Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Interim Environmental Management Plan

Proposed St Marys Intermodal Freight Terminal
Lot 2, Forrester Road, St Marys, NSW

Prepared for
Pacific National Services Pty Ltd

Project 94525.05
August 2019

Douglas Partners
Geotechnics / Environment / Groundwater

Document History

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File name	94525.05.R.002.Rev0		

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Revision 0	1	0	Pacific National Services Pty Ltd - Mr Guy Evans

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		26 August 2019
Reviewer	 pp for DW	26 August 2019

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Report on Interim Environmental Management Plan
Proposed St Marys Intermodal Freight Terminal
Lot 2, Forrester Road, St Marys, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Urbanco Group Pty Limited on behalf of Pacific National (PN) to prepare an Interim Environmental Management Plan (EMP) for the management of the proposed containment cell at the proposed St Marys Freight Hub at Lot 2, Forrester Road, St Marys, NSW ("the site" and the proposed containment cell location as presented on Drawing 1, Appendix A) to contain the following:

- Asbestos impacted fill soils proposed to be excavated from the northern portion of the site; and
- Soil proposed to be excavated from stockpile SP4 impacted with pesticides (DDT, DDD and DDE) at levels exceeding scheduled chemical waste criteria.

Previous DP investigations have identified that for the site to be considered suitable for the proposed industrial development and future land use, the above fill/stockpiled soil at the site requires remediation/management.

The objective of this Interim EMP is to provide ongoing control measures to aid in the management of the risks associated with the impacted filling within the proposed containment cell at the site to protect human health and the environment.

Given that the proposed containment cell is yet to be constructed, this document is an interim EMP for the inclusion in a DA submission. At the completion of remediation works and completion of construction of the containment cell, the EMP will require updating and amendment as a final EMP to include final volumes of impacted soil, final survey / dimensions of the cell and any other necessary information required for the containment cell to protect human health and the environment.

2. Contamination Background Summary

2.1 Historical Environmental Site Investigations

The following relevant environmental reports which incorporate the site were reviewed as part of this environmental site investigation summary:

- DP (March, 2019a) *Preliminary Site Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.00.R.001.Rev0 (The PSI);
- DP (March, 2019b) *Supplementary Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.02.R.001.Rev1 (The SCA);

- DP (March, 2019c) *Further Asbestos Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.04.R.001.Rev0 (The FAI); and
- DP (March, 2019d) *Remediation Action Plan, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW*. Project 94525.03.R.001.Rev1 (The RAP).

Investigations undertaken at the Site by DP (the PSI) identified nine PAEC, six of which (PAEC 1, PAEC 3 to PAEC 6 and PAEC 9) required further investigation to assess for COPC. The remaining three (PAEC 2, PAEC 7 and PAEC 8) did not require further assessment. Following further investigation undertaken in the SCA, additional investigation or remediation was not considered necessary at PAEC 3, PAEC 4 to PAEC 6 and PAEC 9. However, identified ACM impact to fill was noted in the far northern portion of the site (PAEC 1) at concentrations that required remediation for the site to be suitable for the proposed commercial/industrial redevelopment. It is the contamination identified at PAEC 1 that is to be primarily addressed by this EMP. Based on the lateral delineation sampling to date and an average fill depth of 1 m, it is estimated that approximately 200 m^3 of ACM impacted fill will require remediation and placement within the proposed containment cell.

Nearby surface soils also require remediation due to an ACM fragment identified during the PSI on the site surfaces in the northern portion of the site.

Soil impacted with metals, PAHs have also been identified in portions of the site at levels exceeding environmental investigation/screening levels. Whilst the soil in the vicinity of these exceedances is not expected to present an unacceptable human health risk in the proposed development, the soil will require management to limit ecological access to metal and PAH impacted soils. It is understood that the majority of the proposed development is to be covered by either concrete slab or asphalt limiting ecological access to affected soils therefore enabling this soil to remain *in situ.*

Soil in the southern portion of stockpile SP4 has also been identified as impacted with pesticides (DDT, DDD and DDE) at levels exceeding scheduled chemical waste criteria. Whilst the identified concentrations do not exceed commercial/industrial health investigation levels or environmental investigation levels, the pesticide impacted soil should be managed in the containment cell in accordance with clause 4.14 *Scheduled Chemical Wastes Chemical Control Order 2004* (CCO). The conditions of clauses 18, 19 and 20 of the CCO are, however, not expected to apply based on the following:

- An estimated volume of soil within the southern portion of SP4 of approximately 30 – 40 tonne potentially impacted by pesticides;
- The maximum concentration identified during the SCA of 2.8 mg/kg at one location in the southern portion of SP4; and
- An estimated total pesticide volume calculated based on the above, of less than 50 kgs within the southern portion of the stockpile.

The RAP was prepared, documenting how the management of remediation works are to be carried out and validated in accordance with EPA requirements, which is to be endorsed by NSW Department of Planning prior to the commencement of any earthworks or remediation works at the site. The RAP was produced based on the preferred remediation/management methodology chosen by PN of on-site burial in a containment cell.

2.2 Preliminary Site Design and Containment Cell

Remediation and/or validation of the fill and impacted soil is to be incorporated into the construction phase of the site's development and the final design. A preliminary site design and indicative location of the proposed containment cell management area is shown on Drawing 2.

Containment Cell Management Area (approximately 200 m^2) – comprising areas where remediation will be incorporated into the final site design and will include the following:

- The known asbestos impacted fill soils excavated from the northern portion of the site; and
- Soil excavated from stockpile SP4 impacted with pesticides (DDT, DDD and DDE) at levels exceeding scheduled chemical waste criteria.

The management area will include a capping layer comprising of a geo-textile fabric liner and 0.5 m of clean fill. It is understood that the area of the containment cell will be covered by a concrete slab and is proposed to be used for packing and stacking of containers.

The construction of the containment cell is expected to meet the following requirements:

- Comprise a suitable size to contain all impacted material, taking into account the soil bulking factor. Based on the volume of impacted soil identified to date requiring burial, the containment cell dimensions are expected to be 20 m in length, 10 m in width and 2 m in depth;
- The final excavated cell should be surveyed by a licensed surveyor;
- The Remediation Contractor shall place the impacted material into the cell; after placement of the material, the surface of the impacted material shall be covered using a coloured geotextile cover layer to act as a physical marker for any future excavation works;
- Suitable soil cover shall be placed above the geotextile cover;
- The top of the containment cell (i.e. the geotextile cover) shall be a minimum of 0.5 m below the final site level; and
- The cell to be designed by a civil designer and DP should have the opportunity to review the design prior to commencement of construction.

The Remediation Contractor shall survey the base and top of the containment cell and confirm the construction of the cell in as-built drawings. The survey should be included as part of the Validation Report and the Final EMP.

At the completion of construction of the containment cell and remedial works, a final EMP will need to be prepared and a notification on title will be required (Section 10.7 Certificate (formerly Section 149 Certificate).

3. Relevant Legislation

Where applicable, the following legislation, codes of practice and guidance documents provide the legislative framework for the ongoing management of ACM and pesticide impacted filling within the proposed containment cell at the site:

- *Work Health and Safety Act 2011* (NSW);
- *Work Health and Safety Regulation 2017* (NSW);
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (April 2013);
- *WorkCover (March 2014) NSW Managing Asbestos in or on Soil*;
- *Safe Work Australia (2011a) How to Safely Remove Asbestos Code of Practice*;
- *Safe Work Australia (2011b) How to Manage and Control Asbestos in the Workplace Code of Practice*;
- *National Occupational Health and Safety Commission (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition (NOHSC:3003 (2005*);
- NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste; and*
- *Scheduled Chemical Wastes Chemical Control Order 2004 (NSW).*

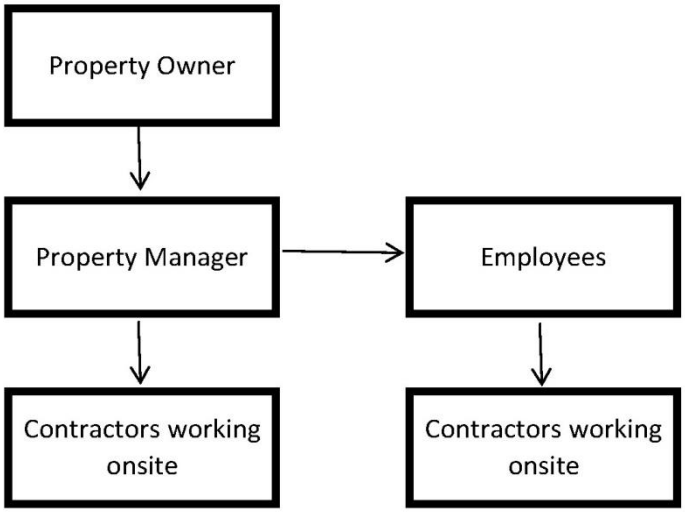
4. Management of Contaminated Fill within the Proposed Containment Cell at the Site

All filling within the proposed containment cell at the site should be considered to be impacted with ACM and pesticides and therefore subject to this EMP.

The following procedures should be followed to protect human health for any future works with the potential for disturbance of the proposed containment cell or immediate surrounding areas.

4.1 Hierarchy of Control

The property owner (currently PN) is to ensure that a hierarchy of control is established between individuals identified with each level of control and those individuals are made responsible for the effective implementation of the EMP.



The person responsible for the implementation of the EMP when necessary should be recorded on the register presented in Appendix B.

4.2 Induction

On-going management of the site requires the property manager to ensure that all employees and/or contractors undertaking works that have the potential for containment cell fill disturbance or disturbance of management measures have undergone an appropriate site-specific induction in relation to the fill within the proposed containment cell. The induction program is to be inclusive of the following:

- Information about the nature of the hazards, identifying impacted fill and the risks to health arising from exposure, particularly to asbestos;
- Information about the location of impacted fill;
- Details of the material on-site, including processes and safe work procedures to be followed to prevent exposure;
- Procedures to be followed in case of an emergency involving exposure to contaminated material;
- Incident reporting procedures to be followed in case of exposure or potential exposure of the contaminated material; and
- The purpose of any exposure monitoring or health monitoring that may occur and the exposure standards for asbestos.

Records of all inductions must be kept for five years after the day the worker stops carrying out containment cell related works. These records must also be available for inspection by the regulator (SafeWork NSW). An induction register is included in Appendix C.

4.3 Accessing the EMP

The property manager must ensure that the EMP is provided and readily accessible to:

- Any worker (and their employers and/or health and safety representatives) who has carried out or intends to carry out containment cell related works;
- All future users of the site, operators and/or tenants of the site; and
- Any contractor or subcontractor (and their employees and/or health and safety representatives) undertaking subsurface works at the site.

Records of the individuals who were supplied with the EMP must be kept by the property manager for five years.

4.4 Review of the EMP

The property manager must ensure that the EMP is reviewed by a qualified professional and, if necessary, revised at least once every five years or when:

- There is a review of the register or a control measure;
- Filling within the containment cell at the site is disturbed, removed, sealed or enclosed; and
- The plan is no longer adequate for managing the fill within the containment cell at the site.

5. Procedure for Containment Cell Related Works

The following procedures are applicable for all Containment cell related works:

- Assess the requirements of any excavation work or works with the potential to disturb fill soils to determine whether an alternative can be used that will avoid exposure to the contaminated fill (e.g. alternative design); and
- If it is not possible to avoid disturbance of contaminated fill, a suitably qualified professional is to be engaged to provide situation-specific procedures and requirements for the management of the contaminated fill in line with the appropriate legislation and guidelines.

Given the presence of friable asbestos identified within one sample location in the area proposed for remediation in the northern portion of the site, all Containment cell related works are to be considered friable asbestos works and must be undertaken by a Class A SafeWork NSW licenced contractor at a minimum. The contractor is to notify SafeWork NSW of disturbance or removal works seven days prior to commencement. The general procedure to be followed is outlined below, however, situation specific procedures are to be provided by a suitably qualified professional which may not involve compliance with all steps outlined below:

- Project/Property Manager to provide information to contractors regarding the requirements of compliance with this EMP;
- Contractors to prepare and provide to the Project/Property Manager, a Health and Safety Plan including Asbestos Removal Control Plan. Plans are to be developed in accordance with the regulatory framework and guidance documents discussed in Section 3;
- Project/Property Manager to review the contractor's plans prior to providing approval for the works to commence;
- Project/Property Manager to ensure that all persons working on the site are inducted into the requirements of the EMP, the contractor's Health and Safety Plan and the contractor's Environmental Works Plan;
- An exclusion zone from the work areas is to be established, barricaded and access restricted;
- Establish an area for decontamination facilities (area for wetting down and disposal of PPE);
- All appropriate signage is to be erected, including appropriate asbestos warning signs and should be consistent with examples provided in the SWA *Code of Practice: How to Manage and Control Asbestos in the Workplace, 2016* and AS1319 *Safety Signs for the Occupational Environment*;
- All workers to wear appropriate PPE (in accordance with Health and Safety Plan and Section 6.1) while working in the exclusion zone;
- When leaving the exclusion zone, all workers are to use the decontamination facilities. All used PPE is to be placed in 200 µm thick plastic bags and disposed of as asbestos contaminated waste (as further discussed in Section 7.2);
- Excavated contaminated material should be placed into a plastic lined skip bin or truck and disposed of to an appropriately licenced facility (as further discussed in Section 7.2);
- Water spray is to be used during earthmoving to suppress dust and potential generation of airborne asbestos fibres;
- Any future service trenches excavated through the contaminated filling should be lined with a suitable marker fabric layer and backfilled with clean fill. The contaminated material should be disposed of off-site to a suitably licenced facility;
- All disturbance of the contaminated soil and details of any material disposed off-site are to be recorded in the Containment cell related works Activity Register (Appendix D); and
- All complaints and environmental incidents are to be recorded in the Complaints and Environmental Incidents Register (Appendix E).

5.1 Site Controls and Personal Protective Equipment

The Asbestos Contractor will be responsible for:

- The disturbance of any ACM impacted soils;
- The handling/removal of any ACM impacted waste; and/or
- Any other asbestos containing material or works which would be classified as asbestos works.

Works must comply with all NSW legislative requirements including (but not limited to) all SafeWork NSW requirements, notification of works to SafeWork NSW five days prior to work commencing, implementation of this EMP and the Asbestos Contractor's Work Method Statement, wearing of appropriate personal protective equipment (PPE) and air monitoring for asbestos fibres (where appropriate). DP will provide information/reporting to the Asbestos Contractor as required enabling the Asbestos Contractor to undertake the work safely and in accordance with relevant NSW legislation.

It is understood that the containment cell area is to be covered by a concrete slab limiting access to the underlying soil. Access to the containment cell will be restricted to:

- Workers engaged in the asbestos fill work/management;
- Other persons associated with the asbestos fill work/management such as Occupational Hygienist/Environmental Consultant and the PN representative; and
- Anyone authorised by PN and allowed under the WHS Regulation or other law to be in the asbestos management area.

Minimum PPE to be worn at all times during any soil disturbance or asbestos removal activities within the proposed containment cell includes:

- Minimum P2 dust mask – either a disposable half face particulate respirator or half face, particulate filter (cartridge) respirator;
- Protective clothing such as disposable coveralls that do not have external pockets or Velcro fastenings etc. – Disposable coveralls are not to be reused or laundered and are to be disposed of as asbestos waste;
- Disposable gloves are to be used once and then disposed of as asbestos waste; and
- Safety footwear should be lace-less if possible to prevent contamination of laces and eyelets. Safety footwear is to be decontaminated at the completion of the job (if left on-site) or upon leaving the work area at the end of each day. Footwear covers are also recommended as an added protection against contamination.

During any soil disturbance works within the containment cell, the following will be required:

- Asbestos air monitoring is to be undertaken by a licenced asbestos assessor;
- Dust control should include light wetting with water for exposed soil & materials; and
- Works should cease during high wind or dry periods where dust controls are inadequate to control fugitive dust.

If stockpiling of asbestos impacted waste is required, an asbestos stockpiling area should be established within the site prior to any works commencing. Should the stockpile remain for over 48 hours, it should be appropriately managed to prevent fugitive dust leaving the site (e.g.: light wetting or covering with anchored geotextile depending on weather conditions). Geotextile silt fences or hay bales should be erected around each stockpile to prevent losses by surface erosion.

6. Waste Control

6.1 Decontamination of Equipment / Machines

Should equipment or machines be found to contain asbestos residue or associated soils, the items are to be moved to a decontamination area where removal can be undertaken. Decontamination of any items suspected of containing asbestos residue and/or soils should be completed in accordance with Australian Government (2005) *Code of Practice for the Safe Removal of Asbestos* [NOHSC:2002(2005)] and the following measures should be implemented:

- Care should be taken in the selection of tools for asbestos removal tasks and should, as far as possible, prevent the generation or dispersion of airborne asbestos fibres – electric power tools should be avoided and manually operated tools are preferred;
- A constant low water pressure is required for wetting down asbestos. This can be achieved with a portable pressurised vessel such as a pump-up garden sprayer given mains supplied water is not currently available at the site; and
- Should a vacuum cleaner be deemed necessary, asbestos vacuum cleaners should comply with the requirements of AS 3544:1988 '*Industrial Vacuum Cleaners for Particulates Hazardous to Health*' and AS 4260:1997 '*High Efficiency Particulate Air Filters (HEPA) - Classification, Construction and Performance'*.

Following decontamination activities, surface soils in the area should be treated as impacted with asbestos.

6.2 Disposal of Waste

Any fill soil excavated from the proposed containment cell is to be disposed of as Special Waste (asbestos) and must be classified in accordance with the NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste*.

Disposal of waste is to be completed as follows to a landfill facility licenced to accept such waste:

- All asbestos contaminated waste must be transported in a vehicle which is covered and the waste securely packaged during transportation;
- All waste associated with the decontamination of equipment/machines and soils immediately underlying the decontamination area are to be disposed of as asbestos waste. Loose asbestos waste, not associated with any bulk fill soil removal, should be collected in heavy duty 200 µm (minimum thickness) polythene bags. The bags should be labelled with an appropriate warning statement clearly identifying that the bag contains asbestos and that dust creation and inhalation should be avoided;

- All drums and bins used to dispose of asbestos contaminated waste should be in good condition with a lid and should be lined with heavy duty 200 µm (minimum thickness) polythene plastic. Where skip bins are deemed necessary, the ACM is to be sealed in double lined heavy duty plastic sheeting or double bagged prior to being placed in the skip. The skip bin is to be double lined heavy duty 200 µm (minimum thickness) polythene plastic. On completion of filling the skip, the contents should be sealed; and
- For loads of asbestos waste of more than 100 kilograms or more than 10 square metres, the transporter must provide details of the waste to be given to the NSW Environment Protection Authority in accordance with clause 79 of the *Protection of the Environment Operations (Waste) Regulation 2014* preferably via NSW EPA online waste tracking system wastelocate.epa.nsw.gov.au.

7. Accidental Breach of Fill Soils within Containment Cell and/or Geo-Textile Fabric - Emergency Response

In the event of an uncontrolled disturbance of fill soils within the containment cell or the geo-textile fabric covering surface of the containment cell, the following procedures are to be observed:

- An exclusion zone from the contaminated area is to be established, barricaded and access restricted;
- All appropriate signage is to be erected surrounding the exclusion zone, including appropriate asbestos warning signs;
- Establish an area for decontamination facilities for wetting down and disposal of contaminated clothing, if required; and
- A professional consultant competent in asbestos related contamination issues is to be contacted to facilitate management/removal activities.

8. Regular Site Inspections

It is recommended that regular inspections be completed by a suitability competent person on a regular basis (approximately six monthly) of the containment cell area. Inspections should include observations and recording of:

- Signs of disturbance to the concrete slab or other structures related to the containment cell such as the geo-textile fabric within the containment cell,
- Damage, tearing or wearing of materials related to the containment cell area;
- Unauthorised entry onto the site; and
- Any other changes to the site that have the potential to disturb impacted filling within the containment cell.

Dates of site inspections, any Environmental Observations and actions taken to resolve issues are to be recorded on the site inspection register included in Appendix F.

In the event that the site inspection identifies any of the above the procedures set out in Section 7.3 should be considered.

9. Conclusions and Recommendations

DP considers that the implementation of the procedures outlined within this EMP are suitable for the ongoing management of fill within the proposed containment cell at the site and to appropriately manage potential impacts on human health and the environment. This is an interim EMP that has been prepared prior to construction of the proposed containment cell. A final EMP should be prepared following completion of remedial activities and construction of the containment cell.

10. References

1. DP (March, 2019a) Preliminary Site Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW. Project 94525.00.R.001.Rev0 (The PSI).
2. DP (March, 2019b) Supplementary Contamination Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW. Project 94525.02.R.001.Rev1 (The SCA).
3. DP (March, 2019c) Further Asbestos Investigation, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW. Project 94525.04.R.001.Rev0 (The FAI).
4. DP (March, 2019d) Remediation Action Plan, Proposed St Mary's Freight Hub, 2 Forrester Road, St Mary's NSW. Project 94525.03.R.001.Rev1 (The RAP).
5. Work Health and Safety Act 2011 (NSW).
6. Work Health and Safety Regulation 2017 (NSW).
7. National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013).
8. WorkCover (March 2014) NSW Managing Asbestos in or on Soil.
9. Safe Work Australia (2011a) How to Safely Remove Asbestos Code of Practice.
10. Safe Work Australia (2011b) How to Manage and Control Asbestos in the Workplace Code of Practice.
11. National Occupational Health and Safety Commission (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition (NOHSC:3003 (2005).
12. NSW EPA (2014) Waste Classification Guidelines – Part 1: Classifying Waste.
13. Scheduled Chemical Wastes Chemical Control Order 2004 (NSW).

11. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Lot 2 Forrester Road, St Marys in accordance with DP's proposal MAC1901234.P.002.Rev0 dated 17 July 2019 and acceptance received from Mr Guy Evans on behalf of Pacific National dated 18 July 2019. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Pacific National for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Drawings 1 and 2

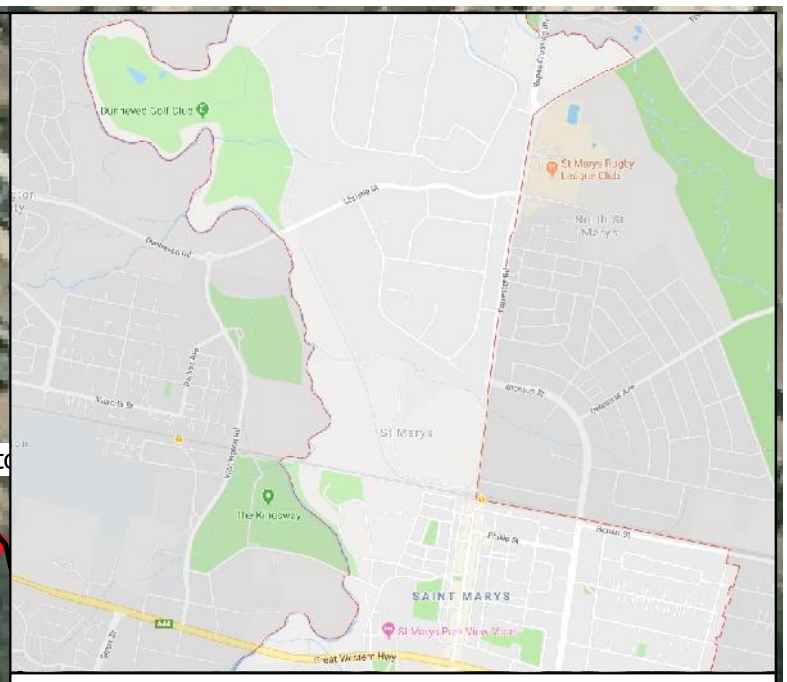
Approximate Extent of Fill impcated by Asbestos requiring Remediation / Management

Northern Sto

Proposed Containment Cell Location

Stockpile SP4

Approximate Extent of SP4 impcated by Pesticides requiring Management



Site Locality

Legend

- Larger Site Boundary
- Stockpile SP4
- Approx extent of pesticide impact to SP4
- Nthn Footprint site boundary
- Approx Asbestos Impact Extent
- Porposed Containment cell Location

100 0 100 200 300 400 m

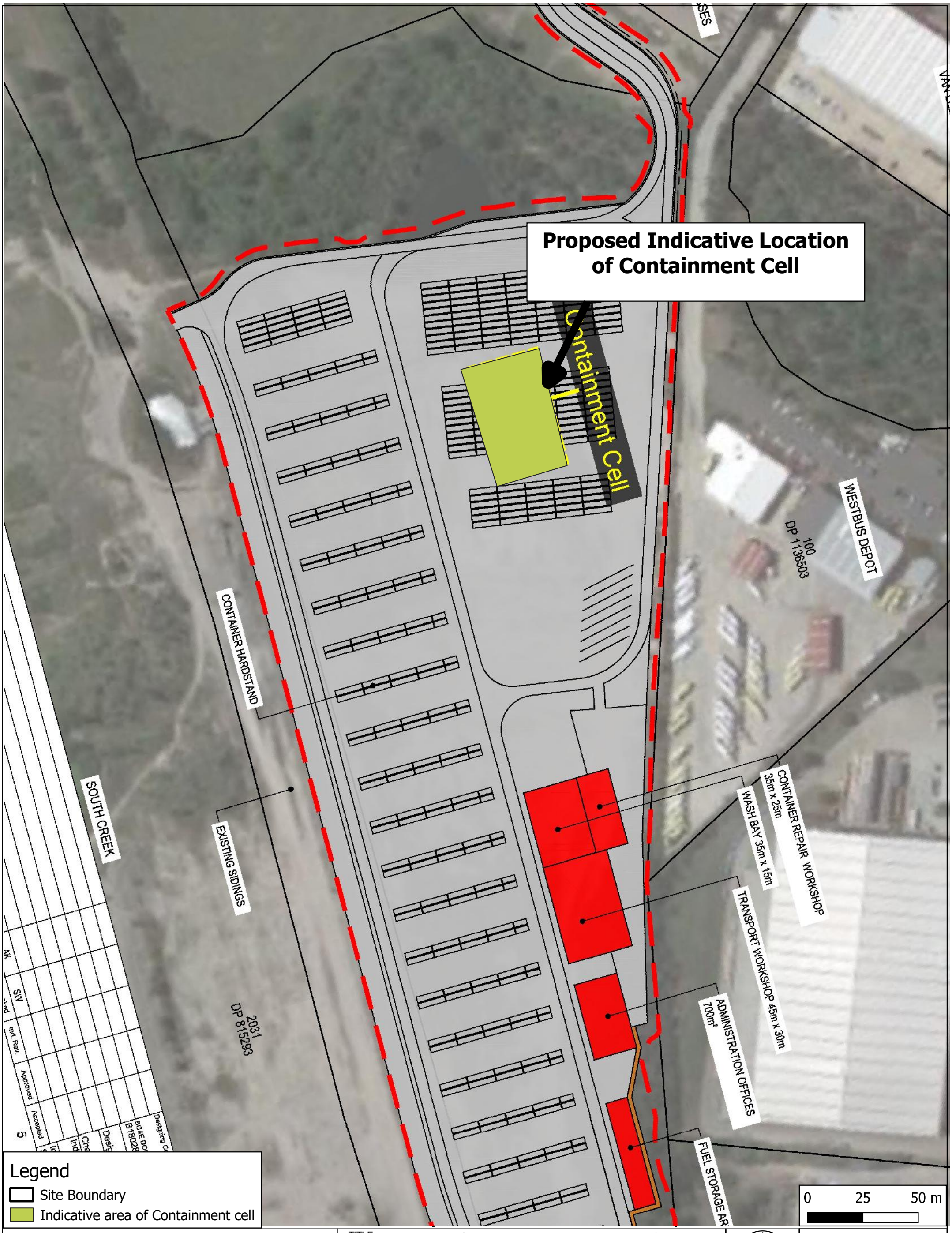
Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: **Site Location Map**
Environmental Managment Plan
Lot 2 Forrester Road, St Marys NSW

N
MGA

OFFICE: Macarthur
DRAWN BY: GAR
DATE: 25.06.2019

CLIENT: Pacific National (NSW) Pty Ltd
PROJ. #: 94525.05
DRAWING No: 1
REVISION: 0
SCALE: As Shown



Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: **Preliminary Concept Plan and Location of Containment Cell**
Environmental Managment Plan
Lot 2 Forrester Road, St Marys NSW

MGA

OFFICE: Macarthur	
DRAWN BY: GAR	
DATE: 25.06.2019	

CLIENT: Pacific National Australia	PROJ. #: 94525.05	DRAWING No: 2	REVISION: 0
			SCALE: As Shown

Appendix B

Persons Responsible Register

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Person Responsible Register

Lot 2 Forrester Road, St Marys, NSW

Date	Name	Company / Organisation	Position	Phone Number	Signature

Appendix C

Induction Register

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Induction Register

Lot 2 Forrester Road, St Marys, NSW

Date Inducted	Inductee			Inducted By	
	Inductee Name	Company / Organisation	Company Contact Details	Phone Number	Signature

Appendix D

Contaminated Works Activity Register

Douglas Partners Pty Ltd
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Contamination Related Works Activity Register

Lot 2 Forrester Road, St Marys, NSW

Date	Contamination Related Works	Location on site	Actions taken to manage impacted fill in containment cell	Approved by

Appendix E

Complaints and Incidents Register

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Complaints and Environmental Incidents Register

Lot 2 Forrester Road, St Marys, NSW

Date	Complaint / Environmental Incident	Location on Site	Actions Taken to Resolve	Person Involved

Appendix F

Site Inspection Register

Douglas Partners Pty Ltd
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Site Inspection Register

Lot 2 Forrester Road, St Marys, NSW

Date / Inspector	Environmental Observations / Disturbance to Containment Cell Soils or Management Measures	Location on Site	Actions Taken to Resolve	Person Involved

Appendix G

Notes About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.