Kincumber Residential Aged Care Facility

Soil & Water Management Plan

Prepared for: Lendlease

Attention: Numa Miller

Date: 15 October 2019

Prepared by: Oliver Walsh

Ref: 30916-5

Wood & Grieve Engineers now part of Stantec
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WOOD & GRIEVE ENGINEERS

NOW PART OF

Stantec

Revision

Revision	Date	Comment	Prepared By	Approved By
1	15/10/19	Development Application Issue	GYD	OKW

Contents

1. Introduction

Wood & Grieve Engineers now part of Stantec have been commissioned by Lendlease to prepare this Soil & Water Management Plan in support of the Development Application for the proposed development at 290 Avoca Drive, Kincumber, NSW.

This Soil & Water Management Plan provides strategies and mitigation measures to manage disturbed areas of the site. It outlines appropriate measures to ensure that activities including excavated soil, stormwater, erosion, and sedimentation are managed appropriately during site establishment and construction of the project. The Soil and Water Management Plan specifically addresses the following items for both the construction and operational phases of the development:

- Site topography
- Site and allotment boundaries
- Location of adjoining roads and impervious surfaces
- External stormwater entering the site
- Existing vegetation and site drainage
- Nature and extent of clearing, excavation and filling
- Diversion of run off around disturbed areas
- Location and type of proposed erosion and sediment control measures
- Location of site access and stabilisation of site access
- Sediment retention basin details
- The location and concept plans of proposed constructed wetlands/ gross pollutant traps, trash racks or trash collection / separator units
- Proposed site rehabilitation and landscaping
- Maintenance program for erosion and sediment control measures.

2. The Development Site

The development sites address is 290 Avoca Drive, Kincumber and is part of Lot 103, DP 707503 with the development site being subdivided from the existing overall lot. The proposed site area will be 12,137m^2 of the overall 27,864m^2 site and the whole construction will occur in one stage.

Figure 1 – Site Location

3. Site Characteristics

3.1 Topography & Stormwater Catchments

The site primarily falls north east to south west and has no external catchments. DWG KI-CD-070-01 [C] located in Appendix A identifies site contour lines and directions of fall.

3.2 Boundaries

The proposed site area will be 12,137m² of the overall 27,864m² site. The image below (Figure 2) shows the site boundary relative to the allotment boundary.

Figure 2 – Allotment and Site Boundaries

3.3 Adjoining Roads

The site is bounded to the south by Scaysbrook Drive and to the North by Avoca Drive. The location of all adjoining roads and impervious surfaces can be seen on Drawing KI-CD-070-01 [C] in Appendix A.

During construction the site will be accessed via Scaysbrook Drive. At the entrance/exit to the site there will be a temporary vehicle shakedown device (or similar) to minimise unintended sediment being carried offsite via vehicles.

4. Stormwater

4.1 Flows Through Site

The proposed site will not be subject to external catchments and therefore no stormwater runoff emanating from the site needs to be considered. This has been considered and included in the Sediment Basin Sizing Calculations which can be viewed in Appendix B.

4.2 Existing Vegetation and Site Drainage

The existing vegetation can be seen on Drawing KI-CD-070-01 [C] located in Appendix A. Former development on the site has recently been demolished and the site is now entirely pervious. Runoff from the site currently discharges via sheet flow into Scaysbrook Drive.

4.3 Sediment and Erosion Control Measures

In order to prevent ill effects of sediment run off during construction, measures have been taken to capture sediment before it enters waterways. Diversion swales have been designed for both the southern and western boundaries directed into a 403m^3 sediment basin in the south western corner of the site. Sediment fences have also been included downstream of the southern boundary diversion swale as well as cutting across the south west corner of the site. These measures have been included in Drawing KI-CD-070-01 [C] in Appendix A, which also includes a detail of the sediment retention basin. Supporting calculations for the sizing of the sediment retention basin have been included in Appendix B.

4.4 Bioretention Basin

The completed development has been designed to include a bioretention basin at the southern boundary of the site. The bioretention will have a 170m^2 footprint and will undergo a staged construction in line with council requirements. Refer to Appendix C for a general arrangement plan indicating the proposed location of the bioretention basin.

5. Site Excavation

Details of the extent of all excavation works is included in the bulk earthworks plan 253824-KI-CI-100-01[D] and 253824-KI-CI-100-02[D] which can be found in Appendix D.

There will be no significant material stockpiles for this site.

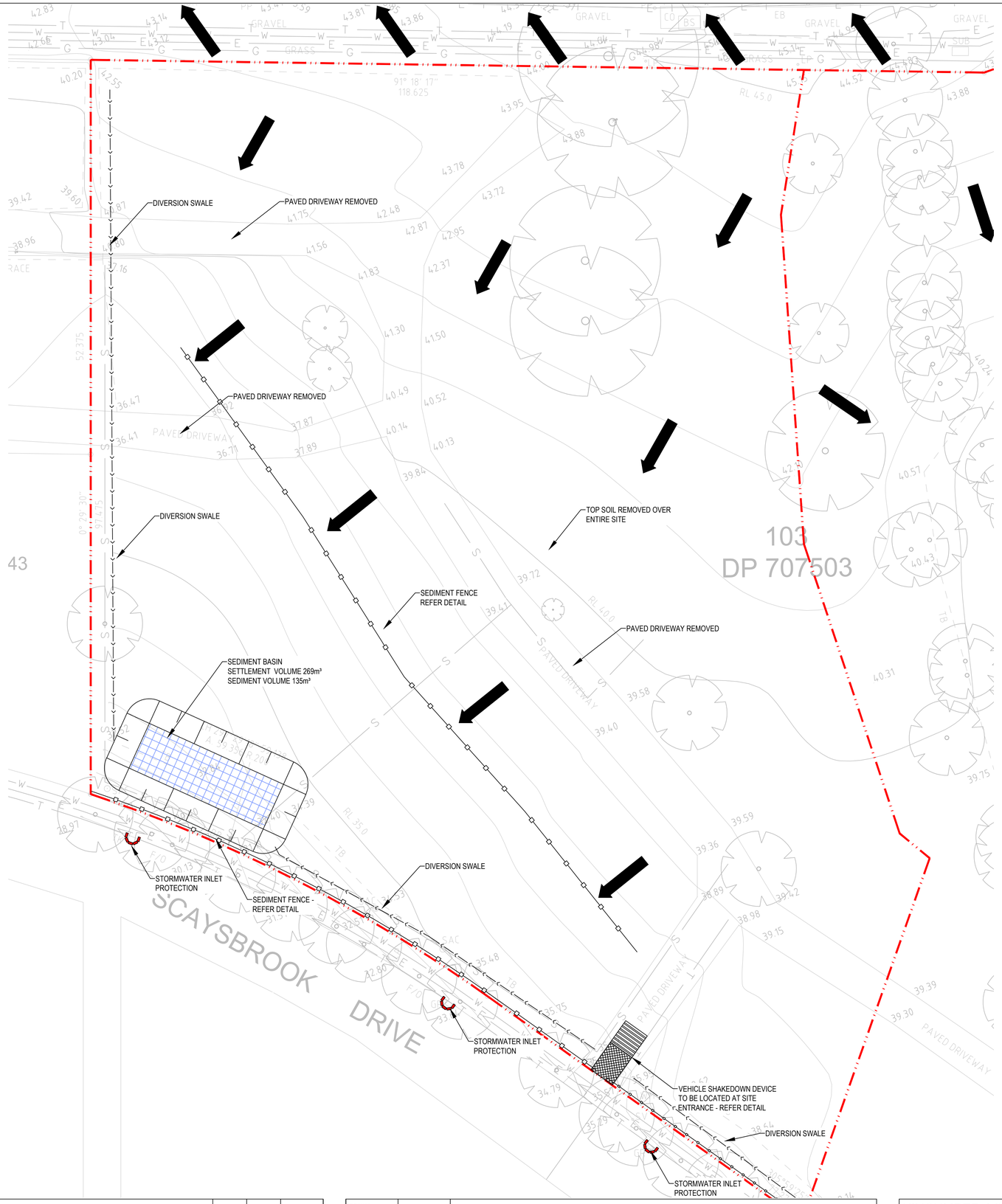
6. Landscaping

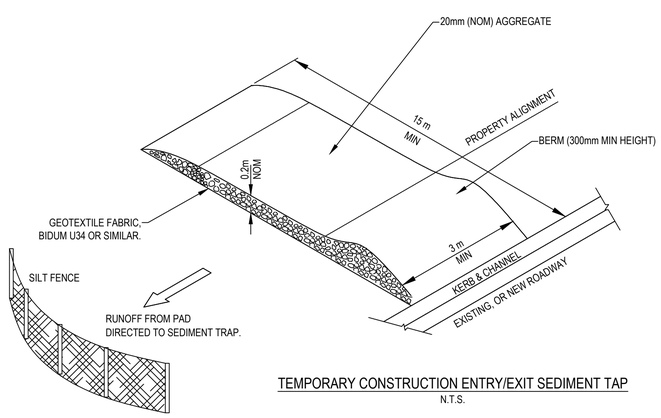
The development of this site will have impacts on the current landscape. The proposed landscaping site plan including a detail of trees to be retained and removed has been included in Appendix E. The landscape plans also detail permanent erosion and sediment control measures that will endure beyond the construction phase.

7. Maintenance – Erosion and Sediment Control

A detailed maintenance program for erosion and sediment control has been compiled by the principal contractor and is included in Appendix E of this report.

Appendix A Erosion and Sediment Control Plan





TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TAP
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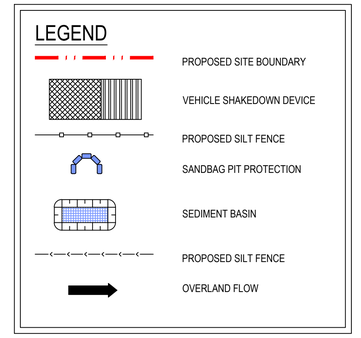

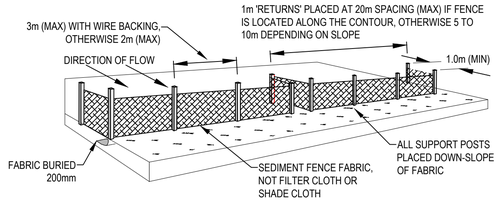

INSTALLATION OF SEDIMENT FENCE
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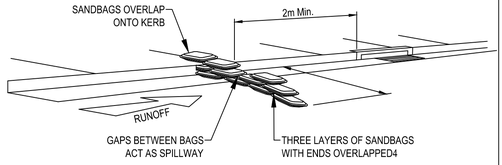

SANDBAG KERB INLET SEDIMENT TRAP
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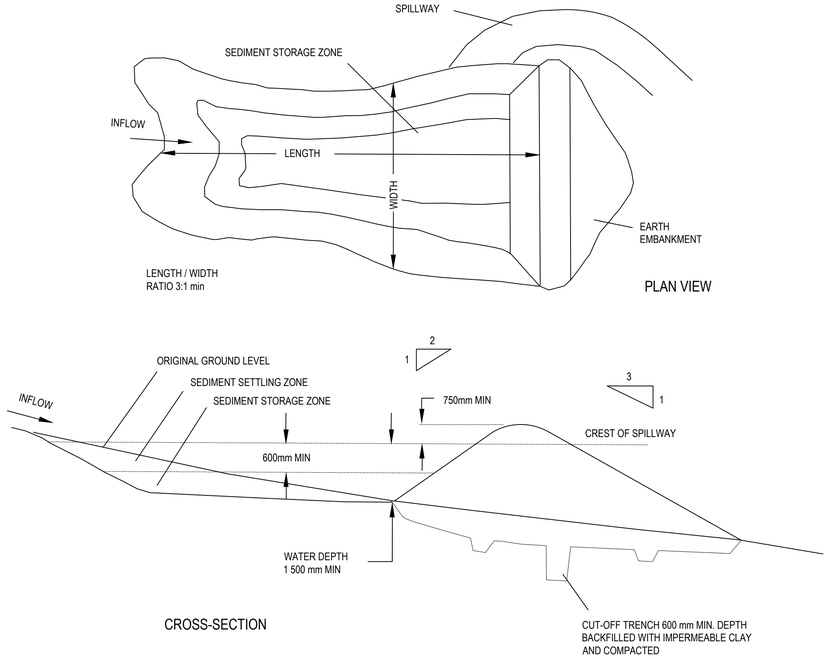

SEDIMENT BASIN DETAIL
NTS

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VERIFIED:	
APPROVED FOR TENDER:	
APPROVED FOR CONSTRUCTION:	

ARCHITECT/CLIENT

KINCUMBER AGED CARE — PROJECT

EROSION AND SEDIMENT CONTROL PLAN — TITLE

253824-KI-CD-070-01.dwg

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AS SHOWN	253824	KI-CD-070-01	C
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Appendix B Sediment Basin Sizing Calculations

1. Site Data Sheet

Site name: Kincumber Aged Care

Site location: 33 Scaysbrook Drive, Kincumber

Precinct:

Description of site: Brownfield Site

Site Area	Site						Remarks
	S1						
Total catchment area (ha)	1.21						
Disturbed catchment area (ha)	1.21						

Soil analysis

Soil landscape	Soil Hydrological Group A/B						DNR mapping (if relevant)
Soil Texture Group	Type D/F						Sections 6.3.3(c), (d) and (e)

Rainfall data

Design rainfall depth (days)	5						See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	80						See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	35						See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm							See IFD chart for the site
Rainfall erosivity (R-factor)							Automatic calculation from above data

Comments

4. Volume of Sediment Basins, *Type D* and *Type F* Soils

Basin volume = settling zone volume + sediment storage zone volume

Settling Zone Volume

The settling zone volume for *Type F* and *Type D* soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{y\text{-}\%ile,\ x\text{-}day}\ (m^3)$$

where:

- 10 = a unit conversion factor
- C_v = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period
- R = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).
- A = total catchment area (ha)

Sediment Storage Zone Volume

In the standard calculation, the sediment storage zone is 50 percent of the setting zone. However, designers can work to capture the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)), in which case the "Detailed Calculation" spreadsheets should be used.

Total Basin Volume

Site	C_v	R x-day y-%ile	Total catchment area (ha)	Settling zone volume (m^3)	Sediment storage volume (m^3)	Total basin volume (m^3)
S1	0.64	35	1.21	268.8	134.4	403.2

Appendix C Bioretention Basin

AVOCA DRIVE

PROPOSED RETAINING WALL

450x450 GRATED PIT
SL: 42.550
IL: 42.100

450x450 GRATED PIT
SL: 43.000
IL: 42.650

450x450 GRATED PIT
SL: 43.500
IL: 43.050

Ø225

Ø225

PROPOSED RETAINING WALL

RAINWATER TANK OVERFLOW

450x450 JUNCTION PIT
SL: 38.500
IL: 37.900

4 x 2.4m DIA. 2.3m DEEP
UNDERGROUND
RAINWATER TANKS

450x450 JUNCTION PIT
SL: 41.000
IL: 40.640

450x450 JUNCTION PIT
SL: 41.500
IL: 41.050

PROPOSED RETAINING WALL

Ø375

RAINWATER TANK OVERFLOW

900x900 GRATED PIT
SL: 36.500
IL: 35.600

5 x 2.4m DIA. 2.4m HIGH
RAINWATER TANKS IN
UNDERCROFT

6 x 2.4m DIA. 2.3m DEEP
UNDERGROUND
RAINWATER TANKS

RAINWATER TANK OVERFLOW

KERB INLET PIT
1.2m LINTEL
SL: 41.500
IL: 40.225

PROPOSED RETAINING WALL

Ø375

900x900 GRATED PIT

JOINS CD-520-02

REV	DESCRIPTION	DRAWN	APP'D	DATE
C	ISSUED FOR DA APPROVAL	CPO	IAH	28.03.19
B	FOR INFORMATION	IAH	IAH	27.02.18
A	ISSUED FOR DA APPROVAL	CPO	IAH	06.02.18

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DESIGNED:	
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APPROVED FOR TENDER:	
APPROVED FOR CONSTRUCTION:	

ARCHITECT/CLIENT

PROJECT: KINCUMBER AGED CARE

TITLE: GENERAL ARRANGEMENT PLAN - SHEET 1

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JOINS CD-520-01

900x900 GRATED PIT
SL: 36.500
IL: 35.405

Ø375

KERB INLET PIT
1.2m LINTEL
SL: 39.60
IL: 38.325

900x900 GRATED PIT
SL: 38.60
IL:37.325

KERB INLET PIT
1.2m LINTEL
SL: 38.700
IL: 37.223

170m² BIO-RETENTION BASIN.

Ø150 WIDE GRATED DRAIN

KERB INLET PIT
1.2m LINTEL
SL: 38.580
IL: 37.305

SCAYSBROOK DRIVE

PAVED DRIVEWAY

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A	ISSUED FOR DA APPROVAL	CPO	IAH	06.02.18

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APPROVED FOR CONSTRUCTION:	

ARCHITECT/CLIENT

KINCUMBER AGED CARE

PROJECT

GENERAL ARRANGEMENT PLAN - SHEET 2

TITLE

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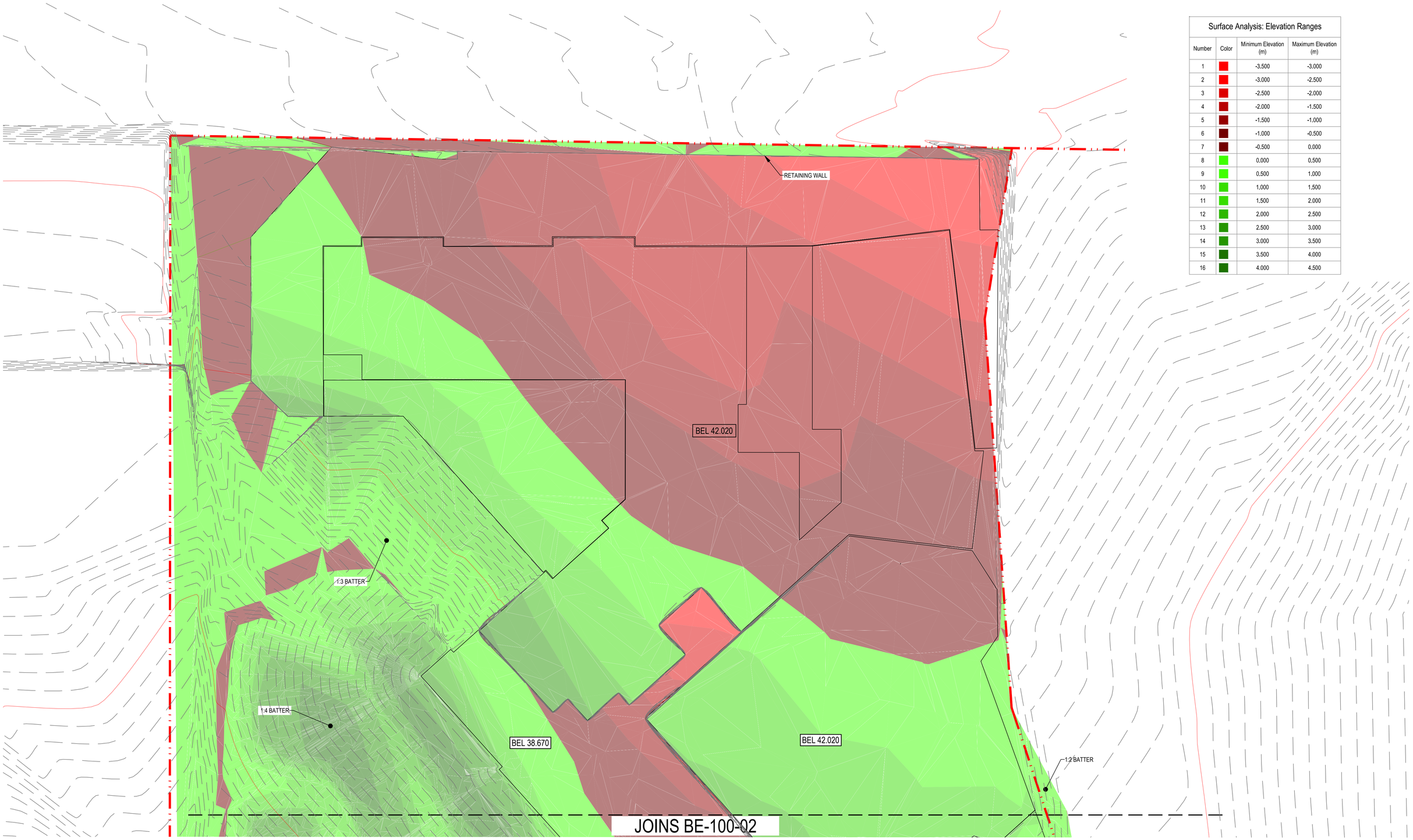
Appendix D Bulk Earthworks Plans



Surface Analysis: Elevation Ranges

Number	Color	Minimum Elevation (m)	Maximum Elevation (m)
1		-3.500	-3.000
2		-3.000	-2.500
3		-2.500	-2.000
4		-2.000	-1.500
5		-1.500	-1.000
6		-1.000	-0.500
7		-0.500	0.000
8		0.000	0.500
9		0.500	1.000
10		1.000	1.500
11		1.500	2.000
12		2.000	2.500
13		2.500	3.000
14		3.000	3.500
15		3.500	4.000
16		4.000	4.500

1:200 2 0 2 4 6 8 10 A1
1:400 A3

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B	UPDATED FOR MOUNDS	IAH	IAH	14.01.19
A	ISSUED FOR DA APPROVAL	CPO	IAH	06.02.18

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APPROVED FOR CONSTRUCTION:	

ARCHITECT/CLIENT

KINCUMBER AGED CARE

PROJECT

BULK EARTHWORKS PLAN - SHEET 1

TITLE

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NOT FOR CONSTRUCTION

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JOINS BE-100-01

BEL 38.670

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1:2 BATTER

Surface Analysis: Elevation Ranges			
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)
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3		-2.500	-2.000
4		-2.000	-1.500
5		-1.500	-1.000
6		-1.000	-0.500
7		-0.500	0.000
8		0.000	0.500
9		0.500	1.000
10		1.000	1.500
11		1.500	2.000
12		2.000	2.500
13		2.500	3.000
14		3.500	3.500
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APPROVED FOR TENDER:	
APPROVED FOR CONSTRUCTION:	

ARCHITECT/CLIENT

PROJECT: KINCUMBER AGED CARE

TITLE: BULK EARTHWORKS PLAN - SHEET 2

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Appendix E Landscape Plan

House A, B and C to F

Legend

01 Driveway
02 Carpark
03 Ambulance Bay
04 Setdown
05 DDA access
06 Mechanical plant
07 Footpath to Council standard drawings
08 Bus stop
09 Street trees to Council standard drawings
10 Garden bed-native buffer palette
11 Garden bed-Perimeter palette
12 Courtyard palette
13 House A courtyard
14 House B courtyard
15 Turf
16 Bio-retention basin to engineers drawings
17 Landscape bund palette
18 Lomandra Longifolia planted to either side of new footpath
19
20 Hedge planting to surround booster

Kincumber Residential Aged Care | Development Application

ASPECT Studios™

Client: Lendlease Building Pty Ltd

Drawn: DL
Checked: AW
Scale: 1:500@A3
Date: 25 October 2019

0 5 10 15 20M

Dwg no. : B17035 - SK2.0
Rev: G

Appendix F Maintenance Program

LEND LEASE BUILDING PTY LTD | 97 000 098 162

KINCUMBER RACF - STAGE 2 CONSTRUCTION

290 AVOCA DRIVE, KINCUMBER

MANAGEMENT PLAN - STORMWATER AND EROSION

14/10/2019 | Revision No: 1.1

Sub Plan Revision Status				
Date	Revision (in numbers)	Purpose and Summary of Amendments	Reviewed by	Approved by
22/03/19	1	For local authority review and DA approval	Ian Harris	Numa Miller
14/10/19	1.1	Updated SWMP	Ian Harris	Numa Miller

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1. SCOPE OF PROJECT AND SUB PLAN

Project Details	
Scope of the Sub Plan	This Stormwater, Erosion and Sedimentation Management Sub Plan provides strategies and mitigation measures to manage disturbed areas of the site. It outlines appropriate measures to ensure that activities including excavated soil, stormwater, erosion, and sedimentation are managed appropriately during site establishment and construction of the project. It describes measures to be implemented during relevant construction activities and defines discharge protocols and treatment procedures that enable control of the impacts of the construction activities on potentially affected areas of adjacent water bodies. Refer to Section 1.1 and 3.1 of the Project EHS Management Plan for clarification on how the EHS Sub Plans form part of the Lend lease Building (LLB) EHS management system.
Objectives of the Sub Plan	• To avoid erosion, contamination and sedimentation occurring, resulting from construction activities with a concentration on controls to minimise dust and vehicular mud-tracking. • To control the quality of stormwater leaving the construction site, so that no unacceptable impact will intrude upon the natural watercourses and/or stormwater drains. • To minimise disturbance of the surrounding hydrological regime • To maximise opportunities for stormwater recycling on site. • To effectively manage the bulk excavation and associated dewatering activities to minimise impact on any adjacent water bodies. • Erosion and sediment controls are to be effective and properly maintained at all times. • Water treatment procedures to treat collected /retained stormwater to achieve acceptable water quality criteria. • To monitor the effects of activities and the effectiveness of mitigation measures
Scope of Works	This Sub Plan has been prepared based on consideration of the following scope of works: : • Site establishment including office by using existing structure, compound setup and the installation of environmental controls; • Construction of a Residential Aged Care Facility •

Key Issues and Risks	The site is located at H290 Avoca Drive, Kincumber. The site is bounded by Avoca drive to the north, grassed properties to the east, Scaysbrook Drive to the south and a residential property / retirement village to the west. The soils at the site are detailed in **'GeoTech Report - 91006 00 R 001 Rev0'** Which detail the following; • Subsurface conditions, including depth of fill, depth to groundwater and depth to bedrock; • Excavation conditions; • Site classification in accordance with AS2870-2011; • Shallow footing options and design parameters, including allowable bearing capacities and estimated settlements; • Internal driveway and car park pavement thickness design; • Retaining wall parameters; • Geotechnical suitability of materials for re-use; • Earthworks prepration measures It is **NOT EXPECTED** that groundwater will be encountered at up to a depth of 4.5m. The works required on site will involve ground disturbance creating the potential for erosion, sedimentation, runoff and environmental pollution, if appropriate controls are not implemented and maintained. The activities with the greatest potential to impact on the local environment and community from a stormwater, erosion and sedimentation perspective are considered to be: • Establishment and operation including storge areas; • Bulk and detailed excavation and spoil generation; • The delivering and unloading of materials to site; Stormwater and groundwater detention and dewatering. andWaste disposal The impact of these works may include: • Cause of potential flow into stormwater system and/or adjacent surface water bodies from sediment laden water originating from the site. • Stormwater with excessively high or low pH values could potentially run-off from selected stockpile stabilisation areas. • Pollution of local ecosystems and waterways due to uncontrolled site runoff; • Pollution associated with the discharge of sediment laden or contaminated water during dewatering activities; • Vehicles exiting construction site potentially depositing dust/dirt/mud on public roads after rain periods. • Localised flooding during high intensity storm events.

	The implementation of the control measures identified in the EHS Plan and Stormwater, Erosion and Sedimentation Management Sub Plan are intended to prevent or mitigate these impacts.
Legislation and Guidelines	**Federal/National:** The 'Blue Book' (Managing Urban Stormwater Soils and Construction) – Landcom, Fourth Edition (2004) 'White Books' - IECA 2008. Best Practice Erosion and Sediment Control. Books 1-6.International Erosion Control Association (Australasia) Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 Australian Guidelines for Water Quality Monitoring and Reporting 2000 **State:** Work Health and Safety Act 2011 Work Health and Safety Regulation 2011 Protection of the Environment Operations Act 1997 Environmental Planning and Assessment Act 1979 Water Management Act 2000 Water Act 1912 **Local:** The Gosford DCP (Development Control Plan) 2014 The Gosford LEP (Local Environmental Plan) 2014 State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Seniors Living SEPP) **Lendlease Requirements:** • GMR: 4.13 Degradation or Pollution of the Environment • GMR: 4.15 Uncontrolled Release of Stored Energy (non-electrical)) • Lendlease Building Workplace Delivery Code (WDC)

Summary of Site Controls	Works must be planned and implemented in accordance with the Lendlease GMRs, the Project EHS Plan, this Sub Plan and the Lendlease Building WDC. These documents detail Lendlease's approach and commitment to pro-active and responsible site management. Site specific controls, monitoring, reporting and performance measurements have been identified in this Sub Plan to prevent or minimise the impacts of construction on the environment and community. These include but are not limited to: ● Preventing erosion through minimal ground disturbance; ● Maintenance of erosion and sedimentation controls; ● Covering of stockpiles; ● The use of controls to trap sediment close to its source and prevent migration off site; ● The control and maintenance of site access and egress points to prevent tracking and off-site pollution; and ● The identification of acceptable detention, testing, treatment and dewatering processes. A Stormwater, Erosion and Sedmentation Management Diagram (EMD) will be prepared prior to any site activities commencing including clearing and earthworks. Construction stage stormwater, erosion and sedimentation requirements will be included in relevant specifications, contract agreements, quality assurance documents, and subcontractor work method statements. Site inspections, monitoring and reporting will be undertaken by Lendlease and subcontractors as detailed in the EHS Plan and the following implementation table.

2. IMPLEMENTATION OF THE SUB PLAN

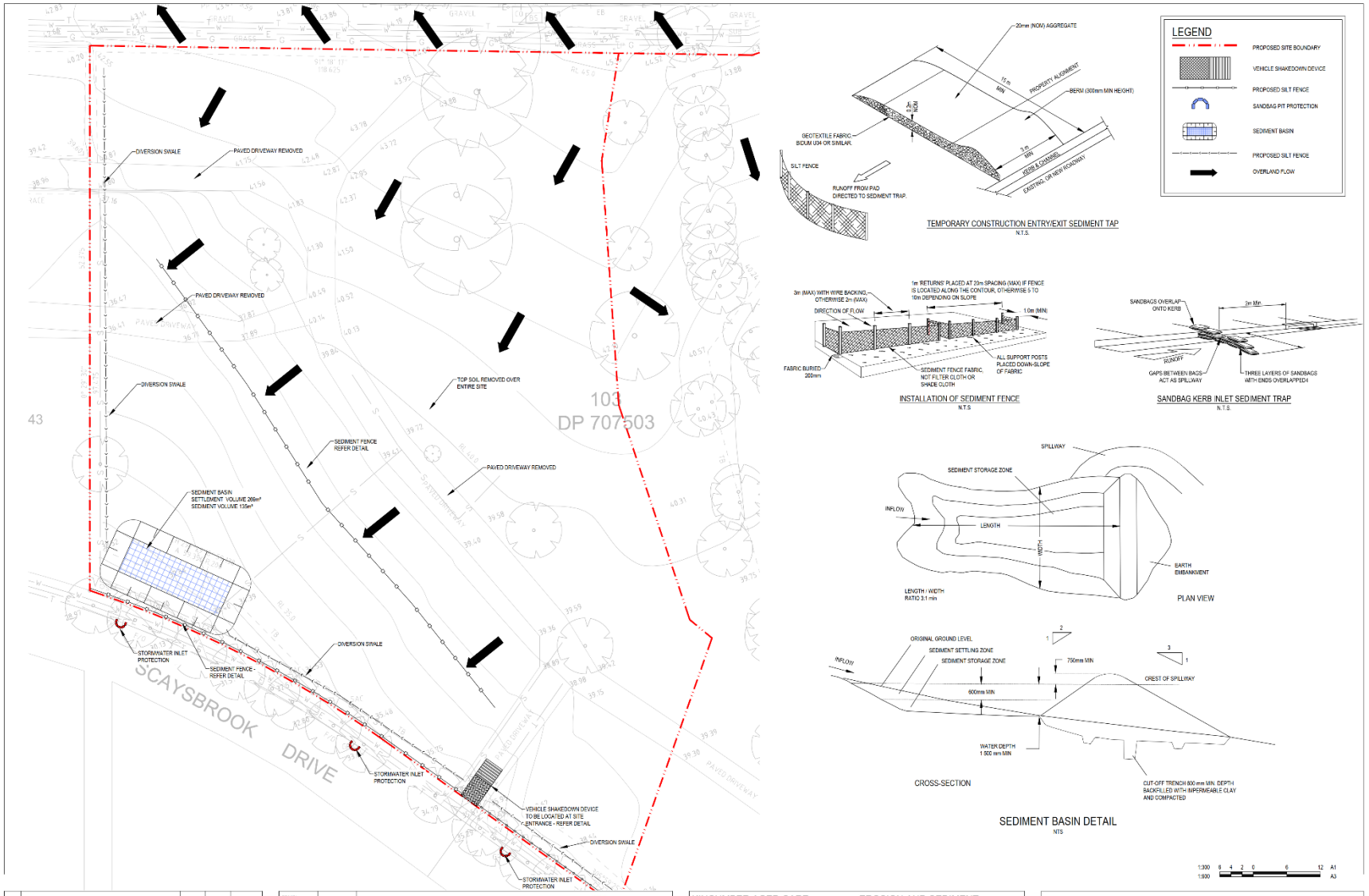
Control Measure	Timing	Methodology	Responsibilty	Monitoring and Reporting	Performance Measurement
Planning and Site Establishment					
Include information in the Site Induction about the risks and potential impacts of stormwater runoff, erosion and sedimentation on the local environment and community.	Prior to works commencing and ongoing	Revise Lendlease standard induction package to include site specific information. Deliver induction material.	SM	WMS prepared by subcontractors to address stormwater, erosion and sedimentation	Site induction delivered to all workers on site.
Prepare a stormwater, erosion and sediment Environmental Management Diagram (EMD) showing the location of stormwater inlets, drains, stockpile locations and erosion and sediment control measures.	At site establishment and prior to works commencing	Review Environmental Management Diagram (EMD Appendix 1). Disconnect and cap all stormwater services prior to commencement	SM	EMD reviewed. Diagram updated every 6 weeks.	Diagram prepared containing all relevant details and communicated. Diagram updated to reflect changes in site conditions. Controls implemented in accordance with the EMD.
Limit ground disturbance to the area required for excavation and construction.	Areas of clearing identified prior to works commencing	Detail excavation requirements on staging/sequencing program. WMS prepared by subcontractor. Identify and fence off trees/vegetation to be retained. Communicate details.	SM	Daily surveillance to assess condition of fencing. Weekly inspection checklist. Inspection after a rain event.	No unnecessary land disturbance. Vegetation protection fencing and signage maintained.
Disconnect stormwater, and install erosion and sediment controls as per the EMD.	Prior to works commencing	Undertake a site inspection to verify the correct location of controls.	SM	Daily surveillance to assess effectiveness and condition.	EMD reviewed very 6 weeks. Controls modified or new controls installed as required.

		Install controls in accordance with EMD, design/engineers documentation. Disconnection of all stormwater services prior to construction works		Weekly inspection checklist.	
Establish stable site exit points, parking areas, internal roads and turning areas to prevent the tracking of material off-site onto public roads.	Prior to works commencing. Maintain at all times	Retain existing hard surfaces where possible. Construct stable site entry/exit points and roadways using appropriate materials. Installation of cattle grid at entry/exit	SM	Daily surveillance and maintenance. Weekly inspection checklist.	No tracking of sediment onto public roads or dust.
Install a cattle grid or shaker facility at the site entry/exit.	Prior to construction commencing	Maintain shaker grid, cattle grid facility WMS to be prepared by subcontractor including a maintenance program. Engage sweeper. Limited hosing of hard surfaces only.	SM	Daily surveillance. Weekly inspection checklist.	No mud/silt tracked onto roadways.
Provide additional sediment detention areas to capture site runoff as required.	Prior to commencing works	Assess exisitng sediment detention areas Operate and maintain in accordance with design/ engineering documentation	SM	Daily surveillance to assess condition and capacity. Weekly inspection checklist. Inspection during and immediately after rain.	Appropriately maintained detention areas.
Erosion and Sediment Control During Construction Works					

Maintain Detention Areas	At all times and after rain events	Check the condition of controls. Remove accumulated sediment and debris and dispose. Undertake maintenance as required.	SM	Daily surveillance. Weekly inspection checklist. Post rain inspections.	Silt collected at base of fence. No breach of fence line.
Cover all loads leaving site to minimise the potential for spillage and tracking.	At all times	WMS prepared by subcontractor to address covering of loads and prevention of tracking. Loads and the condition of trucks/tailgates checked by subcontractor before leaving site.	SM	Daily surveillance. Weekly inspection checklist	No uncovered loads No non conformances identified.
Locate stockpiles away from drainage lines, watercourses, sensitive ecosystems and flood prone areas.	At all times	Stockpile locations identified on EMD diagram. WMS prepared by subcontractor addresses stockile management.	SM	Daily surveillance. Weekly inspection checklist.	No uncontrolled stockpiles. No stockpiled material runoff into the stormwater system.
Maintain erosion and sediment controls until the potential for erosion and sedimentation has been eliminated.	At all times	Maintain controls in accordance with SESC diagram. Do not remove controls prior to any area being deemed stable.	SM	Weekly inspection checklist Inspections during rain events.	Controls effective and in good condition. No uncontrolled discharges of sediment off-site or into waterways.
Stormwater Detention and Dewatering					
Inspect detention facilities and stormwater treatment devices and remove any build up of debris.	Ongoing. Within 24hrs of a rain event	Maintain detention facilities for storm events.	SM	Inspection within 24hrs of nominated rain event.	Detention areas/facilities to be maintained in operational condition.

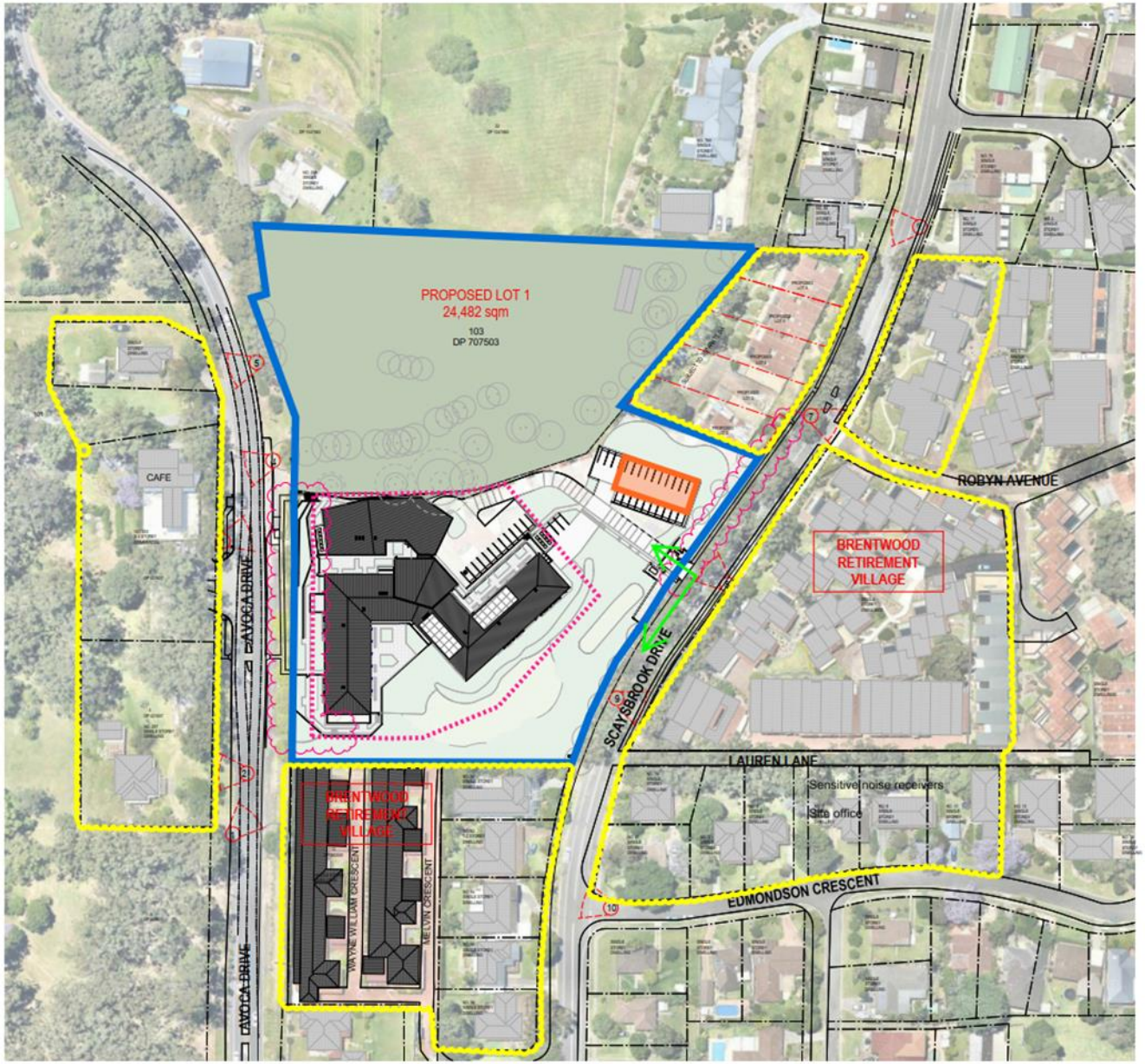
		Inspect the site after each rain event including sediment basins/detention areas and stormwater treatment devices. WMS to be prepared by sub-contractor to address inspection, testing and dewatering.		Weekly inspection checklist.	No uncontrolled discharges under design conditions.
Establish defined De-Watering Zone	As Required	WMS prepared by subcontractor to address this option. Undertake water quality testing in the event where we required to discharge off site.	SM	Inspection within 24hrs of nominated rain event. Weekly inspection checklist	Water treatment and dewatering undertaken in accordance with documented site procedure and Workplace Delivery Code. No discharge into authority stormwater
Site Stabilisation					
Implement site stabilisation works.	Progressively during Construction	Stabilise and seal disturbed areas in accordance with the design/engineering/landscape plans and scope of works.	SM	Weekly inspection checklist Project planning and design meetings.	Stabilisation of all disturbed work areas as required. No uncontrolled runoff containing sediment or contaminants.

Appendix 1 : Erosion & Sediment Control Plan



STORMWATER, EROSION AND SEDIMENT MANAGEMENT SUB PLAN
ISSUE NO: 1.1 \ ISSUE DATE: 22/03/2019 \ PROJECT REVISION NO: [1]
LENDLEASE BUILDING MANAGEMENT SYSTEM

APPENDIX 2 : ENVIRONMENTAL MANAGEMENT DIAGRAM


PROPOSED LOT 1
24,482 sqm
103
DP 707503
CAFE
CAVOCA DRIVE
SCAYSBROOK DRIVE
ROBYN AVENUE
BRENTWOOD RETIREMENT VILLAGE
LAUREN LANE
Sensitive noise receivers
Site office
EDMONDSON CRESCENT
WAYNE WILLIAM CRESCENT
MELVIN CRESCENT
1 LOCALITY PLAN
SCALE 1 : 750
Vehicle entry and egress into the site
Site hoarding / ATF fencing
High noise work zone
Sensitive noise receivers
Site office

Design with
community in mind

Street Address 1
Street Address 2
City, State, Postcode
Tel +61 Area Code + Phone No.
E Office email

For more information please visit
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