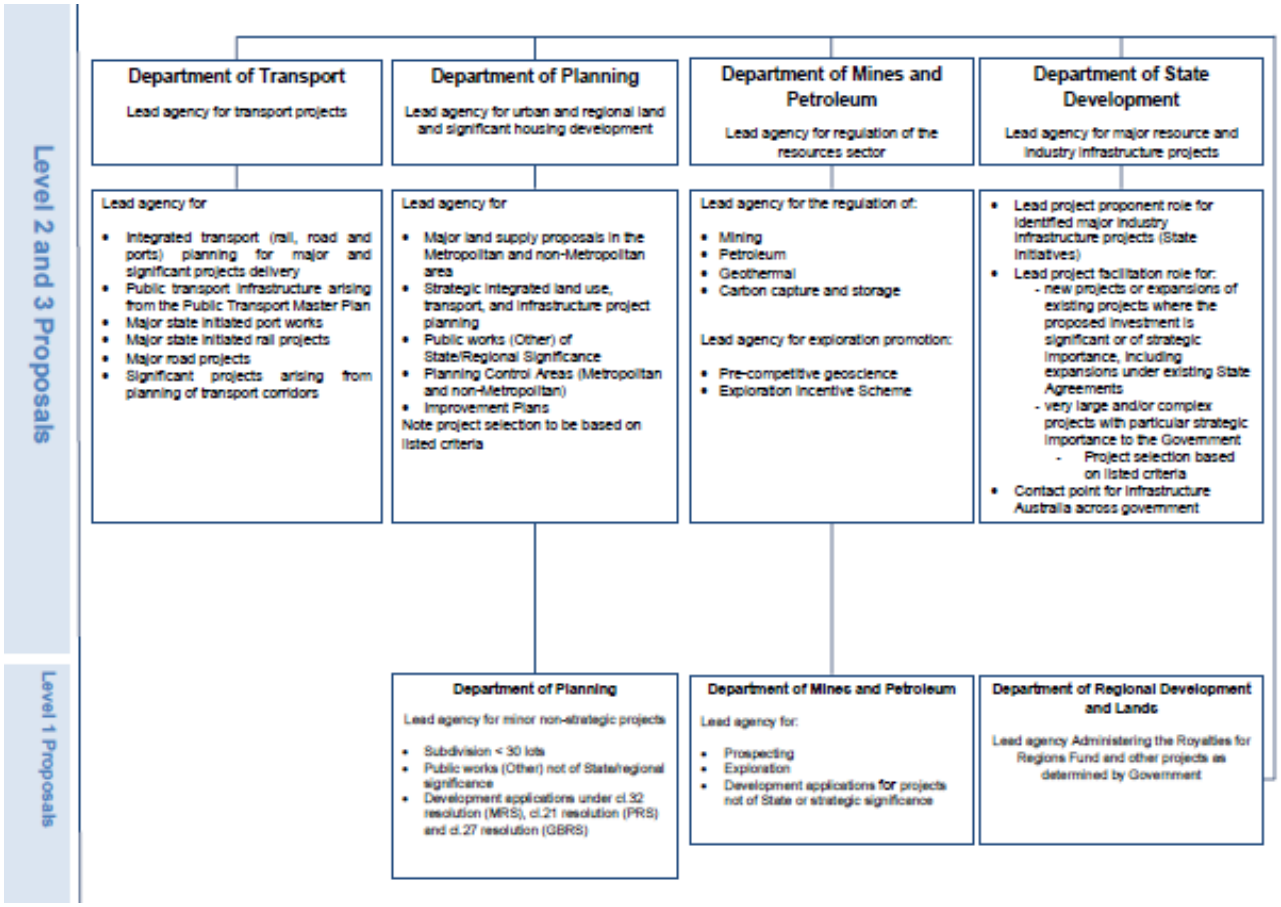

Figure 1-1: WA Government Lead Agency Responsibilities

Figure 1-2 below outlines criteria that broadly apply to all proposals received by lead agencies. Each lead agency also has criteria tailored to its own situation which categorise projects as Level 1, 2 or 3. Lead agencies will consult on each proposal with relevant agencies such as KPA and LandCorp, and statutory roles and functions currently assigned to agencies remain unchanged.

Proposal Classification	Assistance provided	Monitoring/Reporting
Level 1 Such a proposal would be characterised as being small to moderate in scale and capable of being accommodated through existing environmental, social and economic assessment processes. The majority of proposals received by agencies would be classified as Level 1.	The Lead Agency may provide initial advice and support though an appointed project officer. Service could include referral and introduction to relevant agencies, negotiating with applicants and referral to relevant agencies where issues arise.	Agencies to monitor status of proposals by using existing website reports and quarterly reports. Proponents may be requested to provide updates to the lead agency as required.
Level 2 This level includes non-standard moderate to large scale or complex proposals. These proposals are likely to have a significant capital investment and employ a large number of people for an extensive period of time.	The lead agency, in addition to application tracking and approvals management, will appoint a project manager/case officer to assist with proposal scoping, approval planning and inter-agency coordination.	The lead agency will monitor progress across Government and assist in the identification and resolution of issues impeding the approvals process. Agencies to report using existing website reports and quarterly reports. Proponents will be requested to provide regular reports on progress.
Level 3 These proposals would be very large or complex proposals, those that have significant investment or have potential to create significant employment. Some proposals that are of critical strategic importance to the State or to Australia will be referred to Cabinet for consideration for "State significant" status.	The lead agency will assign a senior officer or senior project team to assist with Government related aspects of project definition, infrastructure, industrial land, regional issues, coordination and interaction with agencies relating to key statutory approvals, stakeholder recognition and consideration of agency timelines and negotiations in the State's interest.	Progress will be monitored on a case management basis by agency heads led by the lead agency. Monitoring will focus on coordination and progress of approvals across Government. Lead agencies should create website pages devoted to Level 3 proposals for reporting on their progress through various stages of the approvals process and provide links to key documents in the process. Proponents will be requested to provide monthly updates.

Figure 1-2: Levels of Lead Agency assistance

1.2.1 Department of State Development

Department of State Development (DSD) is the lead agency for major resource and industry infrastructure proposals. DSD is also the contact point for Infrastructure Australia across government. DSD will be the project proponent for identified major industry infrastructure proposals (State Initiated Projects).

DSD will have the lead proposal facilitation role for new proposals or expansions of existing proposals where the proposed investment is significant or of strategic importance. This includes expansions under existing State Agreements, and very large and/or complex proposals with particular strategic importance to the State. DSD and the Department of Mines and Petroleum (DMP) have reached agreement on which resource proposals fall under the jurisdiction of DSD.

DSD is the agency responsible for administering various State Agreement Acts. State Agreements are contracts between the Government of Western Australia and proponents of major resources and infrastructure proposals which are ratified by an Act in State Parliament. A State Agreement Act will normally require tenure to be granted by the Minister for Lands, for particular purposes and in specified areas, pursuant to the *Land Administration Act 1997 (WA)*.

1.2.2 Department of Transport

The Department of Transport (DoT) is the lead agency for integrated transport planning for major and significant proposal delivery, public transport infrastructure arising from the Public Transport Master Plan, major State initiated port, rail and road proposals, and significant projects arising from planning for transport corridors.

DoT is the agency responsible for administering the *Transport Coordination Act 1966 (WA)* which provides for the coordination, planning and advancement of all forms of transport in the State.

Transport agencies, including Main Roads WA, Public Transport Authority (PTA) and the Port Authorities, operating under their individual legislation, are responsible for modal planning and the operation of the transport network including the delivery of transport related projects.

Transport agencies are generally involved in the delivery of projects which are funded by or include a contribution from or are ultimately owned or managed by the State. They also have a role in the transport component of development projects such as Oakajee. Specific DoT project roles include:

a) Level 1 and Level 2: These proposals would be characterised as being moderate in scale and the approvals capable of being accommodated through existing project management processes within the agency. Responsibility for delivery generally rests with a single Transport delivery agency. Typical examples of projects in this category include road upgrades or extensions, rail passing loops, route realignments, minor dredging and berth upgrades in ports.
    - *Assistance provided*: DoT will provide advice and support only where requested by the relevant Transport agency. Service could include coordination and interaction with agencies in relation to key statutory approvals.

b) Level 3: These proposals would usually be major or State significant proposals with particular strategic importance to the State Government or multi-modal projects requiring cross agency coordination. Typical projects would include the Fremantle Outer Harbour and related transport links and multi-modal projects such as the Esperance Transport corridor.

    - *Assistance provided*: DoT will nominate a senior officer to assist with cross-government related aspects of the project, project scoping and coordination of key statutory approvals.

1.2.3 Kimberley Ports Authority

Kimberley Ports Authority (KPA) employs a number of development related documents that outline site specific project requirements within the port's area of management and responsibility, including:

a) KPA Development Plan;
b) KPA Development Application Procedure;
c) KPA Facility Handbook;
d) KPA Contractor's' Handbook;
e) KPA Health and Safety requirements;
f) KPA Environmental & Heritage requirements;
g) DIA Cultural Heritage Reports;
h) EPA Guidance Statements.

1.2.4 Lead Agency Officer Working Groups and Committees

Officer working groups comprise senior case management officers from lead agencies and approval agencies who meet regularly to resolve issues surrounding approvals and monitor the progress of proposals through the approvals process. Officer working groups are also used to negotiate approval timelines for proposals. Officer working groups would be formed on a case-by-case basis where a need is identified.

Lead agencies can form an inter-agency taskforce or committee comprising of senior/directorial officers from the lead agency and other relevant approval agencies, chaired by the lead agency. The committee would monitor the progress of the approvals process, resolve issues where they occur and provide advice to relevant Ministers.

2. DEVELOPMENT APPROVAL PROCESS

2.1 Development Application

Details on the format and content of a Development Application (DA) and the process of submitting a DA to Kimberley Ports Authority are contained in the *KPA Development Application Procedure*.

Proponents have a responsibility to:

a) Ensure they have regard for all relevant guidance statements and information;
b) Work with lead agencies (if required) and approval agencies to scope their project and the approvals process;
c) Ensure that their proposal is supported by quality information collected and submitted within agreed timelines;
d) Respond to reasonable requests for more information within agreed timelines; and
e) Undertake quality community and stakeholder consultation.

2.2 Development Approval

A Development Application is reviewed by KPA against the following guidelines, among others:

a) KPA Development Application Procedure
b) Development Plan
c) Port Authorities Act 1999 and other relevant legislative requirements
d) Building Code of Australia (BCA)
e) Australian Standards
f) Other relevant information applicable to the proposed development

In most cases, KPA Development Approval is conditional on the applicant complying with a set of Development Conditions.

In conjunction with the WA State Government 'Lead Agency' framework, approvals and advice for proposals are given by the following agencies:

a) **Western Australian Planning Commission**
   - Subdivisions
   - Development applications under region planning schemes

b) **Environmental Protection Authority**
- Assess and provide public advice on proposals likely to have a significant effect on the environment
- Develop statutory policy and advice to protect the environment

c) **Department of Environment and Conservation**
- Regulate pollution and clearing of native vegetation
- Manage and regulate CALM Act lands and waters and provide advice on activities that affect these
- Manage and provide advice on biodiversity, wetlands, contamination, pollution and waste, and environmental harm

d) **Department of Indigenous Affairs**
- Assessment and advice on proposals likely to have an effect on Aboriginal heritage
- Assessment and advice on access to and use of lands held by the Aboriginal Lands Trust
- Develop administrative policy and advice to protect Aboriginal heritage and manage lands held by the Aboriginal Lands Trust

e) **Department of Water**
- Water Licensing
- Beds and Banks

f) **Department of Health**
- Provide advice and guidelines on acceptable use and background levels of hazardous substances
- Provide permits to use some substances
- Regulation of *Health Act, 1911*

g) **Department of Mines and Petroleum**
- Tenure for exploration and development projects
- Environmental approvals
- Petroleum pipeline licences
- Facilitation of native title agreements
- Occupational safety and health
- Dangerous goods

h) **Local Government**
- Building Approvals

i) **Commonwealth Department of Environment, Water, Heritage and the Arts**
- EPBC Controlled Actions

j) **Department of Regional Development and Lands**
- Assembles and delivers Crown land for particular uses in accordance with the statutory provisions of the LAA

k) **Department of Transport**
- Integrated transport planning that arises from, and meets, the aims of land use planning
- Ensure all aspects of intermodal transport are taken into consideration
- Evaluating the transport economics of different transport solutions

- There are no known projects where transport is not an important element in the delivery and ongoing operation of the project

a) **Commonwealth EPBC Act Approvals**

- The Department of the Premier and Cabinet (DPC) will coordinate approvals with the Commonwealth Department of the Environment, Water, Heritage and the Arts on a case-by-case basis, where necessary. The lead agency for liaising with the Commonwealth on environmental approvals is the Department of Environment and Conservation (DEC).

2.3 Development Conditions

Some Development Conditions are standard to most developments, whilst others are specific to the individual development. The responsible KPA officer sets and administers the Development Conditions for the approvals process. A standard template is attached at Appendix A showing typical KPA Development Conditions.

3. DEVELOPMENT APPROVALS

3.1 Kimberley Ports Authority (KPA)

Subject to any prerequisite Lead Agency involvement, KPA Development Approval is required before any development occurs on Port land or in Port waters. "Development" on port lands or waters includes, but is not limited to:

- Dredging
- Roadworks
- Construction of marine facilities
- Navigational aids
- Signage
- Change in land use
- Construction of storage sheds
- Telecommunications
- Water supply
- Quarrying
- Earthworks
- Electrical works

Refer to the *KPA Development Application Procedures* for further information on how to make a Development Application (DA) to KPA. For further information refer to the KPA website at www.kimberleyports.wa.gov.au.

3.2 Environmental Protection Authority (EPA)

Future developments which fit into the type 2 or type 3 categories (as detailed in the *KPA Development Application Procedure*) may require a referral of the proposal to the EPA in order to assess any significant potential environmental impacts which may arise during the construction and operation of the future development. The EPA will set the level of assessment for the proposal; note that the previous five levels of assessment have been simplified to two:

a) assessment on proponent information (API) – no public review; and

b) public environmental review (PER) – public review period generally 4 to 12 weeks.

Environmental Impact Assessment is carried out by the EPA according to the *Environmental Protection Act 1986* as amended by *Approvals and Related Reforms (No. 1) (Environment) Bill 2009* and the *Environmental Impact Assessment Administrative Procedures 2010.*

On 27 November 2009 the State Government formed a dedicated department to support the EPA, known as the Office of the EPA (OEPA). This is intended to provide the Authority with greater independence and control of its policies and process. The OEPA provides support services such as negotiating with stakeholders and proponents, technical advice regarding the formulation of policies, research and formulation of reports, and monitoring of project implementation.

From the EPA website, *Environmental Assessment Guidelines (EAGs)* – formerly Guidance Statements – are issued by the EPA to provide advice to proponents and the public generally on the procedures and minimum environmental requirements that the EPA expects to be met during the environmental impact assessment process. EAGs are not statutory documents; however, a proponent wishing to deviate from the minimum level of performance set out in an EAG would be expected to put a well-researched and clear justification to the EPA arguing the need for the deviation. An argument to deviate from the requirements in an EAG should demonstrate that all practicable endeavours have been made to meet the intent of the Guideline. EAGs and Guidance Statements remain current until the EPA decides otherwise.

Further information concerning EPA assessment guidelines can be obtained from the EPA website: http://www.epa.wa.gov.au/Policies_guidelines/EAGs/Pages/default.aspx. A further useful link within a FAQ sheet context is http://www.edowa.org.au/files/factsheets/pdc_eiawa.pdf.

3.3 Department of Environment & Conservation (DEC)

A land clearing permit may be required according to the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* which are amended from time to time by written laws referred to at: http://www.austlii.edu.au/au/legis/wa/consol_reg/eponvr2004657/notes.html. These laws replace a Notification of Intent to Clear under the *Soil and Land Conservation Regulations 1992*. In addition, some types of clearing that did not need authorisation previously may now require a clearing permit. As a result of the amendments, clearing of native vegetation is prohibited unless:

a) A clearing permit is granted by the Department of Environment (DoE); or
b) The clearing is for an exempt purpose (for information on the exemptions, please refer to *A Guide to the Exemptions and Regulations for Clearing Native Vegetation*).

The Department of Environment website provides policies, regulations and best practice guidelines for clearing permits, exemptions and regulations for clearing native vegetation: http://portal.environment.wa.gov.au/portal/page?_pageid=193,68723&_dad=portal&_schema=PORTAL. Further information is available by contacting the Native Vegetation Protection Section on 9278 0300 or 1800 061 025 (freecall).

3.4 Department of State Development (DSD)

The Department of State Development (DSD) provides a strong focus on strategic development of Western Australia, particularly major state development projects and strategic economic development policy. This department also incorporates the functions of the Office of Development Approvals Coordination. Under the Western Australian Government's Lead Agency Framework, the Department of State Development is the lead agency for major resources, industry and infrastructure projects. In this role the Department is:

a) The primary contact and source of information about Government approval processes for proponents of major or State significant projects;
b) A case manager for projects during the approvals process; and
c) Available to facilitate solutions when approvals issues arise.

A Departmental project officer will work with the project proponent to define the project, identify key likely approvals and assess the level of assistance to be provided. Key points:

a) This phase of the approvals process helps identify the nature and scale of the proposal, the statutory requirements, and any fatal flaws in the proposal;
b) It will guide proponents on the information that will be required to be submitted to agencies as part of the project scoping phase, as well as informing them of the probable timeline involved; and
c) It helps ensure that when applications are submitted to approval agencies, they are accompanied by the necessary information to demonstrate how issues will be managed.

The completed PDD provides the basis for scoping the approvals process, including:

a) Approvals and permits needed,
b) Issues that must be addressed for assessment,
c) Required level of detail of submissions, and
d) An agreed timetable for proponent's submissions and agency assessments.

Project proponents are invited to contact the Department to access Project Approvals Process support (Ph: +61 8 9222 0555) and further information is available from DSD at http://www.dsd.wa.gov.au/6737.aspx#6756.

For any development in the Port associated with industrial land development on the Port Lands, a copy of the Department of State Development (DSD) approval shall be provided with the KPA Development Application. (For further information refer to http://www.dsd.wa.gov.au/6737.aspx#6756 or contact the Perth Offices on 08 9222 3333.

3.5 Department of Mines and Petroleum (DMP)

Any development relating to the storage, transportation and handling of any dangerous or hazardous goods requires appropriate approvals and permits from the WA Government.

The Department of Mines and Petroleum (DMP) employs a 'Resources Safety' section that administers the Dangerous Goods Safety Act 2004 (WA) and associated Dangerous Goods Safety Regulations 2007 (WA) covering the safe storage, handling and transport of dangerous goods and for related purposes. Contact number is Ph: +61 8 9222 3333.

Developers must comply with KPA requirements in relation to projects involving works, storage and logistics involving dangerous and hazardous goods. KPA requirements in this area are based on WA Acts and Regulations, plus Australian Standard AS 3846:2005 – see http://broomeport.wa.gov.au/cruise-shipping/port-and-terminal-handbook for the Port and Terminal Handbook which carries sections on permits and dangerous and hazardous goods.

The Dangerous Goods Safety Act 2004 (WA) and associated regulations replaced the *Explosives and Dangerous Goods Act 1961 (WA)*, *Dangerous Goods (Transport) Act 1998 (WA)* and associated regulations on 1 March 2008. Guidance on definitive statutory requirements is contained in the *Dangerous Goods Safety Act 2004* and *Dangerous Goods Safety (Goods in Ports) Regulations 2007* (the Goods in Ports Regulations). The objective of the *Goods in Port Regulations* is to provide for the safe handling and transport of dangerous goods that are dangerous cargoes in ports.

The Australian Standard *AS 3846:2005 The handling and transport of dangerous cargoes in port areas* (the Standard) forms the basis of the *Goods in Ports Regulations*, which adopt the technical requirements of the Standard. Proponents are required to allocate a responsible person to all of the requirements within these statutes.

Numerous mandatory Acts and Regulations relevant to the management, handling and transport of dangerous goods are available from the State Law Publisher web site, and those statutes of most relevance are listed with electronic shortcuts to the State Publisher website at http://www.dmp.wa.gov.au/6626.aspx

3.6 Department of Indigenous Affairs (DIA)

The Broome locality may contain Aboriginal heritage sites which are protected by the *Aboriginal Heritage Act 1972*. Developments occurring on undisturbed land will require an archaeological survey and consultation with representatives from the local Aboriginal groups to identify sites that may be impacted. Approval to relocate or disturb an Aboriginal site is required via a Section 18 Notice under the Aboriginal Heritage Act.

The Department of Indigenous Affairs (DIA) website provides guidelines and advice for developers: http://www.dia.wa.gov.au/en/Heritage-and-Culture (under Heritage and Culture).

4. DESIGN STANDARDS

4.1 Building Code of Australia (BCA)

The *Port Authorities Act 1999* (s38) requires all KPA works to comply with the performance requirements of the *Building Code of Australia* (BCA). Accordingly, any DA must show compliance with the BCA. The current edition of the Building Code of Australia (BCA) references approximately 200 Australian and International Standards.

The Building Code of Australia (BCA) is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and State and Territory Governments. The BCA reflects the status of building regulations for all States and Territories. From 2011, the Building Code of Australia forms Volume One and Two of the National Construction Code (NCC) series, covering both building and plumbing:

.

a) Volume One: pertains primarily to Class 2 to 9 (commercial) buildings; and
b) Volume Two: pertains primarily to Class 1 and 10 (houses, sheds, carports, etc)

For further information on the Building Code of Australia (BCA) developers should refer to http://www.abcb.gov.au/index.cfm?objectid=959C6DF0-9A12-11DF-A133001143D4D594 .

4.2 Australian Standards (AS)

All engineering design and documentation are to be carried out in compliance with the relevant Australian Standards and other relevant Codes of Practice. For information on current and obsolete Australian Standards, refer to the *Catalogue of Australian Standards and Other Products* publication available from http://www.sai-global.com.

4.3 Shire of Broome Building & Planning Standards

Refer also to S 4.1.

The *Port Authorities Act 1999* (s38) requires KPA to administer sections of the *Town Planning and Development Act 1928.* This 1928 Act was repealed and replaced by the Planning and Development Act 2005 which is now to be complied with by development applicants in lieu of the *Town Planning and Development Act 1928.*

The *Port Authorities Act 1999* (s38) also requires BRPA to administer sections of the *Local Government (Miscellaneous Provisions) Act 1960*. Accordingly, the KPA has adopted Shire of Broome (SoB) minimum standards for Building Developments within the Port; DA's are therefore requested to comply with SoB Building & Planning Standards.

Of note, a new Building Act has been developed to replace the *Building Regulations 1989* and parts of the *Local Government (Miscellaneous Provisions) Act 1960*. The *Building Act 2011* covers all building and the whole State of Western Australia, introduces permit issuing authorities, enables private certification of design compliance and is designed to streamline and clarify the building process, including:

a) Whole of state coverage;

b) All buildings to be covered, including those owned by the Crown;

c) Giving a clearer definition of what constitutes a building and clear exemptions from the building permit process;

d) Nominating Permit Authorities - confirms local government's role issuing building permits, also enables State Government or special permit authorities are able to issue building and occupancy permits and to enforce building control;

e) Enables private registered building surveyors to certify design compliance;

f) Introducing separate and streamlined processes for approving domestic and commercial buildings;

g) Retaining the option for owners to use the current local government combined certification and permit issuing function for residential construction houses and minor building work (class 1 and 10);

h) Taking a risk-based approach to inspection requirements so that registered building professionals require less independent checking than lay designers and owner-builders;

i) Providing a clear end-point to the construction process, and certification that the building complies with the building permit issued;

j) Registering a wider range of industry practitioners to certify compliance;

k) Implementing a nationally agreed accreditation framework for building surveyors; and

l) Implementing a process for the assessment and approval of building works carried out without a building permit.

For further information on Shire of Broome Building and Planning Standards, refer to Developments at http://www.broome.wa.gov.au

4.4 Main Roads WA (MRWA) Standards

The KPA has adopted MRWA design guidelines and standards for the following infrastructure, components and signage:

- Bridges
- Culverts
- Drainage Structures
- Driveways
- Fencing
- Intersections
- Kerbing
- Pavement Marking
- Pedestrian Ramp & Grab Rail
- Road Lighting
- Road Traffic Signage
- Road Works
- Traffic Barriers
- Traffic Management & Traffic Safety
- Turning Templates

Standard Contract Drawings for these items as stipulated for development sites can be found at: http://www2.mainroads.wa.gov.au/Internet/Standards/mrwa_dwgs/guideline/default.asp

4.5 Water Corporation

WaterCorp has a website related to the development, subdivision or use of any land including any demolition, erection, construction, alteration of or addition to any building or structure on land that will use or has the potential to impact on the Water Corporation's water, sewerage or drainage infrastructure and services:
http://www.watercorporation.com.au/_files/land_development_process.pdf

Developer compliance under the above circumstances is required with the WaterCorp technical manuals and design standards. Adhering to the current statutory requirements shall be the responsibility of the designer. Standard drawings are available in the technical manuals and design standards. Additional hardcopies or digital copies are available by fax request to the infrastructure development branch at (08) 9420 2203 and more information is available on the website http://www.watercorporation.com.au. An outline development guide is available at: http://www.watercorporation.com.au/_files/PublicationsRegister/1/Developers_Information_Pack.pdf

4.6 Horizon Power

Electrical work is principally regulated by the *Electricity (Licensing) Regulations 1991* which provides for licensing of electricians, electrical contractors, in house electrical work holders and restricted electrical workers. A copy of the regulations is available at http://www.austlii.com/au/legis/wa/consol_reg//er1991331/

Regulation 49 of the *Electricity (Licensing) Regulations 1991* requires all electrical work to comply with standards, principally the *2007 Australian New Zealand Standard AS/NZS 3000:2000* "Wiring Rules" amended to 2009. The WA Electrical Requirements (WAER) is also a mandatory guideline under Regulation 49 of the Western Australian *Electricity (Licensing) Regulations 1991*. The WAER should be read in conjunction with the *Electricity Regulations 1947, Part VIII*, and the *Electricity (Licensing) Regulations 1991*. Both sets of regulations take precedence.

Refer to Department of Commerce for development guidelines at
http://www.commerce.wa.gov.au/energysafety/PDF/Publications/WA_Electrical_Requirements.pdf

Horizon Power developer guidelines are associated with multiple facets of legislation including http://www.horizonpower.com.au/business/manuals_and_standards/UDS/Underground%20Distribution%20Schemes%20Manual%20-%20Edition%201.pdf while Energy Safety for developers and associated projects can be found at http://www.commerce.wa.gov.au/EnergySafety/

4.7 Design Certification & Proof Engineering

All engineering design and documentation for Type 2 and 3 developments are to be reviewed, audited and certified by a Third-party Independent Reviewer/Checker who is a Chartered Professional Engineer and NPER registered. The review must form part of the construction approval submission for the engineering design and documentation. It is to include a review of compliance with:

- Development Conditions set by the BrPA;
- BrPA Development Application Procedure;
- Building Code of Australia (BCA);
- Relevant Australian Standards;
- Main Roads Standards for Road Design;
- Shire of Broome Standards for Building Design.
- Water Corporation
- Horizon Power

A typical Proof Engineering Certificate is attached in Appendix B

4.8 Drawings

A standard KPA drawing template is attached in Appendix C. All Port drawings and DA drawings submitted for Type 2 & 3 developments are to be completed digitally on a standard KPA drawing template. Type 1 DA drawings may be hand drawn on a KPA Standard Drawing Sheet also attached in Appendix D

All drawing sheets are to contain the following minimum information on them:

- KPA Title block with KPA logo and contact details;
- DA Company Name and contact details;
- A unique drawing and sheet number, as supplied by the KPA drawing custodian;
- Drawing date;
- Drawing revision number;
- Drawing scale and scale bar;

- North arrow;
- Details of the horizontal and vertical datum, e.g. GDA94/ AHD71 - see http://www.landgate.wa.gov.au/docvault.nsf/web/REP_LG_Geodetic_Strategy_for_WA_2007-2012_20071220/$FILE/REP_LG_Geodetic_Strategy_for_WA_2007-2012_20071220.pdf
- Certifying Engineers details and signature;
- Drawing status (e.g. "For Information Only", "Concept Only", "Preliminary Design", "Issued For Tender", "Issued for Construction", "As-constructed", "Superseded").

4.8.1 Site Plans

When submitting a DA for approval, it is important to have clear and concise drawings. Depending on the development type, a number of drawings may make up the Site Plan for the DA. It is important to ensure the KPA has sufficient information to assess the DA in the time frame required by the applicant. Substandard site plans may result in additional information being sought by the KPA and delays to the DA approval.

Some typical development categories are listed below, with minimum information requirements listed.

Building Works

a) Refer to Shire of Broome for drawing requirements for Commercial and Industrial Buildings;

b) All property boundaries, boundary dimensions and existing buildings;

c) A permanent datum point (Land Administration Bench Mark), contours and spot levels;

d) Proposed buildings including size and location on the allotment;

e) Details of plumbing fixtures, toilets, sewer pipelines, septic tanks and leach drains. The exact location of proposed septic systems including leach drains should be depicted on site plans together with setback distances from boundaries and structures;

f) The distance from the property boundaries to the proposed building;

g) The proposed finished floor level to the building;

h) Location of existing and proposed fire hydrants;

i) Parking areas and access paths, including levels;

j) External lighting;

k) Existing and proposed uses of land and buildings using, where possible, the definitions in the Town Planning Scheme. Where more than one use exists or is proposed these should be listed and indicated on the site or building plans;

l) Allotment number and other information including easements or restrictive covenants;

m) Existing and proposed means of access for pedestrians and vehicles to and from the site;

n) Existing structures on adjoining properties within 3m of the lot boundary, location height and uses;

o) Signage.

Site Works

a) Earthworks details including cut and fill volumes;

b) Locations and heights of stabilised embankments, e.g. Retaining walls;

c) Existing stormwater drains, culverts, oil/silt removal catch pits;

d) Location and dimensions of areas to be provided for the loading and unloading of vehicles carrying goods or commodities to and from the site;

e) Location, dimensions, design and construction of open storage or trade display areas;

f) Fencing - type, location and height;

g) Areas of open space, landscaping and screen planting, including materials, plant species, irrigation and irrigation plans;

h) Vegetation to be removed;

i) Buildings and structures to be demolished;

j) Subdivision pre-calculation plan;

k) Any other item or infrastructure that needs to be relocated or removed.

Roadworks

a) Plans and profile;

b) Cross sections and grades;

c) Verge and road features;

d) Streets, locations and names;

e) Pedestrian access;

f) Road compaction tolerances;

g) Subsoil drainage;

h) Trenching plan;

i) Existing Structures;

j) Road signage;

k) Road furniture.

Electrical & Communications

a) Location and plan of all existing and future communications pits and conduit galleries;

b) Location plans of electrical and services outlets;

c) Line diagrams;

d) Trench details.

Drainage

a) Drainage plan for site showing catchment areas, directions and volumes of design flow;

b) Culvert sections and design;

c) Sediment and pollution traps;

d) Existing stormwater drains.

Signage & Line marking

a) Signage plan showing location of traffic, safety, legislative and lease signs;

b) Footing plan and sign heights;

c) Signage layouts for all non standard signs (advertising etc);

d) Line marking plan for all areas including carparks, roadways and turnarounds.

4.8.2 Drafting Standards

All drawings shall be drafted in accordance with KPA's drawing procedures (attached in Appendix E) and the following Australian Standards (where applicable):

a) AS1100.101-1992 and AS1100.101-1992/Amdt1-1994: Technical drawing – General principles;
b) AS1100.201-1992 and AS1100.201-1994/Amdt-1994: Technical drawing – Mechanical engineering drawing;
c) AS1100.301-1985 and AS1100.301 Supp 1-1986: Architectural drawing;
d) AS/NZS1100.501:200: Technical drawing – Structural engineering drawing; and
e) AS1100.401-1984: Technical drawing – Engineering survey and engineering survey design drawing

The drawings shall be drawn to scale and shall be checked and signed by a practicing civil engineer eligible for corporate membership of the Institution of Engineers Australia or an engineer registered in the National Professional Engineers Register (NPER).

Preferred scales for the drawings are shown in Table 1.

Table 1.1 Preferred Scales for Drawings

Drawing	Orientation	Scale
Locality Plan		1:5000
Pre-Calculated Plan		1:1000
Recontouring and earthworks layout		1:1000
Site plan		1:1000
Road Plan	Preferred	1:500
	Minimum	1:1000
Road Vertical alignment	Horizontal	1:1000
	Vertical	1:200
Road Cross Sections		1:200
Intersections		1:200
Traffic Management Devices		1:200
Cul-de-sac		1:200
Drainage plans	Horizontal	1:500
	Vertical	1:100
Standard Drawings	Various as appropriate	

4.8.3 As-Constructed Drawings

Within one month of completing any development works within the Port, the developer shall provide the Shire of Broome and the KPA with a full set of as-constructed engineering drawings in

A1 sized hard copy and digital PDF and Microstation or Auto Cad format on computer disk. These drawings shall be in a reproducible form, clearly marked: "As-constructed" and signed by the NPER registered engineer responsible for the works. Allotment boundary drawings shall be certified by a licensed surveyor in accordance with WA Government requirements; for further information refer to www.dpi.wa.gov.au.

The following should be included with the As-constructed drawings submission:

- Final "Design Basis Report";
- Building drawings to include a statement of compliance to the BCA;
- Road drawings to show details of any alterations made during construction;
- Drainage drawings and grades against the design lines, levels and grades;
- Details of foundations under and above ground with co-ordinates;
- Other miscellaneous details; and
- Microsoft compatible computer disk of the pre-calculated plan.

4.9 Design Specifications

Type 2 & 3 developments require design specifications. Prior to any design specifications being developed, KPA encourages developers to prepare a "Design Basis Report" for discussion and agreement with KPA.

A design specification shall include the following sections as a minimum:

- Scope of work;
- Design basis (for Design & Construct works only);
- Design certification (for Design & Construct works only);
- As-constructed documentation;
- Material specifications;
- Various disciplines applicable to the project, each with a separate heading (e.g. Electrical, fire, potable water, roadwork, concrete, etc.)

Where possible, design specifications should reference relevant Australian Standards and BCA clauses. Lengthy and wordy design specifications are discouraged by KPA. Unnecessary information should be deleted where standard consultant's specifications are used.

It is acceptable for design specifications to be in the form of a drawing, where they are limited to 1 or 2 drawing sheets. Text size shall be as per the AS 1100-1992: Technical Drawing - General Principles and the KPA Drawing procedures as shown in Appendix E. It is a requirement that drawings are legible when reduced to A4 size.

5. DESIGN CONSIDERATIONS & GUIDELINES

5.1 Development Levels

All KPA lands will be developed to minimum levels to avoid the effects of storm surge, hinterland run-off and wave action. Studies based on theoretical models have been prepared which estimate these values for various storm surge return periods. Some of these are referenced below in the

design criteria, but in any case, the developer must satisfy the KPA that an acceptable level is provided.

In general, development shall only occur on KPA lands above the 100 year storm surge level but not necessarily to the level of waves 'run up' and because of the generally elevated nature of Port lands this should not be a widespread issue. Note that rainfall and wave effects are in addition to this figure. Development levels shall be calculated based on the following parameters:

- Storm surge using a minimum 100 year return interval plus a further 200mm
- Uniformity of levels across KPA lands
- Drainage requirements
- Ease of access from road

The developer shall satisfy him/herself that the lands that are being developed or leased are at a satisfactory elevation with regards to surge tide and flood risk. Platforms should be at a level at which the risk of inundation from a 1 in 100 year recurrence is acceptable to the end user, and allowing for a 'factor of safety' for long period waves and potential rise in sea level.

With a low lying development, a detailed storm surge study would need to be undertaken with the proposed design of the development taken into consideration.

5.2 Structures

5.2.1 Land Structures

The development of any structure on Port Land must comply with the Building Code of Australia (http://www.abcb.gov.au/) and the Town Planning Scheme, some of which are detailed below as part of the development guidelines and design criteria.

Structural design must be prepared by a qualified National Professional Engineer (NPER) to withstand Region D, Category 2 cyclonic wind conditions and a seismic activity acceleration coefficient of 0.125.

Structures shall have a minimum design life of 20 years, depending on the type of structure and proposed use. Port areas are located within a marine environment; care must be taken to ensure the durability of the components used in the construction and operation of the development. All components used in every aspect of construction are to be of suitably durable materials, able to withstand the extremely hot climate and harsh surrounding salt water environment of the region.

5.2.2 Marine Structures

Marine structures are to be designed by an appropriately qualified engineer with professional NPER registration and requisite level of Professional Indemnity Insurance cover. The basic design guidelines are, but not limited to, as follows:

- Design life for all marine structures to be 50 years.
- Cope level of the marine structures are to consider the level of 100 year storm surge in addition to the rainfall and wave effects. Platform levels are discussed in *Section 5.1 Development Level*.
- Protective coating systems are to be provided for steel piles and other structural steel components. Design life for the coating systems is to be 15 years to first maintenance.
- Cathodic Protection System (either sacrificial anodes or impressed current) to be installed for all steel components of marine structures.

- At least a 3mm corrosion allowance for steel piles shall be provided.
- Concrete for reinforced concrete structures to be minimum Grade S50 with maximum water/cement ratio of 0.38.
- Top concrete cover to be 50mm minimum. Sides and soffit cover to be 75mm minimum.
- All concrete above sea water shall be coated with a chloride protective cream (for example Parchem Emer-Stop Creme or alternative treatment).
- Fenders are to be material and compression tested. All fenders are to be provided with a written rating specification.
- Bollards are to be provided with written rating specification and tested if necessary. All bollards must be protective coated to 15 years before first maintenance.
- Minimum design loads for general/cargo wharves shall be as follows:

    - 30kPa deck loads for general wharves;
    - Austroads T44 vehicle loading;
    - Minimum 100ton mobile cranes and other construction cranes;
    - Berthing load for vessels above 35,000DWT berthing under condition “Good berthing, exposed conditions”;
    - Berthing load for vessels below 35,000DWT berthing under condition “difficult berthing, exposed conditions”.

Appropriate Design Codes for marine structures includes, but is not limited to, *AS 4997-2005: Guidelines for the Design of Maritime Structures* and BS 6349: Code of Practice for Maritime Structures. For buildings constructed over water, these guidelines apply to the structure up to and including the main deck level. The superstructure above main deck level should be designed in accordance with the relevant Australian Standards and relevant building regulations.

For marine structures with a use that does not fall into the general category, KPA must be consulted prior to any design work to establish design criteria. The Standard is intended to cover the design of near-shore coastal and estuarine structures, including:

(a) jetties;
(b) wharves;
(c) berthing dolphins;
(d) floating berths;
(e) seawalls;
(f) breakwater structures, excluding rubble mound and floating types;
(g) boat ramps;
(h) laterally restrained floating structures; and
(i) building substructures over water.

5.3 Trafficked Surfaces

5.3.1 Laydown Areas

Laydown areas may be treated as temporary pavements and shall have a minimum pavement design life of 7 years. However, where laydown areas are expected to be used in excess of 5 years continuously, KPA prefers a sealed pavement to Shire Type A or C pavement construction specifications.

Laydown areas must be dust free. This might be achieved by applying a layer of crushed metal, “cracker dust” or spraying with an approved commercial dust suppressant such as Dustmag™,

Terra Firma ISS, Dustex, Weslis or Road Tech 2000. KPA approval is required before application of dust suppressants.

Water trucks should be used on a needs basis to spray water on operational surfaces to suppress dust, in the event that high levels of dust are observed, and/or strong winds and dry conditions make dust generation likely. Dust Management Plans are to be implemented to:

- Minimise dust emissions within the project area.
- Ensure that dust emissions meet appropriate criteria and do not cause environmental problems.
- Prevent any adverse impacts on environmentally significant flora and vegetation communities.

5.3.2 Roads & Driveways

Public access and common roads must be sealed with concrete, asphalt or a sprayed seal, in accordance with Shire of Broome Type A or C Pavement Construction specifications, and Main Roads Western Australia specifications, as applicable.

Driveway width and radii shall be designed to allow a 'Double Road Train' in a single lane or a 'Triple Road Train' in two lanes to turn from the access road as per MRWA Standards. The design speed of driveways for semi-trailers is 5 km/hr. In addition, clearances must be suitable for a triple road-train to enter each site. Mounting of kerbs is allowable for triple road trains but not for double road trains.

Minimum design life for public access, driveways and common road pavements shall be 20 years with design loadings as applicable for the road use. Design information must be submitted with the application stating the following:

- Estimated traffic volumes.
- Type of vehicles and loadings.
- Pavement design details (insitu preparation, layerworks depths and materials, seal).

Some driveways will require a culvert of an appropriate size for water flow and must be capable of supporting the maximum vehicle weight. The minimum culvert size is a 300 mm diameter pipe, though the actual size required must be assessed and designed accordingly. Overall culvert design, including diameter, headwalls and erosion protection, must be appropriately designed by a NPER registered engineer. KPA must approve pipe or culvert details and driveway design on all access points.

Driveways must be sealed with concrete or asphalt in accordance with the Shire of Broome Type A Pavement Construction specifications, with a minimum asphalt thickness of 50mm. Sprayed seals are not permitted for driveways. Entrances directly on to Port Drive require Shire of Broome approval also.

5.3.3 Vehicle Parking and Access

Unless otherwise allowed by KPA, no development is permitted without providing concrete or bitumen sealed, kerbed, marked and drained onsite car parking in accordance with the requirements of the Shire of Broome Town Planning Scheme and its parking, storage, crossover and drainage specifications plus the relevant Australian Standards (*AS 2890-2004: Parking Facilities Set*) relating to car parking. The Port Authority may permit an alternative method of surface treatment/dust suppression where, by reason of the development characteristics or the area of bitumen required, it considers that sealing would be either impractical or unduly expensive

and the alternative would serve the same function without unacceptable reduction in the standards of health and safety. Details of the required variation must be submitted with the application.

The minimum design life for vehicle access and parking areas shall be 20 years with design loadings as applicable for the pavement use. In determining the layout of car parking areas, the proponent shall refer to the Australian Standards for car parking bay dimensions, parking angles and carriageway widths (*AS 2890.1-2004: Parking Facilities – Off Street Car Parking* and *AS 2890.2-2002: Parking Facilities – Off Street Commercial Vehicle Facilities*). The minimum car park sizing on Port land is 2.8m wide and 5.8m long suitable for reverse parking to comfortably accommodate 4WD vehicles. At least 20 percent of the parking bays on each development are to be covered to protect vehicles parked for long durations from excessive heat. The proponent shall ensure the provision and location of car parking bays designed to accommodate disabled persons and vehicles designed for use by disabled persons as required by the Building Code of Australia and the *AS 2890-2004: Parking Facilities Set*, relating to car parking.

All sealed areas shall be permanently maintained to the satisfaction of the Port Authority. Outdoor displays, industrial hire services, storage facilities, depots, laydown areas and any other open area shall be sealed or landscaped to KPA's satisfaction and maintained in good condition.

5.4 Stormwater and Drainage

Much of the KPA land receives substantial hinterland surface flow due to rainfall on the Broome Peninsula. Developments shall account for this incoming hinterland flow and ensure it is directed back to the environment in a safe and efficient manner, taking into account environmental issues and practicality of land use. Developers are to assure that leased lands are drained appropriately and in accordance with Shire of Broome Type A or B Pavement Construction specifications. All drainage designs shall comply with the following industry design standards.

- Australian Rainfall and Runoff (Institution of Engineers, 1997)
- Stormwater Quality Management Manual (Waters & Rivers Commission, 1998)
- Subsurface Drainage of Road Structures (R. J. Gerke, ARRB Special Report No. 35)
- Local Government Guidelines for Subdivision Development (Institute of Municipal Engineers, 1998)

Developers whose land shares a common drainage catchment have a shared responsibility to ensure the whole of the catchment is drained. Where development is staged, an overall drainage plan for the whole of the catchment is required before approval will be given for any individual stage. Drainage of each stage shall be in accordance with the overall plan and comply with KPA's stormwater management plan.

Required drainage is to be designed in line with the attached Drawing 7212-DC-18 by Worley Astron and Drawing 2140185A-302 & 303, 2140185A-333 & 334 by Parsons Brinckerhoff in Appendix F.

The developer shall ensure all areas within the development site drain appropriately. Internal swales or deeper drains than currently existing may be required at the property perimeter. All buildings and other constructions on the site must not interfere with the global drainage. If necessary, local on-site drains shall be constructed to ensure the site discharges as designed into the perimeter drains.

All site drainage must be treated for the removal of sediment and oils. While some areas of the KPA lands have a communal facility for this purpose, other areas will require silt and oil traps. In addition, retention basins shall be provided at suitable locations to reduce peak flow rates and allow the first 10 mm of rainfall to be processed through the traps.

Drain outlets shall be appropriately treated to ensure no erosion occurs during design flows.

5.5 Water

At Broome the Water Corporation has a supply pipeline to a header tank on the hilltop west of Port Drive. Details are obtainable from the Water Corporation. Application to the Water Corporation must be made if water is required from these existing lines, or if new lines are required. If new lines are installed, work must comply with the Water Corporation Developers Manual: (http://www.watercorporation.com.au/_files/PublicationsRegister/1/Developers_Manual.pdf), which defines minimum standards. Drawings need to be prepared and approved by the Water Corporation before beginning construction. As-constructed drawings must be supplied to KPA within one month of completing any on site works.

With regard to subsequent developments requiring the use of water from pipelines installed by another development, Water Corporation guidelines with respect to sharing of services shall be followed. For further information, refer to http://www.watercorporation.com.au/index.cfm .

5.6 Long term Traffic Management

The efficient functioning of the Port will require efficient movement of vehicles within the site generally. For this reason, consideration needs to be given to limiting the number of security checkpoints, accesses onto roads and intersections between roads, as these features introduce conflicts in vehicle movements. The design of intersections also needs to be given careful consideration to minimise the impacts on traffic. Measures such as dedicated turning lanes, acceleration lanes and roundabouts may be appropriate depending on traffic volumes and types.

Traffic management shall comply with *AS 1742 Set-2010 Manual of Uniform Traffic Control Devices Set* and shall be audited annually by a Main Roads of Western Australia registered traffic engineer. The completed traffic audits are to be submitted to the KPA within 7 days for review.

A copy of KPA's signage and line marking plan is included in Appendix H.

5.7 Fencing

Development areas shall be appropriately delineated with approved fencing. Perimeter fences must be at least 1.8 m high and should be of chain wire construction. Fences must not be constructed of solid material unless prior approval of the KPA has been obtained. Chain wire fences to 3 m height are acceptable.

All fencing shall be designed in accordance with *AS 1725.1-2010 Chain link fabric fencing - Security fences and gates - General requirements.* Developers are reminded that Broome is a cyclone area and fence stanchions, rails and footings must be designed to resist Region D cyclonic wind loads as specified in *AS/NZS 1170.2:2011Structural design actions - Wind actions.* .

Solid Colorbond or similar fences may be used within lease areas for security or privacy. Prior to construction, such solid fencing must have plans submitted to KPA for approval.

5.8 Landscaping and Screening

All applications for Planning Approval shall indicate the landscaping elements of the proposal as exemplified in Shire of Broome document at:
http://www.landcorp.com.au/_document/Project/Broome-Road-Industrial/Broome-Rd-Master-Plan-Report.pdf and in particular a plan showing:

a) The percentage of the site devoted to landscaping
b) The areas subject to landscaping works
c) Location and species of plants
d) Other materials imported, arranged and/or constructed on the site
e) Areas to be irrigated and the systems to be used
f) The proposed staging, if any, of works

Any outside area which may become untidy or is currently untidy when visible from the street shall be screened by a wall, fence or planting, including gates where access is required.

5.9 Signage

Standard KPA lot signs shall be erected at all driveways showing lessee information as per Figure 1 in Appendix I. Signage is to be in accordance with *AS 1743 2001 Road signs – Specifications* and must also be constructed to minimise potential to become dislodged during a cyclone.

Sign colours shall be in accordance with the KPA's colour requirements as detailed. Sign lettering and numerals shall be in accordance with *AS 1744-1975: Forms of Letters and Numerals for Road Signs*.

The lot sign support post shall be 75 x 75 x 3 mm SHS Duragal unless otherwise approved. The galvanised steel post may be either retained as galvanised or painted in accordance with the Shire of Broome's colour requirements.

The post shall be set vertically and located within 1.5 m of the lease boundaries. The lowest part of the lot sign shall be a minimum of 1.5 m above the prevailing verge ground level.

5.10 Power

Existing powerline routes are available from Horizon Power (http://www.horizonpower.com.au/). Horizon Power must be contacted for establishment of a new service or reticulation off existing mains. New powerlines shall only be established in defined service corridors with the approval of both KPA and Horizon Power. As-constructed drawings shall be supplied to KPA within one month of onsite works being completed.

Power reticulation within KPA lands shall comply with AS/NZS 3000:2007 Electrical installations (known as the Australian/New Zealand Wiring Rules), AS 3012-2003: Electrical Installations – Construction and Demolition Sites, AS 3017-2001: Electrical Installations – Testing and Inspection Guidelines and the Western Australian Electrical Requirements (WAER).

Compliance with testing and tagging portable electrical equipment and residual current devices at workplaces is mandatory – see:
http://www.commerce.wa.gov.au/worksafe/PDF/Guides/guide_to_testing_and_tagging.pdf

5.11 Lighting

Lighting shall be designed in accordance with the Australian Standard series AS 1158-2005: Lighting for Road and Public Spaces Set to provide category P4 light on road verges and other access ways for pedestrians. Lighting on laydown areas will be required on areas used regularly outside of normal daylight hours. The Department of Conservation and Land Management (CALM), if applicable, shall be consulted to ensure potential impacts to turtles are considered

during the design of lighting infrastructure. All proposed lighting must be designed by a NPER registered engineer and submitted for KPA approval prior to construction.

5.12 Tele Communications

Industry standards apply to any telecommunications design on Port lands, including *AS/NZS 3080:2003/Amdt 1:2009 Telecommunications installations - Generic cabling for commercial premises* (ISO/IEC 11801:2002, MOD) and *AS 3084-2003: Telecommunications and Installations – Telecommunications pathways and spaces for commercial buildings* plus *Telecommunications Cabling Provider Rules 2000 - F2009C01013* taking into account amendments up to Telecommunications Cabling Provider Amendment Rules 2009 (No. 1).

Telephone services shall have line locations recorded and the as-constructed drawings submitted to KPA for addition to its database. Telephone services must also be run in a defined utilities corridor.

5.13 Fire

Developers must take appropriate action to control possible fires within developments through the use of portable extinguishers or an on-site firewater reticulation system in accordance with the BCA and AS 1841.1-1997: Portable fire extinguishers – General requirements. Any building larger than 500 m2 will require a fire water reticulation main in accordance with the BCA. Depending on the size and scale of the development, a "Fire Study" may be required to be completed by an appropriately registered NPER engineer.

Local Fire Authorities should be advised of the new development and possible fire scenarios. Access for Fire Trucks shall be allowed in the design and these areas kept open at all times. Provision of fire hydrants and all fire hydrants shall comply with AS 2419.1-2005: Fire hydrant installations – System design, installation and commissioning.

A letter of compliance from the Fire and Emergency Services Authority (FESA) of WA's requirements shall be submitted with a Development Application. Refer to http://www.fesa.wa.gov.au/ for further information on FESA requirements and advice.

As-constructed drawings shall be supplied to KPA for all fire services within one month of site works being completed.

5.14 Sewerage

There is no centralised sewerage scheme for KPA lands, so developers need to install their own self-contained systems. Onsite effluent disposal systems are to comply with the requirements of the Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974. Copies are available at http://www.austlii.edu.au/au/legis/wa/consol_reg/hosadoealwr1974706/

Applicants are to provide an approved form to the Shire of Broome Environmental Health Department and pay fees for the application and the certificate of Approval once the installation is complete. If the estimated sewerage volume is more than 540 litres then the application is to be forwarded to the Department of Health and a separate fee is payable for a local government report.

Plumbers will also have to apply for a notice of intent to the Plumbers Licensing Board before work commences and they will are to submit an as constructed diagram to the Plumbers Licensing Board, the Shire and KPA once it is completed. It is KPA's preference to re-use recycled effluent water where feasible for landscaping purposes.

5.15 Abrasive Blasting and Spray Painting

Abrasive blasting operations must be registered in accordance with the WA code of practice, downloadable from
http://www.commerce.wa.gov.au/worksafe/PDF/Codes_of_Practice/Code_abrasivs_blasti.pdf

Industry in Western Australia is also responsible for complying with the *Environmental Protection Act 1986*, the Environmental Protection (Abrasive Blasting) Regulations 1998, Environmental Protection (Unauthorised Discharge) Regulations 2004, Environmental Protection (Controlled Waste) Regulations 2004, DEC Environmental Code of Practice and WorkSafe Western Australia, Code of Practice for Abrasive Blasting.

Further advice on abrasive blasting and spray painting is contained at Compliance Performance Report: Industry Sector Program: Abrasive Blasting and Metal Coating Operations September and October 2009, downloadable from

Requirements concerning the type of abrasive blasting material used, recycling of the abrasive blasting material and safety equipment required when blasting are briefly outlined below:

a) Material used for abrasive blasting contains less than 5% silica by weight
b) Material used for abrasive blasting contains less than 1% of the following ores: (arsenic, beryllium, lead, cadmium, nickel, antimony, cobalt, chromium and tin)
c) Material used for abrasive blasting contains no radioactive substance as defined in the *Radiation Safety Act 1975*
d) Recycled dry abrasive blasting material is treated to remove respirable dust
e) The person operating the abrasive blasting machine must wear an inline respirator of the hood or helmet type

5.16 Geotechnical Studies

For most developments a geotechnical investigation and soil stabilisation strategy will be required for design purposes. It is a requirement that these reports be submitted along with the relevant development drawings and information to KPA.

6. CONSTRUCTION & QUALITY MANAGEMENT

6.1 Work Activity Breakdown (WAB)

Before commencing any construction work in the Port, a WAB is to be developed for each stage of the project and construction cost for each stage is also to be supplied along with this documentation. This list of activities forms the basis of further project planning for timing, QA, safety, environment etc. The DA should provide a WAB for ease of reference to KPA when the authority is assessing the development application. Refer to Appendix J for a typical WAB shown for a large shed construction with wash down area.

6.2 Programme

A project program should be provided with the DA based on the WAB. The program shall indicate:

a. all major activities and sub activities for each component of WAB;

b. early start, late start, early finish, late finish, duration, total float and logic relationship for each activity;

c. the critical path network.

The project shall be in Microsoft Project format.

6.3 Quality Management Plan

The Developer is responsible for the planning, development and implementation of a quality assurance system for WAB that conforms as a minimum to *Australian Standard/New Zealand Standard ISO 9001-2000: Quality Systems Management*.

The Developer shall lodge a draft quality plan with KPA for comment and approval, prior to commencing construction works.

The Developer shall:

a. Develop inspection and test plans which are in accordance with *ISO 9001-2000: Quality Systems Management*;

b. Provide the necessary staff with appropriate qualifications and competence to implement the Quality Assurance System;

c. Arrange for production of written records of events, techniques and processes highlighting quality issues and using inspection report forms in compliance with approved document control procedures;

d. Maintain a list/register of, and record, all instances on non-conformance's (NCR) with any requirement specified in an inspection and test plan or the development approval;

e. Provide copies of all necessary corrective actions, audits and verifications, together with a copy of each closed out NCR.

All copies of quality assurance records shall be supplied to KPA upon request at no cost to KPA.

6.4 Site Management

All Type 3 and some Type 2 developments require full time KPA Site Management. The proponent will be responsible for all costs associated with KPA Site Management for the duration of the

development. The KPA Site Management coordinates operational interface issues associated with the project, monitors OHSE and liaises with effected stakeholders during the project works.

6.5 Reporting

The Developer shall provide the KPA Superintendent with a monthly report in such form and on such matters as KPA requires from time and which includes:

1. A report on the progress of WAB including photographs of the works;
2. Particulars of deviations from the program;
3. A description of any matters which currently have a positive or adverse effect on the works;
4. A description of any matters which, have the potential to affect the works;
5. Particulars of the preventative and remedial action which has been, is being or may be taken in respect of the items referred to in paragraphs (3) and (4) above;
6. A report on the status of all variations to the works;
7. Details of any matters affecting or likely to affect the progress and cost of the works, including a forecast final cost of the works;
8. Non-conformance report including NCR's and CAR's;
9. Environmental, safety and industrial issues including a register of incidents.

6.6 Daily Reports

For type 3 and some type 2 developments, the Developer shall provide KPA with a daily report for each shift in a form acceptable to KPA, which shall include as a minimum:

1. Date and shift;
2. Weather conditions including maximum and minimum temperatures, wind, rainfall including time/duration of rainfall;
3. Industrial relation issues;
4. Safety issues;
5. Description of work undertaken during shift;
6. Workforce details:
    a. staff numbers including classification of staff, description/location of work and hours worked; and
    b. labour numbers for each labour classification, description/location of work and hours worked;
7. Plant onsite detailing classification of plant, description/location of work and hours worked.

7. SAFETY AND HAZARD MANAGEMENT

7.1 Legislation

The development must be designed to conform to relevant legislation in regard to workplace safety and hazard management, some of which is listed below:

a) Consolidated Occupational Safety and Health Act 1984 (The Act as at 24 June 2005);
b) Occupational Safety and Health Regulations 1996;
c) Environmental Protection (Noise) Regulations 1997;
d) Environmental Protection Regulations 1987;
e) Explosives and Dangerous Goods (Explosives and Dangerous Goods Handling and Storage) Regulations 1992;
f) Gas Standards (Gas Fitting and Consumer Gas Installations) Regulations 1999;
g) Health Regulations 1974 (Treatment of Sewerage & Disposal of Effluent & Liquid Waste); and
h) Any other applicable regulations that pertain to a specific application.

7.2 Design

The design of the development must take account of general safety issues in all aspects, including the following:

a) Pedestrian access does not interfere with vehicle access and circulation in the development.
b) Storage of materials in containers is safe, taking into account the nature of the materials, and not subject to unauthorised access.
c) Hazardous and dangerous goods are stored in accordance with the applicable regulations and MSDS (Material Safety Data Sheet).
d) Storage of waste material is not subject to unauthorised access.
e) Protruding objects and sharp edges do not pose a danger to the safety of people.
f) On site sanitation systems do not pose a health hazard in the event of blockages or other or other unforeseen circumstances.

7.3 Construction Safety Management Plan (CSMP)

A Construction Safety Management Plan (CSMP) is to be produced and implemented to comply with *AS/NZS 4801-2001: Occupational Health and Safety Management Systems – Specification with Guidance for Use*. The plan is to be submitted for approval from the KPA Safety Officer prior to implementation.

7.4 Security Management Plan

A detailed Security Management Plan is to be produced that sets out the systems, practices and procedures to govern the surveillance and security of the premises and all plant, equipment, improvements and infrastructure for the duration of the development project. The security Management Plan shall be approved by KPA's Security Officer prior to works commencing.

8. ENVIRONMENT AND HERITAGE

KPA is responsible for the protection of the broader port environment under the *Port Authorities Act 1999*. The following environmental guidelines have been prepared to assist prospective developers in their pre-project planning phase to assess and address environmental issues relating to developments.

The significance of project environmental issues will determine the level of management required. Projects that have low potential impacts to the environment may be managed satisfactorily by approved Job Hazard Analyses forms. Projects with potentially significant environmental effects may require an operation and / or construction Environmental Management Plan (EMP)to be developed in consultation with KPA.

It would be beneficial for an appropriately qualified person within the development team to undertake a risk assessment of environmental aspects based on Australian Standard AS/NZS 4360 *Risk Management* and Handbook HB 436 *Risk Management Guidelines - Companion to AS/NZS 4360. These documents* are intended to be used together, with the Handbook providing important commentary, guidance and examples on the implementation of the Standard. Reference to these guides should occur in the early phase of planning, prior to preparation of environmental control documents, to determine the level of significance of environmental issues.

8.1 Environmental Management Plan

The following outline is based on the Australian Standard *AS/NZS ISO 14001-2004: Environmental management systems – Requirements with guidance for use* which is a guide to assist with the development of an EMP. The level of detail required will vary depending on the significance of environmental issues.

1. Applicant organisation contact details
2. Development
    a. Site description
    b. Description of planned development / activities and interaction with current operations
    c. Plans as required to illustrate pertinent issues
3. Legal and other requirements
    a. Primary relevant legislation
    b. Licensing requirements
    c. Standards relevant to environmental issues listed
    d. Integration of this plan with existing organisational systems
4. Environmental Management
    a. Environmental aspects identified
    b. Risk assessment of potential impacts
    c. Mitigation measures identified and specific management plans developed as required based on objectives and targets
5. Implementation and Operation
    a. Responsibilities
    b. Internal and external reporting
    c. Training needs identified
    d. Complaints
6. Emergency response for non-routine situations
7. Checking and corrective action
    a. Monitoring
    b. Environmental incidents

c. Auditing and review

Further information relating to the above items is provided in *AS/NZS ISO 14001-2004: Environmental management systems – Requirements with guidance for use* available from the Standards Australia website (www.saiglobal.com/shop/Script/search.asp).

Further information regarding the different environmental habitats located on or adjacent to Port Land can be ascertained from KPA's data library; contact for this information is KPA's Administration Manager on 08 9194 3100.

8.2 KPA Environmental Guidelines

Following are the minimum guidelines for lessees and developments on Port lands.

8.2.1 Pollution Control

a) Diesel fuel, chemicals and other possible pollutants associated with each development site shall be stored and transferred in bunded areas meeting the relevant Australian Standards (*AS 1940-2004: The storage and handling of flammable and combustible liquids*). Other relevant WA standards include:
   a. Dangerous Goods Safety Act 2004
   b. Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007
b) Development design will locate fuel storage and bunded areas as far from the marine environment and stormwater drainage systems as practical.
c) Bunded areas shall be maintained and steam cleaned regularly
d) All drains off site shall contain sediment and oil traps as required.
e) Effluent and sediment-laden surface water discharges, where permitted into surrounding waters, shall be minimised.
f) Stormwater shall be managed as per the Water Quality Protection Note: Stormwater Management at Industrial Sites, found at: www.water.wa.gov.au (WRC, 2002).
g) Waste shall be managed in accordance with best practice measures

8.2.2 Air quality

a) Effective dust suppression shall be implemented
b) Main roads shall be at least gravel sealed.
c) Transfer of powder shall only be allowed via leak proof pipe and vessel systems.
d) Burning of waste is not permitted on site

8.2.3 Conservation

a) Development design will avoid or minimise adverse impacts on areas of high ecological and heritage value

8.2.4 Sustainable development

a) Water recycling on site shall be implemented, where possible.
b) Where possible hot water systems are to be solar hot water units (Solahart type).
c) Alternate power sources shall be considered

8.2.5 Visual Amenity

a) Tree planting, surface sealing, kerbing and appropriate building colouration will be promoted.
b) Certain native plant species shall be encouraged for visual buffers and beautification. Advice regarding the selection of plant species shall be sought from the Shire office.
c) A formal revegetation plan will be developed and submitted to KPA for approval prior to any revegetation works being undertaken by lessees.

8.2.6 Heritage

a) Aboriginal heritage shall be managed as per the KPA Aboriginal Heritage Plan and the *Aboriginal Heritage Act 1972 (AHA)*.

b) The AHA recognises Aboriginal peoples' strong relationships to the land, which may go back many thousands of years and provides automatic protection for all places and objects in Western Australia that are important to Aboriginal people because of connections to their culture. These places and objects are referred to as Aboriginal sites. Link to the full *Aboriginal Heritage Act 1972*

c) ***Native Title Act 1993***

d) Native title describes the rights and interests of Aboriginal and Torres Strait Islander people in land and waters, according to their traditional laws and customs that are recognised under Australian law.

e) ***Aboriginal and Torres Strait Islander Heritage Protection Act 1984***

f) Protection of places of significance to Indigenous Australians is provided through the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* which the Indigenous Heritage Section of the Department of the Environment, Water, Heritage and the Arts administers. The Act offers protection for significant places or objects through ministerial decision.

g) ***Environment Protection and Biodiversity Conservation Act 1999***

h) The *Environment Protection and Biodiversity Conservation Act 1999* protects the environment, particularly matters of National Environmental Significance (Protected matters). It streamlines national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and cultural places.

i) ***Protection of Movable Cultural Heritage Act 1986***

j) An Act to protect Australia's heritage of movable cultural objects, to support the protection by foreign countries of their heritage of movable cultural objects, and for related purposes.

k) ***Australian Heritage Commission Act 1975***

l) An Act to establish the Australian Heritage Council, and for related purposes. The role of the Australian Heritage Council are outlined in the Act.

m) **Western Australia:**

n) ***Aboriginal Heritage Regulations 1974***

o) The *Aboriginal Heritage Regulations 1974* are regulations applying to any Aboriginal site or protected area or land held subject to a covenant in favour of the Minister in relation to which the Minister has a duty under the *Aboriginal Heritage Act 1972*.

p) **Western Australian Museum**

q) Since its inception, the Western Australian Museum has had as one of its prime directives the aim "to make and preserve on behalf of the community of the State collections representative of the Aborigines of the State..."

8.2.7 Research

KPA supports scientific research programs to improve management of key environmental aspects for the Port. An appropriate management response may be the support of a scientific research program.

KPA encourages a collaborative approach to research, and, consultation with the KPA prior to commencement of a research program in the Port is necessary. KPA maintains a register of all relevant research undertaken in the Port and contact for this information is the Administration Manager at 08 9194 3100.

8.3 Other Agency Guidelines

Developers are encouraged to remain informed of and adhere to the applicable environmental guidelines of other regulatory agencies such as the Department of Environment and Conservation, Department of Water and the Shire of Broome. The following websites reference guidelines of potential relevance. Relevant agencies should be contacted for a comprehensive list of guidelines.

- EPA Guidance Statements (www.epa.wa.gov.au, under: Guidance Statements)
- Water Quality Protection Notes (www.dec.wa.gov.au, under: Department of Environment, Water, Department of Water, Drinking Water)
- Water Quality Protection Guidelines (www.dec.wa.gov.au, under: Department of Environment, Water, Department of Water, Guidelines)

8.4 Heritage Areas

If any future development is required on an Aboriginal heritage site, a Section 18 permit will be required from the Department of Indigenous Affairs (DIA). A brief overview of the assessment process for obtaining this permit is outlined below:

- The developer seeks advice from the DIA.
- Consultation with relevant Aboriginal organisations and individuals.
- Anthropological and Archaeological Heritage surveys commissioned.
- Section 18 application is made by the proponent to the DIA with supporting anthological and archaeological reports.
- DIA assesses the application and reports.
- The Section 18 application is assessed by the Aboriginal Cultural Material Committee (ACMC) and advertised in the press.
- ACMC makes its recommendations to the Minister who then makes the final decision.

For further information regarding heritage land development see the DIA website:

(http://www.dia.wa.gov.au/heritage/detailedinfofordevelopers.aspx).

This permit must be obtained before KPA can allow development on heritage land to commence.

9. AUDITING

Developers of type 2 and 3 projects are required to undertake an initial Project Audit within 3 months of the development commencing. Thereafter, Project Audits are to be undertaken no less than 12 monthly.

Project Audits are to be undertaken to validate compliance with *AS 4801-2001: Occupational health and safety management systems – Specification with guidance for use*, *AS ISO 9001-2000: Quality Management Systems - Requirements*, & *AS ISO 14001-2004: Environmental Management Systems – Requirements with guidance for use,* plus the approved management plans associated with these standards.

KPA may direct an audit of any aspect of a project at any time that the port authority deems necessary. The Developer shall promptly comply with any such direction which may include a direction to use a third party independent auditor. The cost of any such audit shall be borne by the developer.

10. REFERENCES

a) Australian Standards www.**sai-global**.com.au/
b) Building Code of Australia www.**abcb**.gov.au/
c) Department of Commerce http://www.commerce.wa.gov.au/index.htm
d) Department of Environment and Conservation www.**dec**.wa.gov.au/
e) Department of Indigenous Affairs www.**dia**.wa.gov.au/
f) Department of State Development http://www.dsd.wa.gov.au/
g) Department of Transport http://www.transport.wa.gov.au/
h) KPA Contractors Handbook www.kimberleyports.wa.gov.au/
i) KPA Development Application Procedure www.kimberleyports.wa.gov.au/
j) KPA Port Development Plan www.kimberleyports.wa.gov.au/
k) Environmental Protection Authority www.**epa**.wa.gov.au/
l) Government of Western Australia www.**wa**.gov.au/
m) Main Roads of Western Australia www.**mrwa**.wa.gov.au/
n) Shire of Broome www.**broome**.wa.gov.au/

APPENDIX
A
KPA DEVELOPMENT APPROVAL APPLICATION

APPLICATION FOR DEVELOPMENT APPROVAL

File ref: /
Version: 1.0 / 96690
Issue date: 18 August 2015

1. APPLICANT DETAILS

The applicant is the person with whom the KPA will correspond and, if the application is approved, the person to whom the approval will be sent.

Name / Company: _____

Contact Person: _____

Postal Address: _____

Town / Suburb: _____ Postcode: _____

Telephone No.: _____ Fax No.: _____

Email: _____

Applicant's Signature: _____

Print Name & Position: _____

2. PROPERTY DETAILS

The property is the area on which the proposed development is to be located.

Lot No. (s): _____

Lease Area No. (if known): _____

Existing Lease Holder (if any): _____

Existing Land / Building Use: _____

3. DEVELOPMENT DETAILS

Refer to KPA Development Application Guide for respective development types and requirements.

Proposed Development Types: 1 2 3 (circle applicable type)

Legend (refer to section 2.2 of application guidelines):

1: Uncomplicated minor developments
2: Relatively uncomplicated developments
3: Complex developments

Brief Description of Proposed Development: _____

_____

_____

Estimated Cost of Development (in AUD): _____

Expected Duration to Completion: _____

OTHER AUTHORITIES / AGENCIES WHOSE APPROVALS ARE REQUIRED:

Environmental Protection Authority (EPA)	Y / N
Dept of Environment & Conservation (DEC)	Y / N
Dept of Indigenous Affairs (DIA)	Y / N
Dept of Environment & Heritage	Y / N
Shire of Broome	Y / N

Others (please specify)

1. _____
2. _____
3. _____

Please attach additional sheet(s), if space provided is not sufficient

PLANS AND DOCUMENTS SUBMITTED (WITH THIS APPLICATION):

Y / N	Project Definition	Y / N	Locality Plan
Y / N	Site Plan	Y / N	Drainage Plan
Y / N	Conceptual Drawings	Y / N	Development Brief / Report

Others (please specify)

1. _____
2. _____
3. _____
4. _____
5. _____

Please attach additional sheet(s), if space provided is not sufficient

4. PLANNING APPLICATION FEES

The application fees are listed in the Development Application Guide and are reviewed annually. Please ensure the fees submitted are in accord with the current guide. Cheques should be made out to Kimberley Ports Authority.

Planning Application Fee: AUD $_____

Note: The application will not be processed until the Planning Application fee(s) are paid.

5. OFFICE USE ONLY

Accepting Officer's Signature: _____

Date Received: _____

Application Ref. No.: _____

Assessment No.: _____

6. INTERNAL APPROVALS

Environment: Name: _____ Signature: _____

Date: _____

Safety/Security: Name: _____ Signature: _____

Date: _____

Engineering: Name: _____ Signature: _____

Date: _____

Operations: Name: _____ Signature: _____

Date: _____

APPENDIX
B
EXAMPLE OF PROOF ENGINEERING CERTIFICATE

PROOF ENGINEERING CERTIFICATE

Company Logo

Design Proof/Construction Proof
(*Delete one*)

Address of Company
ABN

I <*Insert Name*> of <*Insert Address*> NPER registration Number <*Insert number*> herby certify the design/construction (*delete one*) complies with the following:

1. The Kimberley Ports Authority Port development Plan and contractor's handbook.
2. The KPA development guidelines.
3. All relevant Australian standards including:

    a. AS 1170-2002 (Set): Structural design actions;
    b. AS 3600-2001: concrete structures;
    c. AS 1742-2003 (Set): Manual of uniform traffic control devices;
    d. AS 4100-1998: Steel structures;
    e. AS 4997-2005: Guidelines for the design of Maritime Structures; and
    f. Other standards listed as relevant to development.

4. The Building Code of Australia.
5. Shire of Broome Planning Approvals.
6. State and Federal Environmental Approvals.
7. Design Basis Report.
8. Other compliances listed as relevant to development.

For example - *The following design assumptions relevant to the development have been reviewed and are considered to be acceptable and applicable to the intended purpose of the development* (list all assumptions relevant to the development such as:

    a. Wind zonings and categories,
    b. Wave and storm surge characteristics, and
    c. Live and dead loading and return life, etc.)

Signed: _____ Witnessed: _____

Name: _____ (print) Name: _____ (print)

Date: _____ Address: _____

_____

_____

APPENDIX
C
KPA DRAWING TEMPLATE

REV	DATE	DESCRIPTION	BY	APPR. BY
–	–	–	–	–

REV	DATE	DESCRIPTION	BY	APPR. BY

CONSULTANT INFORMATION &
DRAWING REFERENCE No.

KIMBERLEY PORTS AUTHORITY

NORTH

PROJECT
KPA
TITLE 1
TITLE 2
TITLE 3

DATE	DESIGNED	DRAWN	CHECKED	SCALE
DATE	INITS	INITS	INITS	SCALE

SHEET SIZE	PROJECT No.	DRG No.	REVISION
A1	KPA PROJ NO	KPA DRAWING NO	A

401 PORT DRIVE
PO BOX 46
BROOME WA 6725

t: (08) 9194 3100
f: (08) 9192 1778
www.kimberleyports.wa.gov.au

APPENDIX
D
KPA STANDARD DRAWING SHEET

REV	DATE	DESCRIPTION	BY	APPR. BY
–	–	–	–	–

REV	DATE	DESCRIPTION	BY	APPR. BY

CONSULTANT INFORMATION &
DRAWING REFERENCE No.

KIMBERLEY PORTS AUTHORITY

NORTH

PROJECT
KPA
TITLE 1
TITLE 2
TITLE 3

DATE	DESIGNED	DRAWN	CHECKED	SCALE
DATE	INITS	INITS	INITS	SCALE

SHEET SIZE	PROJECT No.	DRG No.	REVISION
A1	KPA PROJ NO	KPA DRAWING NO	A

401 PORT DRIVE
PO BOX 46
BROOME WA 6725

t: (08) 9194 3100
f: (08) 9192 1778
www.kimberleyports.wa.gov.au

APPENDIX
E
KPA DRAWING PROCEDURES

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1. DOCUMENT CONTROL

1.1 Section Revision Record

Table 1.1 Section Revision Record

Section	DATE	DESCRIPTION OF CHANGE	PREP'D	REV'D	APP'D

1.2 Controlled Copies List

Table 1.2 Controlled copies Distribution List

COPY No	HOLDER	LOCATION
1		
2		
3		
4		
5		
6		
7		

1.3 Details of Revision Changes

This Contract Management Procedure is a live reference documents that will be reviewed and updated to reflect changes to the Port's methodology.

1.4 Document Revision and Acknowledgement Procedure

Kimberley Ports Authority encourages all personnel to identify potential improvements to this procedure and to forward them to the commercial Manager, and any accepted changes will be forwarded to all controlled copy holders.

2. OBJECTIVES

These procedures govern the preparation of engineering drawings for Kimberley Ports Authority (KPA) and shall be issued as an instruction to consultants, agencies, contractors and drafting personnel. They define the minimum standard required for drawings produced for KPA.

3. CAD DRAFTING

KPA requires the use of recent versions of MicroStation or AutoCAD as its standard CAD drafting system. Files are required in .DGN format.

Consultants/Contractors are responsible for ensuring that third party providers follow these procedures and drawings from other drafting systems will not be accepted unless authorised by the KPA representative. Failure to follow these procedures may result in drawings being returned to the originator for correction.

4. CUSTODIAN

The custodian of these procedures is the Port Engineer, Port of Broome and all queries, mailings etc should be directed to Mr. Christian Lee:

Kimberley Ports Authority
PO Box 46
Broome WA 6725

Tel: 08 9194 3100

Fax: 08 9192 1778
Mobile 0408 925 347
Phone: 08 9194 3100
Email:
commercialofficer@kimberleyports.wa.gov.au

5. PROCEDURE

5.1 Preliminaries

Before any new drawing is commenced, a search must take place to determine the availability of existing drawings that could be used or modified, KPA's policy is to use existing drawings where possible rather than create new drawings, with the aim of minimising the number of complete and 'As Built' drawings.

5.2 Relevant Standards

Drawings must comply with the current revisions of the relevant Australian standards – Standards Australia publishes many standards applicable to drafting and engineering practice. Drawings shall comply with AS1100 and the relevant discipline:

a) AS1100.101-1992 and AS1100.101-1992/Amdt1-1994: Technical drawing – General principles.
b) AS1100.201-1992 and AS1100.201-1994/Amdt-1994: Technical drawing – Mechanical engineering
c) drawing.

d) AS1100.301-1985 and AS1100.301 Supp 1-1986: Architectural drawing.
e) AS/NZS1100.501:200: Technical drawing – Structural engineering drawing.
f) AS1100.401-1984: Technical drawing – Engineering survey and engineering survey design drawing.
g) AS 1654 limits and fits for engineering (Metric Units)
h) ISO 3098 Technical drawings – Lettering

Where this document and the Drafting Standards conflict this manual will take precedence but the intent of the Drafting Standards shall be considered. Where doubt exists refer to the Project Officer.

5.3 Border Sheets

5.3.1 Standard Border Sheet Sizes

Standard border sheets and drawings shall be A1 size and drawings shall be readable in A3; minimum drawing sheet size is also A3.

5.3.2 Border Sheet Availability

Border sheets in MicroStation format should be used and these are available from the KPA custodian. These border sheets must be attached to the Design file as a reference file and not copied into the Design file. The border sheets should not be modified in any way, e.g. do not attach cells or text as an integral part of the border sheet.

5.4 Return of Drawings and Data

Final drawings submitted to KPA shall be in A1 hard copy and A3 electronic PDF size. Additionally, one A3 hard copy and a disk of all digital data in original Microstation drawing format shall be submitted to the KPA custodian (refer to section 4 above) at the completion of works.

6. CHECK PRINTS

6.1 Paper Prints

Drawings when submitted as check prints will be printed in A3 size on paper unless otherwise requested.

6.2 Transferring CAD Files

CAD files will be transferred via a medium that is acceptable to KPA, i.e. CD's, Thumb Drives, or email.

7. DRAWING NUMBERS & FILE NAMES

7.1 Drawing Number Allocation

The KPA custodian shall allocate drawing numbers in consultation with the Port. A list of complete drawing titles must be provided so that appropriate drawing number s can be issued. Only numbers issued are to be used as KPA's numbering system is unique and different classifications (i.e. mechanical, electrical etc) are allocated different type

numbers. All drawings created for KPA should be given a KPA drawing number. The KPA system is structured as follows:

100-DS-01

PROJECT AREA NUMBER DRAWING SEQUENTIAL NUMBER

S = STRUCTURAL (01-99)

C = CIVIL

U = SURVEY

A = GENERAL (Layout, architectural etc)

V = ENVIRONMENTAL

P = PIPING etc

Drawing numbers shall be entered into the KPA title block on standard KPA drawing sheets.

7.2 More Than One Sheet

Where several drawing sheets are produced which cover a common subject, each shall have a separate drawing number and the sheet number should be shown in the title block:

eg "SHEET 1 OF 4".

7.3 Proprietary Items and Vendor Drawings

Drawings supplied for Proprietary Items installed during the course of projects, or upgrade work are to be allocated KPA drawing numbers.

8. DRAWING PRESENTATION

8.1 Title Block Information Required

Typical Minimum information required is either of these -

- SITE & LOCALITY SITE & LOCALITY
- PROJECT TITLE or SUB AREA
- DRAWING TITLE SUB ITEM OR MAINTENANCE UNIT
- DRAWING TITLE NATURE OF DRAWING
- ALL TITLE BLOCKS TO INCLUDE A SCALE BAR

8.2 Orientation

Plans shall be drawn such that North is directed either to the top or to the right margin. The drawings for all disciplines must be oriented in the same manner.

8.3 North Arrow

A North Arrow shall indicate the respective north direction (Australian Map Grid, Plant North, True North or Mine Grid, etc) as selected at the commencement of the project.

8.4 Grid Lines

Where applicable, the appropriate grid and grid references will be drawn (Australia Map Grid, Plant North, True North or Mine Grid, etc) as selected at the commencement of the project by the Engineer or Section assigned the overall responsibility for that project.

Each drawing shall clearly identify and note the grid reference being used on the drawing.

8.5 Block Plan and Key Plans

On a project where portions of the work have to be broken into separate areas, a Block Plan and a Key Plan will appear on each drawing. In the case of a large project, a Key Plan showing all General Arrangement drawings of the project will be drawn on the front drawing of the set of drawings.

8.6 Block Plan

The Block Plan will show the extent of the project and locate the key plan in relation to the site layout. A North Arrow is to be included.

8.7 Key Plan

The Key Plan will locate the subject of the drawing in relation to its immediate vicinity.

8.8 Legend

Where symbols that are not explained in a standard document occur on a drawing, a legend will be shown on the drawing. Where such symbols occur throughout a set of drawings, a legend will be shown on the lead drawing.

8.9 Notes

Notes will be numbered and will not be underlined. The lead drawings of a set of drawings will have all notes referring to codes, standards, specifications etc; these notes are not to be repeated on other drawings in the set. On large projects, a special sheet or sheets may be prepared which will accommodate references for each discipline, eg Mechanical, Electrical and so on.

8.10 Cross-References

Drawings must be cross-referenced and the cross-references must be accurate and comprehensive, using the "REFERENCES" section of the Title Block.

8.11 Projection

Third angle projection is to be used.

8.12 Sections

Sections will normally be called up on a drawing alphabetically from left to right. However they may be placed from top to bottom if necessary.

8.13 Details

Details will normally be called up on a drawing numerically from left to right. However they may be placed from top to bottom if necessary.

8.14 Plans

When plans at different levels are shown on the same drawing, these plans will be arranged in sequence from left to right. The plan of the lowest level will be at the left, followed by the next highest plan with the plan of the highest level at the right, except stair drawings.

8.15 Colour

BPA has adopted the "change-pen-by-line-weight" method of plotting so that, unless a colour plot is to be produced, colour on the monitor has no bearing on the finished product and can therefore be used at the discretion of the CAD operator. The standard MicroStation colour table is to be used.

8.16 Element Symbology

MicroStation element symbology is to be used to display elements in the active design file. Refer also section Reference Files and Level Symbology.

9. TEXT

9.1 Text Font

The MicroStation standard Font 3 shall be used for all text. Ausfont 27 is an acceptable alternative.

9.2 Text Size

The acceptable text sizes are 2.5 mm, 3.5 mm, and 5.0 mm or scaled equivalent.

Height	Width	Weight	Font	Line Spacing
2.5	2.5	0	3	1.25
3.5	2.8	1	3	1.75
5	4	2	3	2.5

9.3 Linework

9.3.1 Line Styles and Weights

LC	WT	Type	Description
0	2	Solid	Bold visible outline
0	1	Solid	Visible outline
0	0	Solid	Minor visible lines
0	0	Solid	Dimension line
2	0	Medium, dashed	Hidden line
7	0	Long dash, dash	Centre line
7	0	Long dash, dash	By others
6	0	Dash, dot, dot	Existing
6	2	Dash, dot, dot	Match line
0	0	Solid	Break line
4	0	Dash dot	Future

9.4 Dimensioning

Site Plans and Locality Plans should be dimensioned in metres expressed to three decimal places. Where the dimension is less than a metre, it should be prefixed by a zero. eg 3050.250, 0.375

The following points are to be read in conjunction with the applicable Standards Australia standards:

9.4.1 Dimension Lines

Dimension lines are to be unbroken.

9.4.2 Terminators

Solid arrow heads are to be used, except a dot may be used at the start of a series of running dimension.

Circles, dashes, slashes and dots (except for the above case) are **not** to be used.

Arrow heads used for CAD dimensioning and placing notes are to be 1:3 proportion with the arrowhead filled in.

9.4.3 Closing Dimensions

Closing dimensions will be shown on structural drawings, but will be bracketed as auxiliary dimensions on mechanical and architectural drawings.

9.4.4 Views

View names and headings are to be in 5.0mm high text on level 59 for A2, A1, A0 & B1 sheets and 3.5mm high text on level 59 for A3 & A4 sheets. Do not underline text.

9.4.5 Units

The symbols "m" and "mm" will not be used on drawings. If there is a possibility of confusion, the drawing should be labelled "ALL DIMENSIONS IN METRES" or "ALL DIMENSIONS IN MILLIMETRES".

WORKING UNITS

Master Units - mm

Resolution	1 per mm
	1000 pos units per mm

WORKING AREA

4294967 mm Square

9.5 Datum Levels

Levels on drawings should be expressed in metres to the third decimal place. A note should be placed on the drawing indicating the point from which levels and heights are referred. For drawings showing land below the high water mark, both AHD and CD height datums shall be shown on a correlation bar on the bottom or top RHS of the drawing.

9.6 Scales

The BPA Port Engineer/Engineering Officer in consultation with the Draftsman on each project has the responsibility for establishing the scale to be used by all disciplines; Civil, Mechanical, Structural, Electrical and etc., suitable for A3 minimum drawing size.

10. REVISIONS

10.1 First Revision

On commencement of drawing, make the drawing Revision A. Attach "PRELIMINARY - NOT FOR CONSTRUCTION".

10.2 Subsequent Revisions

Subsequent revisions to drawings until they are 'Approved for Construction' are alphabetic; eg B, C, D, etc.

10.3 Approved For Construction

'Approved for Construction' drawings begin at revision 0, and subsequent revisions are numbered 1, 2, 3 etc. note in the Title Block "APPROVED FOR CONSTRUCTION" and remove the "PRELIMINARY - NOT FOR CONSTRUCTION" cell from the drawing.

10.4 As Built

Raise the drawing to the next Revision and mark: "AS BUILT" with room for the responsible NPER engineer to sign off the drawing with a wet signature.

11. CAD LEVELS

11.1 Cad Level Allocation

Appendix A shows the CAD level allocation that has been adopted as the BPA standard. This does not preclude the introduction of others that are more suited to particular applications. The only stipulation is that a change in level allocation must be agreed to by all disciplines before a project commences. Although blocks of levels are allocated to certain disciplines, all levels are available for use by all disciplines. For example, a mechanical design would use level 26 for concrete outline, just the same as a civil design would.

11.2 Cad Co-Ordinate System

Whenever possible, plans and layouts should be placed at the correct northing and easting. Similarly, elevations and sections should be placed at their real world location. If using 2D files, the Y axis can be substituted for Z.

The MicroStation default sets the point 0,0 at the centre of the design plane. This would only allow for a maximum northing or easting of 2 000 000, however Western Australia lies between approx 5 000 000 and 9 000 000 N on the AMG Reference. Therefore the global origin of the design should be set to cope with these numbers. The command string to set the global origin is:

GO = 2000000,5000000

XY = 0,0

Another option is to set the plant datum at the centre of the design file. To do this key in:

GO = (plane datum co-ordinates)

XY = 2000000,2000000

Remember to 'SAVE SETTINGS' to save the new global origin.

11.3 Cad Drawing Scale

Construct drawing at full scale.

Decide plotting scale (eg 1:100).

Scale reference file border sheet about its bottom left corner so that the corner remains at the point 0,0. eg. set scale (Master :Ref) 100:1

Adjust drawing into border.

Set text size eg. 3.5 mm x plotting scale (eg TH=350, change text width and line spacing to correct proportions accordingly).

The file can now be plotted at the appropriate scale.

11.4 Save Settings

Save settings with View 1 as an overall view suitable for plotting i.e. text nodes off, construction lines off etc, View 5 to have the drawing title block including the Draftsperson's and Engineers signatures filling the view, all elements that are on the drawing are to display in this view when "zoomed out", including 'Data Fields'.

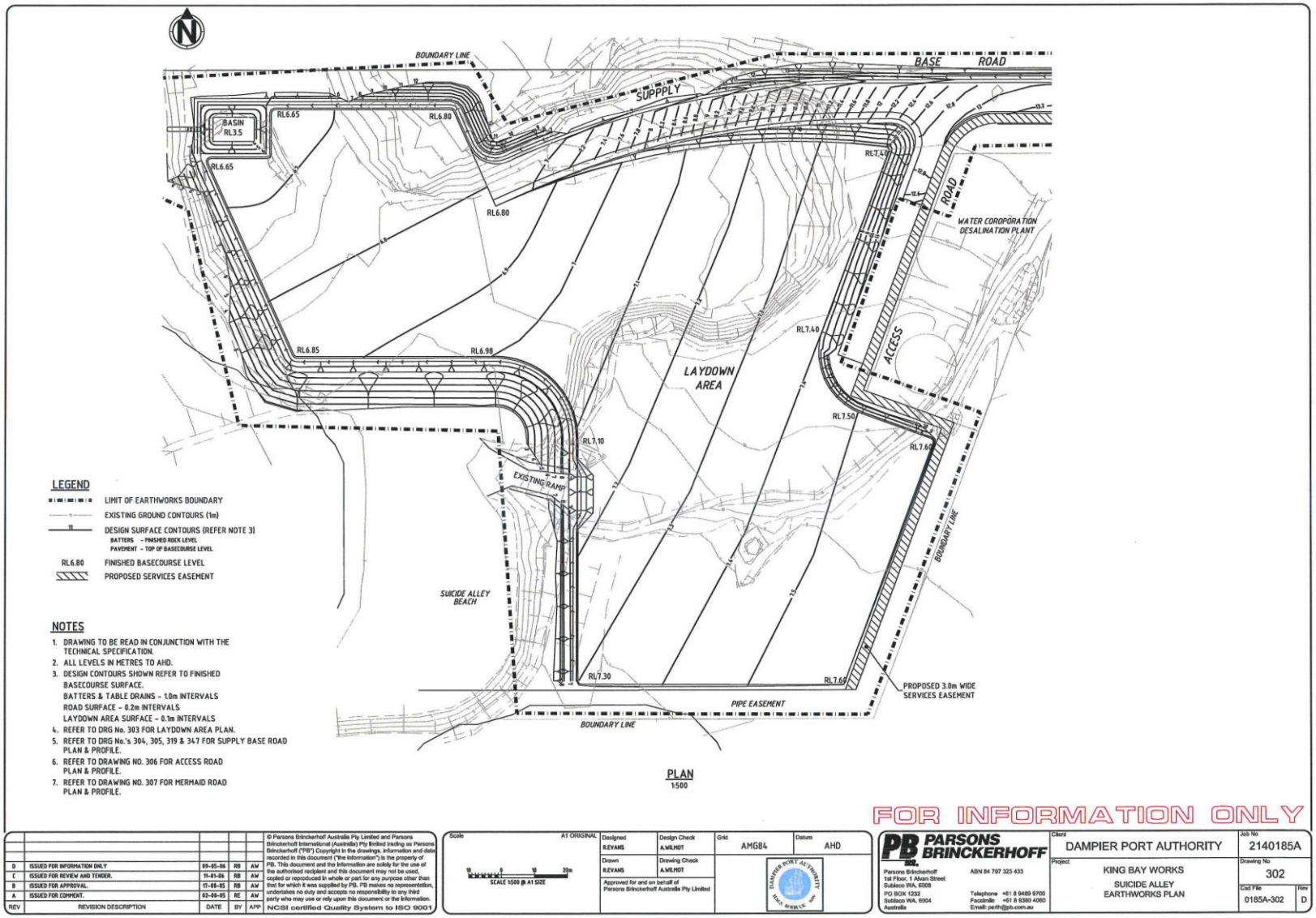
Description	LV	LC	WT
MECHANICAL SERVICES AND EQUIPMENT			
Centrelines	1	4	0
Equipment outlines	2	0	2
Equipment minor lines and Hidden lines Varies	3	3	0
Stairways, walkways and hand rails	4	0	2
Supports - Piping and Ducting	5	0	2
Conveyor belting	6	0	2
Piping. Air	7	In legend	
Piping. Oil	8	In legend	
Piping. Water	9	In legend	
Ducting. HVAC (Heating, venting and air conditioning)	10	0	2
Ducting.Electrical (Cable trays and ladders, etc)	11	0	2
Existing Mechanical	12	6	0
Not allocated	13		
Schematic diagrams. Cells	14	Variable	
Schematic diagrams. Linework	15	Variable	
Not Allocated	16		
ARCHITECTURAL			
Plans and elevations	17	0	2
Details and sections	18	0	2
Landscaping	19	0	2
CIVIL AND STRUCTURAL			
Column (building) grids	20	7	0
10mm diameter balloons		0	2
Not Allocated	21		
Primary structural steel, beams, columns, connection details, etc.	22	0	2
Secondary structural steel, bracing, purlins & girts, sag rods & struts, etc.	23	0	2
Liner Plates	24	0	2
Bolts and Bolt holes	25	0	2
Concrete outlines	26	0	2
Concrete reinforcement	27	0	2
Earth lines and section symbols	28	0	0
Roads and drainage	29	0	2
Existing Structural	30	6	0

CARTOGRAPHIC			
Existing Services	31	6	0
Existing surface features	32	6	0
Existing building outlines	33	6	0
Existing contours, major	34	0	1
Existing contours, minor	35	0	0
Design surface features, major	36	0	2
Design surface features, minor	37	0	0
Design building outline	38	0	2
Design contours, major	39	0	2
Design contours, minor	40	0	0
Topographical grids and monuments	41	0	0
Tadpoles (ground-slope symbols)	42	0	0
ELECTROTECHNICAL			
Location diagram, major electrical equipment	43	0	2
Location diagram, minor electrical equipment	44	0	2
Location diagram, light and power	45	0	2
Location diagram, instrumentation	46	0	2
Location diagram, telecommunication	47	0	2
Location diagram, railway signals	48	0	2
Cable routes, electrical (incl. Overhead lines)	49	In legend	

APPENDIX F

EXAMPLES OF DRAWINGS PREPARED FOR DAMPIER PORT AUTHORITY

(Kimberly Ports Authority aims for uniformity between WA port authority project requisites and formatting)


BOUNDARY LINE
BASE ROAD
SUPPPLY
BASIN RL3.5
RL6.65
RL6.80
RL6.65
RL6.80
RL7.40
ROAD
WATER COROPORATION DESALINATION PLANT
RL6.85
RL6.98
LAYDOWN AREA
RL7.40
ACCESS
RL7.50
RL7.60
RL7.10
EXISTING RAMP
SUICIDE ALLEY BEACH
BOUNDARY LINE
RL7.30
RL7.60
PROPOSED 3.0m WIDE SERVICES EASEMENT
PIPE EASEMENT
BOUNDARY LINE
LEGEND
LIMIT OF EARTHWORKS BOUNDARY
EXISTING GROUND CONTOURS (1m)
DESIGN SURFACE CONTOURS (REFER NOTE 3)
BATTERS - FINISHED ROCK LEVEL
PAVEMENT - TOP OF BASECOURSE LEVEL
RL6.80 FINISHED BASECOURSE LEVEL
PROPOSED SERVICES EASEMENT
NOTES
1. DRAWING TO BE READ IN CONJUNCTION WITH THE TECHNICAL SPECIFICATION.
2. ALL LEVELS IN METRES TO AHD.
3. DESIGN CONTOURS SHOWN REFER TO FINISHED BASECOURSE SURFACE.
BATTERS & TABLE DRAINS - 1.0m INTERVALS
ROAD SURFACE - 0.2m INTERVALS
LAYDOWN AREA SURFACE - 0.1m INTERVALS
4. REFER TO DRG No. 303 FOR LAYDOWN AREA PLAN.
5. REFER TO DRG No.'s 304, 305, 319 & 347 FOR SUPPLY BASE ROAD PLAN & PROFILE.
6. REFER TO DRAWING NO. 306 FOR ACCESS ROAD PLAN & PROFILE.
7. REFER TO DRAWING NO. 307 FOR MERMAID ROAD PLAN & PROFILE.
PLAN
1:500
FOR INFORMATION ONLY
D ISSUED FOR INFORMATION ONLY 09-05-06 RB AW
C ISSUED FOR REVIEW AND TENDER. 11-01-06 RB AW
B ISSUED FOR APPROVAL. 17-08-05 RB AW
A ISSUED FOR COMMENT. 02-08-05 RE AW
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SCALE 1:500 @ A1 SIZE
Designed R.EVANS
Design Check A.WILHOT
Drawn R.EVANS
Drawing Check A.WILHOT
Approved for and on behalf of Parsons Brinckerhoff Australia Pty Limited
Grid AMG84
Datum AHD
PB PARSONS BRINCKERHOFF
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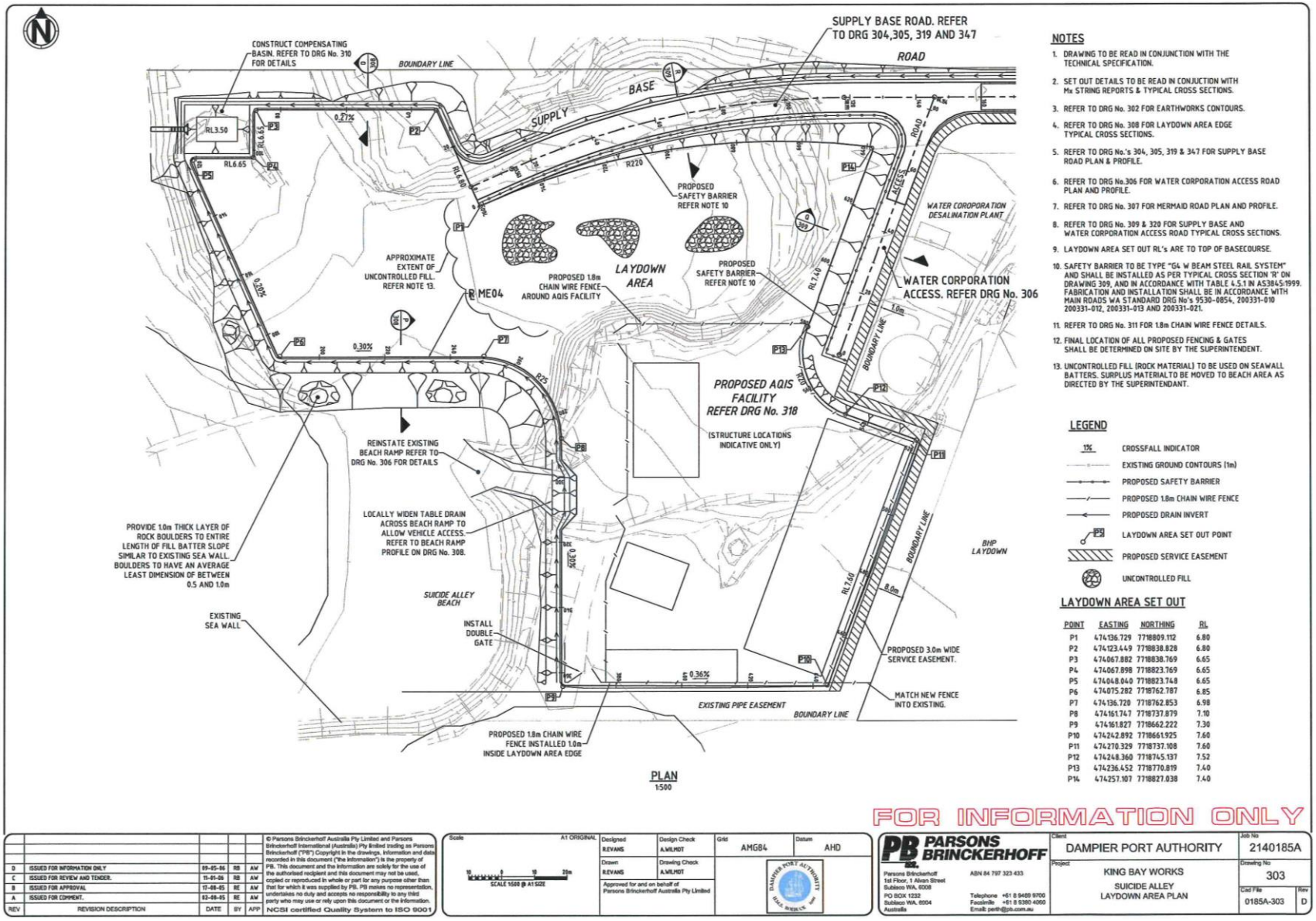
Email: perth@pb.com.au
Client DAMPIER PORT AUTHORITY
Job No 2140185A
Project KING BAY WORKS
SUICIDE ALLEY
EARTHWORKS PLAN
Drawing No 302
Cad File 0185A-302
Rev D


SUPPLY BASE ROAD. REFER TO DRG 304,305, 319 AND 347
CONSTRUCT COMPENSATING BASIN. REFER TO DRG No. 310 FOR DETAILS
BOUNDARY LINE
SUPPLY BASE ROAD
PROPOSED SAFETY BARRIER REFER NOTE 10
WATER COROPORATION DESALINATION PLANT
APPROXIMATE EXTENT OF UNCONTROLLED FILL. REFER NOTE 13.
PROPOSED 1.8m CHAIN WIRE FENCE AROUND AQIS FACILITY
LAYDOWN AREA
WATER CORPORATION ACCESS. REFER DRG No. 306
PROPOSED AQIS FACILITY REFER DRG No. 318
(STRUCTURE LOCATIONS INDICATIVE ONLY)
REINSTATE EXISTING BEACH RAMP REFER TO DRG No. 306 FOR DETAILS
PROVIDE 1.0m THICK LAYER OF ROCK BOULDERS TO ENTIRE LENGTH OF FILL BATTER SLOPE SIMILAR TO EXISTING SEA WALL. BOULDERS TO HAVE AN AVERAGE LEAST DIMENSION OF BETWEEN 0.5 AND 1.0m
LOCALLY WIDEN TABLE DRAIN ACROSS BEACH RAMP TO ALLOW VEHICLE ACCESS. REFER TO BEACH RAMP PROFILE ON DRG No. 308.
SUICIDE ALLEY BEACH
EXISTING SEA WALL
INSTALL DOUBLE GATE
BHP LAYDOWN
PROPOSED 3.0m WIDE SERVICE EASEMENT.
MATCH NEW FENCE INTO EXISTING.
EXISTING PIPE EASEMENT
PROPOSED 1.8m CHAIN WIRE FENCE INSTALLED 1.0m INSIDE LAYDOWN AREA EDGE
PLAN
1:500
NOTES
1. DRAWING TO BE READ IN CONJUNCTION WITH THE TECHNICAL SPECIFICATION.
2. SET OUT DETAILS TO BE READ IN CONJUCTION WITH Mx STRING REPORTS & TYPICAL CROSS SECTIONS.
3. REFER TO DRG No. 302 FOR EARTHWORKS CONTOURS.
4. REFER TO DRG No. 308 FOR LAYDOWN AREA EDGE TYPICAL CROSS SECTIONS.
5. REFER TO DRG No.'s 304, 305, 319 & 347 FOR SUPPLY BASE ROAD PLAN & PROFILE.
6. REFER TO DRG No.306 FOR WATER CORPORATION ACCESS ROAD PLAN AND PROFILE.
7. REFER TO DRG No. 307 FOR MERMAID ROAD PLAN AND PROFILE.
8. REFER TO DRG No. 309 & 320 FOR SUPPLY BASE AND WATER CORPORATION ACCESS ROAD TYPICAL CROSS SECTIONS.
9. LAYDOWN AREA SET OUT RL's ARE TO TOP OF BASECOURSE.
10. SAFETY BARRIER TO BE TYPE "G4 W BEAM STEEL RAIL SYSTEM" AND SHALL BE INSTALLED AS PER TYPICAL CROSS SECTION 'R' ON DRAWING 309, AND IN ACCORDANCE WITH TABLE 4.5.1 IN AS3845:1999. FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH MAIN ROADS WA STANDARD DRG No's 9530-0854, 200331-010 200331-012, 200331-013 AND 200331-021.
11. REFER TO DRG No. 311 FOR 1.8m CHAIN WIRE FENCE DETAILS.
12. FINAL LOCATION OF ALL PROPOSED FENCING & GATES SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT.
13. UNCONTROLLED FILL (ROCK MATERIAL) TO BE USED ON SEAWALL BATTERS. SURPLUS MATERIALTO BE MOVED TO BEACH AREA AS DIRECTED BY THE SUPERINTENDANT.
LEGEND
1% CROSSFALL INDICATOR
EXISTING GROUND CONTOURS (1m)
PROPOSED SAFETY BARRIER
PROPOSED 1.8m CHAIN WIRE FENCE
PROPOSED DRAIN INVERT
P5 LAYDOWN AREA SET OUT POINT
PROPOSED SERVICE EASEMENT
UNCONTROLLED FILL
LAYDOWN AREA SET OUT
POINT EASTING NORTHING RL
P1 474136.729 7718809.112 6.80
P2 474123.449 7718838.828 6.80
P3 474067.882 7718838.769 6.65
P4 474067.898 7718823.769 6.65
P5 474048.040 7718823.748 6.65
P6 474075.282 7718762.787 6.85
P7 474136.720 7718762.853 6.98
P8 474161.747 7718737.879 7.10
P9 474161.827 7718662.222 7.30
P10 474242.892 7718661.925 7.60
P11 474270.329 7718737.108 7.60
P12 474248.360 7718745.137 7.52
P13 474236.452 7718770.819 7.40
P14 474257.107 7718827.038 7.40
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SCALE 1:500 @ A1 SIZE
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Drawn R.EVANS
Approved for and on behalf of Parsons Brinckerhoff Australia Pty Limited
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Drawing Check A.WILMOT
Grid AMG84
Datum AHD
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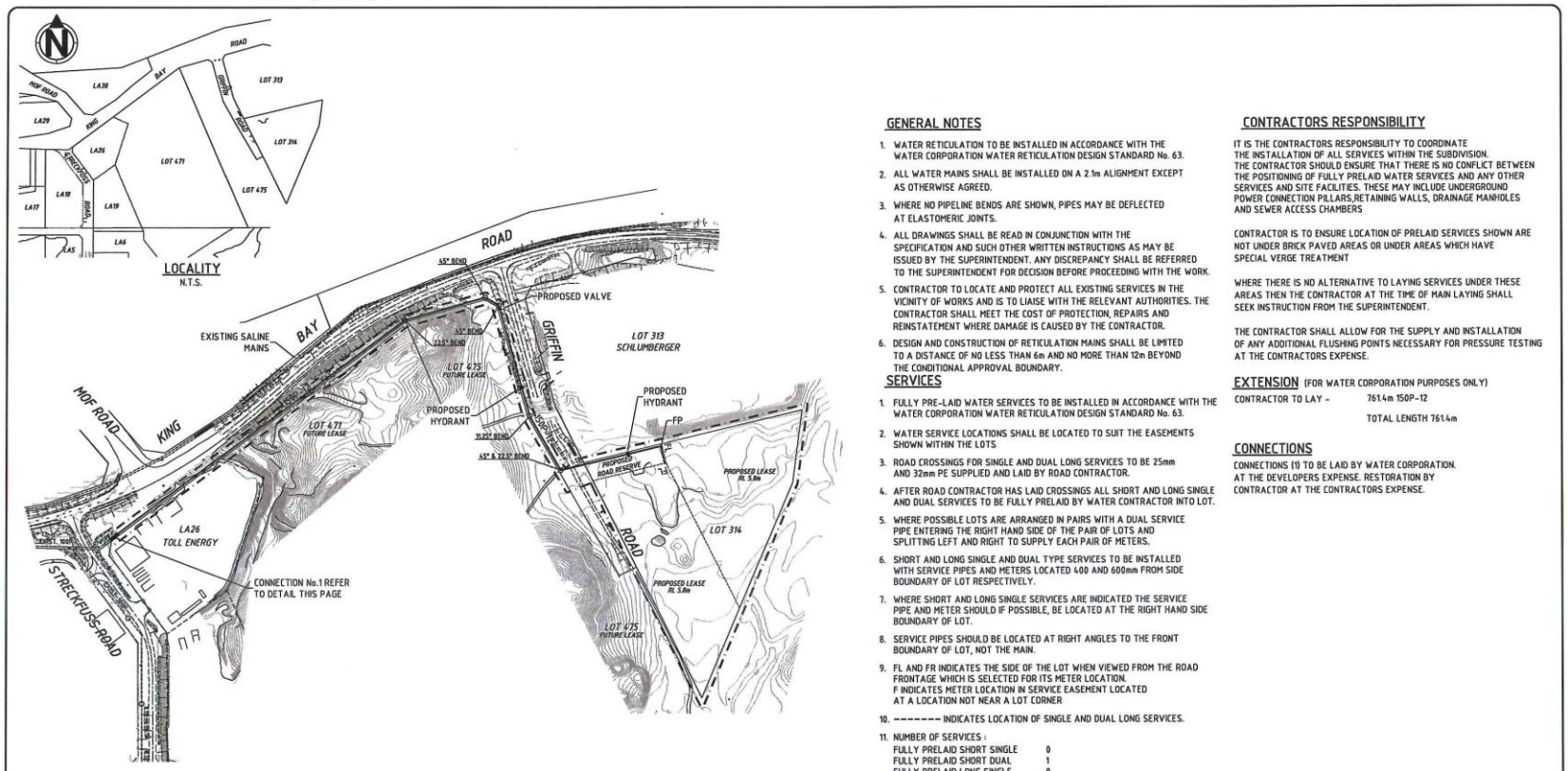
Client DAMPIER PORT AUTHORITY
Job No 2140185A
Project KING BAY WORKS
SUICIDE ALLEY
LAYDOWN AREA PLAN
Drawing No 303
Cad File 0185A-303
Rev D



GENERAL NOTES

1. WATER RETICULATION TO BE INSTALLED IN ACCORDANCE WITH THE WATER CORPORATION WATER RETICULATION DESIGN STANDARD No. 63.
2. ALL WATER MAINS SHALL BE INSTALLED ON A 2.1m ALIGNMENT EXCEPT AS OTHERWISE AGREED.
3. WHERE NO PIPELINE BENDS ARE SHOWN, PIPES MAY BE DEFLECTED AT ELASTOMERIC JOINTS.
4. ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION AND SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED BY THE SUPERINTENDENT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.
5. CONTRACTOR TO LOCATE AND PROTECT ALL EXISTING SERVICES IN THE VICINITY OF WORKS AND IS TO LIAISE WITH THE RELEVANT AUTHORITIES. THE CONTRACTOR SHALL MEET THE COST OF PROTECTION, REPAIRS AND REINSTATEMENT WHERE DAMAGE IS CAUSED BY THE CONTRACTOR.
6. DESIGN AND CONSTRUCTION OF RETICULATION MAINS SHALL BE LIMITED TO A DISTANCE OF NO LESS THAN 6m AND NO MORE THAN 12m BEYOND THE CONDITIONAL APPROVAL BOUNDARY.

SERVICES

1. FULLY PRE-LAID WATER SERVICES TO BE INSTALLED IN ACCORDANCE WITH THE WATER CORPORATION WATER RETICULATION DESIGN STANDARD No. 63.
2. WATER SERVICE LOCATIONS SHALL BE LOCATED TO SUIT THE EASEMENTS SHOWN WITHIN THE LOTS
3. ROAD CROSSINGS FOR SINGLE AND DUAL LONG SERVICES TO BE 25mm AND 32mm PE SUPPLIED AND LAID BY ROAD CONTRACTOR.
4. AFTER ROAD CONTRACTOR HAS LAID CROSSINGS ALL SHORT AND LONG SINGLE AND DUAL SERVICES TO BE FULLY PRELAID BY WATER CONTRACTOR INTO LOT.
5. WHERE POSSIBLE LOTS ARE ARRANGED IN PAIRS WITH A DUAL SERVICE PIPE ENTERING THE RIGHT HAND SIDE OF THE PAIR OF LOTS AND SPLITTING LEFT AND RIGHT TO SUPPLY EACH PAIR OF METERS.
6. SHORT AND LONG SINGLE AND DUAL TYPE SERVICES TO BE INSTALLED WITH SERVICE PIPES AND METERS LOCATED 400 AND 600mm FROM SIDE BOUNDARY OF LOT RESPECTIVELY.
7. WHERE SHORT AND LONG SINGLE SERVICES ARE INDICATED THE SERVICE PIPE AND METER SHOULD IF POSSIBLE, BE LOCATED AT THE RIGHT HAND SIDE BOUNDARY OF LOT.
8. SERVICE PIPES SHOULD BE LOCATED AT RIGHT ANGLES TO THE FRONT BOUNDARY OF LOT, NOT THE MAIN.
9. FL AND FR INDICATES THE SIDE OF THE LOT WHEN VIEWED FROM THE ROAD FRONTAGE WHICH IS SELECTED FOR ITS METER LOCATION. F INDICATES METER LOCATION IN SERVICE EASEMENT LOCATED AT A LOCATION NOT NEAR A LOT CORNER
10. -------- INDICATES LOCATION OF SINGLE AND DUAL LONG SERVICES.
11. NUMBER OF SERVICES :

FULLY PRELAID SHORT SINGLE	0
FULLY PRELAID SHORT DUAL	1
FULLY PRELAID LONG SINGLE	0
FULLY PRELAID LONG DUAL	1
DEFERRED SERVICES	0
TOTAL LOTS SERVED	2

CONTRACTORS RESPONSIBILITY

IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE THE INSTALLATION OF ALL SERVICES WITHIN THE SUBDIVISION. THE CONTRACTOR SHOULD ENSURE THAT THERE IS NO CONFLICT BETWEEN THE POSITIONING OF FULLY PRELAID WATER SERVICES AND ANY OTHER SERVICES AND SITE FACILITIES. THESE MAY INCLUDE UNDERGROUND POWER CONNECTION PILLARS,RETAINING WALLS, DRAINAGE MANHOLES AND SEWER ACCESS CHAMBERS

CONTRACTOR IS TO ENSURE LOCATION OF PRELAID SERVICES SHOWN ARE NOT UNDER BRICK PAVED AREAS OR UNDER AREAS WHICH HAVE SPECIAL VERGE TREATMENT

WHERE THERE IS NO ALTERNATIVE TO LAYING SERVICES UNDER THESE AREAS THEN THE CONTRACTOR AT THE TIME OF MAIN LAYING SHALL SEEK INSTRUCTION FROM THE SUPERINTENDENT.

THE CONTRACTOR SHALL ALLOW FOR THE SUPPLY AND INSTALLATION OF ANY ADDITIONAL FLUSHING POINTS NECESSARY FOR PRESSURE TESTING AT THE CONTRACTORS EXPENSE.

EXTENSION (FOR WATER CORPORATION PURPOSES ONLY)

CONTRACTOR TO LAY – 761.4m 150P-12

TOTAL LENGTH 761.4m

CONNECTIONS

CONNECTIONS (1) TO BE LAID BY WATER CORPORATION. AT THE DEVELOPERS EXPENSE. RESTORATION BY CONTRACTOR AT THE CONTRACTORS EXPENSE.

LEGEND

- EXISTING WATER MAINS
- PROPOSED WATER MAINS
- PROPOSED FLUSHING POINT (1 OF)
- PROPOSED VALVES (1 OF)
- PROPOSED HYDRANTS (2 OF)
- PROPOSED WATER DUCTS
- CONNECTION BY W.C.
- RETICULATION BOUNDARY.
- GROUND CONTOUR

WATER RETICULATION DETAILS

SUB-FILE: –
PLAN No. –

WAPC No. N/A

TENDER

REV	REVISION DESCRIPTION	DATE	BY	APP
B	ISSUED FOR REVIEW AND TENDER	11-01-06	RB	AW
A	ISSUED TO WATER CORPORATION	06-12-05	RE	SJ

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NCSI certified Quality System to ISO 9001

Scale: SCALE 1:200 — A1 ORIGINAL

Designed: R.EVANS | Design Check: V.PILOT
Drawn: R.EVANS | Drawing Check: V.PILOT
Approved for and on behalf of Parsons Brinckerhoff Australia Pty Limited

Grid: AMG84 | Datum: AHD

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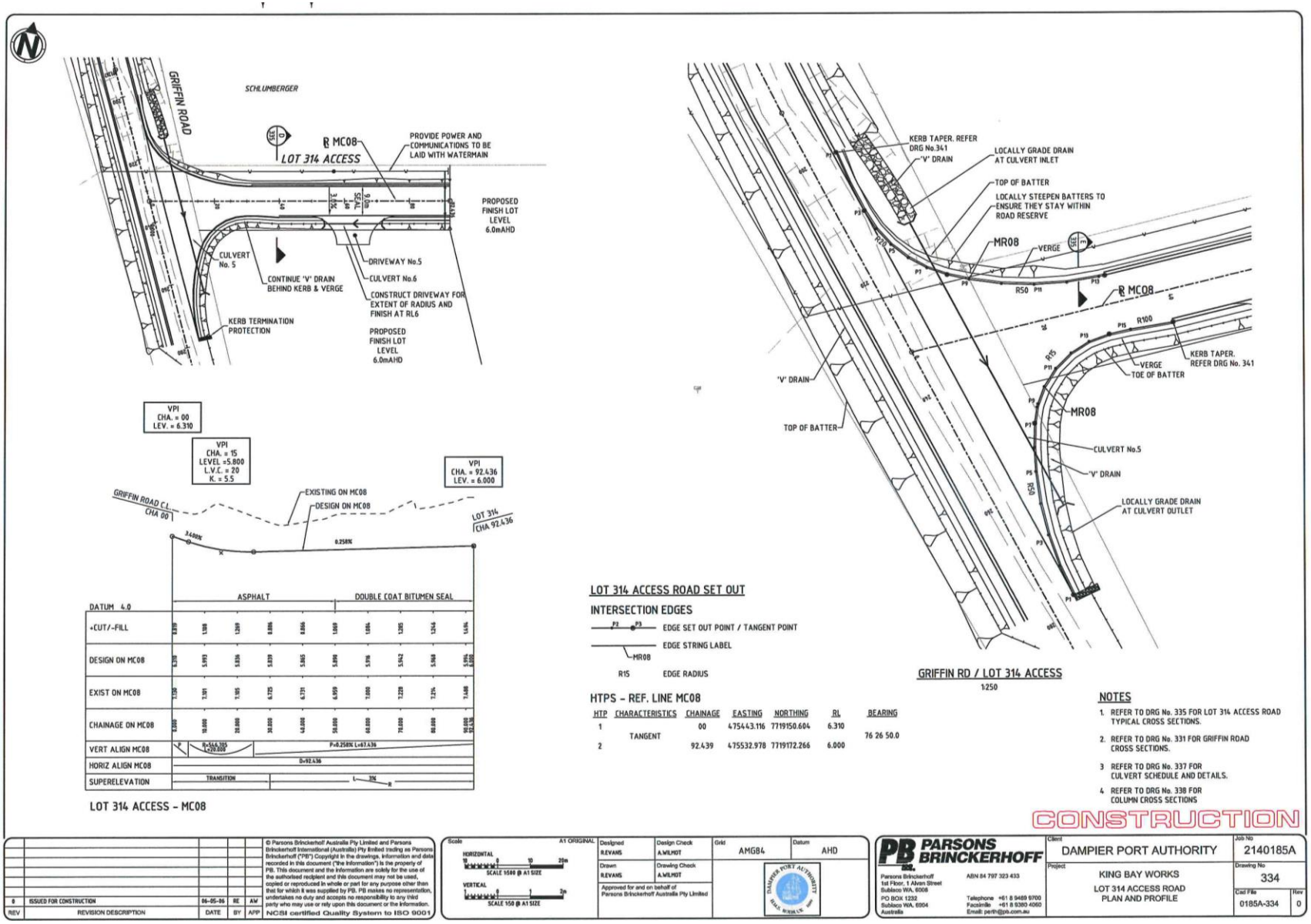
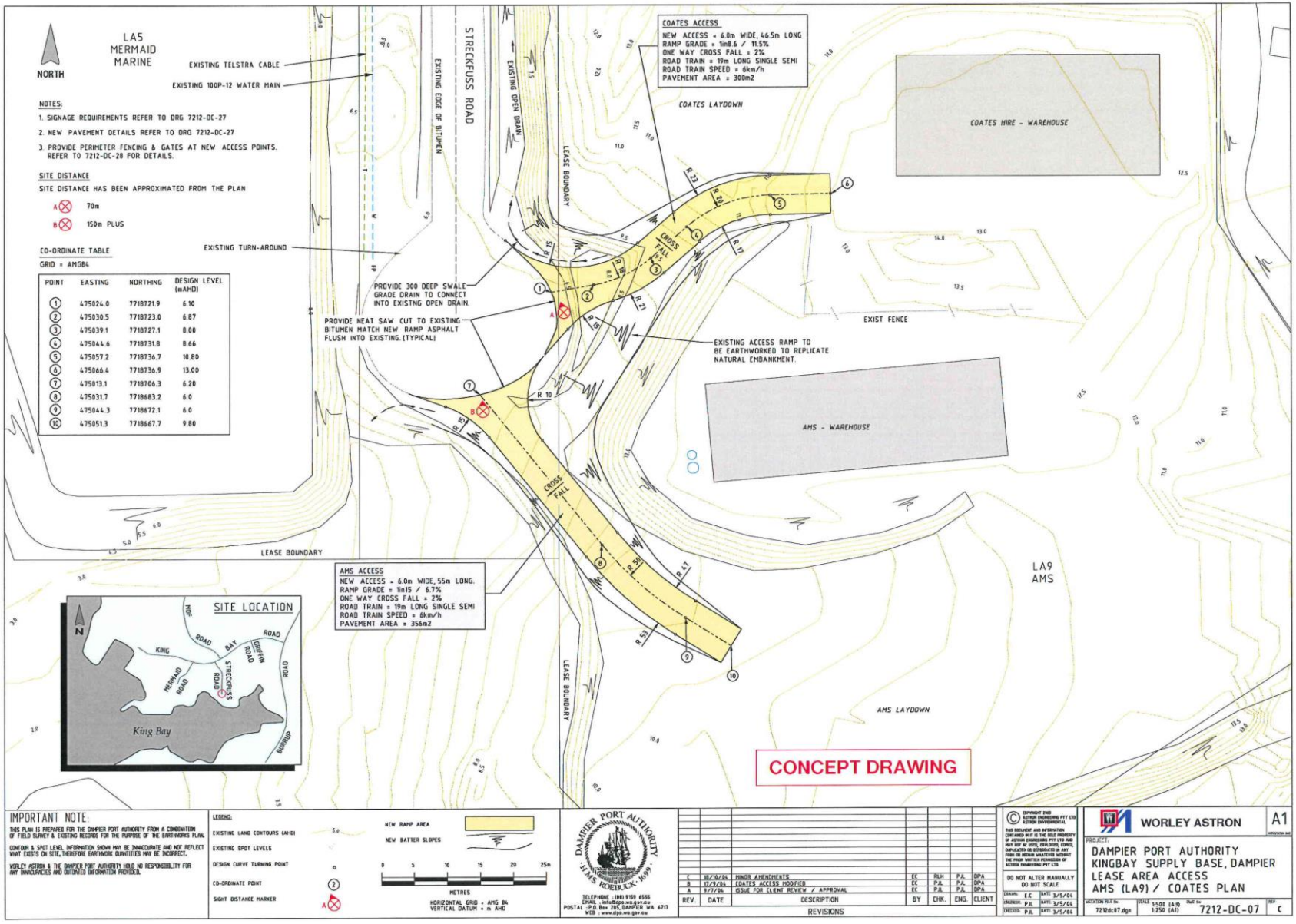
Client: DAMPIER PORT AUTHORITY
Project: KING BAY WORKS
GRIFFIN ROAD & LOT 314
WATER RETICULATION PLAN

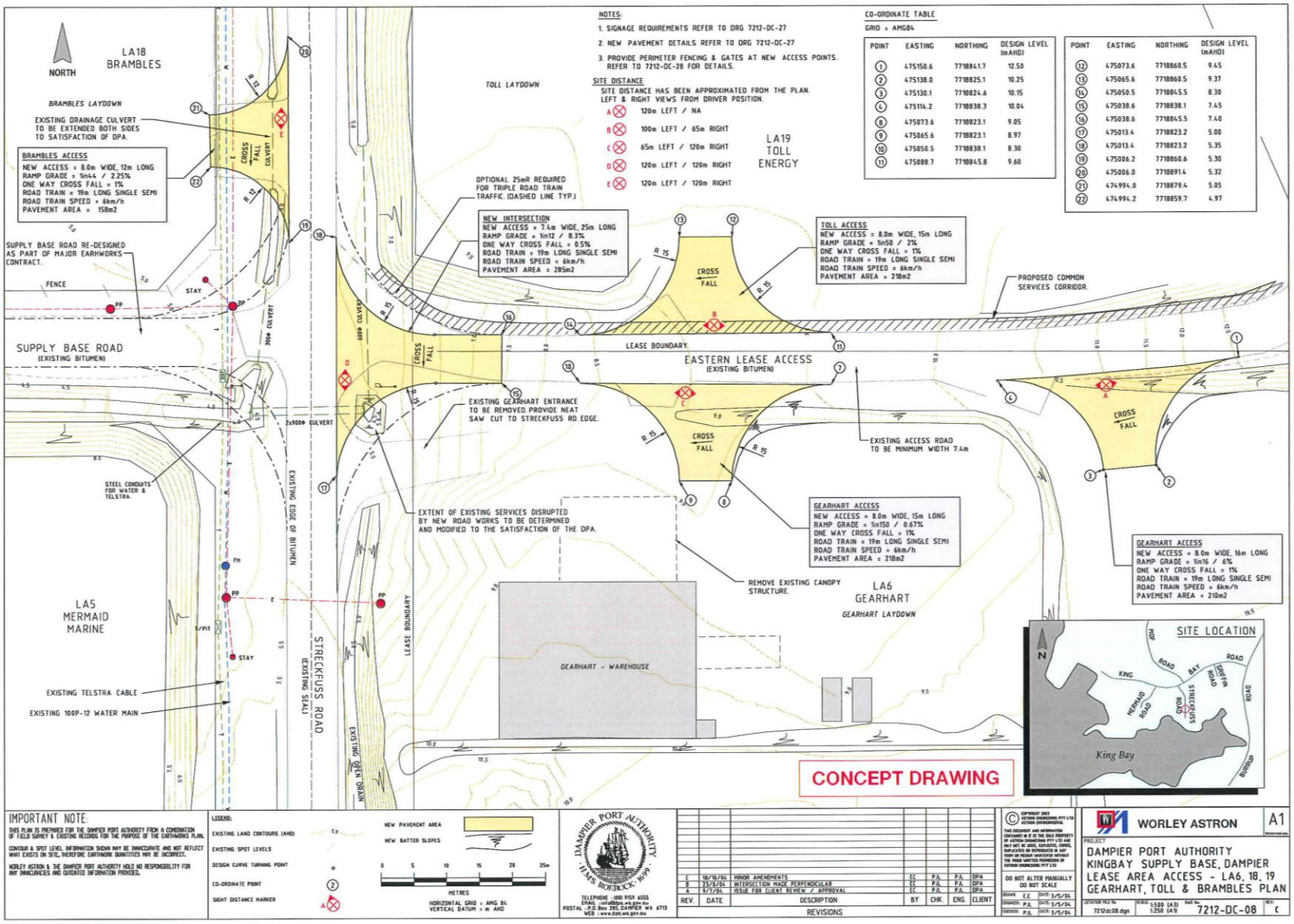
Job No: 2140185A
Drawing No: 333
Cad File: 0185A-333
Rev: B

J:\A652-ENG\PRO\A2140185A - Dampier Corridor Widening\drawings_King Bay\0185A-333.dwg



HTP	CHARACTERISTICS	CHAINAGE	EASTING	NORTHING	RL	BEARING
1	TANGENT	00	475443.116	7719150.604	6.310	76 26 50.0
2		92.439	475532.978	7719172.266	6.000	


LA5
MERMAID
MARINE
NORTH
EXISTING TELSTRA CABLE
EXISTING 100P-12 WATER MAIN
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN
A 70m
B 150m PLUS
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 475024.0 7718721.9 6.10
2 475030.5 7718723.0 6.87
3 475039.1 7718727.1 8.00
4 475044.6 7718731.8 8.66
5 475057.2 7718736.7 10.80
6 475066.4 7718736.9 13.00
7 475013.1 7718706.3 6.20
8 475031.7 7718683.2 6.0
9 475044.3 7718672.1 6.0
10 475051.3 7718667.7 9.80
EXISTING TURN-AROUND
PROVIDE 300 DEEP SWALE GRADE DRAIN TO CONNECT INTO EXISTNG OPEN DRAIN.
PROVIDE NEAT SAW CUT TO EXISTING BITUMEN MATCH NEW RAMP ASPHALT FLUSH INTO EXISTING. (TYPICAL)
STRECKFUSS ROAD
EXISTING EDGE OF BITUMEN
EXISTING OPEN DRAIN
LEASE BOUNDARY
COATES ACCESS
NEW ACCESS = 6.0m WIDE, 46.5m LONG
RAMP GRADE = 1in8.6 / 11.5%
ONE WAY CROSS FALL = 2%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 300m2
COATES LAYDOWN
COATES HIRE - WAREHOUSE
EXIST FENCE
EXISTING ACCESS RAMP TO BE EARTHWORKED TO REPLICATE NATURAL EMBANKMENT.
AMS - WAREHOUSE
AMS ACCESS
NEW ACCESS = 6.0m WIDE, 55m LONG.
RAMP GRADE = 1in15 / 6.7%
ONE WAY CROSS FALL = 2%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 356m2
LA9
AMS
AMS LAYDOWN
SITE LOCATION
King Bay
CONCEPT DRAWING
IMPORTANT NOTE:
THIS PLAN IS PREPARED FOR THE DAMPIER PORT AUTHORITY FROM A COMBINATION OF FIELD SURVEY & EXISTING RECORDS FOR THE PURPOSE OF THE EARTHWORKS PLAN.
CONTOUR & SPOT LEVEL INFORMATION SHOWN MAY BE INNACCURATE AND NOT REFLECT WHAT EXISTS ON SITE, THEREFORE EARTHWORK QUANTITIES MAY BE INCORRECT.
WORLEY ASTRON & THE DAMPIER PORT AUTHORITY HOLD NO RESPONSIBILITY FOR ANY INNACURACIES AND OUTDATED INFORMATION PROVIDED.
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW RAMP AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
REVISIONS
C 18/10/04 MINOR AMENDMENTS
B 17/9/04 COATES ACCESS MODIFIED
A 9/7/04 ISSUE FOR CLIENT REVIEW / APPROVAL
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
AMS (LA9) / COATES PLAN
7212-DC-07
C


NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
A 120m LEFT / NA
B 100m LEFT / 65m RIGHT
C 65m LEFT / 120m RIGHT
D 120m LEFT / 120m RIGHT
E 120m LEFT / 120m RIGHT
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 475150.6 7718841.7 12.50
2 475138.0 7718825.1 10.25
3 475130.1 7718824.6 10.15
4 475114.2 7718838.3 10.04
8 475073.6 7718823.1 9.05
9 475065.6 7718823.1 8.97
10 475050.5 7718838.1 8.30
11 475088.7 7718845.8 9.60
12 475073.6 7718860.5 9.45
13 475065.6 7718860.5 9.37
14 475050.5 7718845.5 8.30
15 475038.6 7718838.1 7.45
16 475038.6 7718845.5 7.40
17 475013.4 7718823.2 5.00
18 475013.4 7718823.2 5.35
19 475006.2 7718860.6 5.30
20 475006.0 7718891.4 5.32
21 474994.8 7718879.4 5.05
22 474994.2 7718859.7 4.97
LA18 BRAMBLES
NORTH
BRAMBLES LAYDOWN
EXISTING DRAINAGE CULVERT TO BE EXTENDED BOTH SIDES TO SATISFACTION OF DPA.
BRAMBLES ACCESS
NEW ACCESS = 8.0m WIDE, 12m LONG
RAMP GRADE = 1in14 / 2.25%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 158m2
SUPPLY BASE ROAD RE-DESIGNED AS PART OF MAJOR EARTHWORKS CONTRACT.
FENCE
SUPPLY BASE ROAD
(EXISTING BITUMEN)
TOLL LAYDOWN
LA19 TOLL ENERGY
OPTIONAL 25mR REQUIRED FOR TRIPLE ROAD TRAIN TRAFFIC (DASHED LINE TYP.)
NEW INTERSECTION
NEW ACCESS = 7.4m WIDE, 25m LONG
RAMP GRADE = 1in12 / 8.3%
ONE WAY CROSS FALL = 0.5%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 285m2
TOLL ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in50 / 2%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 218m2
PROPOSED COMMON SERVICES CORRIDOR.
LEASE BOUNDARY
EASTERN LEASE ACCESS
(EXISTING BITUMEN)
EXISTING GEARHART ENTRANCE TO BE REMOVED. PROVIDE NEAT SAW CUT TO STRECKFUSS RD. EDGE.
EXISTING ACCESS ROAD TO BE MINIMUM WIDTH 7.4m
GEARHART ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in150 / 0.67%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 218m2
GEARHART ACCESS
NEW ACCESS = 8.0m WIDE, 16m LONG
RAMP GRADE = 1in16 / 6%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 218m2
EXTENT OF EXISTING SERVICES DISRUPTED BY NEW ROAD WORKS TO BE DETERMINED AND MODIFIED TO THE SATISFACTION OF THE DPA.
REMOVE EXISTING CANOPY STRUCTURE.
LA6 GEARHART
GEARHART LAYDOWN
GEARHART - WAREHOUSE
LA5 MERMAID MARINE
STEEL CONDUITS FOR WATER & TELSTRA.
EXISTING TELSTRA CABLE
EXISTING 100P-12 WATER MAIN
STRECKFUSS ROAD
(EXISTING SEAL)
EXISTING EDGE OF BITUMEN
EXISTING OPEN DRAIN
CROSS FALL
SITE LOCATION
King Bay
CONCEPT DRAWING
IMPORTANT NOTE:
THIS PLAN IS PREPARED FOR THE DAMPIER PORT AUTHORITY FROM A COMBINATION OF FIELD SURVEY & EXISTING RECORDS FOR THE PURPOSE OF THE EARTHWORKS PLANS.
CONTOUR & SPOT LEVEL INFORMATION SHOWN MAY BE INNACCURATE AND NOT REFLECT WHAT EXISTS ON SITE, THEREFORE EARTHWORK QUANTITIES MAY BE INCORRECT.
WORLEY ASTRON & THE DAMPIER PORT AUTHORITY HOLD NO RESPONSIBILITY FOR ANY INNACURACIES AND OUTDATED INFORMATION PROVIDED.
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
HARRY ROEBUCK 1699
TELEPHONE (08) 9159 6555
EMAIL info@dpa.wa.gov.au
POSTAL P.O. Box 295, DAMPIER WA 6713
WEB www.dpa.wa.gov.au
REV. DATE DESCRIPTION BY CHK ENG. CLIENT
C 18/8/06 MINOR AMENDMENTS EC PA PA DPA
B 23/8/06 INTERSECTION MADE PERPENDICULAR EC PA PA DPA
A 9/7/06 ISSUE FOR CLIENT REVIEW / APPROVAL EC PA PA DPA
REVISIONS
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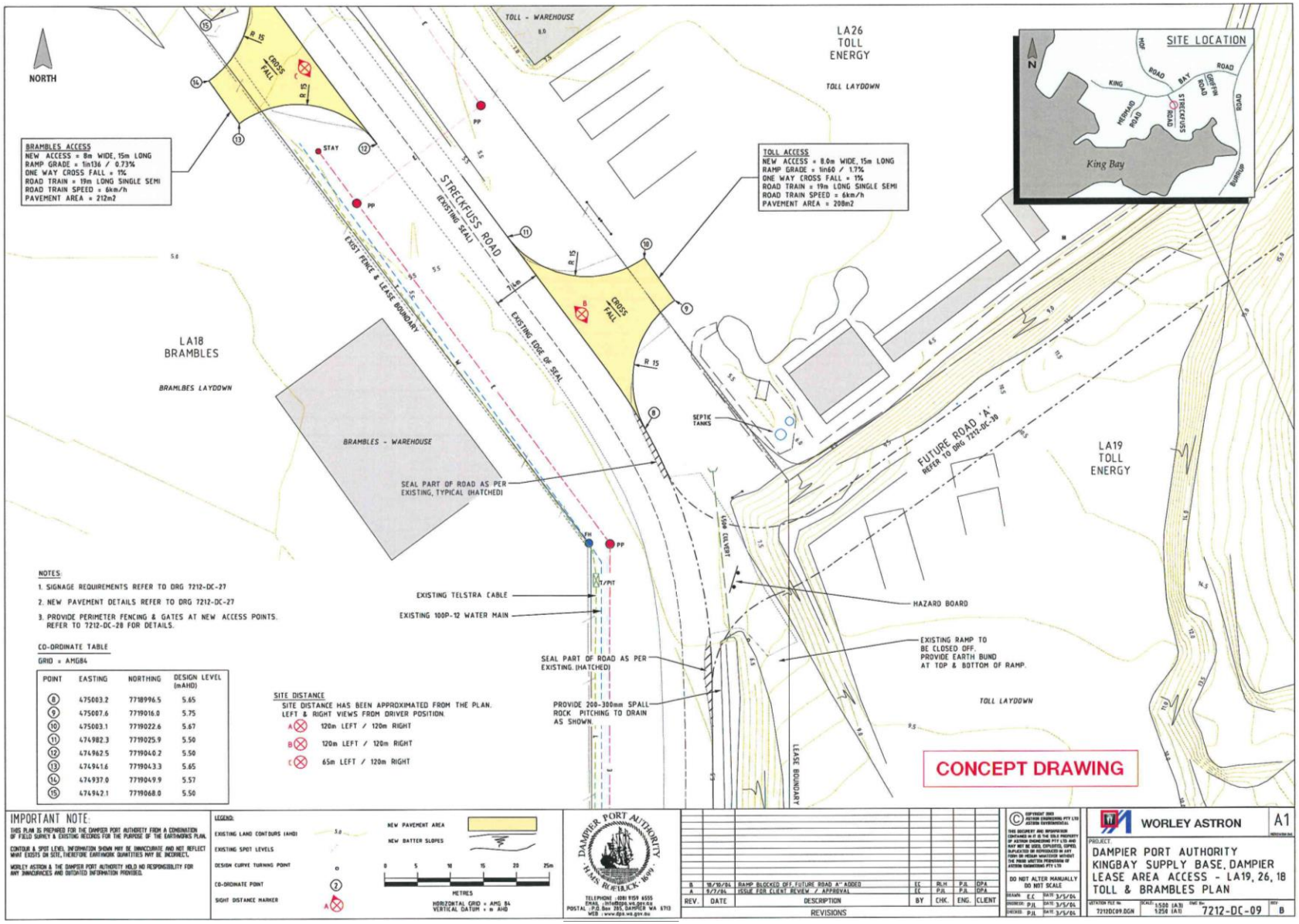
DO NOT ALTER MANUALLY DO NOT SCALE
Drawn EC DATE 3/5/06
ENGINEER PA DATE 3/5/06
CHECKED PA DATE 3/5/06
WORLEY ASTRON
A1
PROJECT
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS - LA6, 18, 19
GEARHART, TOLL & BRAMBLES PLAN
7212dc08.dgn
SCALE 1:500 (A3) 1:250 (A1)
DWG No. 7212-DC-08
REV. C


NORTH
LA26 TOLL ENERGY
TOLL LAYDOWN
TOLL - WAREHOUSE
SITE LOCATION
King Bay
BRAMBLES ACCESS
NEW ACCESS = 8m WIDE, 15m LONG
RAMP GRADE = 1in136 / 0.73%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 212m2
TOLL ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in60 / 1.7%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 208m2
STRECKFUSS ROAD
EXISTING SEAL
EXIST FENCE & LEASE BOUNDARY
EXISTING EDGE OF SEAL
CROSS FALL
LA18 BRAMBLES
BRAMLBES LAYDOWN
BRAMBLES - WAREHOUSE
SEPTIC TANKS
FUTURE ROAD 'A' REFER TO DRG 7212-DC-30
LA19 TOLL ENERGY
SEAL PART OF ROAD AS PER EXISTING, TYPICAL (HATCHED)
1500 CULVERT
EXISTING TELSTRA CABLE
EXISTING 100P-12 WATER MAIN
T/PIT
HAZARD BOARD
EXISTING RAMP TO BE CLOSED OFF. PROVIDE EARTH BUND AT TOP & BOTTOM OF RAMP.
SEAL PART OF ROAD AS PER EXISTING (HATCHED)
PROVIDE 200-300mm SPALL ROCK PITCHING TO DRAIN AS SHOWN.
TOLL LAYDOWN
LEASE BOUNDARY
CONCEPT DRAWING
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
CO-ORDINATE TABLE
GRID = AMG84
POINT | EASTING | NORTHING | DESIGN LEVEL (mAHD)
8 | 475083.2 | 7718996.5 | 5.65
9 | 475087.6 | 7719016.0 | 5.75
10 | 475083.1 | 7719022.6 | 5.67
11 | 474982.3 | 7719025.9 | 5.50
12 | 474962.5 | 7719040.2 | 5.50
13 | 474941.6 | 7719043.3 | 5.65
14 | 474937.0 | 7719049.9 | 5.57
15 | 474942.1 | 7719068.0 | 5.50
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN.
LEFT & RIGHT VIEWS FROM DRIVER POSITION.
A 120m LEFT / 120m RIGHT
B 120m LEFT / 120m RIGHT
C 65m LEFT / 120m RIGHT
IMPORTANT NOTE:
THIS PLAN IS PREPARED FOR THE DAMPIER PORT AUTHORITY FROM A COMBINATION OF FIELD SURVEY & EXISTING RECORDS FOR THE PURPOSE OF THE EARTHWORKS PLAN.
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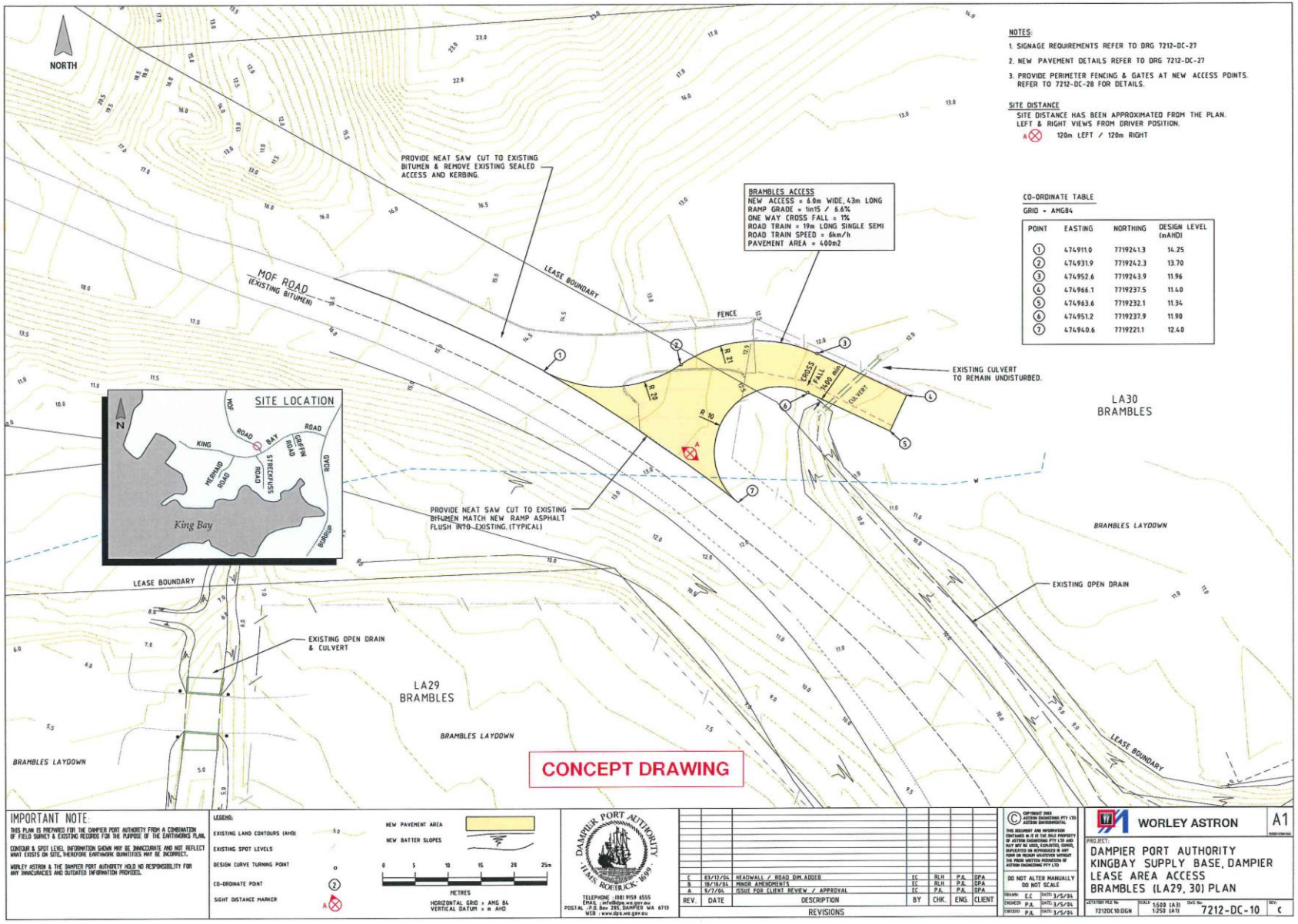
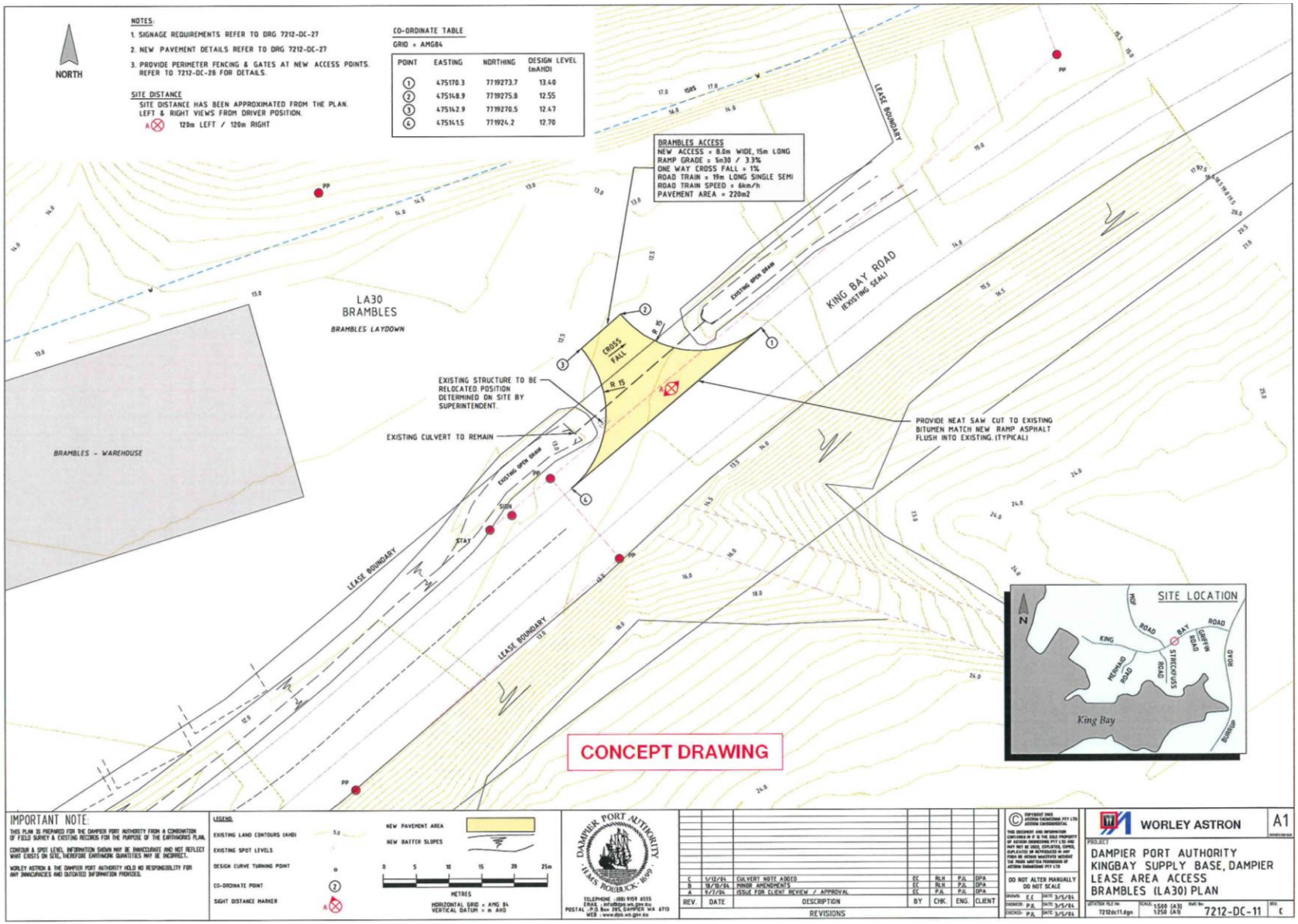
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
HARS ROEBUCK
TELEPHONE (08) 9159 6555
EMAIL info@dpa.wa.gov.au
POSTAL P.O.Box 385, DAMPIER WA 6713
WEB www.dpa.wa.gov.au
REV. DATE DESCRIPTION BY CHK. ENG. CLIENT
B 18/10/04 RAMP BLOCKED OFF, FUTURE ROAD A" ADDED EC RLH PJL DPA
A 9/7/04 ISSUE FOR CLIENT REVIEW / APPROVAL EC PJL PJL DPA
REVISIONS
DO NOT ALTER MANUALLY DO NOT SCALE
DRAWN: E.C DATE: 3/5/04
ENGINEER: P.J.L DATE: 3/5/04
CHECKED: P.J.L DATE: 3/5/04
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS - LA19, 26, 18
TOLL & BRAMBLES PLAN
7212DC09.DGN
SCALE: 1:500 (A3) 1:250 (A1)
7212-DC-09
B


NORTH
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
120m LEFT / 120m RIGHT
PROVIDE NEAT SAW CUT TO EXISTING BITUMEN & REMOVE EXISTING SEALED ACCESS AND KERBING.
BRAMBLES ACCESS
NEW ACCESS = 6.0m WIDE, 43m LONG
RAMP GRADE = 1in15 / 6.6%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 400m2
CO-ORDINATE TABLE
GRID = AMG84
POINT | EASTING | NORTHING | DESIGN LEVEL (mAHD)
1 | 474911.0 | 7719241.3 | 14.25
2 | 474931.9 | 7719242.3 | 13.70
3 | 474952.6 | 7719243.9 | 11.96
4 | 474966.1 | 7719237.5 | 11.40
5 | 474963.6 | 7719232.1 | 11.34
6 | 474951.2 | 7719237.9 | 11.90
7 | 474940.6 | 7719221.1 | 12.40
MOF ROAD (EXISTING BITUMEN)
LEASE BOUNDARY
FENCE
EXISTING CULVERT TO REMAIN UNDISTURBED.
CROSS FALL 1:100 (min)
CULVERT
R 21
R 20
R 10
SITE LOCATION
N
MOF ROAD
KING BAY ROAD
GRIFFIN ROAD
HERMAID ROAD
STRECKFUSS ROAD
BURROUP ROAD
King Bay
LA30 BRAMBLES
BRAMBLES LAYDOWN
PROVIDE NEAT SAW CUT TO EXISTING BITUMEN MATCH NEW RAMP ASPHALT FLUSH INTO EXISTING. (TYPICAL)
EXISTING OPEN DRAIN
LEASE BOUNDARY
EXISTING OPEN DRAIN & CULVERT
LA29 BRAMBLES
BRAMBLES LAYDOWN
BRAMBLES LAYDOWN
LEASE BOUNDARY
CONCEPT DRAWING
IMPORTANT NOTE:
THIS PLAN IS PREPARED FOR THE DAMPIER PORT AUTHORITY FROM A COMBINATION OF FIELD SURVEY & EXISTING RECORDS FOR THE PURPOSE OF THE EARTHWORKS PLAN.
CONTOUR & SPOT LEVEL INFORMATION SHOWN MAY BE INNACCURATE AND NOT REFLECT WHAT EXISTS ON SITE, THEREFORE EARTHWORK QUANTITIES MAY BE INCORRECT.
WORLEY ASTRON & THE DAMPIER PORT AUTHORITY HOLD NO RESPONSIBILITY FOR ANY INNACURACIES AND OUTDATED INFORMATION PROVIDED.
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
JAMES ROEBUCK 1699
TELEPHONE (08) 9159 6555
POSTAL : P.O. Box 295, DAMPIER WA 6713
C 03/12/04 HEADWALL / ROAD DIM ADDED EC RLH PJL DPA
B 18/10/04 MINOR AMENDMENTS EC RLH PJL DPA
A 9/7/04 ISSUE FOR CLIENT REVIEW / APPROVAL EC PJL PJL DPA
REV. DATE DESCRIPTION BY CHK. ENG. CLIENT
REVISIONS
DO NOT ALTER MANUALLY
DO NOT SCALE
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
BRAMBLES (LA29, 30) PLAN
7212DC10.DGN
1:500 (A3)
1:250 (A1)
7212-DC-10
C


NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
120m LEFT / 120m RIGHT
NORTH
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 475170.3 7719273.7 13.40
2 475148.9 7719275.8 12.55
3 475142.9 7719270.5 12.47
4 475141.5 771924.2 12.70
BRAMBLES ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in30 / 3.3%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 220m2
LEASE BOUNDARY
KING BAY ROAD (EXISTING SEAL)
LA30 BRAMBLES
BRAMBLES LAYDOWN
BRAMBLES - WAREHOUSE
CROSS FALL
R 15
EXISTING STRUCTURE TO BE RELOCATED. POSITION DETERMINED ON SITE BY SUPERINTENDENT.
EXISTING CULVERT TO REMAIN
PROVIDE NEAT SAW CUT TO EXISTING BITUMEN MATCH NEW RAMP ASPHALT FLUSH INTO EXISTING. (TYPICAL)
EXISTING OPEN DRAIN
SIGN
STAY
PP
SITE LOCATION
N
King Bay
CONCEPT DRAWING
IMPORTANT NOTE:
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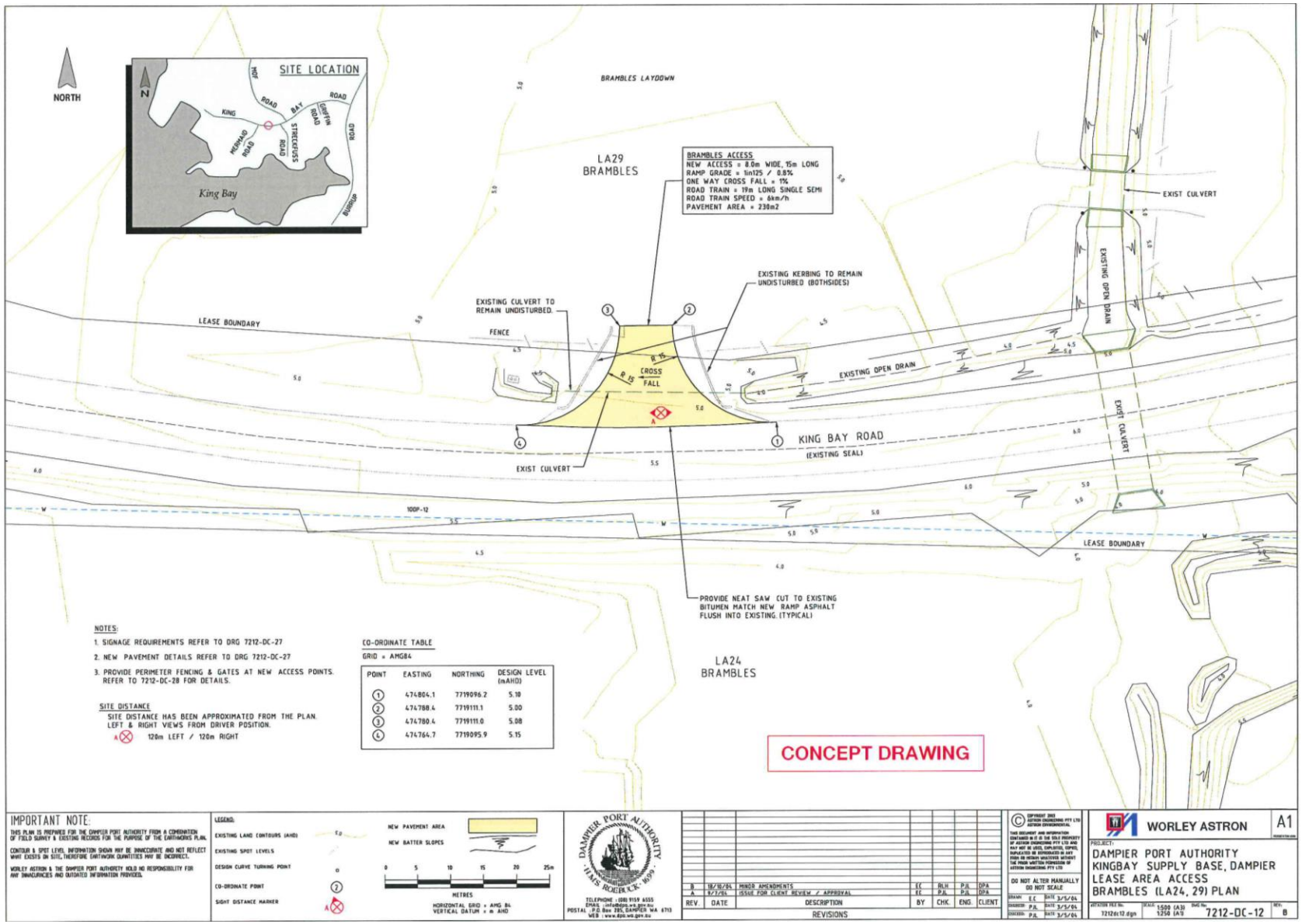
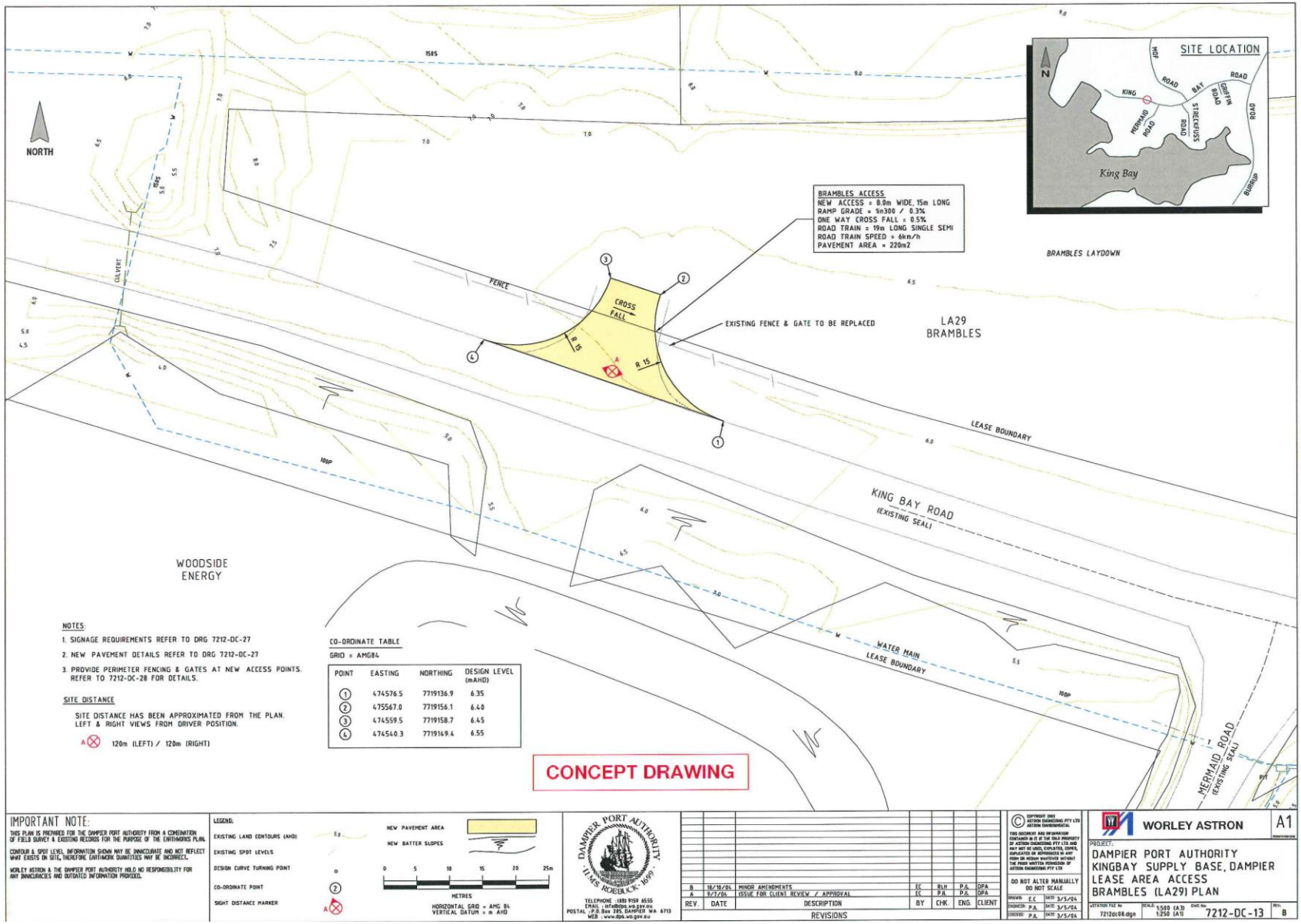
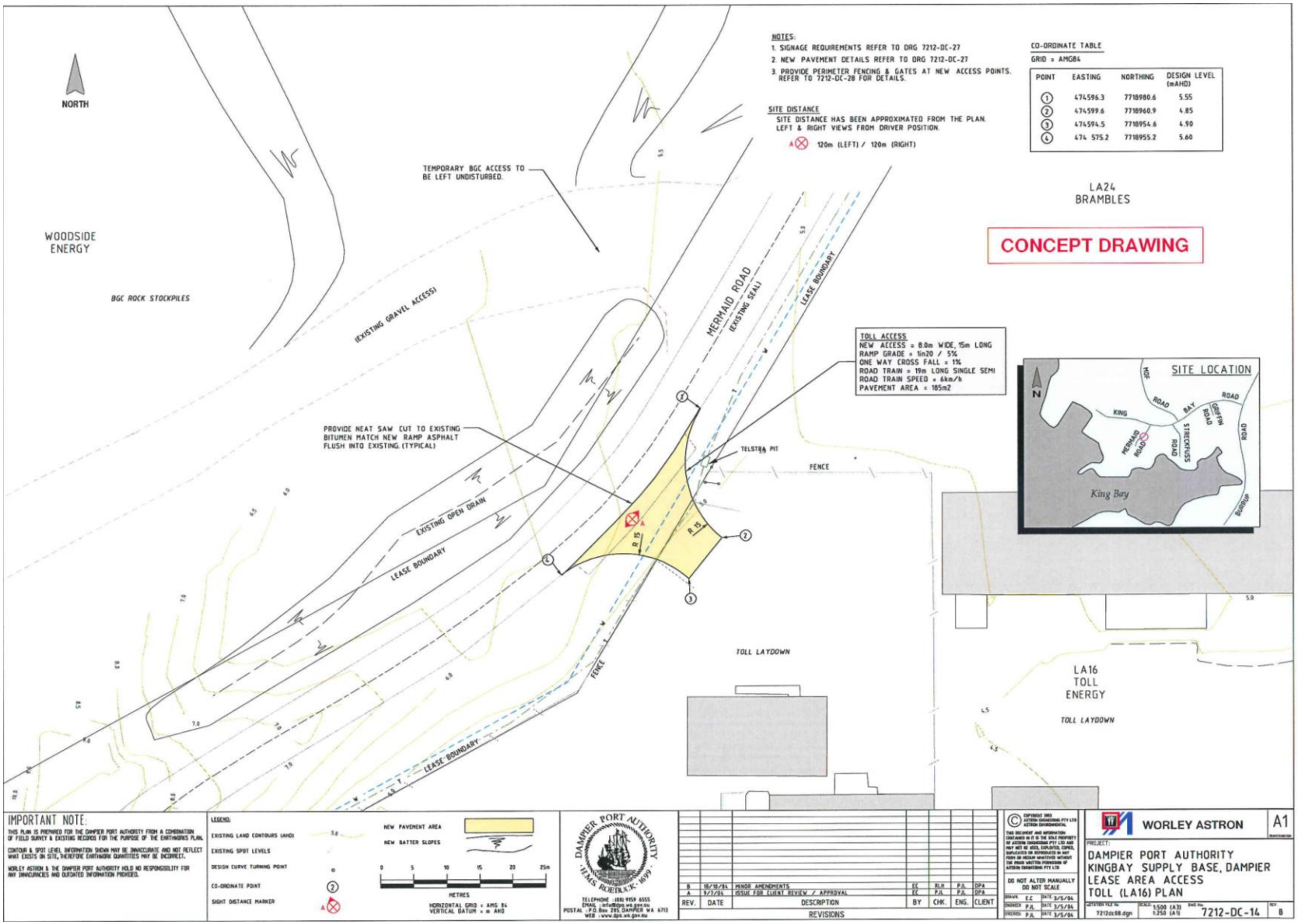
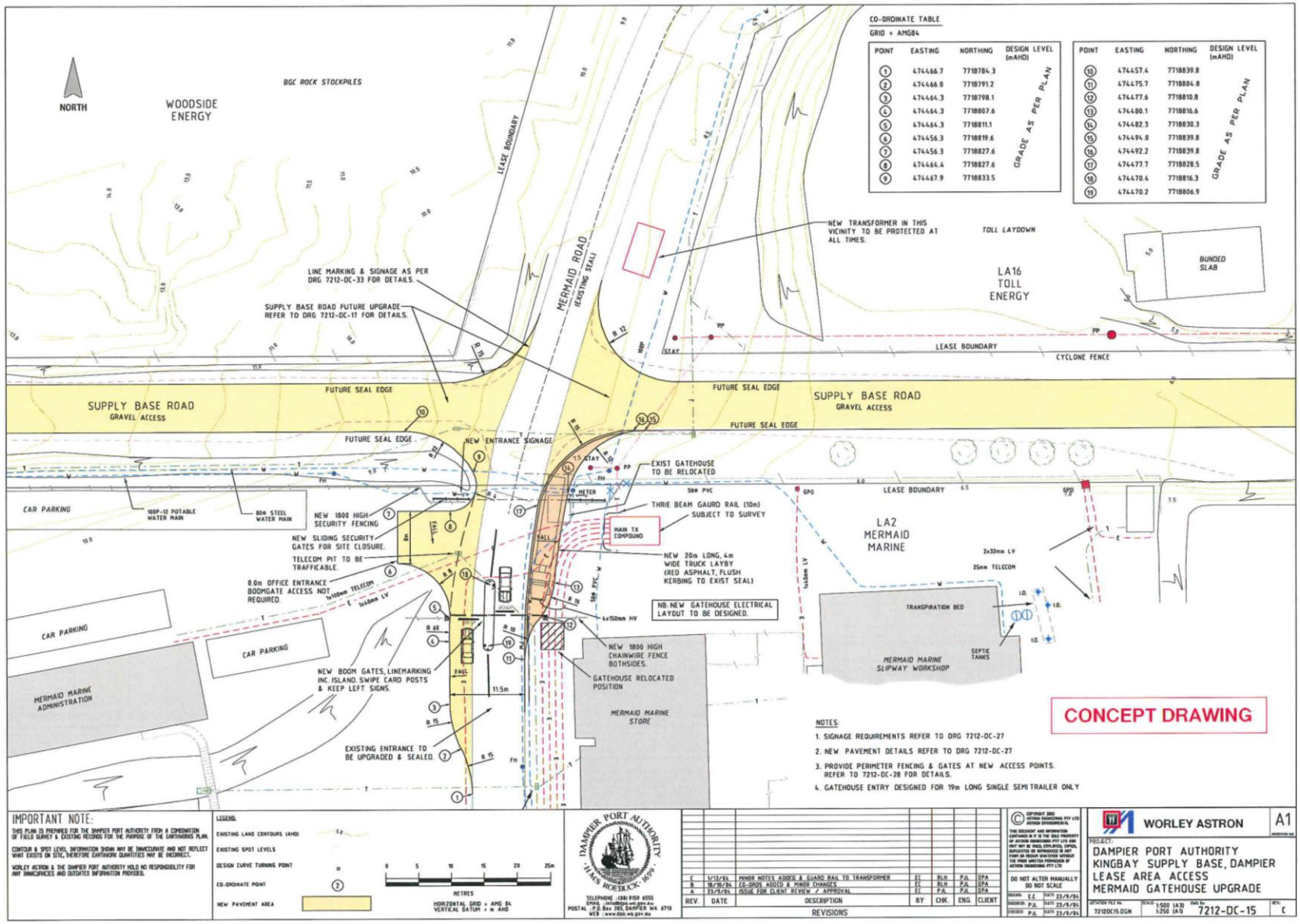
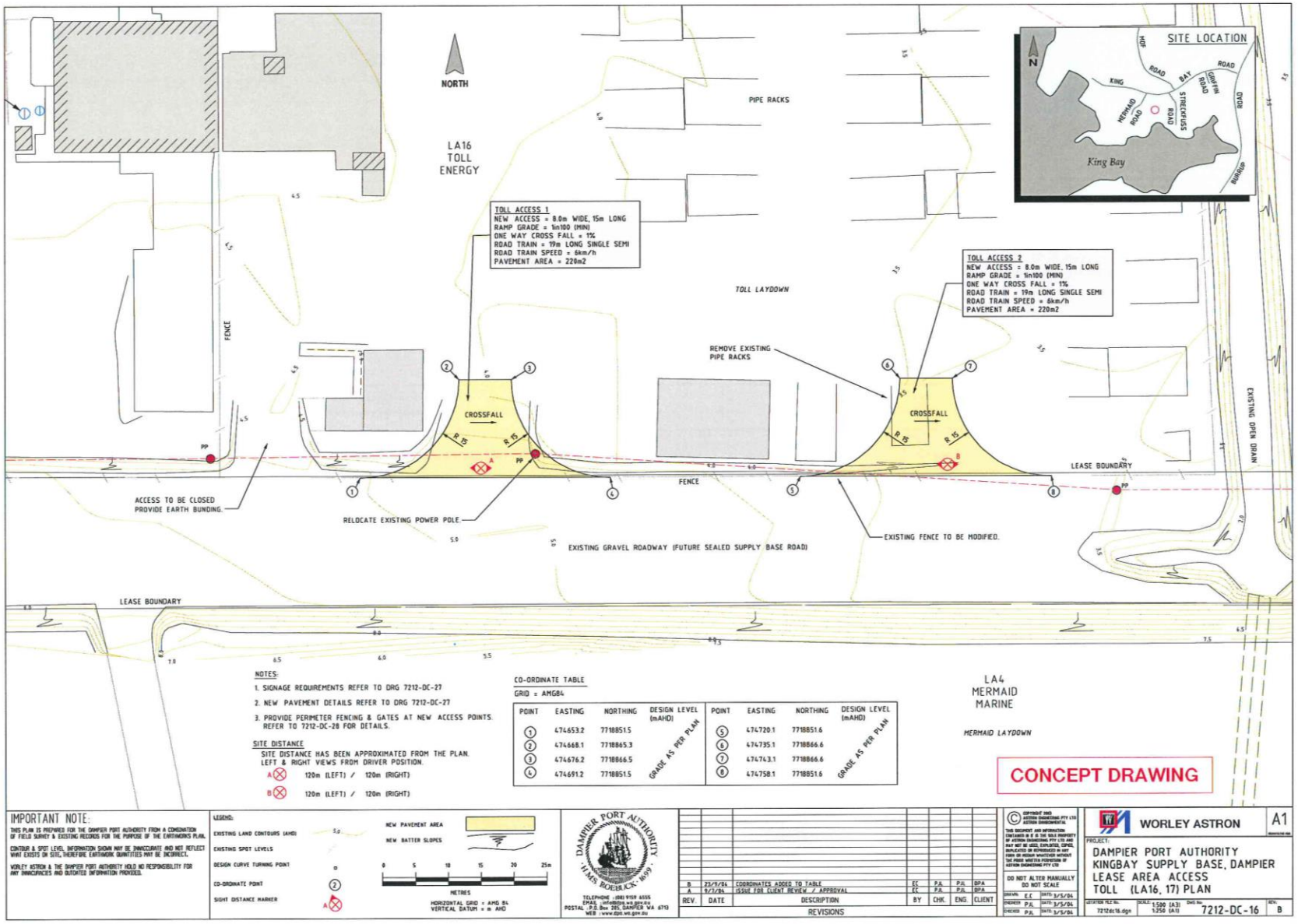
CONTOUR & SPOT LEVEL INFORMATION SHOWN MAY BE INACCURATE AND NOT REFLECT WHAT EXISTS ON SITE, THEREFORE EARTHWORK QUANTITIES MAY BE INCORRECT.
WORLEY ASTRON & THE DAMPIER PORT AUTHORITY HOLD NO RESPONSIBILITY FOR ANY INACCURACIES AND OUTDATED INFORMATION PROVIDED.
LEGEND
EXISTING LAND CONTOURS (mAHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
HMAS ROEBUCK 1969
REV. DATE DESCRIPTION BY CHK. ENG. CLIENT
C 5/12/84 CULVERT NOTE ADDED EC RLH P.A. DPA
B 28/10/84 MINOR AMENDMENTS EC RLH P.A. DPA
A 9/7/84 ISSUE FOR CLIENT REVIEW / APPROVAL EC P.A. P.A. DPA
REVISIONS
DO NOT ALTER MANUALLY DO NOT SCALE
WORLEY ASTRON
A1
PROJECT
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
BRAMBLES (LA30) PLAN
7212-DC-11
REV. C

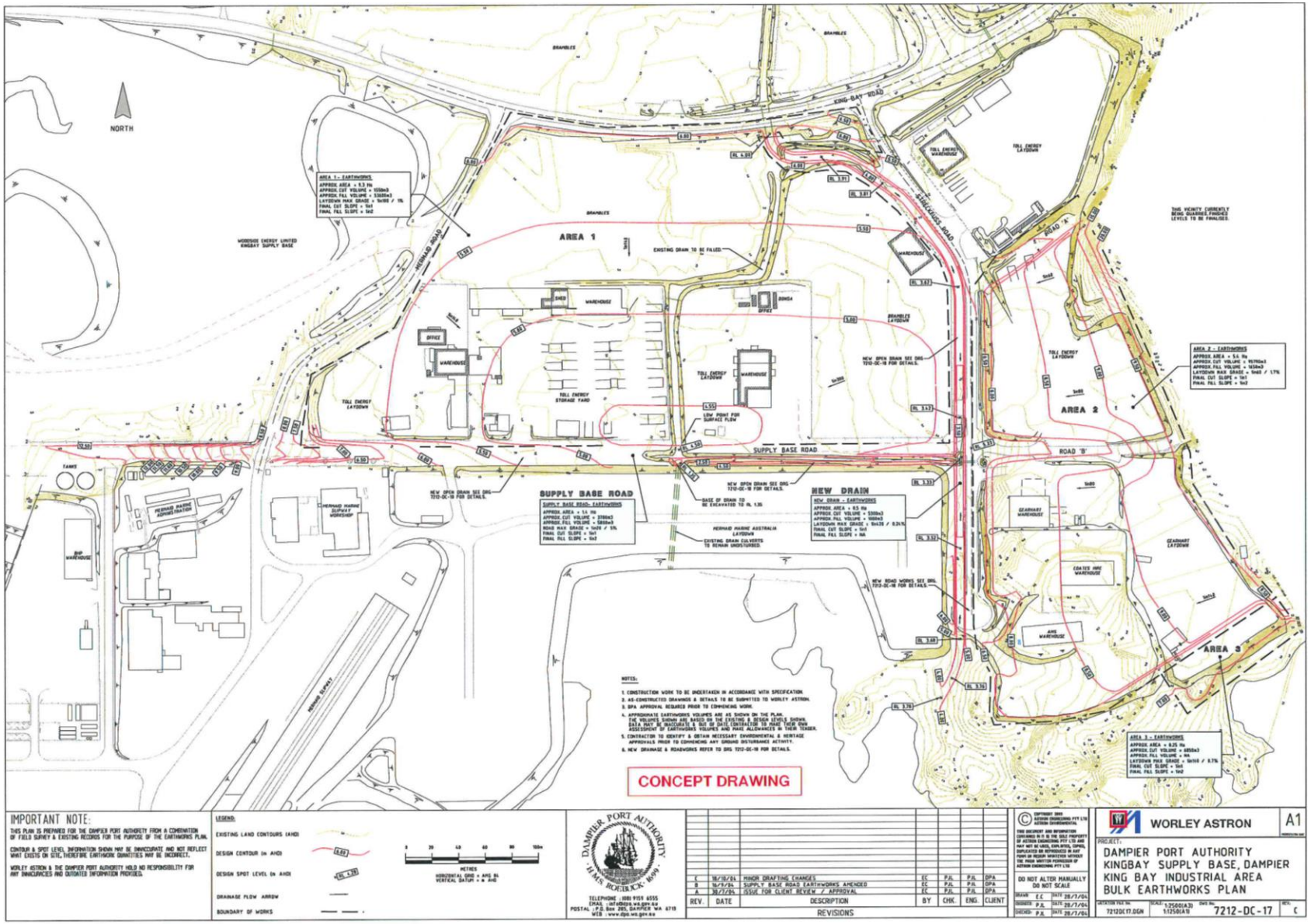

NORTH
SITE LOCATION
King Bay
BRAMBLES LAYDOWN
LA29
BRAMBLES
BRAMBLES ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in125 / 0.8%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 230m2
EXISTING KERBING TO REMAIN UNDISTURBED (BOTHSIDES)
EXISTING CULVERT TO REMAIN UNDISTURBED.
LEASE BOUNDARY
FENCE
CROSS FALL
EXISTING OPEN DRAIN
EXIST CULVERT
KING BAY ROAD
(EXISTING SEAL)
EXIST CULVERT
PROVIDE NEAT SAW CUT TO EXISTING BITUMEN MATCH NEW RAMP ASPHALT FLUSH INTO EXISTING. (TYPICAL)
LA24
BRAMBLES
LEASE BOUNDARY
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
A 120m LEFT / 120m RIGHT
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 474804.1 7719096.2 5.10
2 474788.4 7719111.1 5.00
3 474780.4 7719111.0 5.08
4 474764.7 7719095.9 5.15
CONCEPT DRAWING
IMPORTANT NOTE:
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
BRAMBLES (LA24, 29) PLAN
7212-DC-12

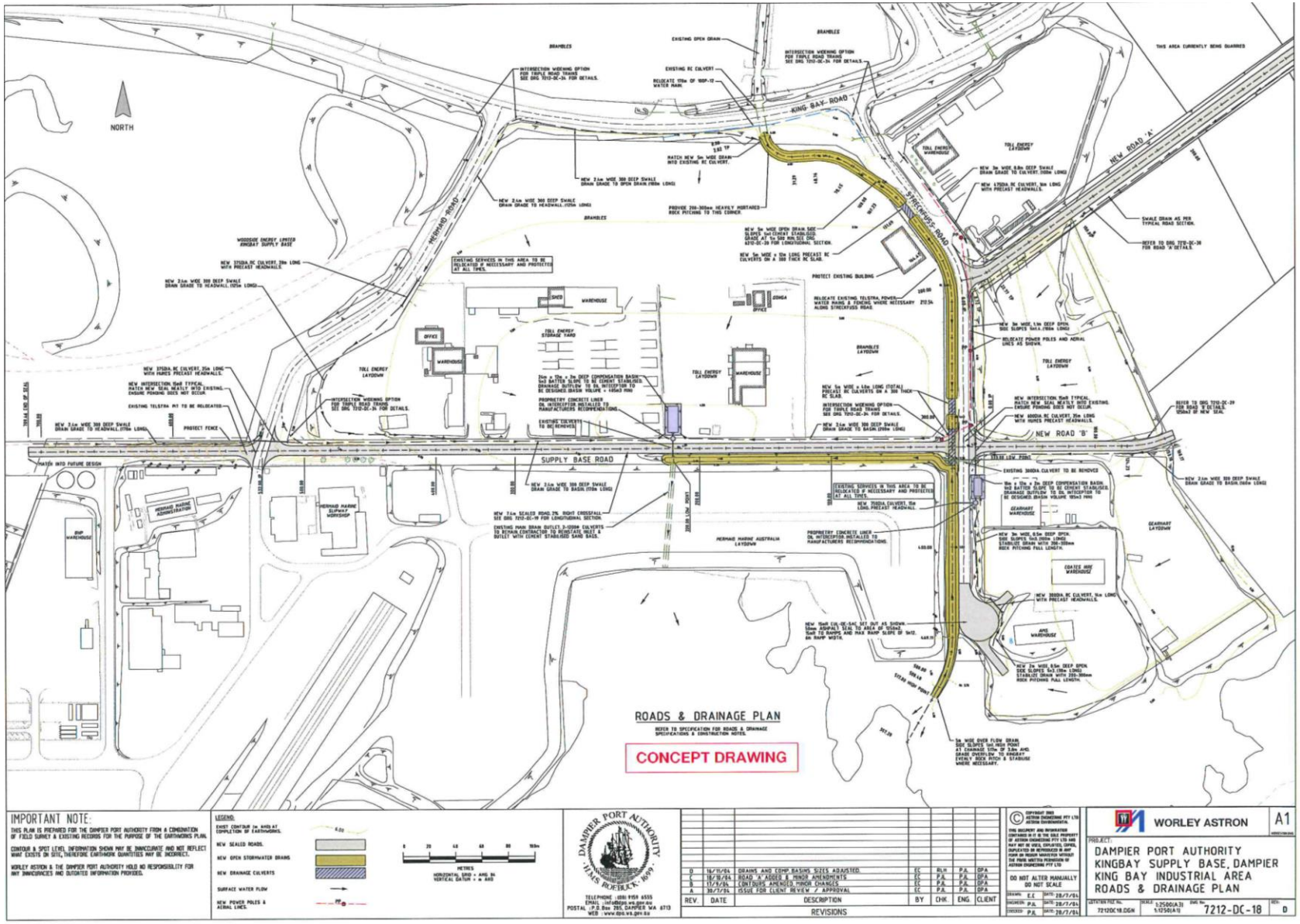

SITE LOCATION
King Bay
NORTH
BRAMBLES ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in300 / 0.3%
ONE WAY CROSS FALL = 0.5%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 220m2
BRAMBLES LAYDOWN
FENCE
CROSS FALL
EXISTING FENCE & GATE TO BE REPLACED
LA29 BRAMBLES
LEASE BOUNDARY
KING BAY ROAD (EXISTING SEAL)
WOODSIDE ENERGY
WATER MAIN
MERMAID ROAD (EXISTING SEAL)
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
120m (LEFT) / 120m (RIGHT)
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 474576.5 7719136.9 6.35
2 475567.0 7719156.1 6.40
3 474559.5 7719158.7 6.45
4 474540.3 7719149.4 6.55
CONCEPT DRAWING
IMPORTANT NOTE:
LEGEND:
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
DAMPIER PORT AUTHORITY
REVISIONS
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
BRAMBLES (LA29) PLAN
7212-DC-13
B


NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
120m (LEFT) / 120m (RIGHT)
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 474596.3 7718980.6 5.55
2 474599.6 7718960.9 4.85
3 474594.5 7718954.6 4.90
4 474 575.2 7718955.2 5.60
NORTH
TEMPORARY BGC ACCESS TO BE LEFT UNDISTURBED.
WOODSIDE ENERGY
BGC ROCK STOCKPILES
(EXISTING GRAVEL ACCESS)
MERMAID ROAD (EXISTING SEAL)
LEASE BOUNDARY
LA24 BRAMBLES
CONCEPT DRAWING
TOLL ACCESS
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in20 / 5%
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 185m2
PROVIDE NEAT SAW CUT TO EXISTING BITUMEN MATCH NEW RAMP ASPHALT FLUSH INTO EXISTING (TYPICAL)
TELSTRA PIT
FENCE
EXISTING OPEN DRAIN
LEASE BOUNDARY
R15
R15
TOLL LAYDOWN
LA16 TOLL ENERGY
TOLL LAYDOWN
SITE LOCATION
N
HSF ROAD
KING BAY ROAD
GRIFFIN ROAD
STRECKFUSS ROAD
MERMAID ROAD
BURDON ROAD
King Bay
IMPORTANT NOTE:
THIS PLAN IS PREPARED FOR THE DAMPIER PORT AUTHORITY FROM A COMBINATION OF FIELD SURVEY & EXISTING RECORDS FOR THE PURPOSE OF THE EARTHWORKS PLAN.
CONTOUR & SPOT LEVEL INFORMATION SHOWN MAY BE INNACCURATE AND NOT REFLECT WHAT EXISTS ON SITE, THEREFORE EARTHWORK QUANTITIES MAY BE INCORRECT.
WORLEY ASTRON & THE DAMPIER PORT AUTHORITY HOLD NO RESPONSIBILITY FOR ANY INNACURACIES AND OUTDATED INFORMATION PROVIDED.
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
B 18/10/04 MINOR AMENDMENTS EC RLH PA DPA
A 3/12/04 ISSUE FOR CLIENT REVIEW / APPROVAL EC PA PA DPA
REV. DATE DESCRIPTION BY CHK. ENG. CLIENT
REVISIONS
DO NOT ALTER MANUALLY DO NOT SCALE
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
TOLL (LA16) PLAN
7212dc08.dgn
1:500 (A3) 1:250 (A1)
7212-DC-14
B


CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 474466.7 7718784.3
2 474466.0 7718791.2
3 474464.3 7718798.1
4 474464.3 7718807.6
5 474464.3 7718811.1
6 474456.3 7718819.6
7 474456.3 7718827.6
8 474464.4 7718827.6
9 474467.9 7718833.5
GRADE AS PER PLAN
10 474457.4 7718839.8
11 474475.7 7718804.8
12 474477.6 7718810.8
13 474480.1 7718816.6
14 474482.3 7718830.3
15 474494.0 7718839.8
16 474492.2 7718839.8
17 474477.7 7718828.5
18 474470.4 7718816.3
19 474470.2 7718806.9
GRADE AS PER PLAN
NORTH
WOODSIDE ENERGY
BGC ROCK STOCKPILES
LEASE BOUNDARY
MERMAID ROAD (EXISTING SEAL)
NEW TRANSFORMER IN THIS VICINITY TO BE PROTECTED AT ALL TIMES.
TOLL LAYDOWN
BUNDED SLAB
LA16 TOLL ENERGY
LINE MARKING & SIGNAGE AS PER DRG 7212-DC-33 FOR DETAILS.
SUPPLY BASE ROAD FUTURE UPGRADE REFER TO DRG 7212-DC-17 FOR DETAILS.
LEASE BOUNDARY
CYCLONE FENCE
FUTURE SEAL EDGE
SUPPLY BASE ROAD
GRAVEL ACCESS
NEW ENTRANCE SIGNAGE
EXIST GATEHOUSE TO BE RELOCATED
CAR PARKING
100P-12 POTABLE WATER MAIN
80ø STEEL WATER MAIN
NEW 1800 HIGH SECURITY FENCING
NEW SLIDING SECURITY GATES FOR SITE CLOSURE.
TELECOM PIT TO BE TRAFFICABLE.
8.0m OFFICE ENTRANCE BOOMGATE ACCESS NOT REQUIRED.
THRIE BEAM GAURD RAIL (10m) SUBJECT TO SURVEY
MAIN TX COMPOUND
NEW 20m LONG, 4m WIDE TRUCK LAYBY (RED ASPHALT, FLUSH KERBING TO EXIST SEAL)
NB. NEW GATEHOUSE ELECTRICAL LAYOUT TO BE DESIGNED.
LA2 MERMAID MARINE
TRANSPIRATION BED
SEPTIC TANKS
MERMAID MARINE SLIPWAY WORKSHOP
MERMAID MARINE ADMINISTRATION
MERMAID MARINE STORE
NEW 1800 HIGH CHAINWIRE FENCE BOTHSIDES.
GATEHOUSE RELOCATED POSITION
NEW BOOM GATES, LINEMARKING INC. ISLAND, SWIPE CARD POSTS & KEEP LEFT SIGNS.
EXISTING ENTRANCE TO BE UPGRADED & SEALED.
CONCEPT DRAWING
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
4. GATEHOUSE ENTRY DESIGNED FOR 19m LONG SINGLE SEMI TRAILER ONLY
IMPORTANT NOTE:
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
NEW PAVEMENT AREA
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
REVISIONS
REV. DATE DESCRIPTION BY CHK. ENG. CLIENT
C 5/12/05 MINOR NOTES ADDED & GUARD RAIL TO TRANSFORMER EC RLN PA DPA
B 18/8/04 CO-ORDS ADDED & MINOR CHANGES EC RLN PA DPA
A 23/8/04 ISSUE FOR CLIENT REVIEW / APPROVAL EC PA PA DPA
DO NOT ALTER MANUALLY DO NOT SCALE
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
MERMAID GATEHOUSE UPGRADE
7212DC15.DGN
1:500 (A3) 1:250 (A1)
7212-DC-15
C


NORTH
LA16
TOLL
ENERGY
PIPE RACKS
SITE LOCATION
King Bay
TOLL ACCESS 1
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in100 (MIN)
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 220m2
TOLL ACCESS 2
NEW ACCESS = 8.0m WIDE, 15m LONG
RAMP GRADE = 1in100 (MIN)
ONE WAY CROSS FALL = 1%
ROAD TRAIN = 19m LONG SINGLE SEMI
ROAD TRAIN SPEED = 6km/h
PAVEMENT AREA = 220m2
TOLL LAYDOWN
REMOVE EXISTING PIPE RACKS
CROSSFALL
FENCE
ACCESS TO BE CLOSED
PROVIDE EARTH BUNDING.
RELOCATE EXISTING POWER POLE.
EXISTING GRAVEL ROADWAY (FUTURE SEALED SUPPLY BASE ROAD)
EXISTING FENCE TO BE MODIFIED.
LEASE BOUNDARY
EXISTING OPEN DRAIN
LA4
MERMAID
MARINE
MERMAID LAYDOWN
NOTES:
1. SIGNAGE REQUIREMENTS REFER TO DRG 7212-DC-27
2. NEW PAVEMENT DETAILS REFER TO DRG 7212-DC-27
3. PROVIDE PERIMETER FENCING & GATES AT NEW ACCESS POINTS. REFER TO 7212-DC-28 FOR DETAILS.
SITE DISTANCE
SITE DISTANCE HAS BEEN APPROXIMATED FROM THE PLAN. LEFT & RIGHT VIEWS FROM DRIVER POSITION.
A 120m (LEFT) / 120m (RIGHT)
B 120m (LEFT) / 120m (RIGHT)
CO-ORDINATE TABLE
GRID = AMG84
POINT EASTING NORTHING DESIGN LEVEL (mAHD)
1 474653.2 7718851.5
2 474668.1 7718865.3
3 474676.2 7718866.5
4 474691.2 7718851.5
5 474720.1 7718851.6
6 474735.1 7718866.6
7 474743.1 7718866.6
8 474758.1 7718851.6
GRADE AS PER PLAN
CONCEPT DRAWING
IMPORTANT NOTE:
LEGEND:
EXISTING LAND CONTOURS (AHD)
EXISTING SPOT LEVELS
DESIGN CURVE TURNING POINT
CO-ORDINATE POINT
SIGHT DISTANCE MARKER
NEW PAVEMENT AREA
NEW BATTER SLOPES
METRES
HORIZONTAL GRID = AMG 84
VERTICAL DATUM = m AHD
DAMPIER PORT AUTHORITY
JAMES ROBERTSON 1699
REVISIONS
WORLEY ASTRON
A1
PROJECT:
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
LEASE AREA ACCESS
TOLL (LA16, 17) PLAN
7212-DC-16
B

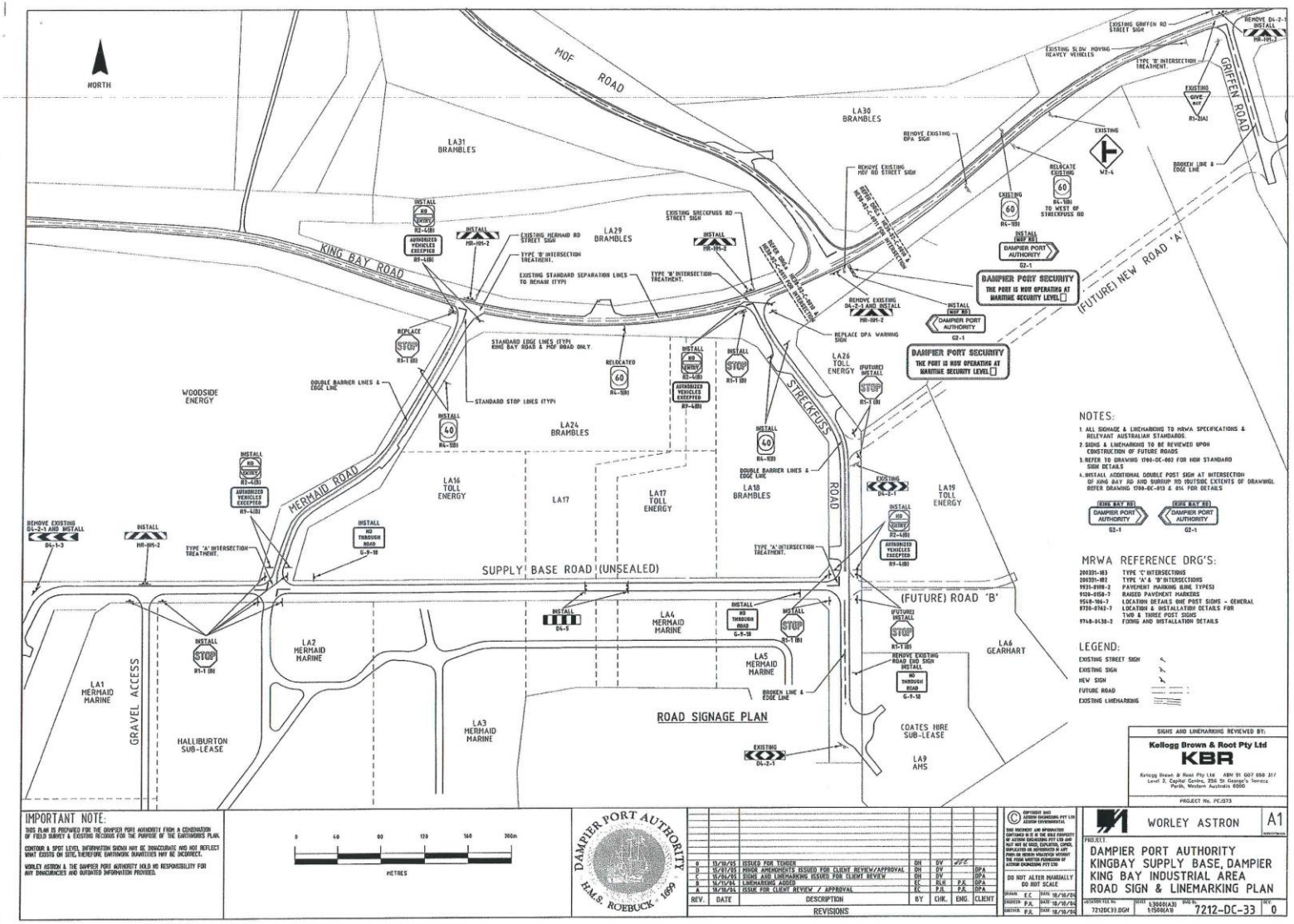

NORTH
AREA 1
AREA 2
AREA 3
SUPPLY BASE ROAD
NEW DRAIN
KING BAY ROAD
HERMAD ROAD
ROAD 'A'
ROAD 'B'
CONCEPT DRAWING
IMPORTANT NOTE:
WORLEY ASTRON
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
KING BAY INDUSTRIAL AREA
BULK EARTHWORKS PLAN
7212-DC-17

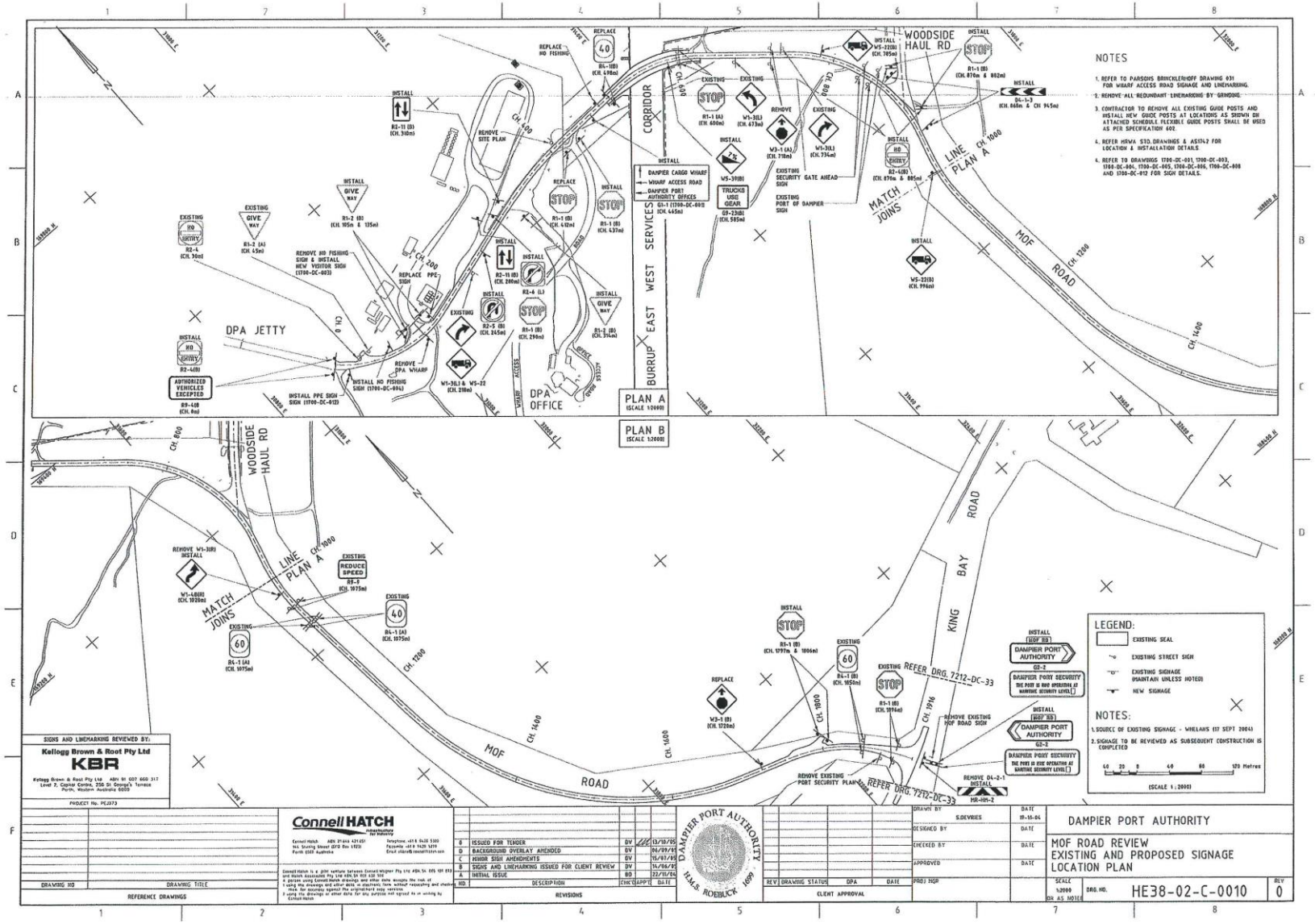

NORTH
KING BAY ROAD
HERBERT ROAD
STREAMPIPE ROAD
NEW ROAD 'A'
NEW ROAD 'B'
SUPPLY BASE ROAD
ROADS & DRAINAGE PLAN
CONCEPT DRAWING
IMPORTANT NOTE:
WORLEY ASTRON
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
KING BAY INDUSTRIAL AREA
ROADS & DRAINAGE PLAN
7212-DC-18
A1

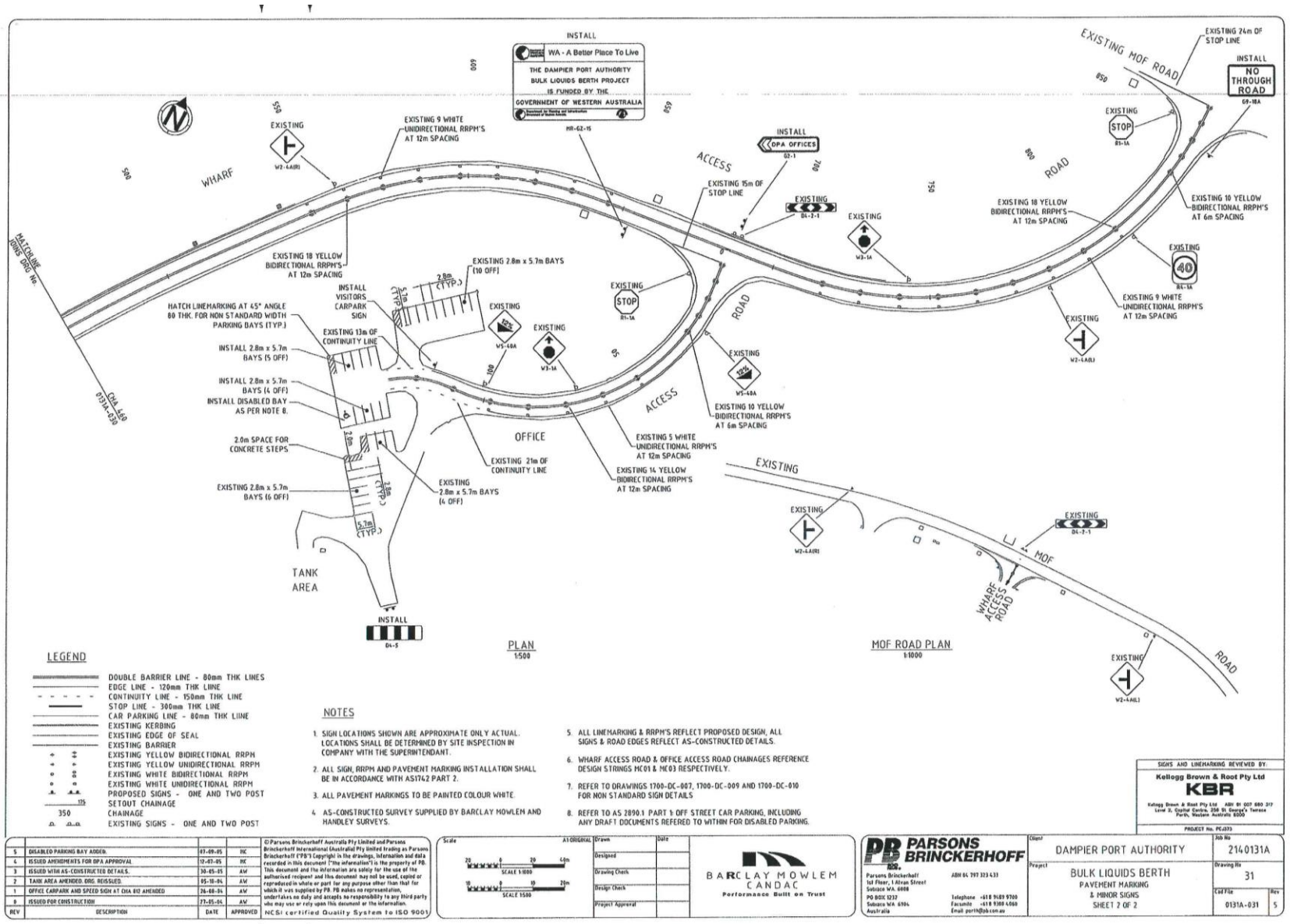
APPENDIX
G
LEASE AREA SIGNS

EXAMPLES OF DRAWINGS PREPARED FOR DAMPIER PORT AUTHORITY

(Kimberley Ports Authority aims for uniformity between WA port authority project requisites and formatting)


NORTH
MOF ROAD
KING BAY ROAD
GRIFFEN ROAD
(FUTURE) NEW ROAD 'A'
STRECKFUSS ROAD
MERMAID ROAD
SUPPLY BASE ROAD (UNSEALED)
(FUTURE) ROAD 'B'
GRAVEL ACCESS
ROAD SIGNAGE PLAN
LA1 MERMAID MARINE
LA2 MERMAID MARINE
LA3 MERMAID MARINE
LA4 MERMAID MARINE
LA5 MERMAID MARINE
LA6 GEARHART
LA9 AMS
LA10 BRAMBLES
LA16 TOLL ENERGY
LA17 TOLL ENERGY
LA19 TOLL ENERGY
LA24 BRAMBLES
LA26 TOLL ENERGY
LA29 BRAMBLES
LA30 BRAMBLES
LA31 BRAMBLES
WOODSIDE ENERGY
HALLIBURTON SUB-LEASE
COATES HIRE SUB-LEASE
DAMPIER PORT SECURITY
THE PORT IS NOW OPERATING AT MARITIME SECURITY LEVEL 1
NOTES:
MRWA REFERENCE DRG'S:
LEGEND:
IMPORTANT NOTE:
DAMPIER PORT AUTHORITY
H.M.S. ROEBUCK 1699
Kellogg Brown & Root Pty Ltd
KBR
WORLEY ASTRON
A1
DAMPIER PORT AUTHORITY
KINGBAY SUPPLY BASE, DAMPIER
KING BAY INDUSTRIAL AREA
ROAD SIGN & LINEMARKING PLAN
7212-DC-33
0


DPA JETTY
DPA OFFICE
WOODSIDE HAUL RD
BURRUP EAST SERVICES CORRIDOR
MOF ROAD
KING BAY ROAD
PLAN A (SCALE 1:2000)
PLAN B (SCALE 1:2000)
NOTES
1. REFER TO PARSONS BRINCKERHOFF DRAWING 631 FOR WHARF ACCESS ROAD SIGNAGE AND LINEMARKING.
2. REMOVE ALL REDUNDANT LINEMARKING BY GRINDING.
3. CONTRACTOR TO REMOVE ALL EXISTING GUIDE POSTS AND INSTALL NEW GUIDE POSTS AT LOCATIONS AS SHOWN ON ATTACHED SCHEDULE. FLEXIBLE GUIDE POSTS SHALL BE USED AS PER SPECIFICATION 402.
4. REFER MRWA STD. DRAWINGS & AS1742 FOR LOCATION & INSTALLATION DETAILS.
4. REFER TO DRAWINGS 1700-DC-001, 1700-DC-003, 1700-DC-005, 1700-DC-006, 1700-DC-008 AND 1700-DC-012 FOR SIGN DETAILS.
LEGEND:
EXISTING SEAL
EXISTING STREET SIGN
EXISTING SIGNAGE (MAINTAIN UNLESS NOTED)
NEW SIGNAGE
NOTES:
1. SOURCE OF EXISTING SIGNAGE - WHELANS (17 SEPT 2004)
2. SIGNAGE TO BE REVIEWED AS SUBSEQUENT CONSTRUCTION IS COMPLETED
(SCALE 1:2000)
SIGNS AND LINEMARKING REVIEWED BY:
Kellogg Brown & Root Pty Ltd
KBR
PROJECT No. PE3373
Connell HATCH
DRAWING NO
DRAWING TITLE
REFERENCE DRAWINGS
REVISIONS
REV DESCRIPTION CHKD APP'D DATE
0 ISSUED FOR TENDER DV 13/10/05
D BACKGROUND OVERLAY AMENDED DV 06/09/05
C MINOR SIGN AMENDMENTS DV 15/07/05
B SIGNS AND LINEMARKING ISSUED FOR CLIENT REVIEW DV 14/06/05
A INITIAL ISSUE RD 22/11/04
DAMPIER PORT AUTHORITY
HMS ROEBUCK 1699
CLIENT APPROVAL
REV DRAWING STATUS DPA DATE
DRAWN BY S.DEVRIES DATE 19-11-04
DESIGNED BY DATE
CHECKED BY DATE
APPROVED DATE
PROJ MGR
DAMPIER PORT AUTHORITY
MOF ROAD REVIEW
EXISTING AND PROPOSED SIGNAGE
LOCATION PLAN
SCALE 1:2000 ON A3 NOTED
DRG NO. HE38-02-C-0010
REV 0


INSTALL
WA - A Better Place To Live
THE DAMPIER PORT AUTHORITY
BULK LIQUIDS BERTH PROJECT
IS FUNDED BY THE
GOVERNMENT OF WESTERN AUSTRALIA
EXISTING MOF ROAD
EXISTING 24m OF STOP LINE
INSTALL NO THROUGH ROAD
EXISTING 9 WHITE UNIDIRECTIONAL RRPM'S AT 12m SPACING
INSTALL DPA OFFICES
EXISTING 15m OF STOP LINE
EXISTING 10 YELLOW BIDIRECTIONAL RRPM'S AT 12m SPACING
EXISTING 10 YELLOW BIDIRECTIONAL RRPM'S AT 6m SPACING
EXISTING 18 YELLOW BIDIRECTIONAL RRPM'S AT 12m SPACING
EXISTING 2.8m x 5.7m BAYS (10 OFF)
INSTALL VISITORS CARPARK SIGN
HATCH LINEMARKING AT 45° ANGLE 80 THK. FOR NON STANDARD WIDTH PARKING BAYS (TYP.)
EXISTING 13m OF CONTINUITY LINE
INSTALL 2.8m x 5.7m BAYS (5 OFF)
INSTALL 2.8m x 5.7m BAYS (4 OFF)
INSTALL DISABLED BAY AS PER NOTE 8.
2.0m SPACE FOR CONCRETE STEPS
EXISTING 2.8m x 5.7m BAYS (6 OFF)
EXISTING 2.8m x 5.7m BAYS (4 OFF)
EXISTING 21m OF CONTINUITY LINE
EXISTING 5 WHITE UNIDIRECTIONAL RRPM'S AT 12m SPACING
EXISTING 14 YELLOW BIDIRECTIONAL RRPM'S AT 12m SPACING
EXISTING 10 YELLOW BIDIRECTIONAL RRPM'S AT 6m SPACING
EXISTING 9 WHITE UNIDIRECTIONAL RRPM'S AT 12m SPACING
WHARF
ACCESS
ROAD
OFFICE
TANK AREA
MOF
WHARF ACCESS ROAD
MATCHLINE JOINS DRG No.
CHA 440 0131A-030
PLAN 1:500
MOF ROAD PLAN 1:1000
LEGEND
DOUBLE BARRIER LINE - 80mm THK LINES
EDGE LINE - 120mm THK LINE
CONTINUITY LINE - 150mm THK LINE
STOP LINE - 300mm THK LINE
CAR PARKING LINE - 80mm THK LINE
EXISTING KERBING
EXISTING EDGE OF SEAL
EXISTING BARRIER
EXISTING YELLOW BIDIRECTIONAL RRPM
EXISTING YELLOW UNIDIRECTIONAL RRPM
EXISTING WHITE BIDIRECTIONAL RRPM
EXISTING WHITE UNIDIRECTIONAL RRPM
PROPOSED SIGNS - ONE AND TWO POST
SETOUT CHAINAGE
CHAINAGE
EXISTING SIGNS - ONE AND TWO POST
NOTES
1. SIGN LOCATIONS SHOWN ARE APPROXIMATE ONLY ACTUAL LOCATIONS SHALL BE DETERMINED BY SITE INSPECTION IN COMPANY WITH THE SUPERINTENDANT.
2. ALL SIGN, RRPM AND PAVEMENT MARKING INSTALLATION SHALL BE IN ACCORDANCE WITH AS1742 PART 2.
3. ALL PAVEMENT MARKINGS TO BE PAINTED COLOUR WHITE.
4. AS-CONSTRUCTED SURVEY SUPPLIED BY BARCLAY MOWLEM AND HANDLEY SURVEYS.
5. ALL LINEMARKING & RRPM'S REFLECT PROPOSED DESIGN, ALL SIGNS & ROAD EDGES REFLECT AS-CONSTRUCTED DETAILS.
6. WHARF ACCESS ROAD & OFFICE ACCESS ROAD CHAINAGES REFERENCE DESIGN STRINGS MC01 & MC03 RESPECTIVELY.
7. REFER TO DRAWINGS 1700-DC-007, 1700-DC-009 AND 1700-DC-010 FOR NON STANDARD SIGN DETAILS
8. REFER TO AS 2890.1 PART 1 OFF STREET CAR PARKING, INCLUDING ANY DRAFT DOCUMENTS REFERED TO WITHIN FOR DISABLED PARKING.
SIGNS AND LINEMARKING REVIEWED BY:
Kellogg Brown & Root Pty Ltd
KBR
PROJECT No. PC4373
5 DISABLED PARKING BAY ADDED. 07-09-05 HC
4 ISSUED AMENDMENTS FOR DPA APPROVAL 12-07-05 HC
3 ISSUED WITH AS-CONSTRUCTED DETAILS. 30-05-05 AW
2 TANK AREA AMENDED. ORG. REISSUED. 05-10-04 AW
1 OFFICE CARPARK AND SPEED SIGN AT CHA 812 AMENDED 26-08-04 AW
0 ISSUED FOR CONSTRUCTION 23-05-04 AW
REV DESCRIPTION DATE APPROVED
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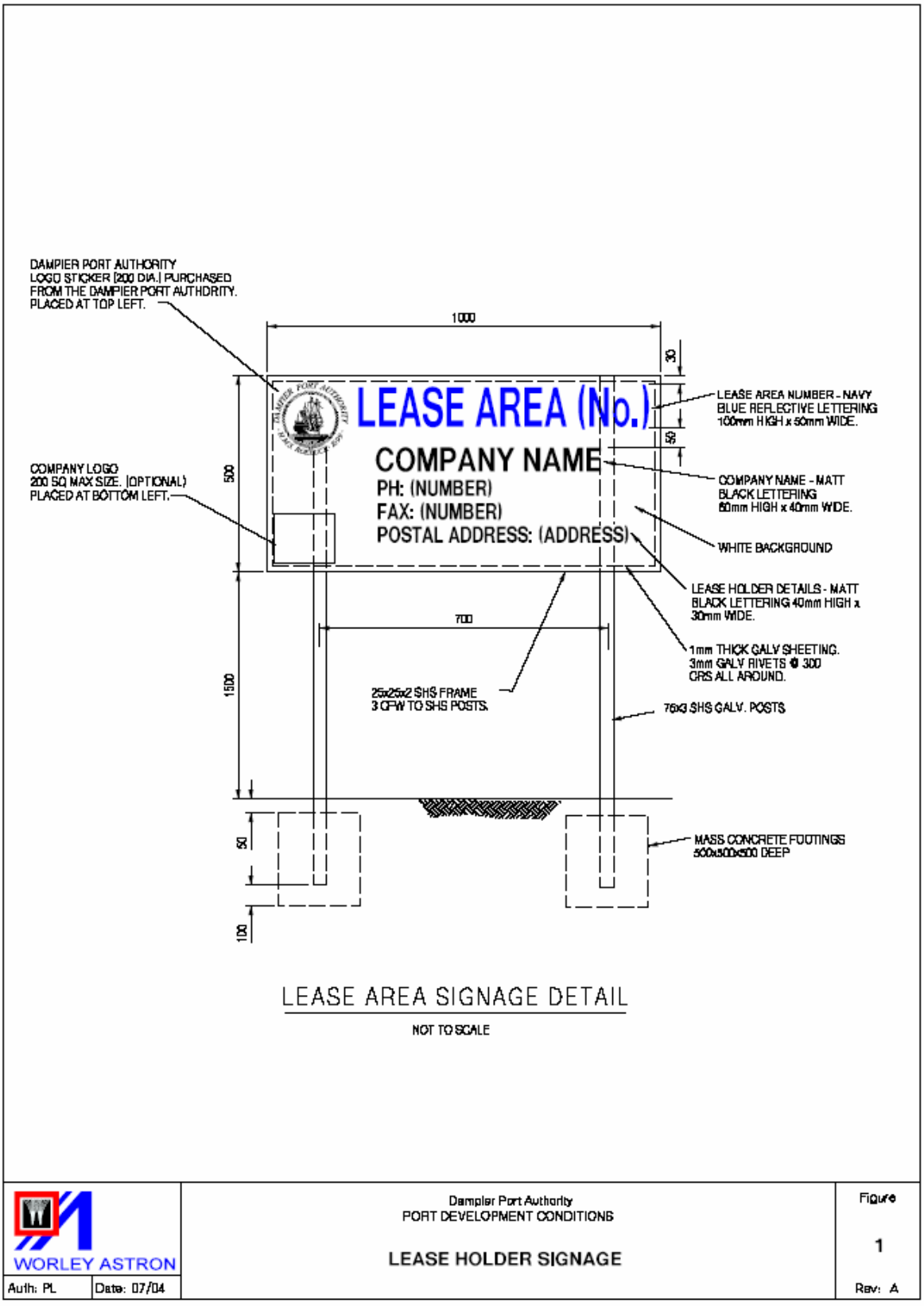
NCSI certified Quality System to ISO 9001
SCALE 1:1000
SCALE 1:500
AT ORIGINAL
Drawn
Designed
Drawing Check
Design Check
Project Approval
Date
BARCLAY MOWLEM CANDAC
Performance Built on Trust
PARSONS BRINCKERHOFF
Parsons Brinckerhoff ABN 84 797 323 433
1st Floor, 1 Alfred Street
Subiaco WA 6008
PO BOX 1232
Subiaco WA 6904
Australia
Telephone +618 9489 9700
Facsimile +618 9388 4060
Email perth@pb.com.au
Client DAMPIER PORT AUTHORITY
Project BULK LIQUIDS BERTH
PAVEMENT MARKING
& MINOR SIGNS
SHEET 2 OF 2
Job No 2140131A
Drawing No 31
Cad File 0131A-031
Rev 5

APPENDIX
H
KPA LOT SIGNAGE
EXAMPLES OF DRAWINGS PREPARED FOR DAMPIER PORT AUTHORITY

(Kimberley Ports Authority aims for uniformity between WA port authority project requisites and formatting)



LEASE AREA SIGNAGE DETAIL

NOT TO SCALE

WORLEY ASTRON

Auth: PL | Date: 07/04

Dampier Port Authority
PORT DEVELOPMENT CONDITIONS

LEASE HOLDER SIGNAGE

Figure 1

Rev: A

File: 7212/7212-fig1.dgn

APPENDIX
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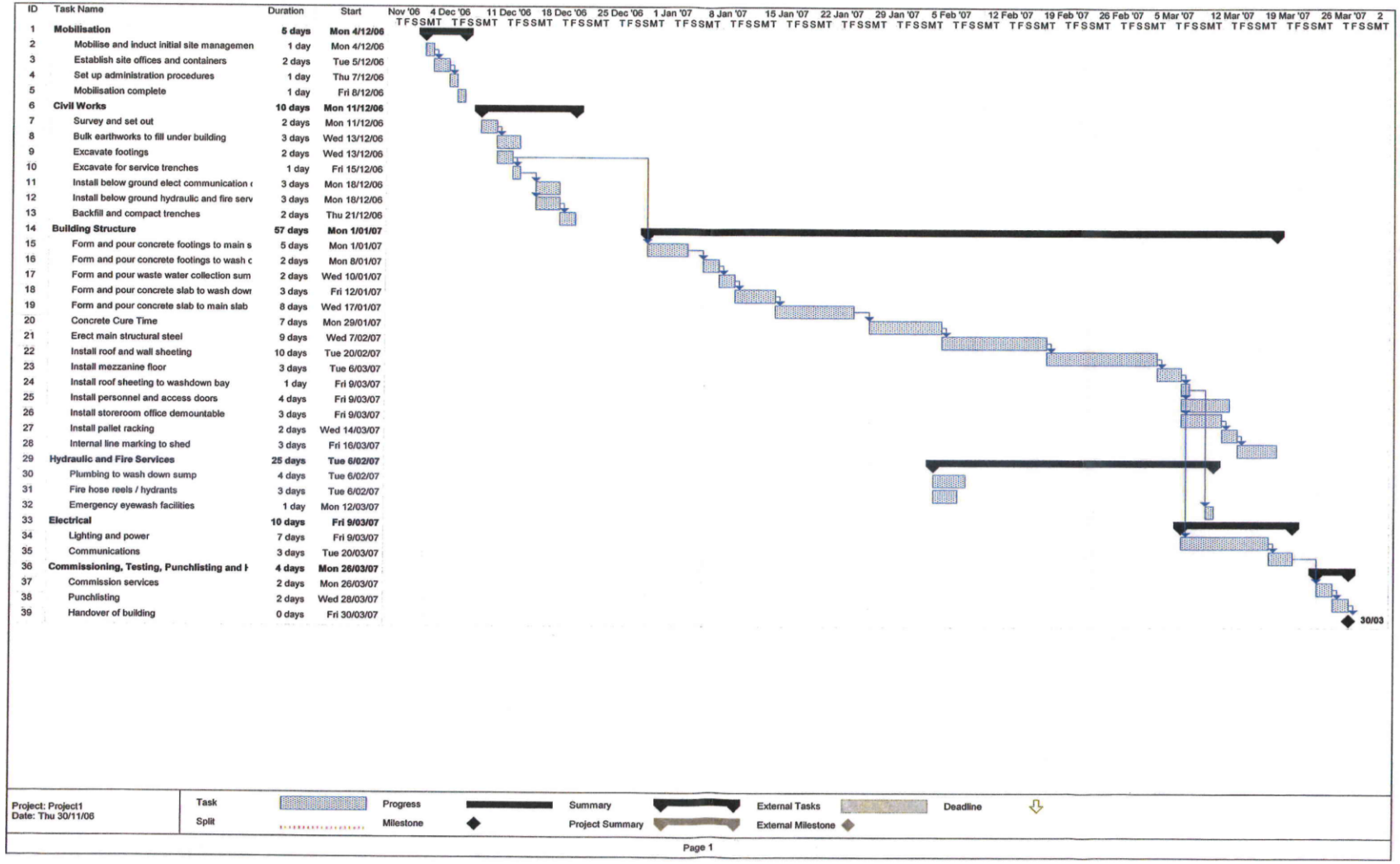
WORK ACTIVITY BREAKDOWN EXAMPLE



ID	Task Name	Duration	Start
1	**Mobilisation**	**5 days**	**Mon 4/12/06**
2	Mobilise and induct initial site managemen	1 day	Mon 4/12/06
3	Establish site offices and containers	2 days	Tue 5/12/06
4	Set up administration procedures	1 day	Thu 7/12/06
5	Mobilisation complete	1 day	Fri 8/12/06
6	**Civil Works**	**10 days**	**Mon 11/12/06**
7	Survey and set out	2 days	Mon 11/12/06
8	Bulk earthworks to fill under building	3 days	Wed 13/12/06
9	Excavate footings	2 days	Wed 13/12/06
10	Excavate for service trenches	1 day	Fri 15/12/06
11	Install below ground elect communication c	3 days	Mon 18/12/06
12	Install below ground hydraulic and fire serv	3 days	Mon 18/12/06
13	Backfill and compact trenches	2 days	Thu 21/12/06
14	**Building Structure**	**57 days**	**Mon 1/01/07**
15	Form and pour concrete footings to main s	5 days	Mon 1/01/07
16	Form and pour concrete footings to wash c	2 days	Mon 8/01/07
17	Form and pour waste water collection sum	2 days	Wed 10/01/07
18	Form and pour concrete slab to wash dowr	3 days	Fri 12/01/07
19	Form and pour concrete slab to main slab	8 days	Wed 17/01/07
20	Concrete Cure Time	7 days	Mon 29/01/07
21	Erect main structural steel	9 days	Wed 7/02/07
22	Install roof and wall sheeting	10 days	Tue 20/02/07
23	Install mezzanine floor	3 days	Tue 6/03/07
24	Install roof sheeting to washdown bay	1 day	Fri 9/03/07
25	Install personnel and access doors	4 days	Fri 9/03/07
26	Install storeroom office demountable	3 days	Fri 9/03/07
27	Install pallet racking	2 days	Wed 14/03/07
28	Internal line marking to shed	3 days	Fri 16/03/07
29	**Hydraulic and Fire Services**	**25 days**	**Tue 6/02/07**
30	Plumbing to wash down sump	4 days	Tue 6/02/07
31	Fire hose reels / hydrants	3 days	Tue 6/02/07
32	Emergency eyewash facilities	1 day	Mon 12/03/07
33	**Electrical**	**10 days**	**Fri 9/03/07**
34	Lighting and power	7 days	Fri 9/03/07
35	Communications	3 days	Tue 20/03/07
36	**Commissioning, Testing, Punchlisting and I**	**4 days**	**Mon 26/03/07**
37	Commission services	2 days	Mon 26/03/07
38	Punchlisting	2 days	Wed 28/03/07
39	Handover of building	0 days	Fri 30/03/07