BARKER RYAN STEWART

TOTAL PROJECT SOLUTIONS

PLANNING
PROJECT MANAGEMENT
ENGINEERING
CERTIFICATION

W & J Lee Property Investments

Soil & Water Report

2F The Crescent, Kingsgrove

December 2019

Project No.	SY180154
Author	GL
Checked	JT
Approved	GJ

Rev No.	Status	Date	Comments
1	For Submission	22/08/2019	
2	For submission	17/09/2019	Update receive process
3	For Submission	16/12/2019	2F Included

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1 Introduction

This Soil and Water Assessment has been prepared by *Barker Ryan Stewart* to support the submission of a development proposal for a resource recovery facility at 2F The Crescent, Kingsgrove. It reviews the current soil and water systems and details how the development could negatively impact on them and provides mitigation measures for each in accordance with the SEARs requirements for the project.

Where calculations have been provided it details the procedures, assumptions and parameters adopted and the results of any calculations.

In the preparation of the report, the following soil and water management components have been considered:

1. The existing site conditions, stormwater runoff and the downstream drainage system.
2. The stormwater drainage design as detailed in the plans prepared by Warren Smith and Partners.
3. The flood liability of the site as detailed in a letter by GRC Hydro.
4. The soil profile as provided in the report undertaken by ElAustralia.
5. Water quality measures capable of reducing the required pollutants loads down to Council's stated requirements.
6. The proposed potable water usage for the development and the measures proposed to reduce the annual mains usage.
7. The amount of effluent generated from the site that will need to be disposed of either via the sewerage system or pumped out and disposed of offsite in an authorised manner.
8. Assessment of the potential soil and water impacts arising from the development.

The soil and water assessment indicates that subject to adequate management measures being implemented, the development can meet and adequately control the impacts of the proposal related to;

1. Soil and groundwater contamination
2. Erosion
3. Stormwater runoff peak flow rates
4. Flooding
5. Water quality discharge requirements.

2 Site Location and Development Proposal

2.1 Site Location

The site of the proposed development is described as Lot 2 in DP 1235786 and is also known as 2F The Crescent, Kingsgrove. The location of the site is shown in Figure 2.1 below and is bounded by Wolli Creek to the north, existing warehouse and industrial buildings to its east and south and a large vacant parcel of land to the west. The site is irregular in shape with frontages to The Crescent and Wolli Creek and is located in the Kingsgrove Industrial Park with a zoning of IN2 – Light Industrial.

Figure 2.1 Site location (NSW Land & Property Information SIX Maps 2017)

2.2 Existing Site

The site is clear of structures and has small trees and vegetation in its north western corner with the remainder mostly covered with a bitumen or concrete seal. Both the bitumen and concrete slab appear to be in a reasonable to good condition and capable of supporting trucks and similar vehicles. The property is currently used as a storage space for trucks and unused skip bins which are parked randomly around the sealed area of the site.

The Wolli Creek channel is located along the sites northern boundary which is where the site currently drains to. There is a slight fall from the site's streets frontage, being The Crescent down to its rear in its north east corner along Wolli Creek.

The site is serviced with potable water from a water main located in the road reserve and a sewer main that currently traverses the site. The survey plan for the site is shown in Appendix A.

2.3 Existing Environment

As reported in the Geotech report undertaken by ElAustralia, dated 5 May 2016, the soil profile consists of poorly to moderately compacted fill material over residual soil comprising of moderate to high plasticity clay generally firm too hard on extremely low to very low strength shale on low strength sandstone. Sub surface conditions are nominated by the Department of Mineral Resources Geological map Sydney 1:100,000 geological series as being underlain by Ashfield Shale which consists of laminate and dark grey siltstone.

A flood review has been undertaken by GRC Hydro which references the Georges River Council – Overland Flow Flood Study for Hurstville, Mortdale and Peakhurst Wards which was prepared for Georges River Council and dated 30 November 2016. It notes that the site is not flood affected as can be seen in their document which is attached in Appendix B.

In the bore holes that were excavated in preparation of the goetech report, it was revealed that the groundwater table existed at a depth of approximately 2.5 to 4m below the existing ground surface. A search on WaterNSW's website revealed that there are no real-time groundwater data sites currently operational within the proximity of the site and a further search on the Bureau of Meteorology's website revealed that there are no operating bores within the local area.

The Cooks River Ecological Health Report Card of 2015-2016 published by Cook River alliance indicated that the following grades were provided for the Wolli Creeks health over the preceding years;

2016	E plus	(poor)
2015	F plus	(poor)
2014	E	(poor)
2013	E	(poor)

A review of the Office of Environment and Heritage's website showing Acid Sulphate Soil Risk occurrence at a scale of 1:25,000 for the area shows there to be no acid sulphate soil risk in the area.

2.4 Proposed Development

2.4.1 General

The site will be split into two, with only part of the site being developed as a waste transfer facility. The rest of the site will remain in its current state. The part of the site that will be developed will incorporate water quantity and quality measures in accordance with council requirements with the second part of the site remain in its current condition, utilising the existing drainage system that is separate to the part that will be redeveloped.

The proposed development consists of the construction of a truck weighbridge, main sorting shed constructed with precast concrete panelling and a concrete floor and a secondary building which will be the gate house and amenities building. The remainder of the site will be sealed with pavement and used for vehicle manoeuvring.

The facility will take dry construction and demolition waste and dry commercial and industrial waste. The waste is intended to be stored in the processing building and out of the weather. All processing will take place in the building in a controlled environment before being removed from the facility.

Waste streams that the facility will receive will be generated from construction and demolition (C&D) waste and Commercial and Industrial (C&I) waste and comprise the following;

- plastic, plasterboard, bricks, concrete or metal;
- paper or cardboard;
- green waste;
- wood waste;
- building and demolition waste; and
- asphalt waste.

The facility will not accept any of the following waste streams;

- special waste (including clinical and related waste; asbestos waste; whole loads of waste tyres; or anything classified as special waste under an EPA gazettal notice) as defined by the EPA;
- liquid waste as defined by the EPA;
- general solid waste (putrescible) as defined by the EPA;
- waste possessing hazards as defined by the EPA; or
- waste that requires chemical assessment to determine its classification as defined by the EPA.

Vegetation waste will not be allowed to compost on site and no asbestos and odorous waste will be accepted by the facility. Any material that is not acceptable to the facility will be dealt with in accordance with the relevant EPA guidelines. It is noted that materials accepted by waste facilities are restricted to specified waste types by the development consent for the facility and the site's Environment Protection Licence.

W & J Lee Property Investments takes its workplace health and safety (WHS) responsibilities for the protection of its workforce very seriously, including preventing workers from being exposed to contaminated waste (eg asbestos). It is also in W & J Property Investments' commercial interest that no contaminated waste is accepted onto the site. The waste inspections and separation measures therefore protect the employees on site as well as the neighbouring properties.

Cars belonging to workers from the facility will be parked on the existing hardstand area to the south west of the building leaving the upgraded section of the facility for the manoeuvring of trucks in and around the sorting building. The hours of operation of the facility will be Monday to Saturday, 6.00am to 5.30pm with no operations on Sundays and public holidays while the receipt of the material will be 24 hours per day should the need arise.

The site is and shall remain graded in a way that allows all runoff generated by the site to drain into the drainage system and into Wolli creek. The pavement will be sealed with concrete across all trafficable areas. The configuration of the proposed development is shown on the plans contained in Attachment C.

2.4.2 Operating Procedures

Site operations will include the arrival of bins loaded with both the C&D and C&I waste on trucks that will enter the site from The Crescent where they will be weighed and visually inspected by the weigh bridge operator prior to being accepted by the facility. Trucks will then enter the shed where a yard supervisor will again visually inspect the load prior to tipping on the floor. If deemed acceptable, the load will be allowed to be tipped on the floor in the designated area, then spread as per the EPA guidelines to again be inspected and assessed far acceptability.

Should the site receive a bin say outside of their allowable hours of operation then it will be stored in the shed until such time as the plant is open and it can be moved into the shed and tipped and processed.

From time to time even after visual inspections have been undertaken, a small quantity of unacceptable waste may be encountered hidden in the load. If this sort of waste is discovered, the management and site personnel will handle in accordance with the NSW EPA's *Standards for managing construction waste in NSW* (2019).

Once the material has been sorted it will then be loaded into new bins and trucks and sent to the appropriate receiving facility.

2.4.3 Water Usage and Handling

The site will incorporate rainwater tanks catching runoff from the main shed, a gross pollutant trap (GPT), an On Site Detention (OSD) structure (located immediately upstream of the discharge point into Wolli Creek) and a standard pit and pipe collection system which drains into the OSD/GPT structure. A shut off valve is proposed to be located below the OSD structure which will be accessible to the fire brigade in the event of a fire on the site, this way all fire fighting runoff will be captured and stored on the site.

The rainwater tanks will be used to store stormwater from the building's roof for reuse in a dust suppression fogging machine. The proposed dust suppression unit will be used to suppress dust through the operations within the building but will not wet the floor of the facility. The fogging equipment is to be supplied by Coolfog and is expected to operate with a water flow of 15 litres per minute over periods of time as required during operations. It is expected that this will require the device to operate for about 10 minutes every hour and so draw an average volume of 150 litres per hour during operating hours, however this will depend on what material is being sorted and how affective the fogging device will be.

To provide a water quality treatment system capable of reducing suspended solids, total nitrogen and total phosphorous down to the required reduction targets of 85%, 65% and 45% it will be necessary to incorporate into the development a filter system that can be located either within the OSD structure or immediately upstream of it. The filter system proposed is a Stormfilter system with 4 Psorb cartridges provided by Ocean Protect. The cartridges work by absorbing pollutants and retaining them and allowing cleaner water to drain through, they therefore will need regular maintenance and will need to be replaced at regular intervals. The system is also capable of trapping oil and grease from the driveway system.

The potable water usage of the proposed facility will need to cater for the amenities of the staff and the fogging device to suppress any dust created during the operations. There are no plans for a wash down area for the trucks or bins within the proposal.

Wastewater generated from the amenities block will be discharged directly to Sydney Water's sewerage system. The amenities wastewater will be the only water generated by the facility that is discharged directly to Sydney water's sewerage system. The only other source of wastewater from the facility will be from the collection pit located within the facility which is designed as a sump with a holding tank connected to it. This sump will collect any water draining from either wet vehicles or equipment that enters the building and generate surface water or from the testing of the fire fighting equipment should a test of fire hoses and equipment need to be undertaken. There is expected to be no wet waste material generated from the processing of the dry waste.

2.4.4 Potential Impacts

The main parts of this development which have potential to impact on the soil and water environment are as follows;

- Water quality impacts associated with an uncontrolled stormwater discharge.
- Water and soil Quality impacts associated with oil or chemical spills.

- Water quantity impacts associated with an uncontrolled stormwater discharge.
- Flooding from Wolli Creek.
- Increased potable water usage.
- Soil Loss during construction.

3 Mitigation Measures of Possible Impacts

3.1 Storm Water Quality Impacts and its Mitigation

3.1.1 General

Conventional urban development has a significant impact on the natural environment by altering the water cycle and conveying stormwater pollution to waterways. Urban stormwater is often contaminated with litter, sediment, dissolved nutrients and heavy metals, which can damage the aquatic environment. Hard surfaces such as roofs, roads and footpaths increase the amount and speed of stormwater impacting on the physical and ecological environment of natural waterways.

3.1.2 Government Policies

From an internal council memorandum, it has been indicated that Georges River Council require as a minimum a gross pollutant trap be incorporated into the development capable of treating the flow from a 1 in 3 month ARI storm event with capacity to capture pollutants during a 1 in 20 year ARI event. As the proposal will be an integrated development due to it being a resource recovery facility, it will also need to comply with the requirements from the referral authorities. Previous submissions have shown that the site will need to provide evidence that the key pollutants of suspended solids, phosphorous and nitrogen are dealt with in a manner that reduces the post developed site to 85%, 65% and 45% of that of the untreated development.

3.1.3 Methodology

To determine compliance with this requirement, a full analysis of the water quality of the stormwater discharge leaving the site was undertaken using The Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software modelling package.

The analysis considered the use of the following devices to improve the quality of stormwater discharge leaving the site.

For the site:

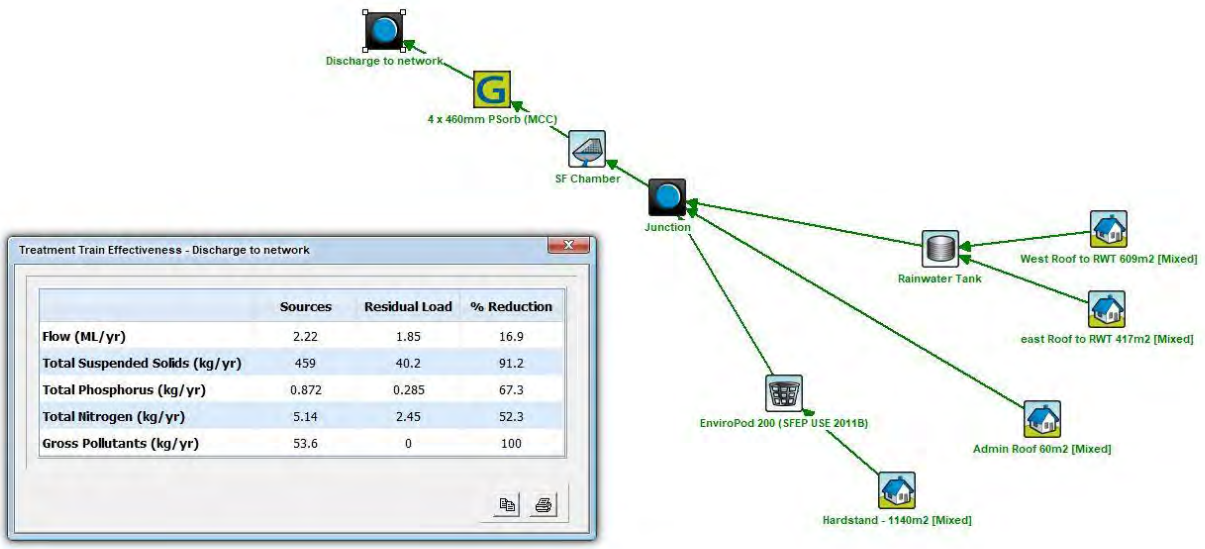
- A minimum of 2, 10,000 litre rainwater tanks will be installed to collect the roof runoff.
- The rainwater tanks will be plumbed back into the system to supply the dust suppression fogging machine.
- It has been assumed that the fogging machine will be running for a period of about 10 minutes every hour and draw water from the tanks at about 150 litres per hour.
- The stormwater will be treated by providing a combination of Stormfilter tanks, Stormfilter cartridges (460mm high) and EnviroPods.

3.1.4 Results

The model has been set up in accordance with the configuration as shown on the following page and run to demonstrate the ability of the measures to achieve the reduction requirements. The results show that the treatment train will reduce the pollutant discharge volumes down to the required reduction ratios for suspended solids, total phosphorous, total nitrogen and the gross pollutants.

	Source	Residual Load	% Reduction
Total Suspended Solids	459	40.2	91%
Total Phosphorous	0.872	0.285	67.3%
Total Nitrogen	5.14	2.45	52.3%
Gross Pollutants	53.6	0	100%

Table 3.1 MUSIC model treatment train results



	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.22	1.85	16.9
Total Suspended Solids (kg/yr)	459	40.2	91.2
Total Phosphorus (kg/yr)	0.872	0.285	67.3
Total Nitrogen (kg/yr)	5.14	2.45	52.3
Gross Pollutants (kg/yr)	53.6	0	100

Figure 3.1 MUSIC Model Treatment Train and Results

3.2 Water and Soil Quality Impacts and their Mitigation

3.2.1 Contamination and Spills

All sorting operations will be undertaken undercover on a sealed concrete surface. The day to day site operations will therefore pose little risk to either soil or groundwater impacts.

All waste will be processed and stored under cover in the shed. Pollutants associated with the waste are therefore unlikely to enter the stormwater drainage system.

Where there is a need to keep oils or chemicals on the site for use with the machinery, it should be stored in a bunded location which has at least a 100% storage volume of the largest container. Should a spill occur outside of the bunded area then the sump and storage tank located within the shed will be utilised to ensure that it is completely contained. Removal of the material thereafter should be from an authorised liquid waste organisation.

To minimise the potential for any spills and leaks from entering the stormwater system the following should be provided at the site;

- Spill kits are made available
- The facility is equipped with equipment specifically designed for the type of clean up operation likely to occur at the facility
- A spill management plan is developed and implemented at the facility
- Training provided to all staff with instructions on small and large scale spills being readily available
- Storage facilities are regularly inspected.

3.2.2 Acid Sulphate Soils

As the Geotech report and the Office of Environment's website have indicated that there is no known risk of finding acid sulphate soils then management measures are considered unnecessary.

3.3 Water Quantity Impacts from Stormwater Discharges and their Mitigation

Plans and calculations have been undertaken and prepared by Warren Smith and Partners (WSP) addressing the sites stormwater disposal and the associated On Site Detention system. The plans provided in Appendix D show that the concrete driveway is serviced by a standard pit and pipe drainage system that drains into a combined water quality and On Site Detention structure.

The results as provided in the WSP report show that the post development flows are reduced back to their corresponding pre development peaks from the existing site. The results from the Warren Smith and Partners documentation show the peak flows being reduced in the following manner;

	Peak Flows from the Site	
Frequency (ARI)	Pre Development (L/s)	Post Development (L/s)
5	76	12
20	108	15
100	137	21

Figure 3.2 Peak Discharge Rates

An isolation valve has been included in the design below the OSD structure to allow the Fire Brigade to be able to isolate the property in the event of a fire. This will ensure that all fire water runoff can be captured and stored on the site once the valve is closed.

3.4 Flooding from Wolli Creek and its Mitigation

The sites flood liability has been assessed by GRC Hydro in accordance with the results provided in the Georges River Council – Overland Flow Flood Study for Hurstville, Mortdale and Peakhurst Wards which was prepared for Georges River Council and dated 30 November 2016. Their assessment indicates that the site is not flood prone during the 100 year ARI event. GRC Hydro has provided commentary on this in their undated letter which is attached in Appendix B.

3.5 Increased Potable Water Usage and its Mitigation

The two main water uses on the site will be firstly the amenities block, supplying potable water to the toiles and to the lunch room and secondly the fogging device. The water usage that will supply the amenities block is considered small and will easily be catered for by the existing Sydney Water potable water mains. The supply for the fogging device being at a maximum of 15 litres per minute could also easily be supplied from the existing Sydney Water supply however to minimise the usage of the mains water supply rainwater tanks will be supplied and connected to the downpipes from the shed's roof.

The potable water usage of the proposed facility will need to cater for the amenities of the staff and the fogging device to suppress any dust created during the operations. There are no plans for a wash down area for the trucks or bins within the proposal, but should one be installed at a later date then it will need to be discharged to the sewer system.

An estimate of usage has been made by assuming that the device will be run for about 10 minutes every hour during the hours of operation however this is an estimate as its usage will depend on the type of material being processed and its moisture content. This equates to a weekly usage amount of 10.35 kL of water a week or 1.479 KL/day based on the plant operating for 6 days a week. To mitigate this amount and reduce the facilities need for mains water, it is proposed to connect two 10 kL rainwater

tanks up to the roof of the shed and use this water whenever available. Using the water balance module in MUSIC, it can be seen that 70 percent of water for the fogging device will typically be supplied by the rainwater tanks, thus significantly reducing the facilities potable water demand.

3.6 Mitigation of Soil Loss during the Construction Process

During construction there is potential for soil loss to occur on any site through cleared and exposed soil being exposed to rain and its runoff together with other soil disturbing activities such as vehicles leaving the site without adequate preventative wheel measures and exposure to the weather. In order to minimise the potential for soil to be collected and removed from the site a soil erosion and sediment control plan should be developed and implemented on the site prior to works starting.

Appendix E shows a soil erosion sediment control plan prepared for this development which will need to be further refined once a complete design has been undertaken and then. The soil plan will then need to be implemented during the construction phase.

4 Cumulative Impacts

4.1 Stormwater Quality

The stormwater quality treatment system as proposed in this report will help minimise any negative impact to the receiving waterway from the pollutants of concern, being phosphorous, nitrogen, suspended solids and gross pollutants.

Given the existing use and existing stormwater structures on the site, the development is unlikely to impact negatively on the Wolli creek / Cooks River drainage system.

4.2 Stormwater Quantity

As the peak discharges during periods of heavy rain will not increase as a result of the on site detention system proposed for the site, negative downstream impacts such as erosion or increased flooding as a result of the development are unlikely to occur.

4.3 Soil Contamination

The site is to be sealed with a concrete driveway and will have no stormwater draining into any areas of garden or landscape strips. As long as effective operational management practices are implemented across the site and all operations are limited to the shed, the facility will pose little concern to the surrounding environment.

4.4 Potable water

There is unlikely to be any significant change in potable water use as a result of the development. The water usage will be supplemented through the use of rainwater tanks.

5 Conclusion

The soil and water assessment has demonstrated that as long as the facility operates with sound management systems and in accordance with the proposed drainage structures then the development will adequately control and or mitigate the impact of;

- Water quality impacts associated with an uncontrolled stormwater discharge.
- Water and soil Quality impacts associated with oil or chemical spills.
- Water quantity impacts associated with an uncontrolled stormwater discharge.
- Flooding from Wolli Creek.
- Increased potable water usage.
- Soil Loss during construction.

6 References

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Facility for Advancing Water Biofiltration (FAWB), 2008, "*Bioretention Filter Media Guidelines*", version 2.01, March 2008.

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Sydney Catchment Authority, '*A guide to the use of MUISC in Sydney's Drinking Water Catchments – draft training version*', SCA, Penrith.

Stormwater 360, 2015, http://www.stormwater360.com.au/products/stormwater-management/filtration/prod/stormfilter

Stormwater 360, 2015, http://www.stormwater360.com.au/products/stormwater-management/gross-pollutant-traps/prod/enviropod

ATTACHMENT A

SURVEY

METRES

SCHEDULE OF SHORT AND CURVED LINES

No	BEARING	DIST	ARC	RADIUS
1	58°26'20"	(0.61)		
2	40°35'15"	(7.135)		
4	293°40'00"	14.81	14.825	88.39
6	117°41'20"	(2.56)	(2.56)	88.39
7	240°56'10"	(7.19)		
8	153°23'00"	(2.51)		
9	118°26'15"	(0.25)	(0.25)	88.39

(A) EASEMENT FOR WATER SUPPLY PURPOSES 2.5 WIDE AND VARIABLE WIDTH (DP 1200226)

(B) EASEMENT FOR WATER SUPPLY PURPOSES 2.5 WIDE AND VARIABLE WIDTH (DP 1191624)

20.41 DETAIL & LEVELS SHOWN IN RED PREPARED BY CARDNO SURVEYORS ON 21/03/2017

GN

APPROX. TRUE NORTH (M.G.A.) (BY D.P.1200226)

KINDILAN STREET (UNFORMED)

DRAINAGE RESERVE

CRESCENT

THE CRESCENT

VACANT

2 DP1237586 4638m²

VACANT No.2F

201 D.P. 1030293

"ALLIED PINNACLE " BRICK OFFICE METAL AND CONC. FACTORY No.4

DIAGRAM N.T.S.

201 2 D P 1030293

THE CRESCENT

WARNING! The location of walls and detail points in relation to boundaries is approximate only!

NOTES

1. COPYRIGHT This drawing and/or design is the property of Harrison Friedmann & Associates Pty Ltd and should not be reproduced in part or whole without the written permission of the company.
2. Bearings and distances of boundaries and areas are from Land and Property Information records only.They are on ***Map Grid of Australia***. If accurate True North is required a further survey would be necessary.
3. NO BOUNDARY SURVEY HAS BEEN MADE. Relationship of improvements to boundaries is diagrammatic only. Boundary fences and retaining walls have not been accurately located and may not be shown on this plan.DO NOT SCALE OFF THIS PLAN. Where offsets from improvements, fences or walls to boundaries are critical for future building design and construction they MUST be confirmed by a further boundary survey. This survey has not investigated any subterranean structures.
4. The services information shown on this plan have been determined from visual inspection only. It is passed on with the understanding that no excavation or works will be commenced without a current services search of all services being obtained from "Dial before you dig" (DBYD) (phone 1100 or fax 1300 652 077) or from any individual service provider. Note that not all services providers are members of DBYD.
5. The location of Sydney Water's Sewer Main has been plotted approximately, based on visible maintenance holes and/or information from Sydney Water, This information can not be relied on. Any construction near Sydney Water Mains requires further investigation, a Service Protection Report (sewer pegout) and approval from Sydney Water.
6. The locations of spot levels are diagrammatic only. They are accurate to ± 0.3m in relation to boundaries. Levels critical to design, excavation or construction must be verified. If contours are shown they depict the topography rather than represent the exact level at any particular point, Care should be taken if extrapolating levels or contours.
7. The spread of the crown of the trees shown on this plan is diagrammatic only, based on the average spread observed in the field. Prior to any development proposal which might be affected by trees it is recommended that the tree spreads be verified by field inspection..
8. Australian Height Datum was established from P.M.2873 R.L. 21.376 located in The Crescent. Datum source obtained from S.C.I.M.S. 03/06/2013.

ALL ABOVE NOTES ARE AN INTEGRAL PART OF THIS PLAN

Legend

BB	Bottom of Bank	GM	Gas Meter	TK	Top of Kerb	VFL	Verandah Floor Level	SP	Sign Pole
BFL	Balcony Floor Level	INV	Invert Level	TP	Telstra Pillar	W	Window	SV	Stop Valve
BRK	Bottom of Rock	LW	Lower Window	TR	Top of Roof	WC	Toilet	T	Telstra
BRW	Bottom Retaining Wall	ML	Metal Lid	TRK	Top of Rock	WM	Water Meter	T	Telstra Pillar
CONC	Concrete	PAR	Parapet	TRW	Top Retaining Wall	G	GAS	—S—	Approximate Location of Sydney Water Sewer Main (vide Hydra)
EC	Edge of Concrete	PC	Pedestrian Crossing	TW	Top Wall	H	Hydrant		
FL	Floor Level	RL	Relative Level	USA	Underside of Awning	LH	Lamp Hole		
FP	Flag pole	TB	Top of Bank	USG	Underside of Gutter	LP	Light Pole		
G	Grate	TF	Top of Fence	UW	Upper Window	MH	Man Hole		
GFL	Garage Floor Level	TG	Top of Gutter	VC	Vehicle Crossing	PP	Power Pole		

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PLAN SHOWING SITE DETAILS AND LEVELS FOR BUILDING DESIGN PURPOSES AT 2F THE CRESCENT KINGSGROVE LOT 2 IN DP 1237586

FOR W & J LEE PROPERTY INVESTMENTS PTY LTD

REDUCTION RATIO	SURVEYED / DRAWN
1:200 @ A1	DT/JC
DATUM	CHECKED
A.H.D.	
DATE	REFERENCE 52378DT
27/09/2019	**65492 DT**
	SHEET 1 OF 1

PLOTTED: 30/09/19 – 11:54AM

CAD FILE NAME: 65492DT DET 3.DWG

ATTACHMENT B

GRC HYDRO LETTER

Warren Lee
Combined Skips
PO Box 560
CARINGBAH NSW 1495

J:\180023\Admin\Report\L101219_2F_The_Crescent_Kingsgrove_SEARs.docx
12/13/2019

Dear Warren,

Re: 2F The Crescent, Kingsgrove SEARs – Flood Risk Assessment

Introduction

Development is proposed for 2F The Crescent, Kingsgrove (the Site). The site is currently open space in an industrial area and a resource recovery facility is proposed for development. An application for the Planning Secretary's Environmental Assessment Requirements ('Application for SEARs') has been made to the NSW Department of Planning and Environment, based on a proposed design. The environmental assessment requirements list two criteria related to flooding. This letter, in response to those criteria, describes the site's flood liability and then assesses the changes to flood behaviour associated with the proposed development. The two criteria are for the proposal to include:

- "[…] details of stormwater/wastewater/leachate/firewater management systems, including details of the flood liability of the site and changes to flooding behaviour
- an assessment of potential impacts to soil and water resources, topography, hydrology, drainage lines, watercourses and riparian lands on or nearby the site"

Site Description

The site is approximately 4,800 m^2 and consists of an outdoor storage area situated between The Crescent and Wolli Creek in Kingsgrove. The site has trees down its centre and along the northern boundary with the remaining area consisting of gravel and concrete areas. There are no buildings on the site and it is enclosed by a chain link fences with gates and driveways on The Crescent. The site is flat with elevations between 20 and 22.5 mAHD, and a slight slope down to the east of approximately 2 m drop across the site. The site is adjacent to a section of Wolli Creek which flows west to east and has a trapezoid-shaped concrete channel.

Existing Flood Liability

The design flood behaviour for the site was previously established by the Hurstville LGA Overland Flood Study (Reference 1). The flood behaviour was determined using a hydrologic/hydraulic model that included Wolli Creek and overland flow. The model has been slightly updated by the current assessment to re-align some fences around the site. Fences are as per the existing site layout. Ground survey of Wolli Creek's channel cross-sections was also compared to modelled cross-sections, to ensure the modelled topography and bathymetry was consistent with survey, in the vicinity of the site.

Figure 1 shows the peak flood depth and extent of the 1% AEP event. As shown in the figure, flow in Wolli Creek is confined to the channel and does not affect the site to any significant degree. As per the Flood Study (Reference 1), a mapping threshold for the TUFLOW flood extent was set at 200 mm. The Flood Study selected this threshold as it 'provides a reasonable depth cutoff in determining appreciable flooding of properties'. There is some overland flow at the site but this is below the cutoff depth.

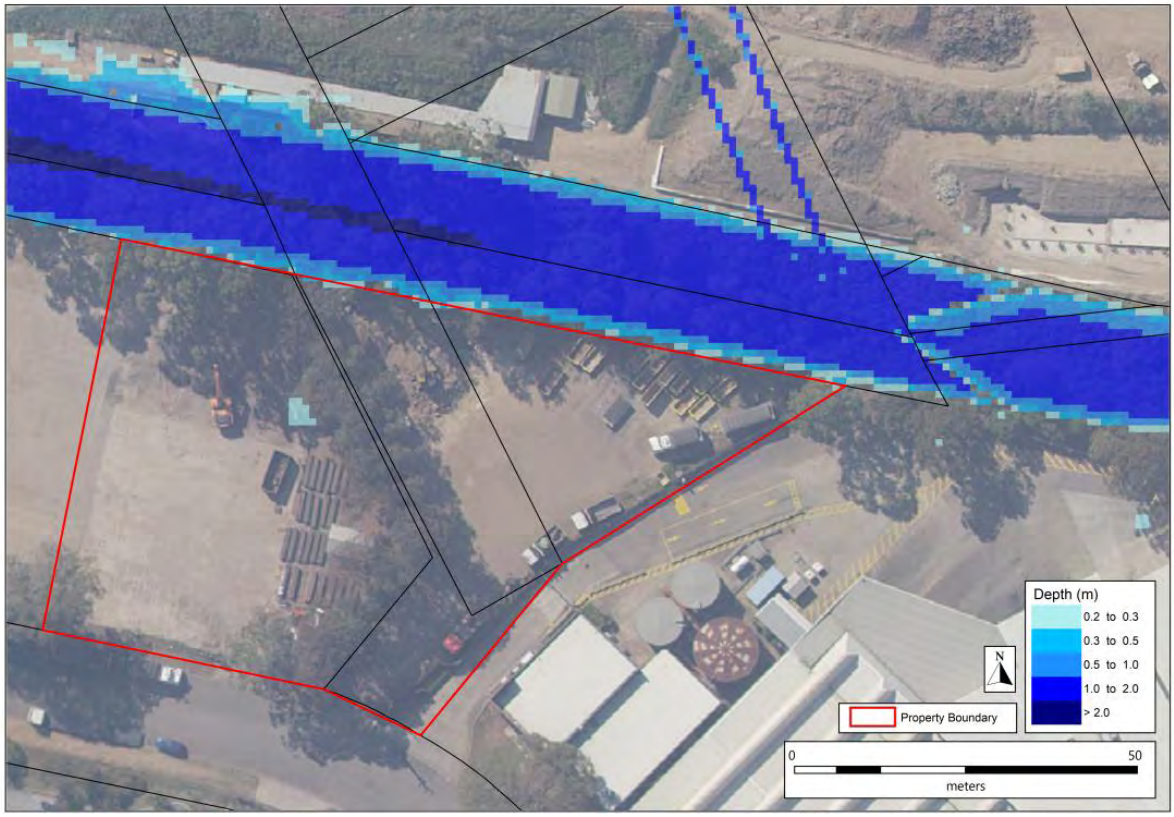


Figure 1: Existing Site 1% AEP flood affectation

Assessment of the Proposed Development

The proposed development consists of a new resource recovery facility and is described in the design drawings dated 11 December 2019. The relevant features of the development with regard to flood liability are the proposed ground elevations and building footprints (and their floor levels). There is minor stormwater infrastructure proposed for the site in the form of a new kerb-gutter along the northern boundary, and roof drainage. The features of interest are therefore:

- Two new buildings: a large sorting shed on the north-west half of the site and a gatehouse on the eastern boundary near the site entrance. The floor level of the shed is between 20.55 and 21.15 mAHD (slightly different to existing ground levels). The gatehouse has a floor level of 20.8 mAHD (the same as the existing ground level at its location); and
- The site's ground elevation is otherwise unchanged.

The TUFLOW hydraulic model established by the Flood Study (Reference 1) was used to assess changes to flooding behaviour due to the proposed development. This entailed modelling the 1% AEP for the 'existing' and 'proposed' scenarios and determining the location and magnitude of changes in peak flood level.

Minor changes were made to the ‘existing’ scenario as modelled by the Flood Study to better reflect conditions at the site. This included a) moving the fence modelled as cutting across the site to the western side of the site (it’s actual position) and b) removing the building wall to the west of the site and changing the hydraulic roughness there, as the building is no longer there. The proposed case is shown on Figure 2 and consists of the two new buildings and the proposed floor level inside the large building.

The peak flood level impact is shown on Figure 2. The figure shows that there is a small increase in the peak flood level in the vicinity of the two buildings, due to them partially blocking shallow overland flow across the site. The flood level impacts are located within the site and as such compliance is achieved as there are no offsite impacts.

Conclusions

The existing site proposed for development of a resource recovery facility is not flood liable during the 1% AEP flood event. The proposed development does not cause offsite flood impacts. There are no other potential impacts to water resources, hydrology, drainage lines and watercourses, related to flooding.

Yours Sincerely
GRC Hydro

Steve Gray
Director

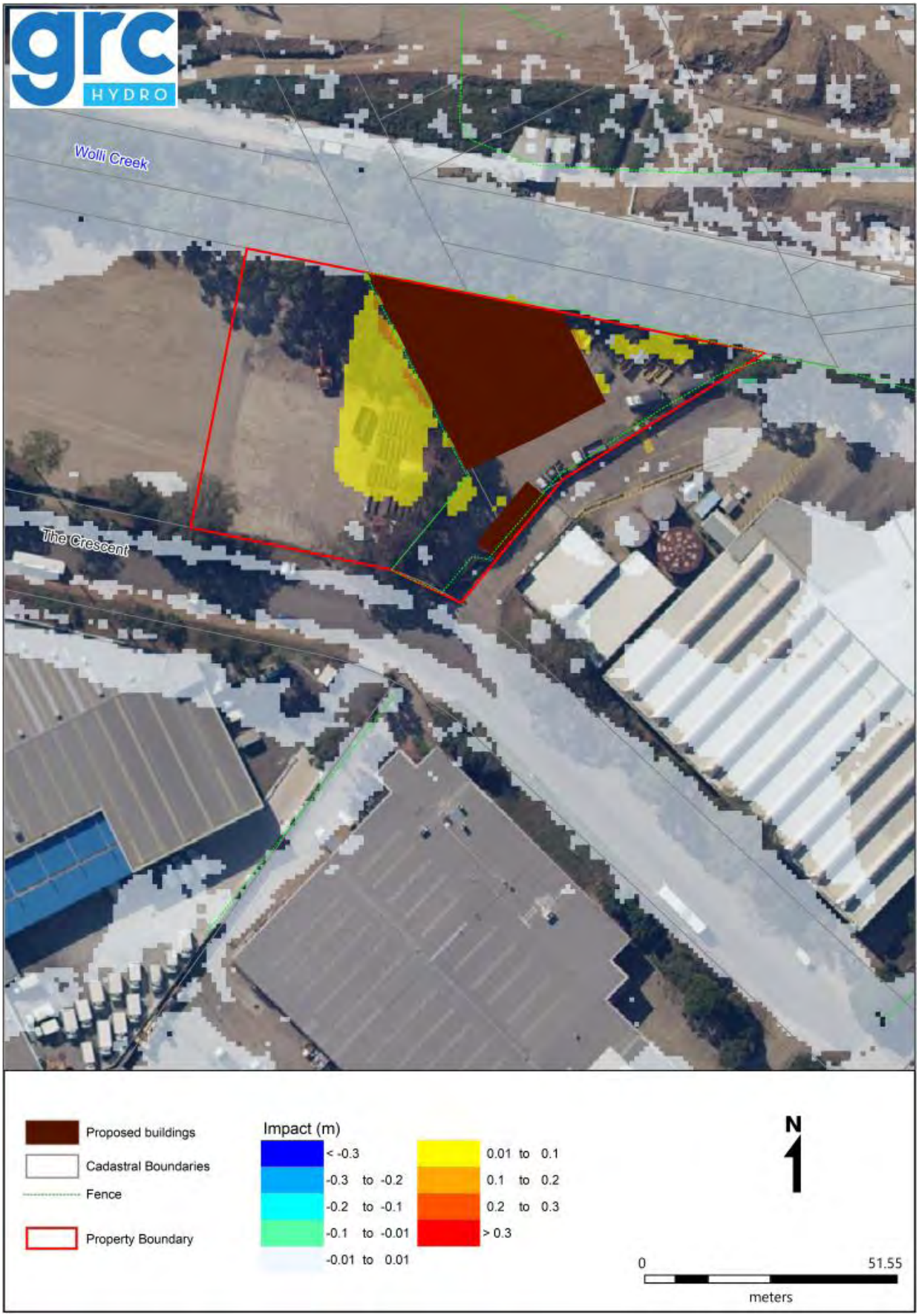


Figure 2: 1% AEP Flood Level Impact due to Proposed Development

ATTACHMENT C

SITE ARCHITECTURAL PLANS

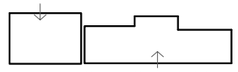
LIST OF DRAWINGS

DRAWING NO.	DRAWING NAME	VERSION	DATE
DA-00	INFORMATION SHEET	A	17.10.2019
DA-1A	PROPOSED SITE PLAN	A	17.10.2019
DA-2A	PROPOSED ROOF PLAN	A	17.10.2019
DA-3A	PROPOSED FLOOR PLAN	A	17.10.2019
DA-4A	PROPOSED SORTING SHED FLOOR PLAN	A	17.10.2019
DA-5A	PROPOSED SORTING SHED SE, W & E ELEVATIONS	A	17.10.2019
DA-6A	PROPOSED SORTING SHED NE ELEVATION & SECTION 1-1, 2-2	A	17.10.2019
DA-7A	GATEHOUSE GF & 1F PLANS	A	17.10.2019
DA-8A	GATEHOUSE NW & SE ELEVATIONS	A	17.10.2019
DA-9A	GATEHOUSE NE & SW ELEVATIONS & SECTION 3-3	A	17.10.2019
DA-10A	SITE & CONTEXT ANALYSIS	A	17.10.2019
DA-11A	SEDIMENT & EROSION CONTROL PLAN / SITE MANAGEMENT PLAN	A	17.10.2019
DA-12A	CONCEPT LANDSCAPE PLAN	A	17.10.2019

FSR CALCULATION :

SITE AREA	= 4638 SQM
FLOOR AREA OF SORTING SHED	= 1000 SQM
AREA OF GATE HOUSE AND AMENITIES	= 75.08 SQM
AREA OF OPEN SPACE FOR STAFF (GF)	= 24.13 SQM
AREA OF STAFF (BALCONY)	= 12.83 SQM
FSR	= 0.23:1

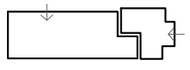
OUT DOOR
RESTING AREA
= 24.13 SQM



GATEHOUSE GROUND FLOOR
AREA = 37.87 SQM

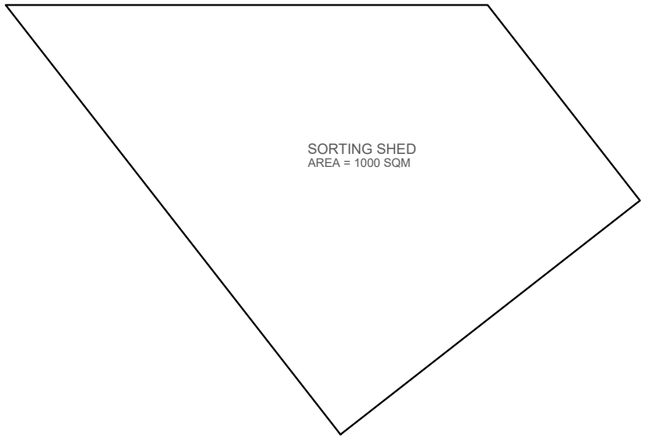
FSR PLAN - GATEHOUSE GF

GATEHOUSE FIRST FLOOR
AREA = 37.21 SQM



BALCONY
RESTING AREA
= 12.83 SQM

FSR PLAN - GATEHOUSE 1F

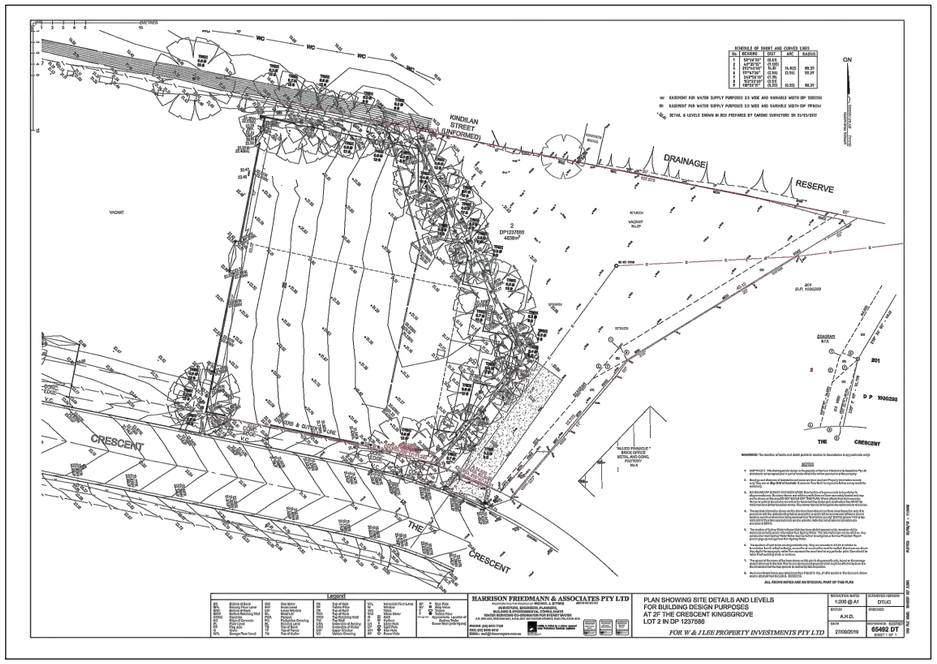


FSR PLAN - SORTING SHED

2F THE CRESCENT
KINGSGROVE

N

SITE MAP



SURVEY PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

INFORMATION SHEET

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE OCT 2019	DRG No. DA-00
DRAWN BY Fang Zhou	

NOTES:

HURSTVILLE LEP 2012 (MAP 4)

LAND ZONING	= IN2	= LIGHT INDUSTRIAL
FSR	= N	= 1:1
HEIGHT	= K	= 1O METERS MAX

BUILDING CODE OF AUSTRALIA - SORTING SHED

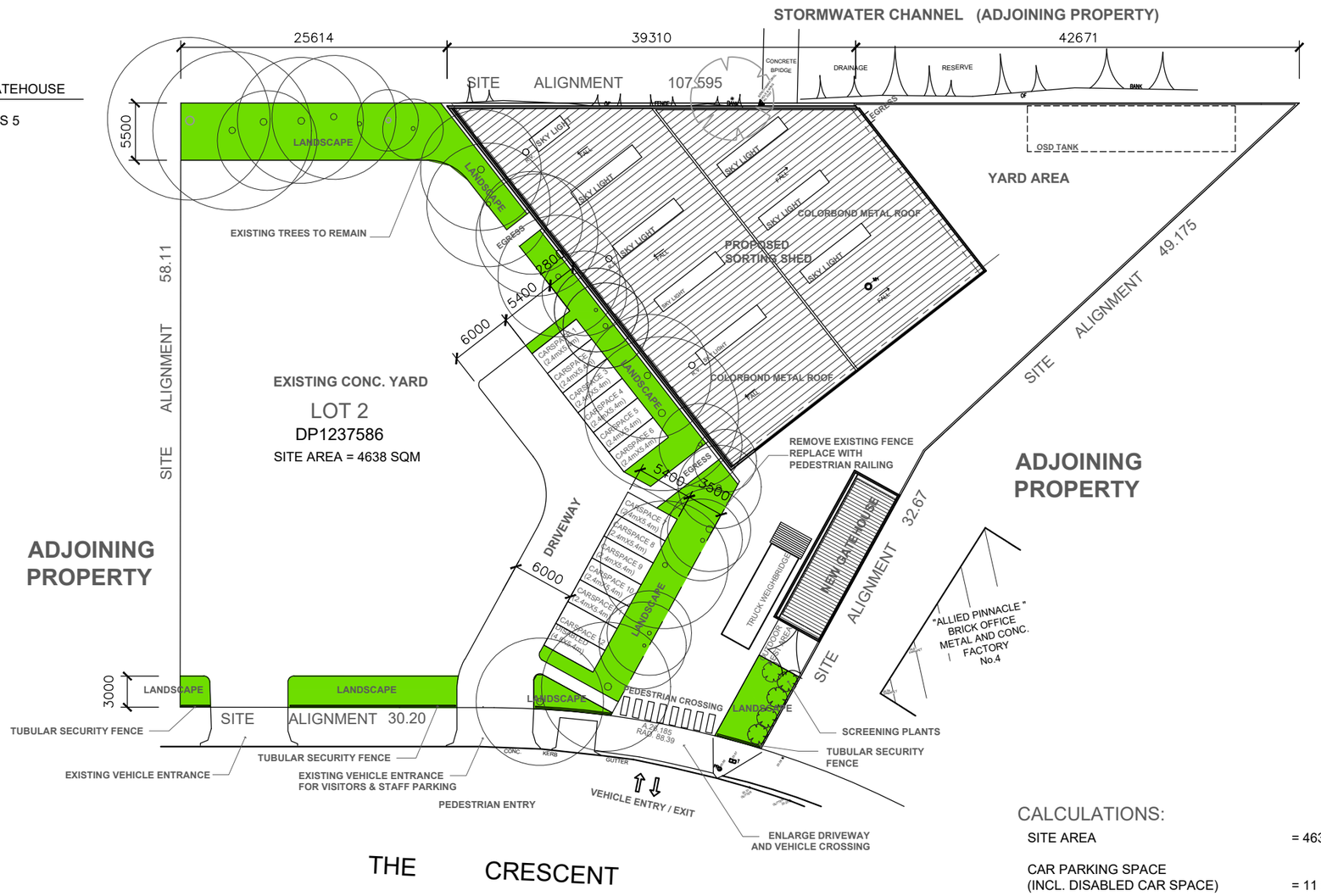
CLASSIFICATION	- CLASS 8
RISE IN STOREY	= 1
TYPE OF CONSTRUCTION	= C

BUILDING CODE OF AUSTRALIA - GATEHOUSE

CLASSIFICATION	- CLASS 5
RISE IN STOREY	= 2
TYPE OF CONSTRUCTION	= C

EXTERNAL WALLS (FRL)

LESS THAN 1.5M	= 90/90/90
1.5M TO 3.0M	= 60/60/60
3M OR MORE	= -/-/-
EXTERNAL COLUMNS LESS THAN 1.5M	= 90/-/-
1.5M TO 3.0M	= 60/-/-
ROOF	= -/-/-



CALCULATIONS:

SITE AREA	= 4638 SQM
CAR PARKING SPACE (INCL. DISABLED CAR SPACE)	= 11 SPACES
LANDSCAPE AREA	= 482.5 SQM = 10.4% OF SITE AREA

N

PROPOSED SITE PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
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PROPOSED RESOURCE RECOVERY FACILITY

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2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

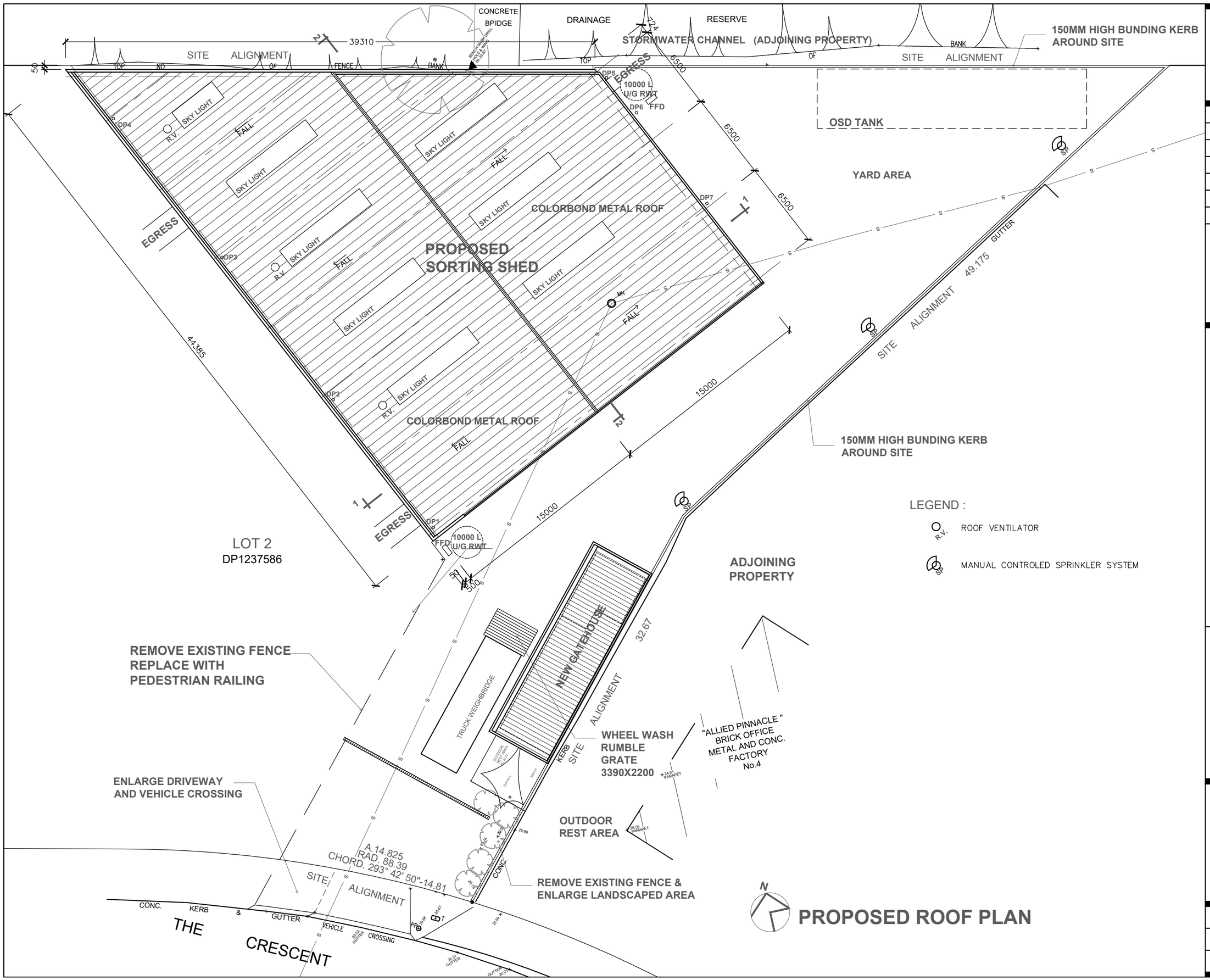
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SITE PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE OCT 2019	DRG No. DA-1A
DRAWN BY Fang Zhou	



PROPOSED ROOF PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

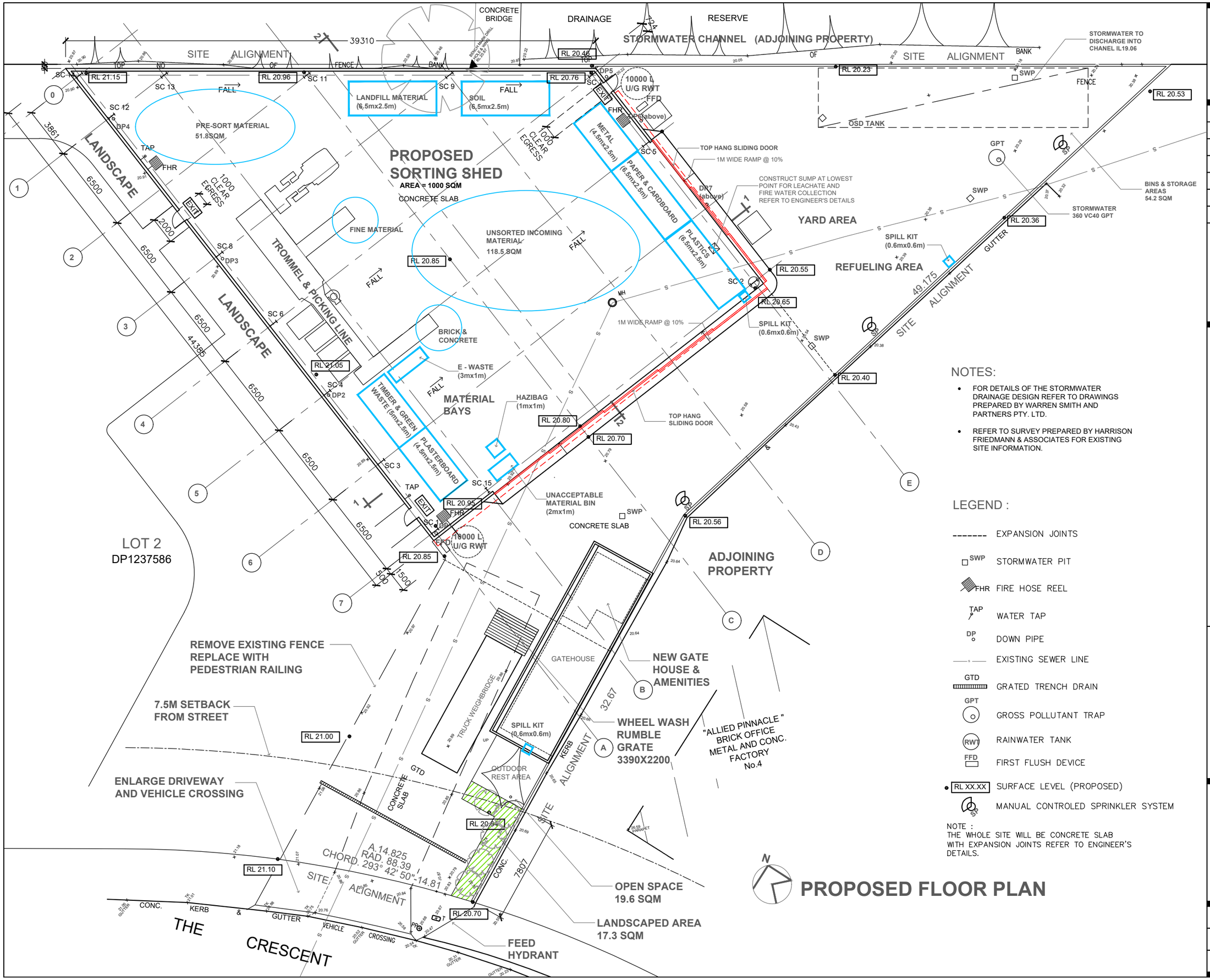
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED ROOF PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:250
DATE OCT 2019	DRG No. DA-2A
DRAWN BY Fang Zhou	



NOTES:

- FOR DETAILS OF THE STORMWATER DRAINAGE DESIGN REFER TO DRAWINGS PREPARED BY WARREN SMITH AND PARTNERS PTY. LTD.
- REFER TO SURVEY PREPARED BY HARRISON FRIEDMANN & ASSOCIATES FOR EXISTING SITE INFORMATION.

LEGEND :

- ------- EXPANSION JOINTS
- SWP STORMWATER PIT
- FHR FIRE HOSE REEL
- TAP WATER TAP
- DP DOWN PIPE
- EXISTING SEWER LINE
- GTD GRATED TRENCH DRAIN
- GPT GROSS POLLUTANT TRAP
- RWT RAINWATER TANK
- FFD FIRST FLUSH DEVICE
- RL XX.XX SURFACE LEVEL (PROPOSED)
- SPR MANUAL CONTROLED SPRINKLER SYSTEM

NOTE :
THE WHOLE SITE WILL BE CONCRETE SLAB WITH EXPANSION JOINTS REFER TO ENGINEER'S DETAILS.

PROPOSED FLOOR PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

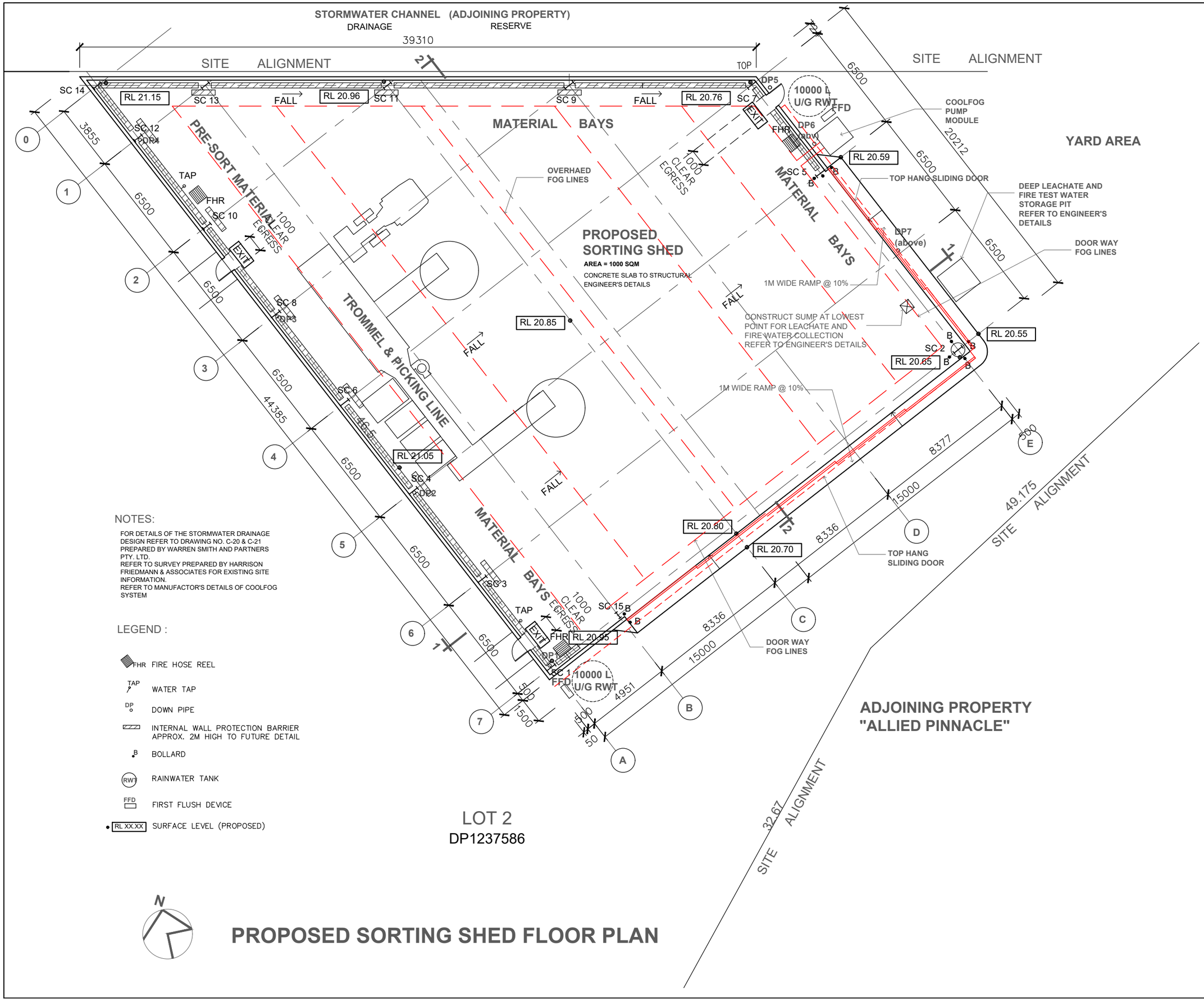
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED FLOOR PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:250
DATE OCT 2019	DRG No. DA-3A
DRAWN BY Fang Zhou	



NOTES:

FOR DETAILS OF THE STORMWATER DRAINAGE DESIGN REFER TO DRAWING NO. C-20 & C-21 PREPARED BY WARREN SMITH AND PARTNERS PTY. LTD.
REFER TO SURVEY PREPARED BY HARRISON FRIEDMANN & ASSOCIATES FOR EXISTING SITE INFORMATION.
REFER TO MANUFACTOR'S DETAILS OF COOLFOG SYSTEM

LEGEND :

- FHR FIRE HOSE REEL
- TAP WATER TAP
- DP DOWN PIPE
- INTERNAL WALL PROTECTION BARRIER APPROX. 2M HIGH TO FUTURE DETAIL
- B BOLLARD
- RWT RAINWATER TANK
- FFD FIRST FLUSH DEVICE
- RL XX.XX SURFACE LEVEL (PROPOSED)

N

PROPOSED SORTING SHED FLOOR PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

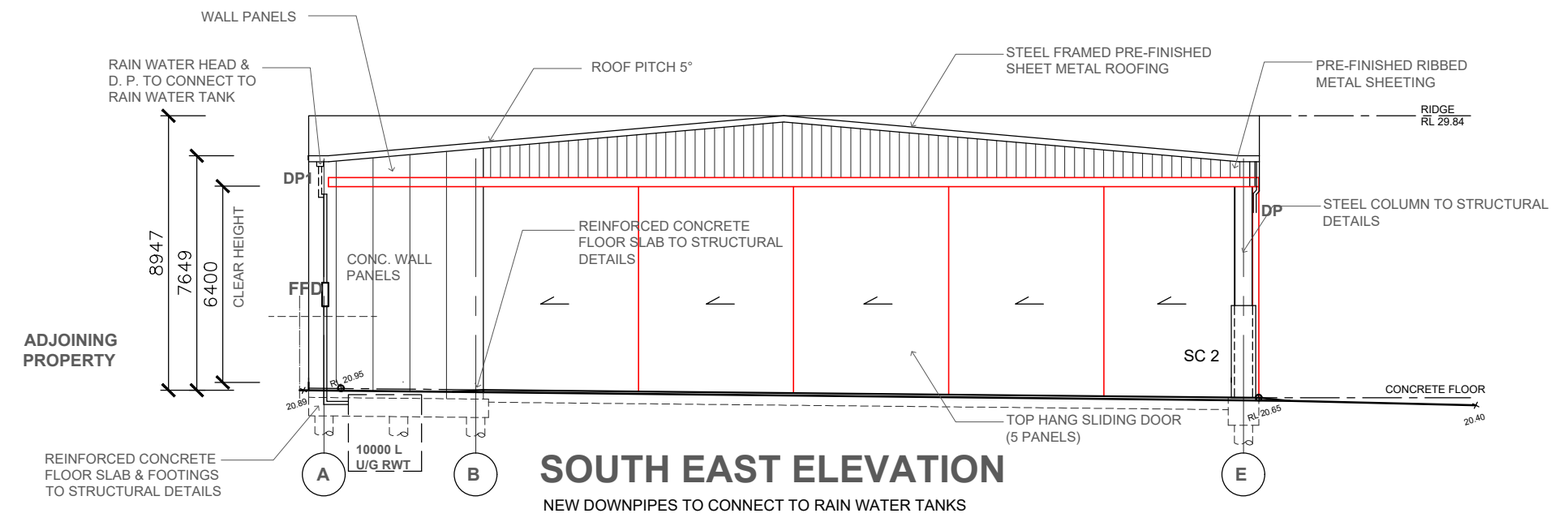
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SORTING SHED FLOOR PLAN

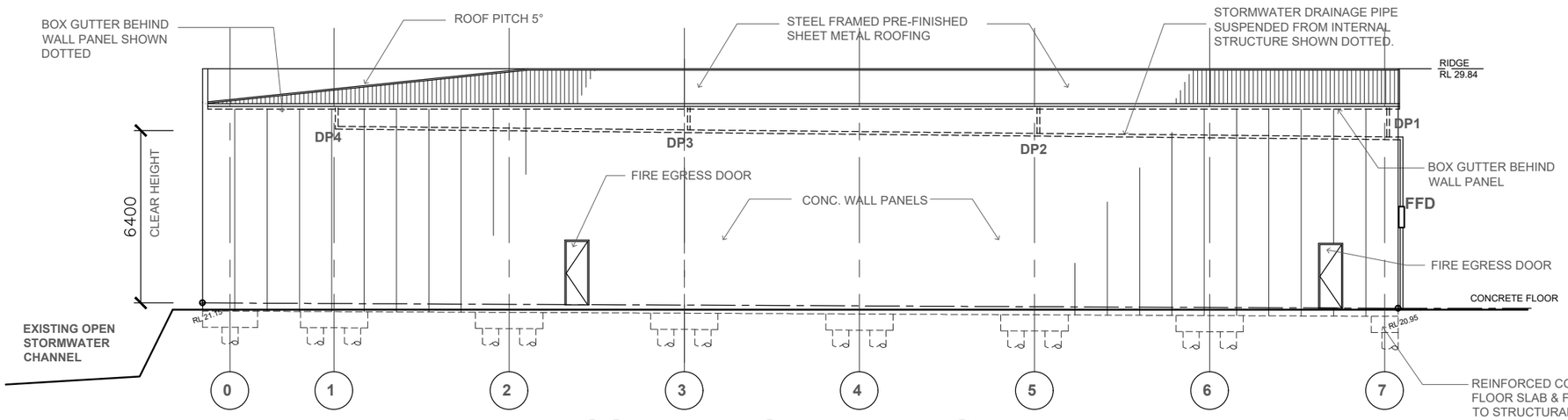
ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:200
DATE OCT 2019	DRG No. DA-4A
DRAWN BY Fang Zhou	

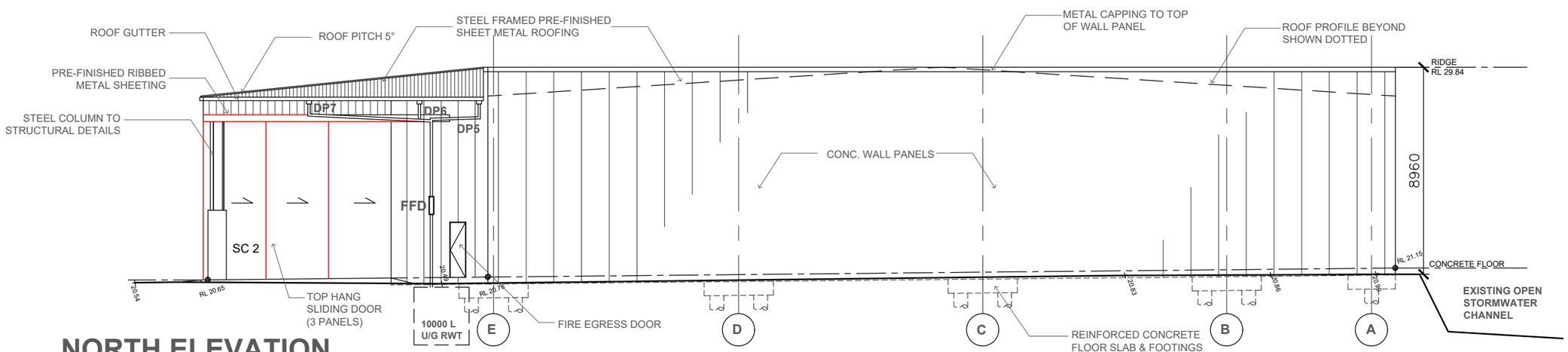


SOUTH EAST ELEVATION

NEW DOWNPIPES TO CONNECT TO RAIN WATER TANKS AND DISCHARGE TO STORMWATER SYSTEM - TO HYDRAULIC ENGINEER'S DETAILS



SOUTH WEST ELEVATION



NORTH ELEVATION

NEW DOWNPIPES TO CONNECT TO RAIN WATER TANKS AND DISCHARGE TO STORMWATER SYSTEM - TO HYDRAULIC ENGINEER'S DETAILS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

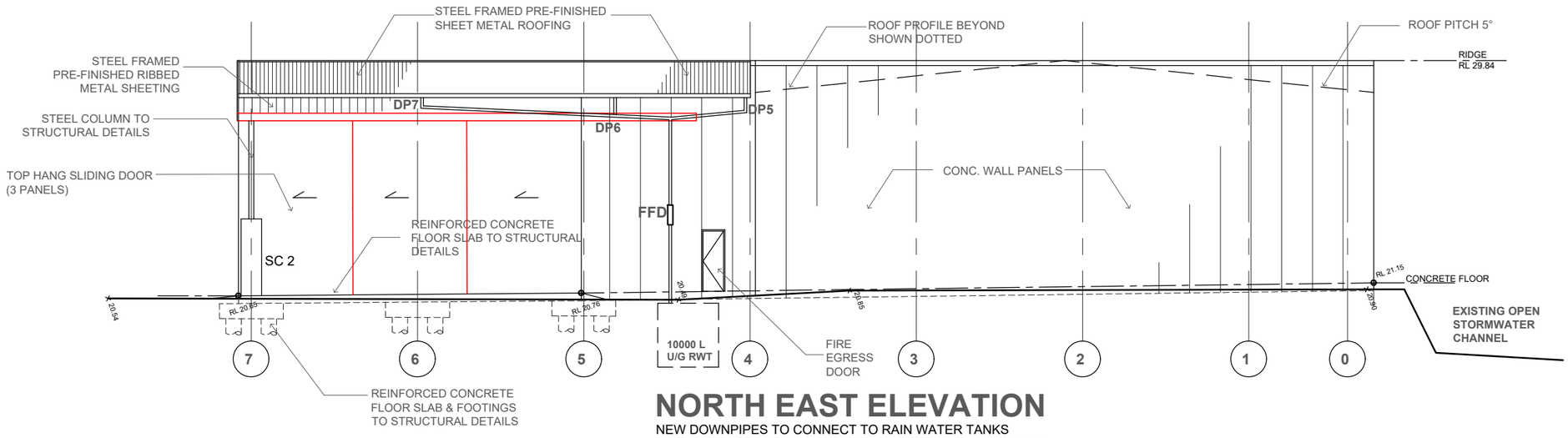
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SORTING SHED SOUTH EAST, WEST & NORTH ELEVATIONS

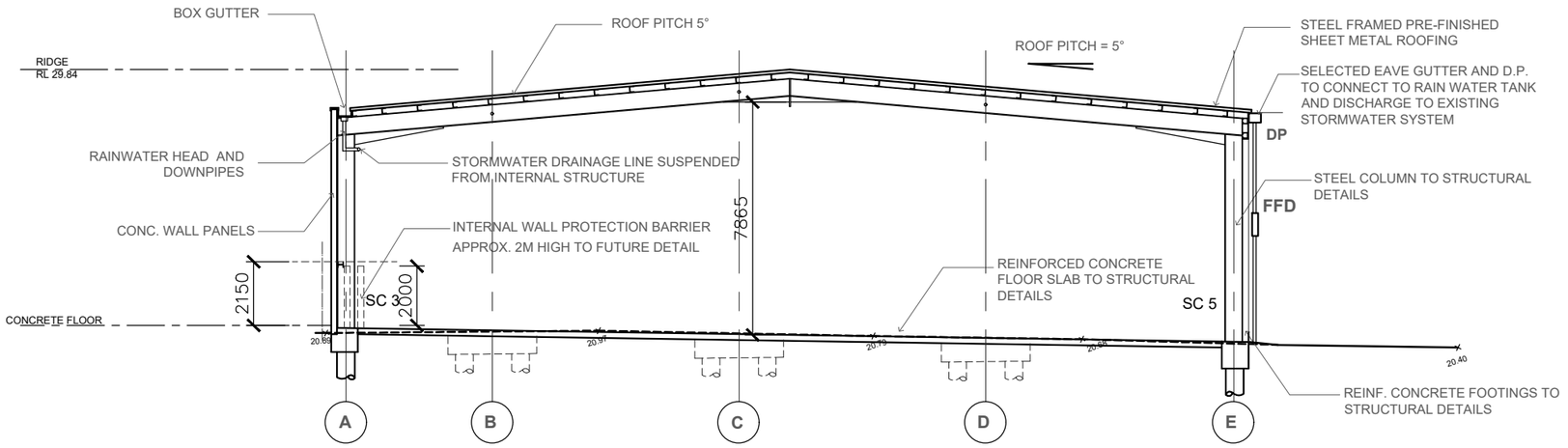
ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:200
DATE OCT 2019	DRG No. DA-5A
DRAWN BY Fang Zhou	



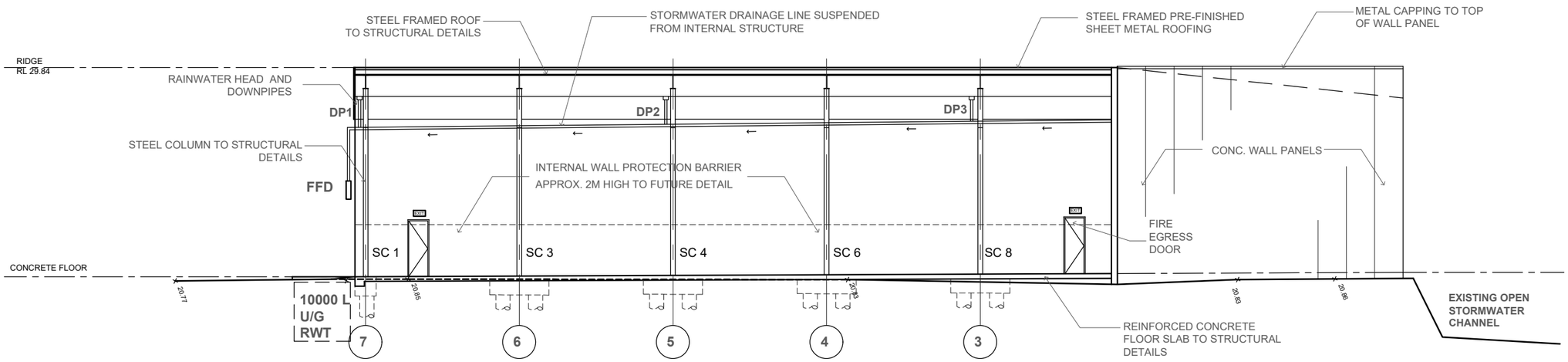
NORTH EAST ELEVATION

NEW DOWNPIPES TO CONNECT TO RAIN WATER TANKS AND DISCHARGE TO STORMWATER SYSTEM - TO HYDRAULIC ENGINEER'S DETAILS



1-1 SECTION

STEEL FRAMED ROOF TO STRUCTURAL ENGINEERS DETAILS
FOOTINGS TO STRUCTURAL ENGINEERS DETAILS



2-2 SECTION

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

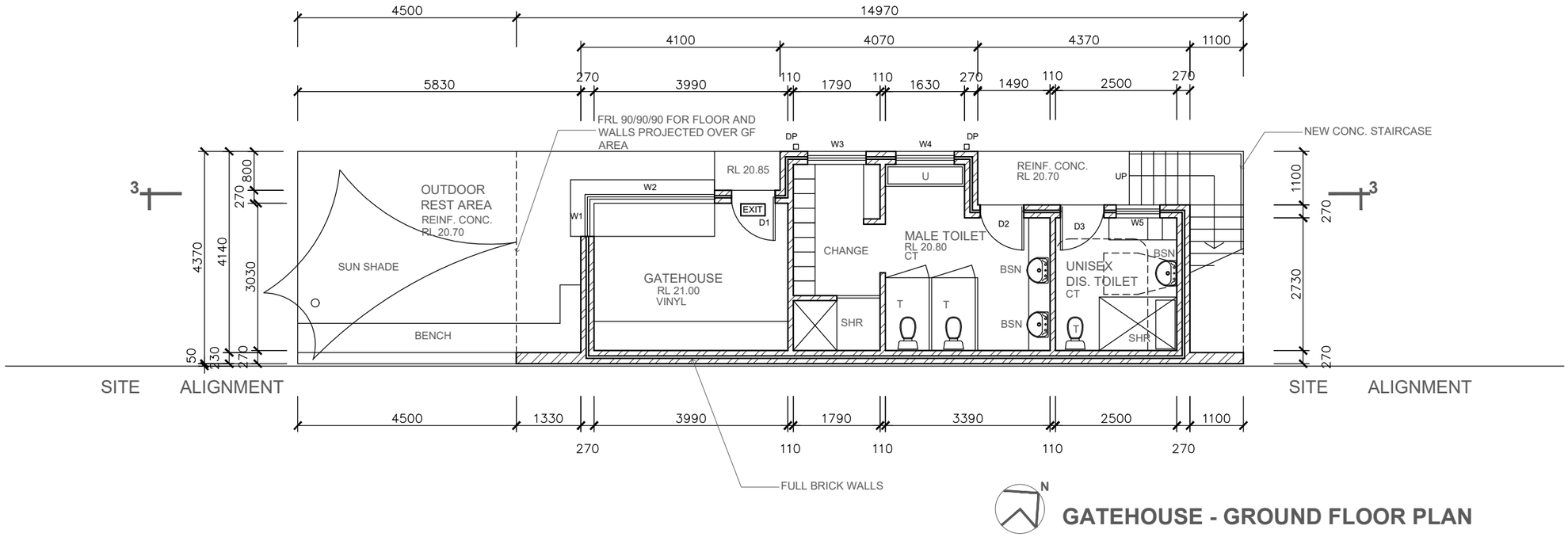
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SORTING SHED NORTH EAST ELEVATION & SECTION 1-1, 2-2

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:200
DATE OCT 2019	DRG No. DA-6A
DRAWN BY Fang Zhou	



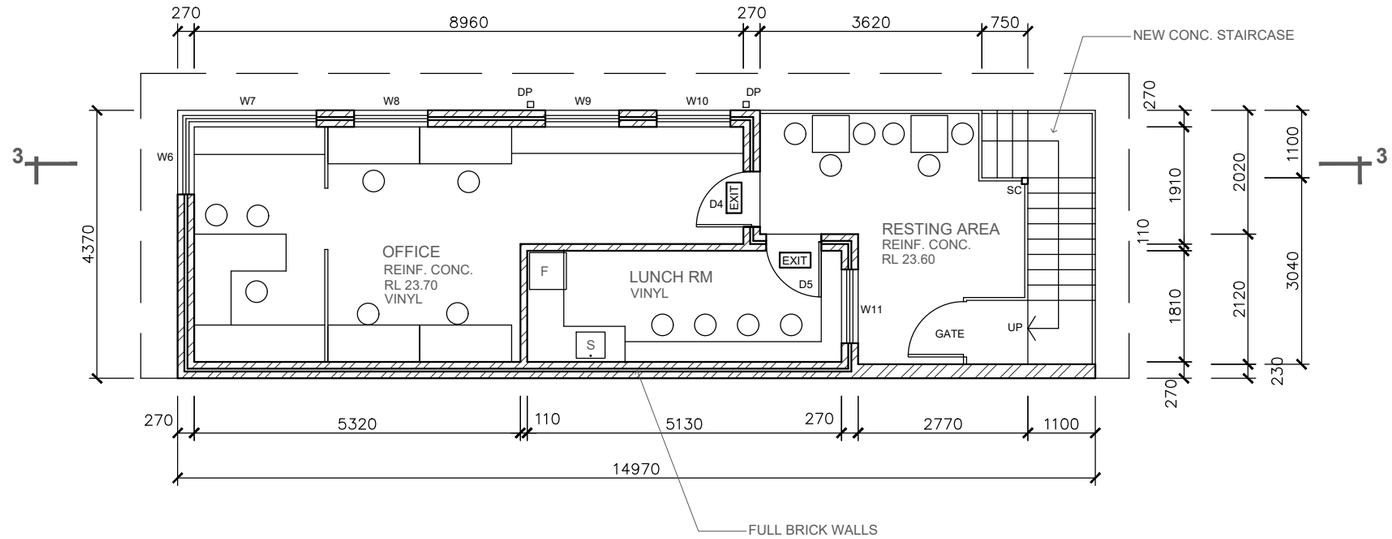
N

GATEHOUSE - GROUND FLOOR PLAN

INDEX:

COL = STEEL COLUMN
D = NEW DOOR
RD = NEW ROLLER DOOR
W = NEW WINDOW
RC = REINFORCED CONCRETE
CT = CERAMIC TILES
WM = WASHING MACHINE
T = TUB
F = FRIDGE
S = SINK
FW = FLOOR WASTE
HWU = HOT WATER UNIT

$\overset{\times}{34.00}$ = EXISTING LEVEL



N

GATEHOUSE FIRST FLOOR PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

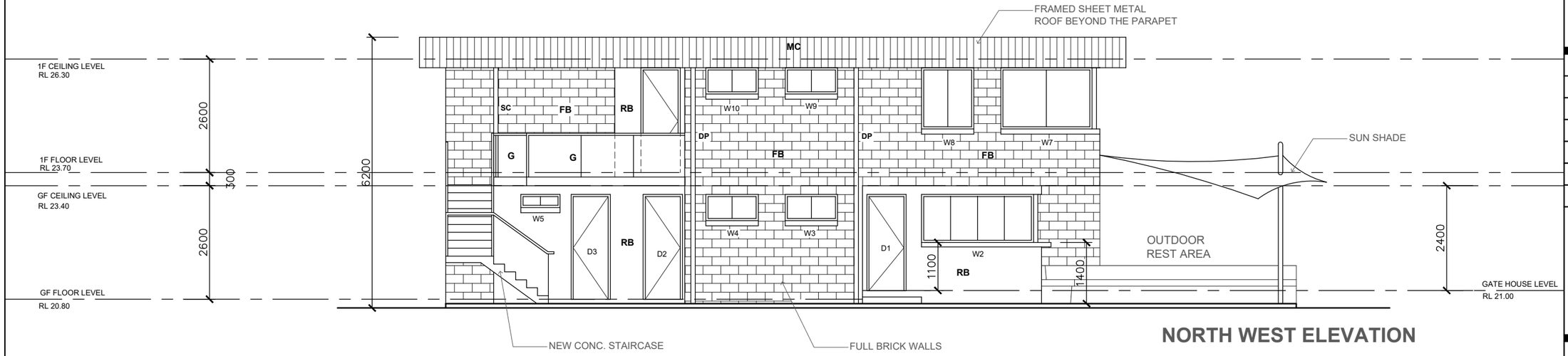
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

GATEHOUSE GF & 1F PLANS

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:100
DATE JUNE 2019	DRG No. DA-7A
DRAWN BY Fang Zhou	



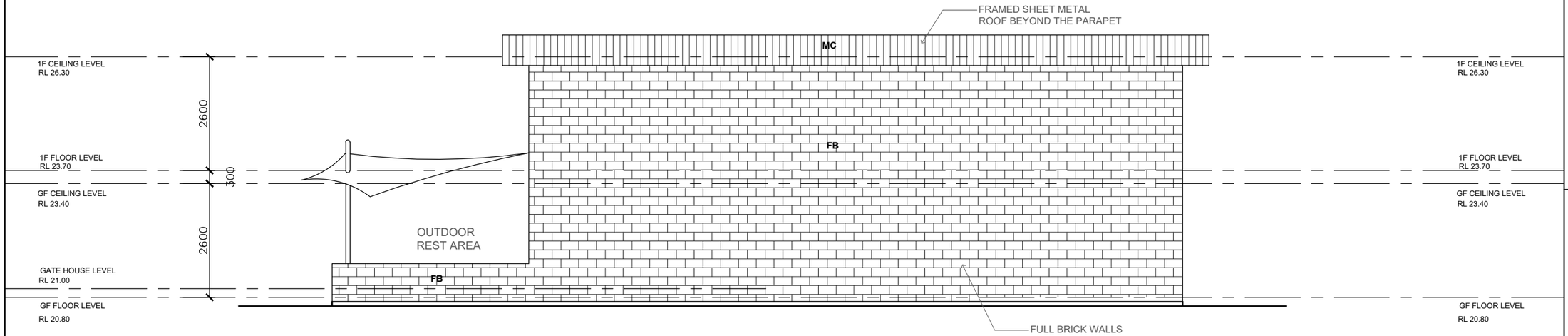
NORTH WEST ELEVATION

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

INDEX:

SC = STEEL COLUMN
D = NEW DOOR
W = NEW WINDOW
RC = REINFORCED CONCRETE
RB = RENDERED BRICK
FB = FACE BRICK
G = GLASS BALUSTRADE
MC = METAL CLADDING
GL = GROUND LEVEL
CL = CEILING LEVEL
FL = FLOOR LEVEL

34.00 = EXISTING LEVEL



SOUTH EAST ELEVATION

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

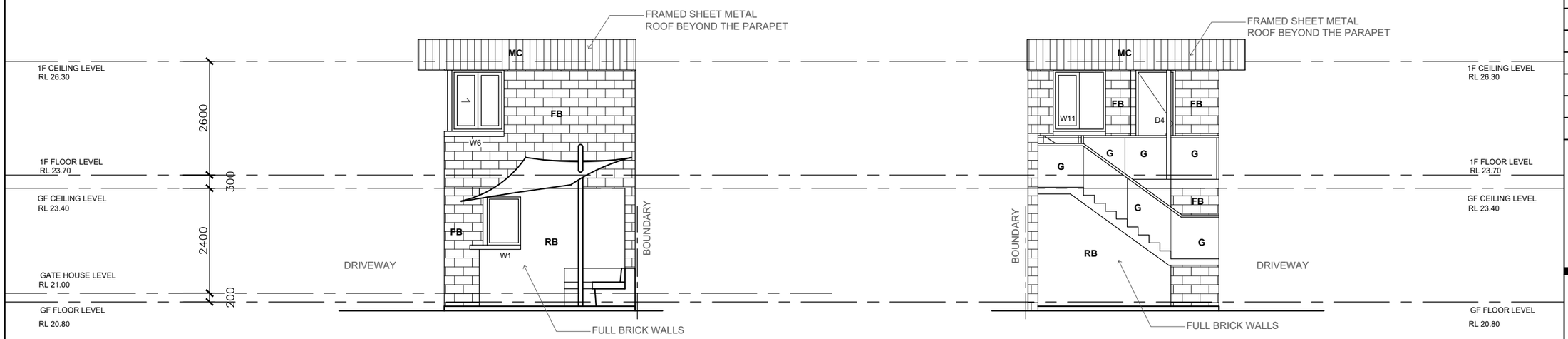
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

GATEHOUSE NORTH WEST & SOUTH EAST ELEVATIONS

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:100
DATE JUNE 2019	DRG No. DA-8A
DRAWN BY Fang Zhou	



SOUTH WEST ELEVATION

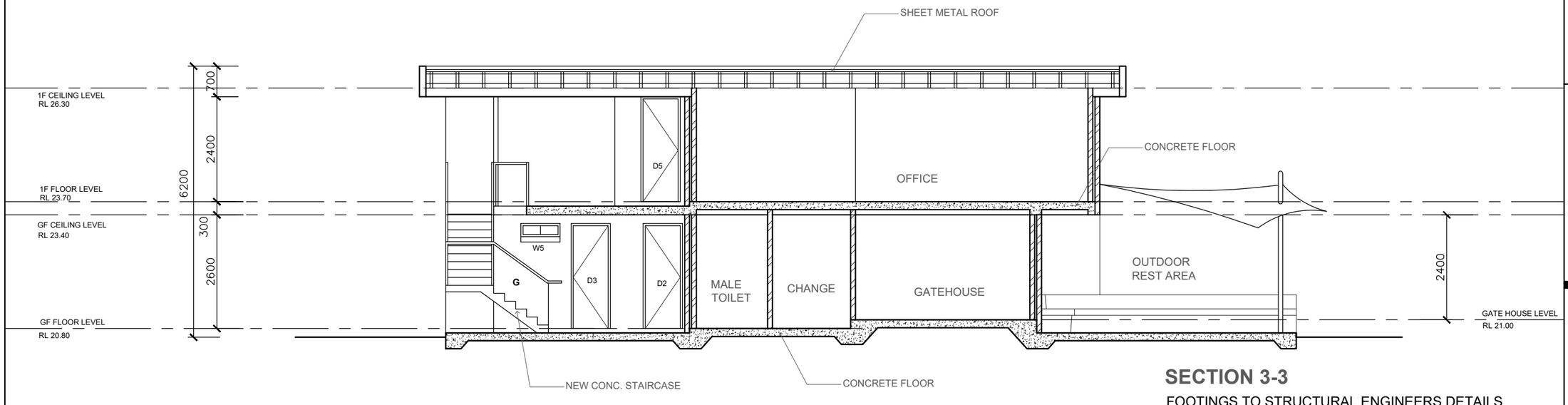
NORTH EAST ELEVATION

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

INDEX:

SC = STEEL COLUMN
D = NEW DOOR
W = NEW WINDOW
RC = REINFORCED CONCRETE
RB = RENDERED BRICK
FB = FACE BRICK
G = GLASS BALUSTRADE
MC = METAL CLADDING
GL = GROUND LEVEL
CL = CEILING LEVEL
FL = FLOOR LEVEL

$\overset{\times}{34.00}$ = EXISTING LEVEL



SECTION 3-3

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

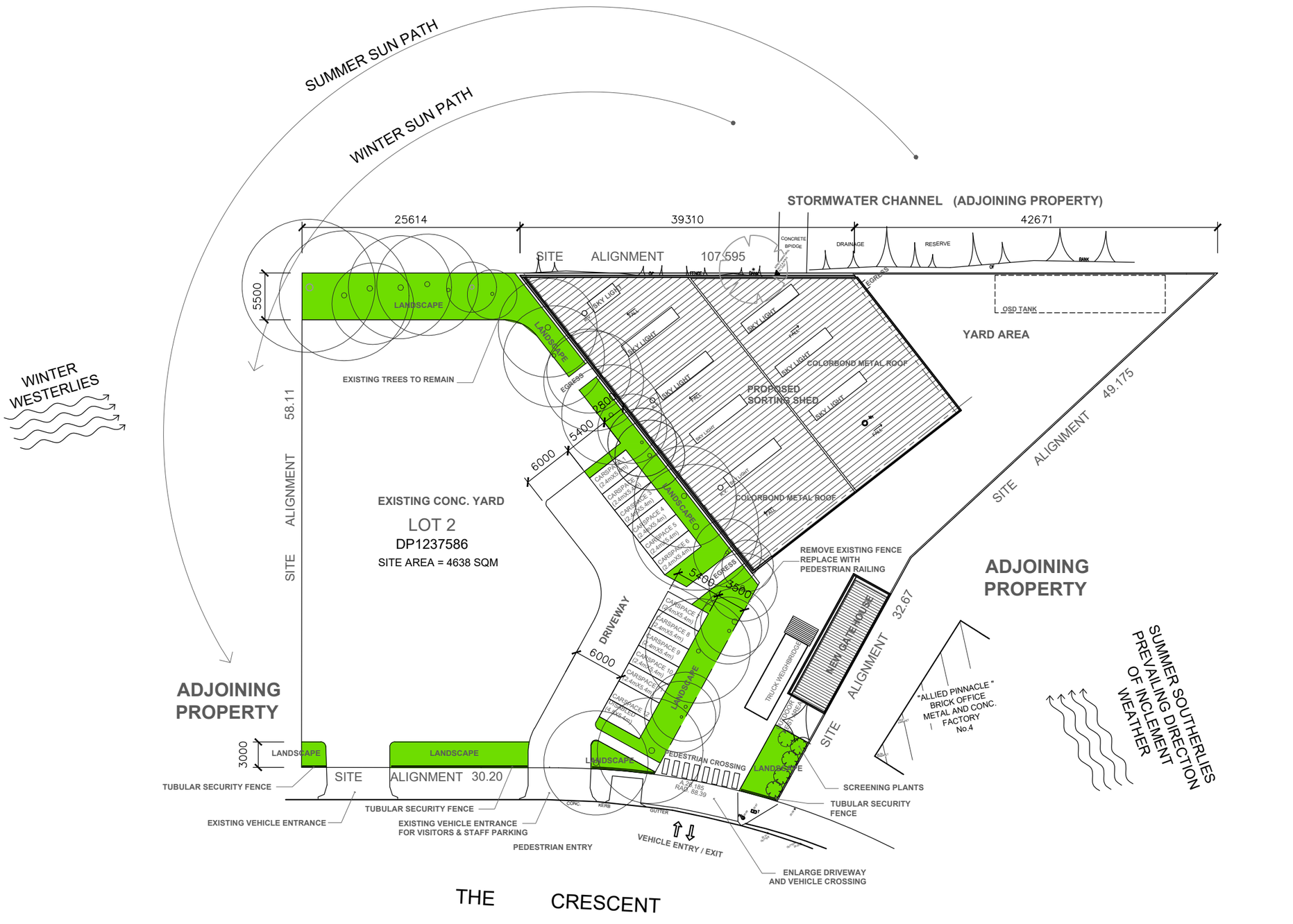
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

GATEHOUSE NORTH EAST & SOUTH WEST ELEVATIONS SECTION 3-3

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:100
DATE OCT 2019	DRG No. DA-9A
DRAWN BY Fang Zhou	



N

SITE AND CONTEXT ANALYSIS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	20.11.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

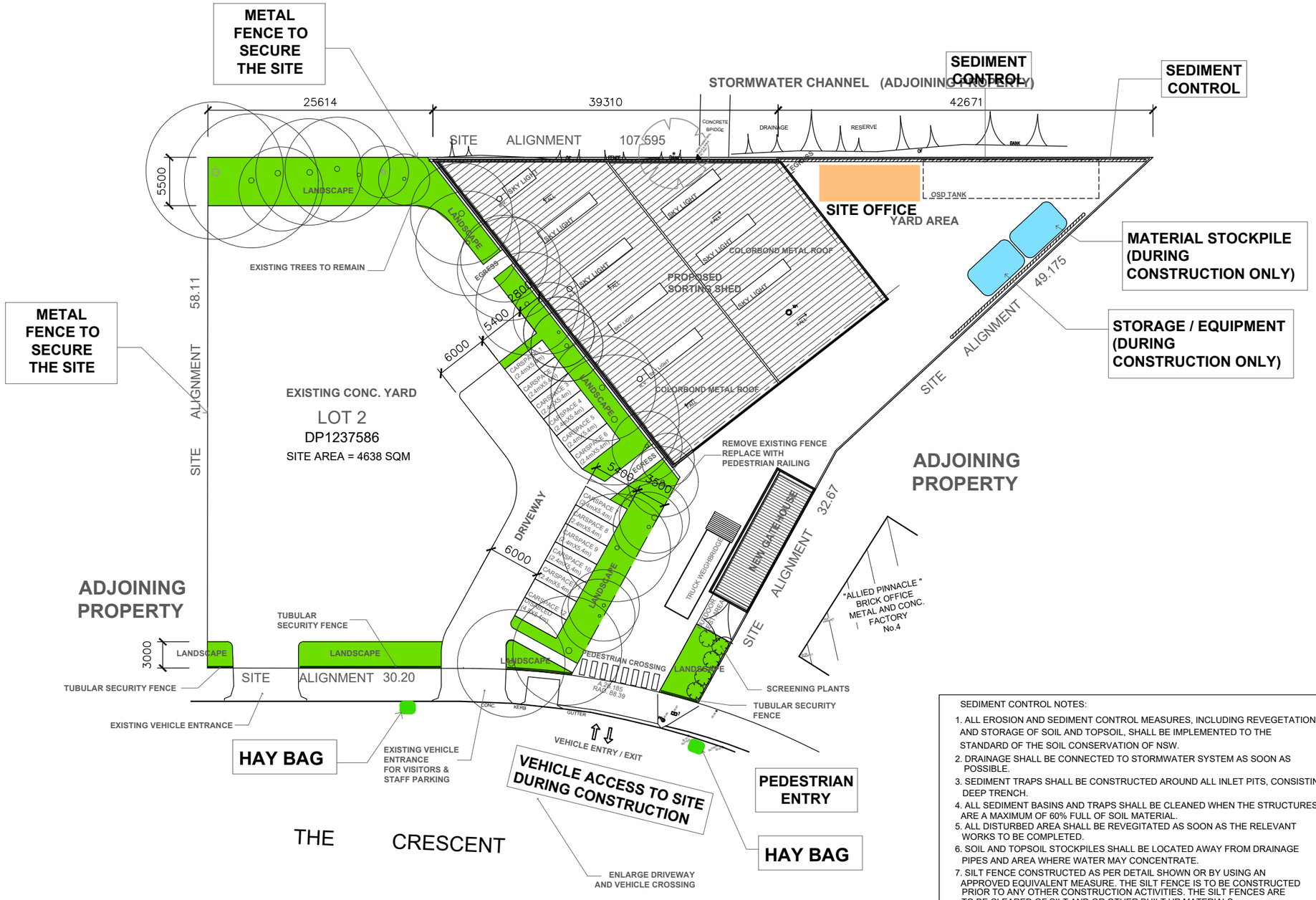
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

SITE AND CONTEXT ANALYSIS

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE NOV 2019	DRG No. DA-10A
DRAWN BY Fang Zhou	



SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE STANDARD OF THE SOIL CONSERVATION OF NSW.
2. DRAINAGE SHALL BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.
3. SEDIMENT TRAPS SHALL BE CONSTRUCTED AROUND ALL INLET PITS, CONSISTING DEEP TRENCH.
4. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM OF 60% FULL OF SOIL MATERIAL.
5. ALL DISTURBED AREA SHALL BE REVEGITATED AS SOON AS THE RELEVANT WORKS TO BE COMPLETED.
6. SOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE PIPES AND AREA WHERE WATER MAY CONCENTRATE.
7. SILT FENCE CONSTRUCTED AS PER DETAIL SHOWN OR BY USING AN APPROVED EQUIVALENT MEASURE. THE SILT FENCE IS TO BE CONSTRUCTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITIES. THE SILT FENCES ARE TO BE CLEARED OF SILT AND OR OTHER BUILT UP MATERIALS.

SEDIMENT & EROSION CONTROL PLAN
SITE MANAGEMENT PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	20.11.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

SEDIMENT & EROSION CONTROL PLAN / SITE MANAGEMENT PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE NOV 2019	DRG No. DA-11A
DRAWN BY Fang Zhou	

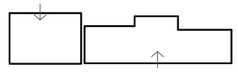
LIST OF DRAWINGS

DRAWING NO.	DRAWING NAME	VERSION	DATE
DA-00	INFORMATION SHEET	A	17.10.2019
DA-1A	PROPOSED SITE PLAN	A	17.10.2019
DA-2A	PROPOSED ROOF PLAN	A	17.10.2019
DA-3A	PROPOSED FLOOR PLAN	A	17.10.2019
DA-4A	PROPOSED SORTING SHED FLOOR PLAN	A	17.10.2019
DA-5A	PROPOSED SORTING SHED SE, W & E ELEVATIONS	A	17.10.2019
DA-6A	PROPOSED SORTING SHED NE ELEVATION & SECTION 1-1, 2-2	A	17.10.2019
DA-7A	GATEHOUSE GF & 1F PLANS	A	17.10.2019
DA-8A	GATEHOUSE NW & SE ELEVATIONS	A	17.10.2019
DA-9A	GATEHOUSE NE & SW ELEVATIONS & SECTION 3-3	A	17.10.2019
DA-10A	SITE & CONTEXT ANALYSIS	A	17.10.2019
DA-11A	SEDIMENT & EROSION CONTROL PLAN / SITE MANAGEMENT PLAN	A	17.10.2019
DA-12A	CONCEPT LANDSCAPE PLAN	A	17.10.2019

FSR CALCULATION :

SITE AREA	= 4638 SQM
FLOOR AREA OF SORTING SHED	= 1000 SQM
AREA OF GATE HOUSE AND AMENITIES	= 75.08 SQM
AREA OF OPEN SPACE FOR STAFF (GF)	= 24.13 SQM
AREA OF STAFF (BALCONY)	= 12.83 SQM
FSR	= 0.23:1

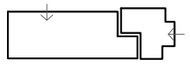
OUT DOOR
RESTING AREA
= 24.13 SQM



GATEHOUSE GROUND FLOOR
AREA = 37.87 SQM

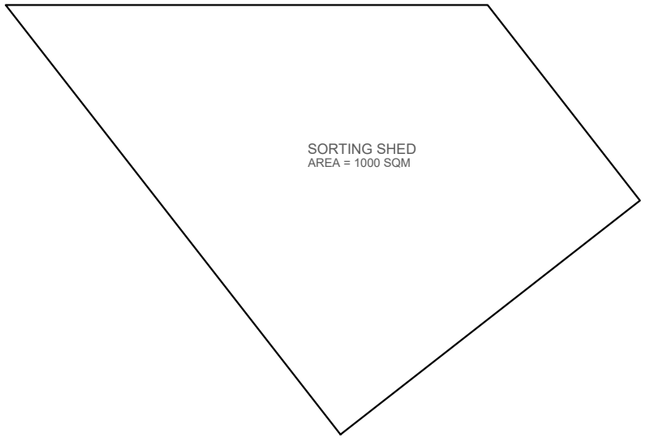
FSR PLAN - GATEHOUSE GF

GATEHOUSE FIRST FLOOR
AREA = 37.21 SQM



BALCONY
RESTING AREA
= 12.83 SQM

FSR PLAN - GATEHOUSE 1F

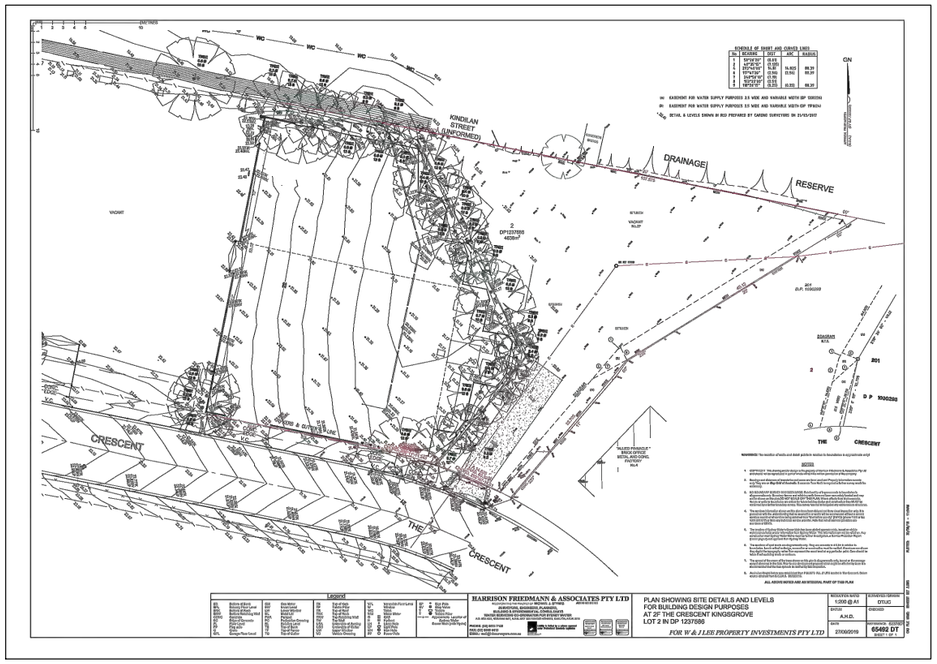


FSR PLAN - SORTING SHED

2F THE CRESCENT
KINGSGROVE

N

SITE MAP



SURVEY PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

INFORMATION SHEET

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE OCT 2019	DRG No. DA-00
DRAWN BY Fang Zhou	

NOTES:

HURSTVILLE LEP 2012 (MAP 4)

LAND ZONING	= IN2	= LIGHT INDUSTRIAL
FSR	= N	= 1:1
HEIGHT	= K	= 1O METERS MAX

BUILDING CODE OF AUSTRALIA - SORTING SHED

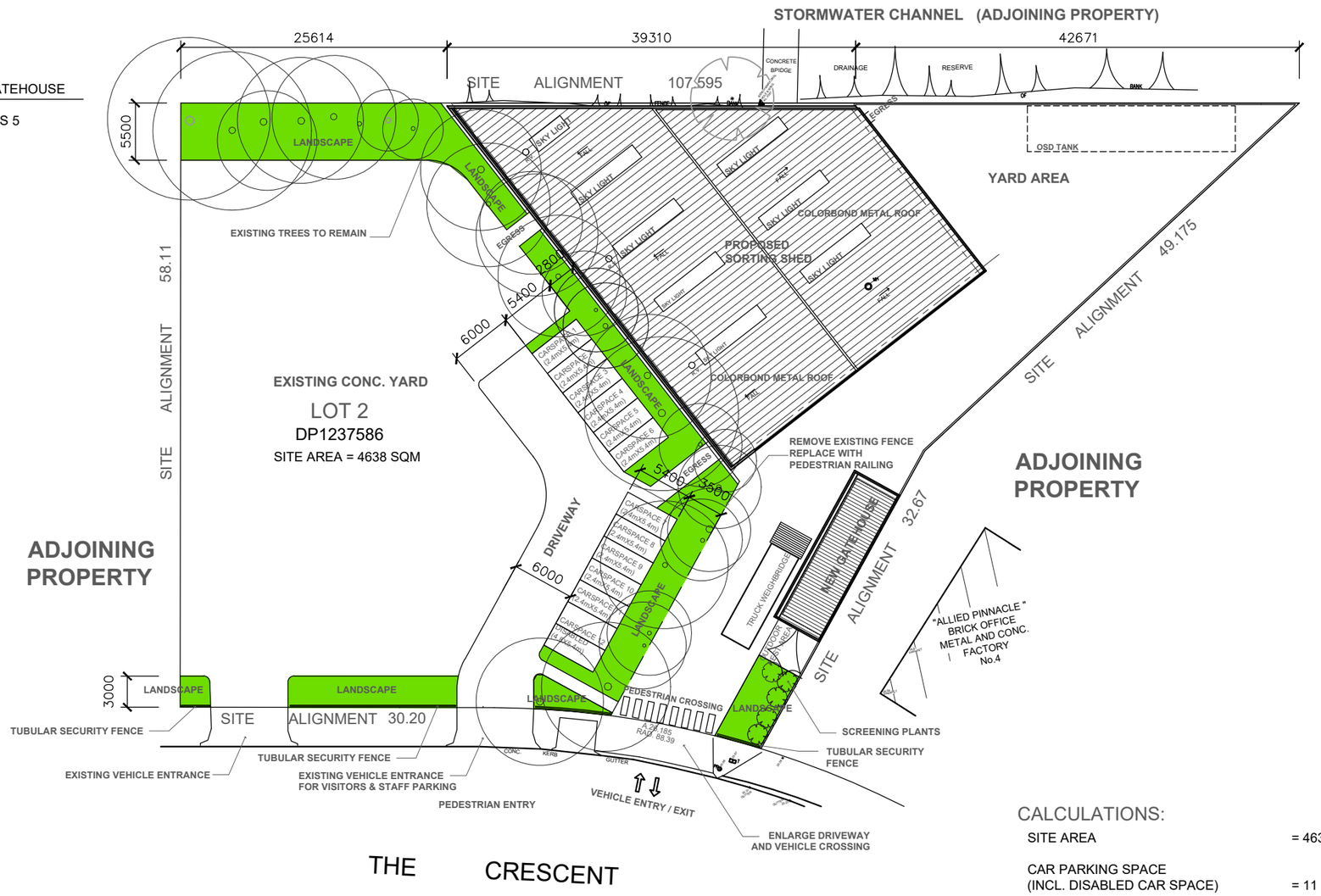
CLASSIFICATION	- CLASS 8
RISE IN STOREY	= 1
TYPE OF CONSTRUCTION	= C

BUILDING CODE OF AUSTRALIA - GATEHOUSE

CLASSIFICATION	- CLASS 5
RISE IN STOREY	= 2
TYPE OF CONSTRUCTION	= C

EXTERNAL WALLS (FRL)

LESS THAN 1.5M	= 90/90/90
1.5M TO 3.0M	= 60/60/60
3M OR MORE	= -/-/-
EXTERNAL COLUMNS LESS THAN 1.5M	= 90/-/-
1.5M TO 3.0M	= 60/-/-
ROOF	= -/-/-



CALCULATIONS:

SITE AREA	= 4638 SQM
CAR PARKING SPACE (INCL. DISABLED CAR SPACE)	= 11 SPACES
LANDSCAPE AREA	= 482.5 SQM = 10.4% OF SITE AREA

N

PROPOSED SITE PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

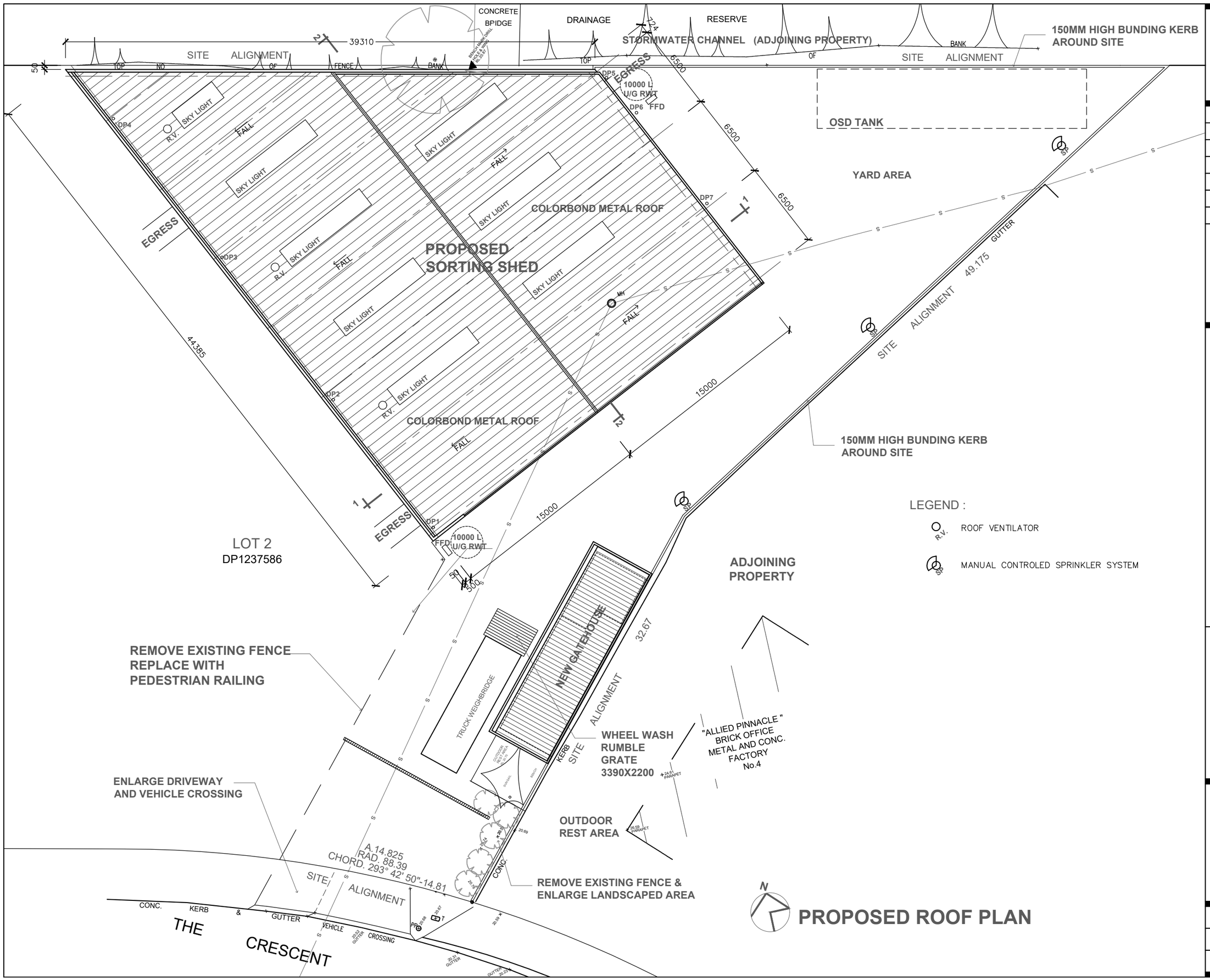
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SITE PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE OCT 2019	DRG No. DA-1A
DRAWN BY Fang Zhou	



PROPOSED ROOF PLAN

NOTE:

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N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

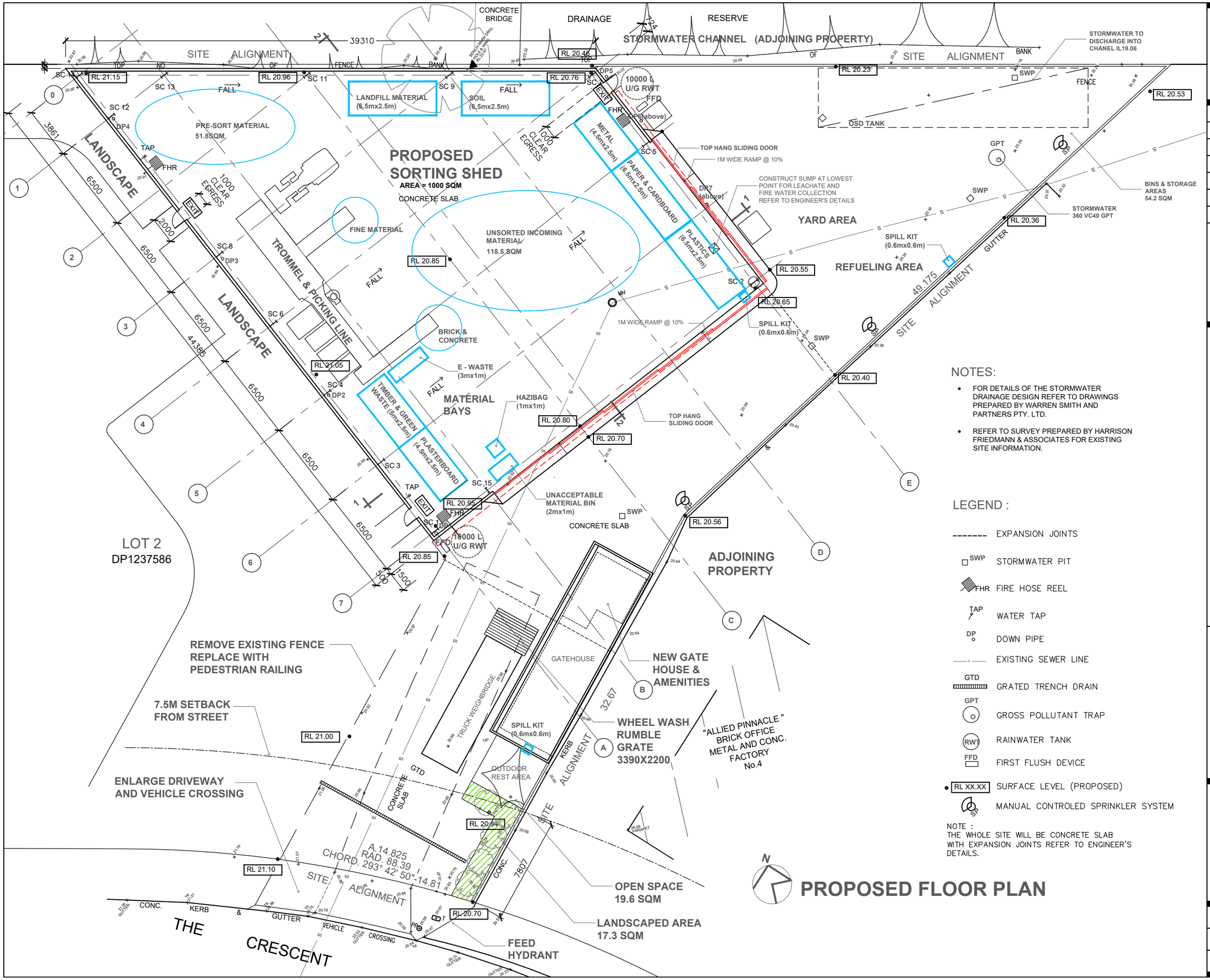
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED ROOF PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:250
DATE OCT 2019	DRG No. DA-2A
DRAWN BY Fang Zhou	



NOTES:

- FOR DETAILS OF THE STORMWATER DRAINAGE DESIGN REFER TO DRAWINGS PREPARED BY WARREN SMITH AND PARTNERS PTY. LTD.
- REFER TO SURVEY PREPARED BY HARRISON FRIEDMANN & ASSOCIATES FOR EXISTING SITE INFORMATION.

LEGEND :

- ------- EXPANSION JOINTS
- SWP STORMWATER PIT
- FHR FIRE HOSE REEL
- TAP WATER TAP
- DP DOWN PIPE
- EXISTING SEWER LINE
- GTD GRATED TRENCH DRAIN
- GPT GROSS POLLUTANT TRAP
- RWT RAINWATER TANK
- FFD FIRST FLUSH DEVICE
- RL XX.XX SURFACE LEVEL (PROPOSED)
- SPR MANUAL CONTROLED SPRINKLER SYSTEM

NOTE :
THE WHOLE SITE WILL BE CONCRETE SLAB WITH EXPANSION JOINTS REFER TO ENGINEER'S DETAILS.

PROPOSED FLOOR PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

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PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

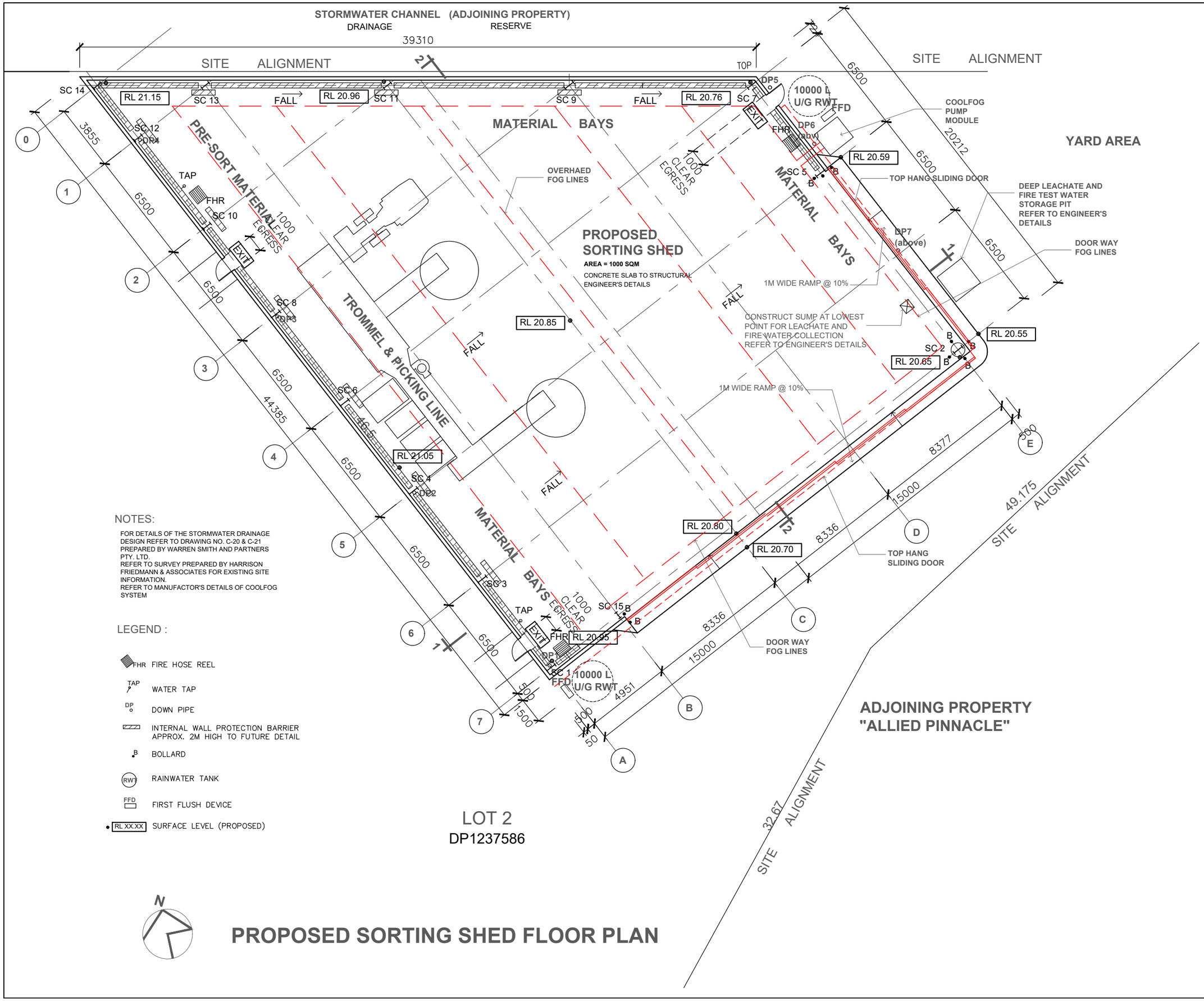
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED FLOOR PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:250
DATE OCT 2019	DRG No. DA-3A
DRAWN BY Fang Zhou	



NOTES:

FOR DETAILS OF THE STORMWATER DRAINAGE DESIGN REFER TO DRAWING NO. C-20 & C-21 PREPARED BY WARREN SMITH AND PARTNERS PTY. LTD.
REFER TO SURVEY PREPARED BY HARRISON FRIEDMANN & ASSOCIATES FOR EXISTING SITE INFORMATION.
REFER TO MANUFACTOR'S DETAILS OF COOLFOG SYSTEM

LEGEND :

- FHR FIRE HOSE REEL
- TAP WATER TAP
- DP DOWN PIPE
- INTERNAL WALL PROTECTION BARRIER APPROX. 2M HIGH TO FUTURE DETAIL
- B BOLLARD
- RWT RAINWATER TANK
- FFD FIRST FLUSH DEVICE
- RL XX.XX SURFACE LEVEL (PROPOSED)

N

PROPOSED SORTING SHED FLOOR PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

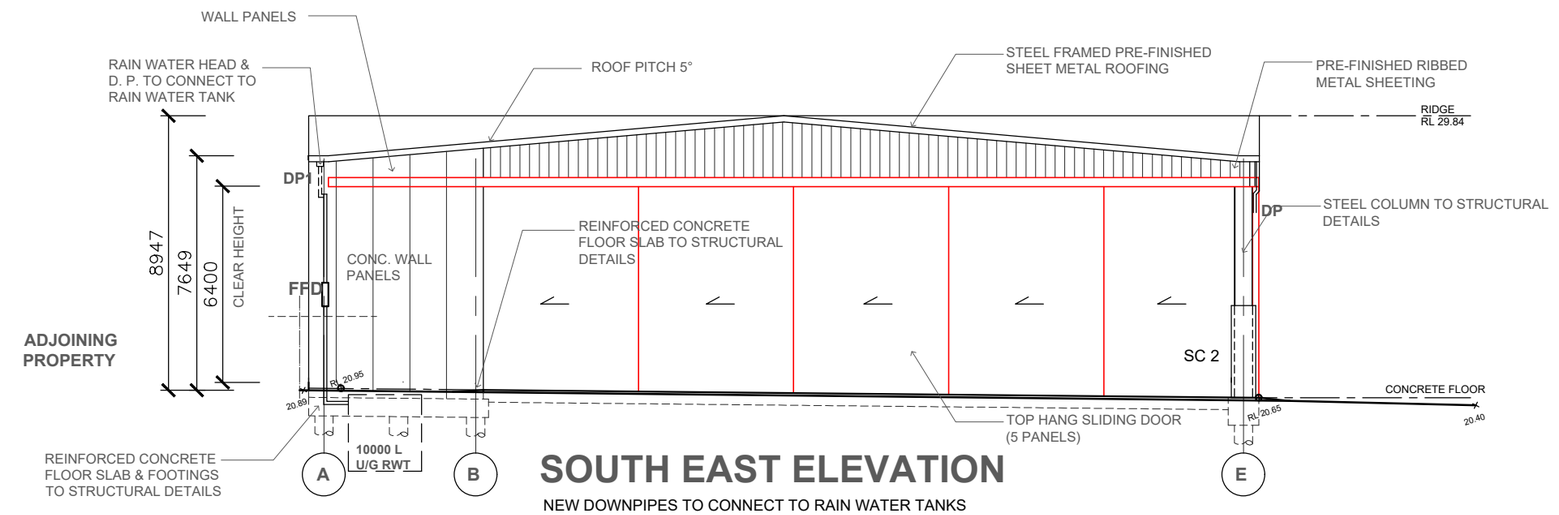
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SORTING SHED FLOOR PLAN

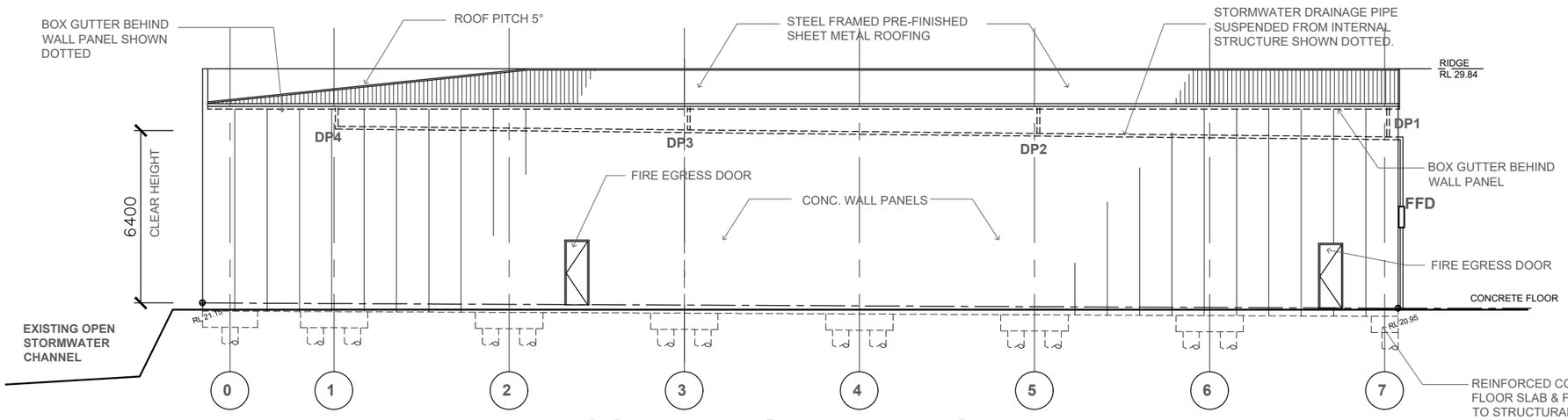
ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:200
DATE OCT 2019	DRG No. DA-4A
DRAWN BY Fang Zhou	

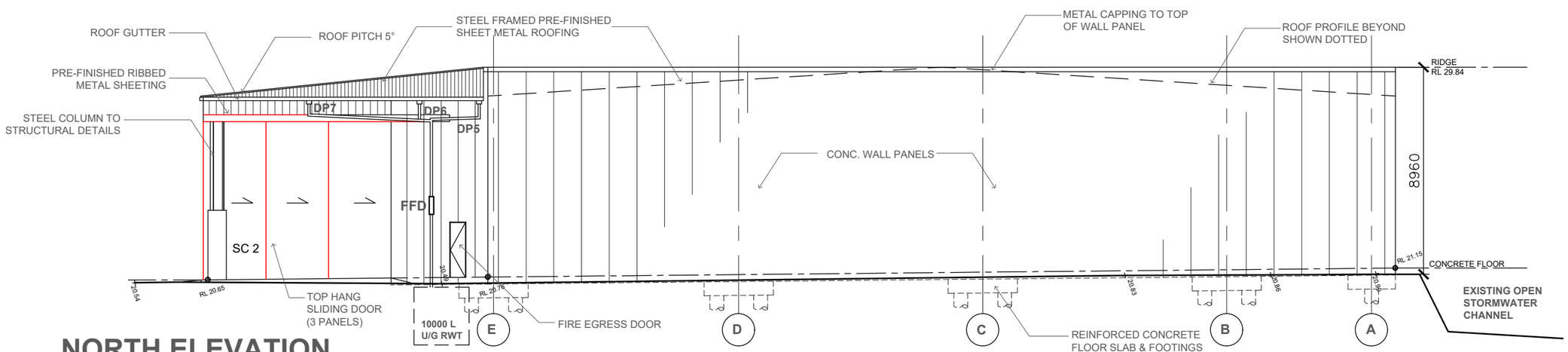


SOUTH EAST ELEVATION

NEW DOWNPIPES TO CONNECT TO RAIN WATER TANKS AND DISCHARGE TO STORMWATER SYSTEM - TO HYDRAULIC ENGINEER'S DETAILS



SOUTH WEST ELEVATION



NORTH ELEVATION

NEW DOWNPIPES TO CONNECT TO RAIN WATER TANKS AND DISCHARGE TO STORMWATER SYSTEM - TO HYDRAULIC ENGINEER'S DETAILS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

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A	17.10.19	SUBMIT FOR DA

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at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

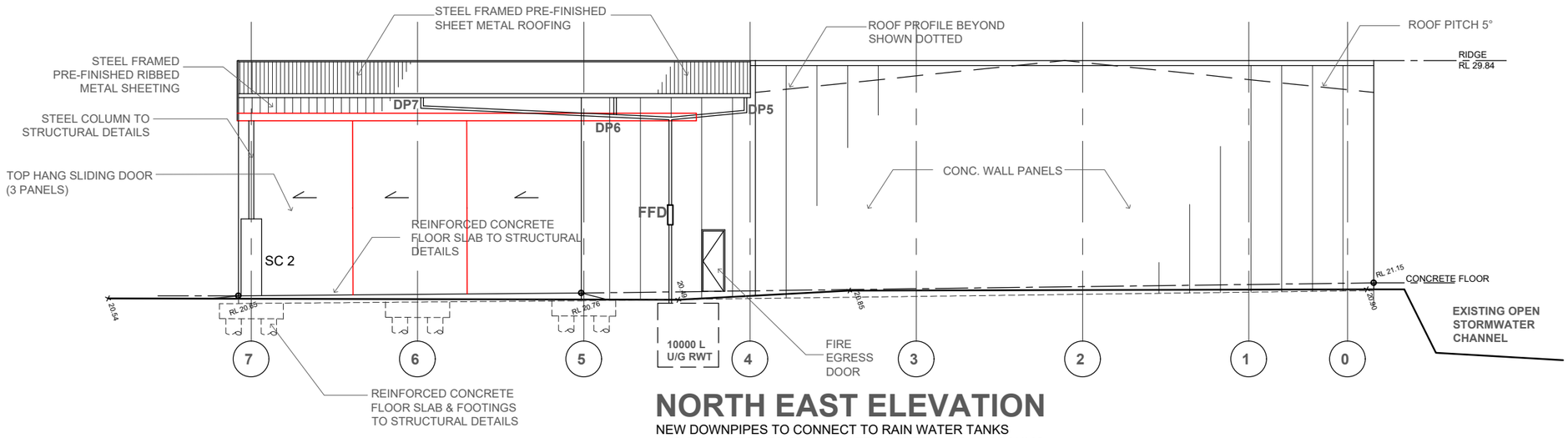
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SORTING SHED SOUTH EAST, WEST & NORTH ELEVATIONS

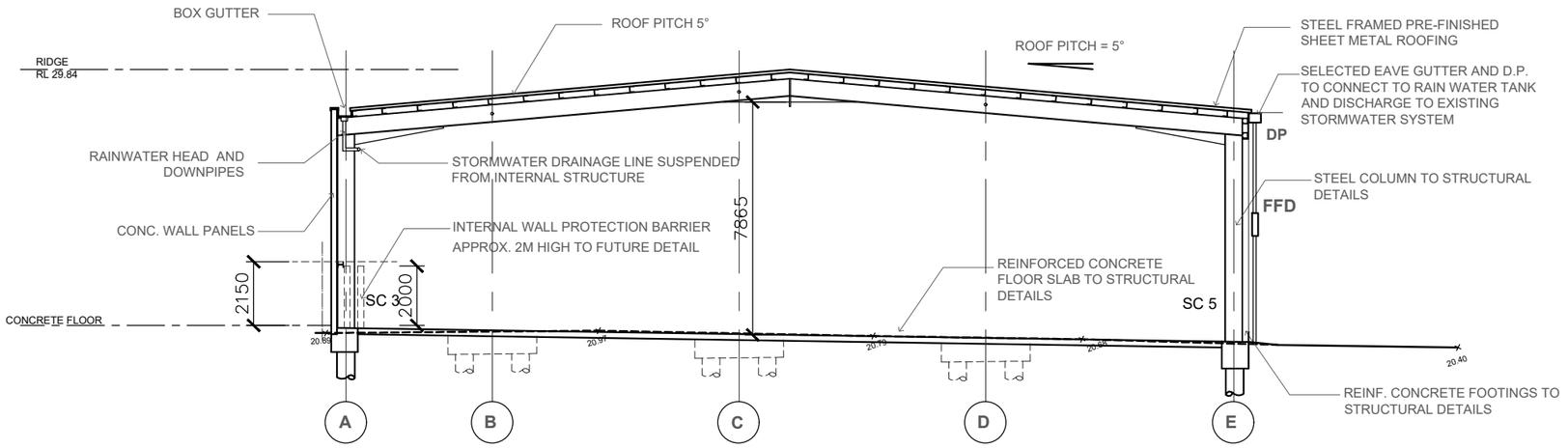
ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:200
DATE OCT 2019	DRG No. DA-5A
DRAWN BY Fang Zhou	



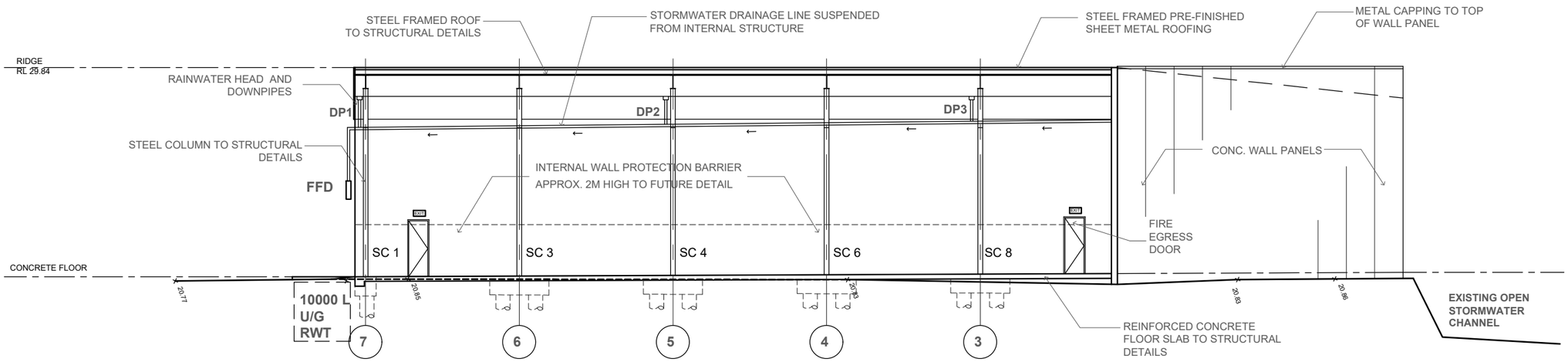
NORTH EAST ELEVATION

NEW DOWNPIPES TO CONNECT TO RAIN WATER TANKS AND DISCHARGE TO STORMWATER SYSTEM - TO HYDRAULIC ENGINEER'S DETAILS



1-1 SECTION

STEEL FRAMED ROOF TO STRUCTURAL ENGINEERS DETAILS
FOOTINGS TO STRUCTURAL ENGINEERS DETAILS



2-2 SECTION

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

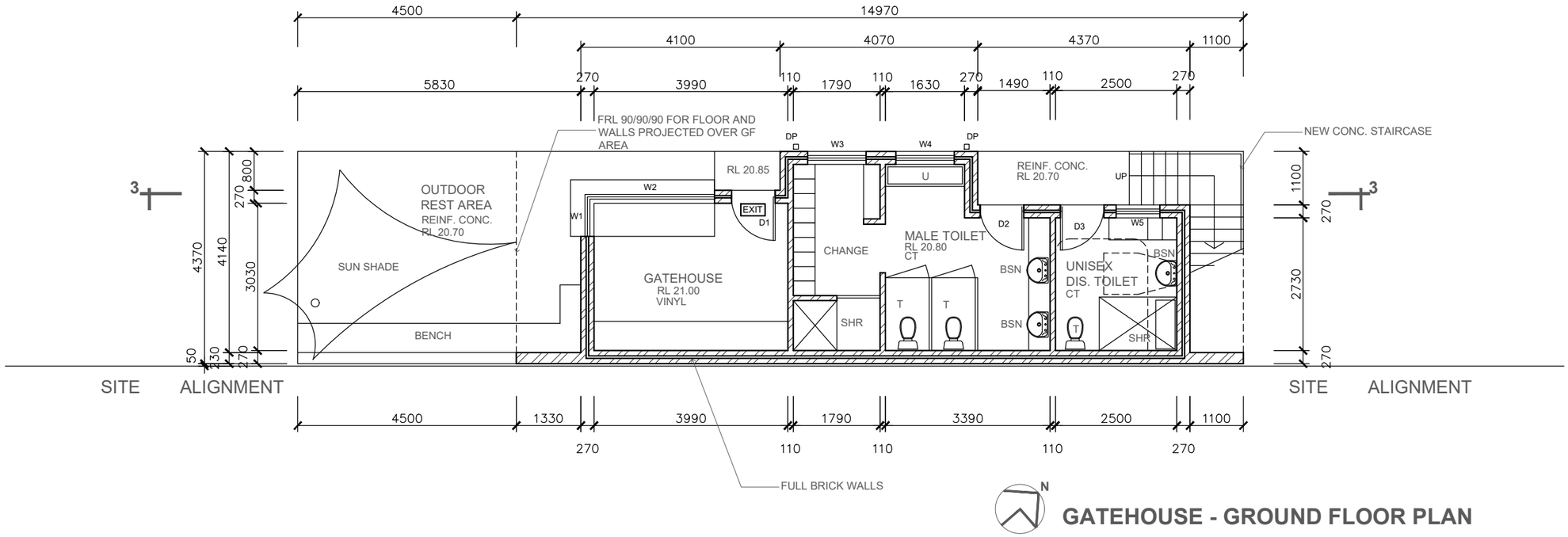
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

PROPOSED SORTING SHED NORTH EAST ELEVATION & SECTION 1-1, 2-2

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:200
DATE OCT 2019	DRG No. DA-6A
DRAWN BY Fang Zhou	



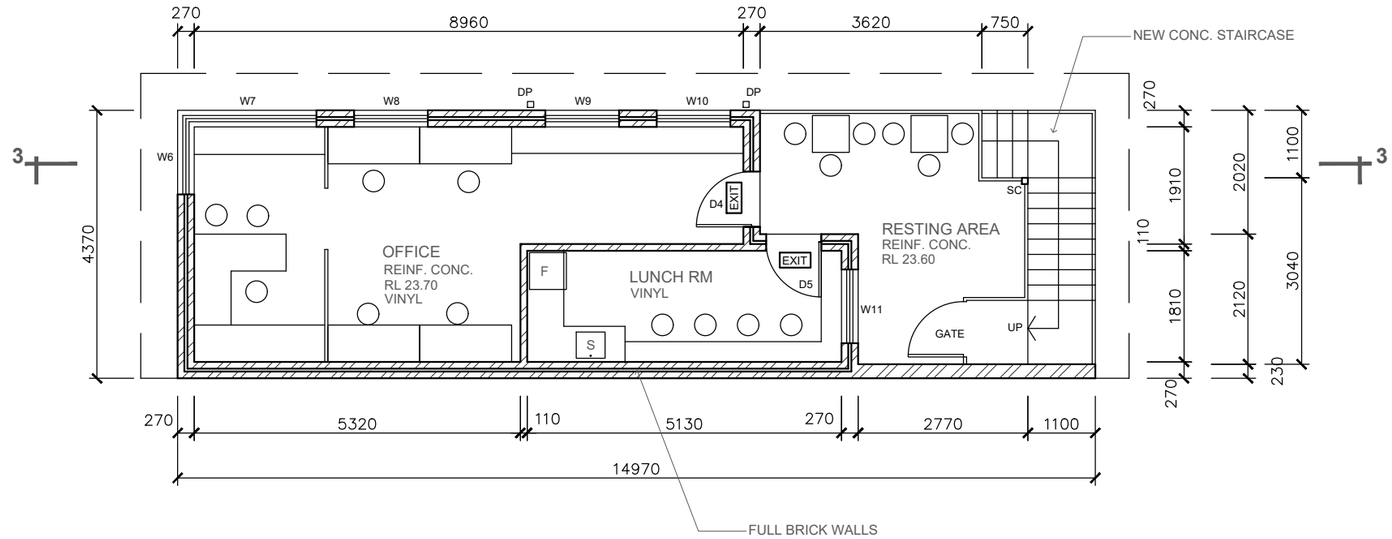
N

GATEHOUSE - GROUND FLOOR PLAN

INDEX:

COL = STEEL COLUMN
D = NEW DOOR
RD = NEW ROLLER DOOR
W = NEW WINDOW
RC = REINFORCED CONCRETE
CT = CERAMIC TILES
WM = WASHING MACHINE
T = TUB
F = FRIDGE
S = SINK
FW = FLOOR WASTE
HWU = HOT WATER UNIT

$\overset{\times}{34.00}$ = EXISTING LEVEL



N

GATEHOUSE FIRST FLOOR PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

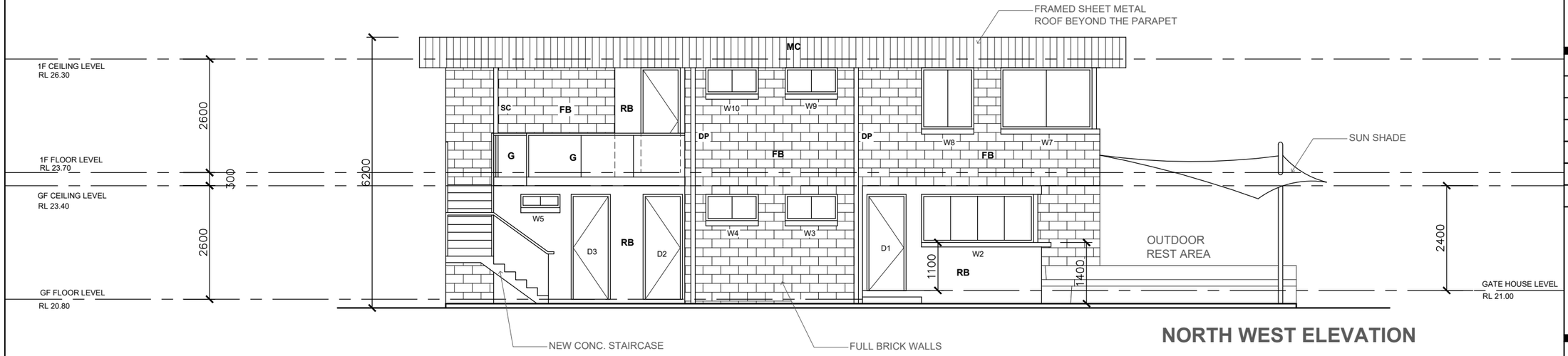
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

GATEHOUSE GF & 1F PLANS

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:100
DATE JUNE 2019	DRG No. DA-7A
DRAWN BY Fang Zhou	



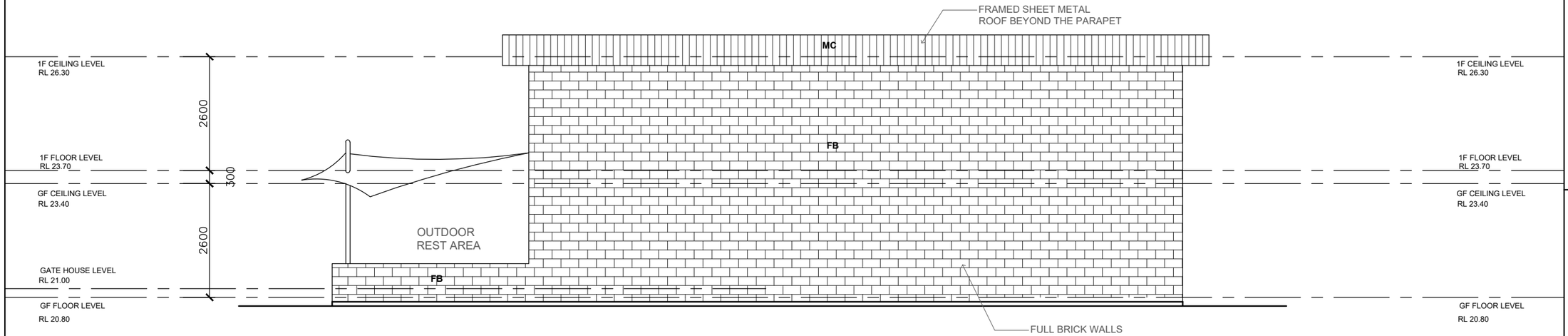
NORTH WEST ELEVATION

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

INDEX:

SC = STEEL COLUMN
D = NEW DOOR
W = NEW WINDOW
RC = REINFORCED CONCRETE
RB = RENDERED BRICK
FB = FACE BRICK
G = GLASS BALUSTRADE
MC = METAL CLADDING
GL = GROUND LEVEL
CL = CEILING LEVEL
FL = FLOOR LEVEL

34.00 = EXISTING LEVEL



SOUTH EAST ELEVATION

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

NOTE:

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N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

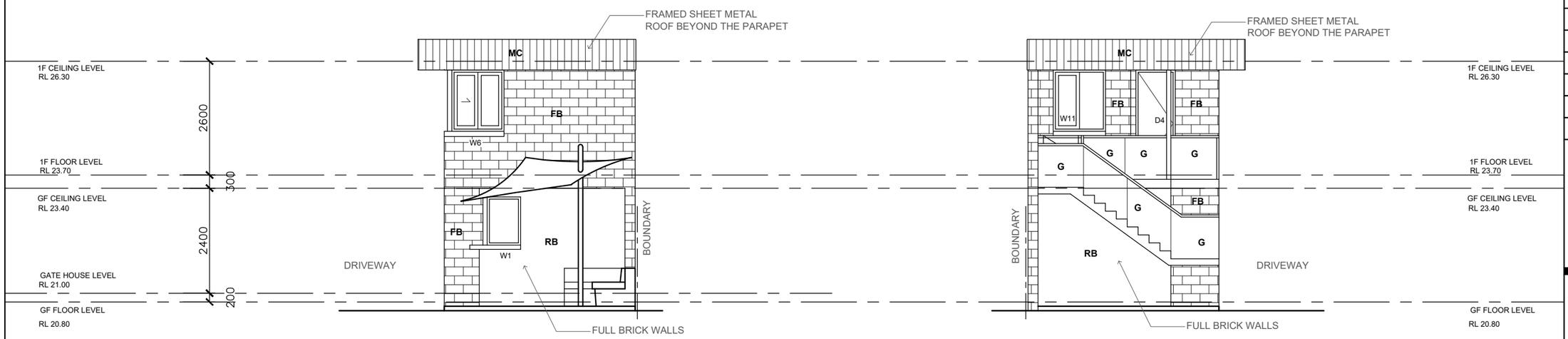
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

GATEHOUSE NORTH WEST & SOUTH EAST ELEVATIONS

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:100
DATE JUNE 2019	DRG No. DA-8A
DRAWN BY Fang Zhou	



SOUTH WEST ELEVATION

NORTH EAST ELEVATION

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

INDEX:

SC = STEEL COLUMN
D = NEW DOOR
W = NEW WINDOW
RC = REINFORCED CONCRETE
RB = RENDERED BRICK
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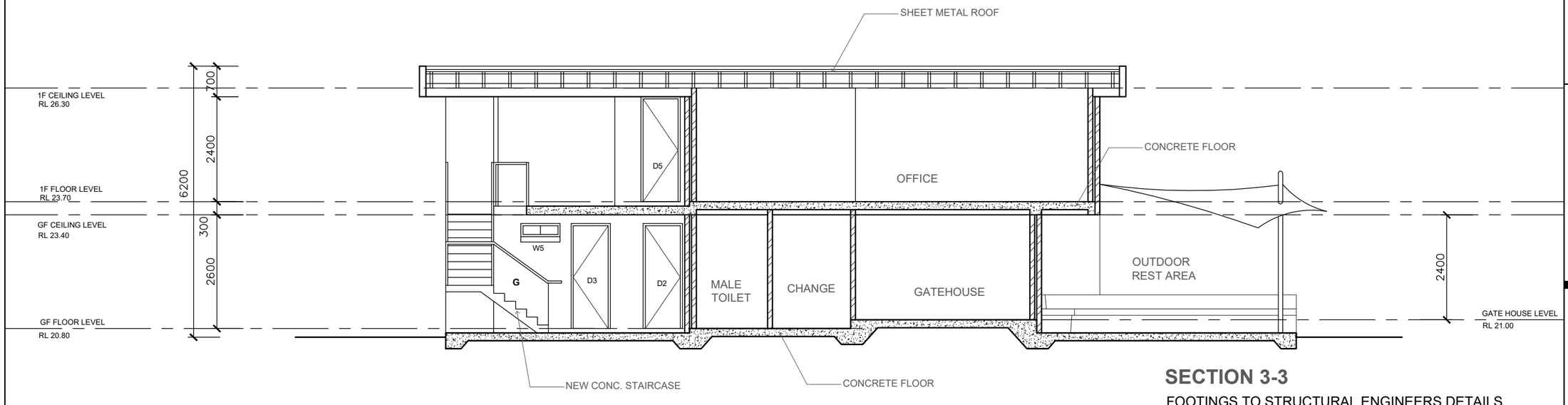
GL = GROUND LEVEL
CL = CEILING LEVEL
FL = FLOOR LEVEL

$\overset{\times}{34.00}$ = EXISTING LEVEL



SECTION 3-3

FOOTINGS TO STRUCTURAL ENGINEERS DETAILS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	17.10.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

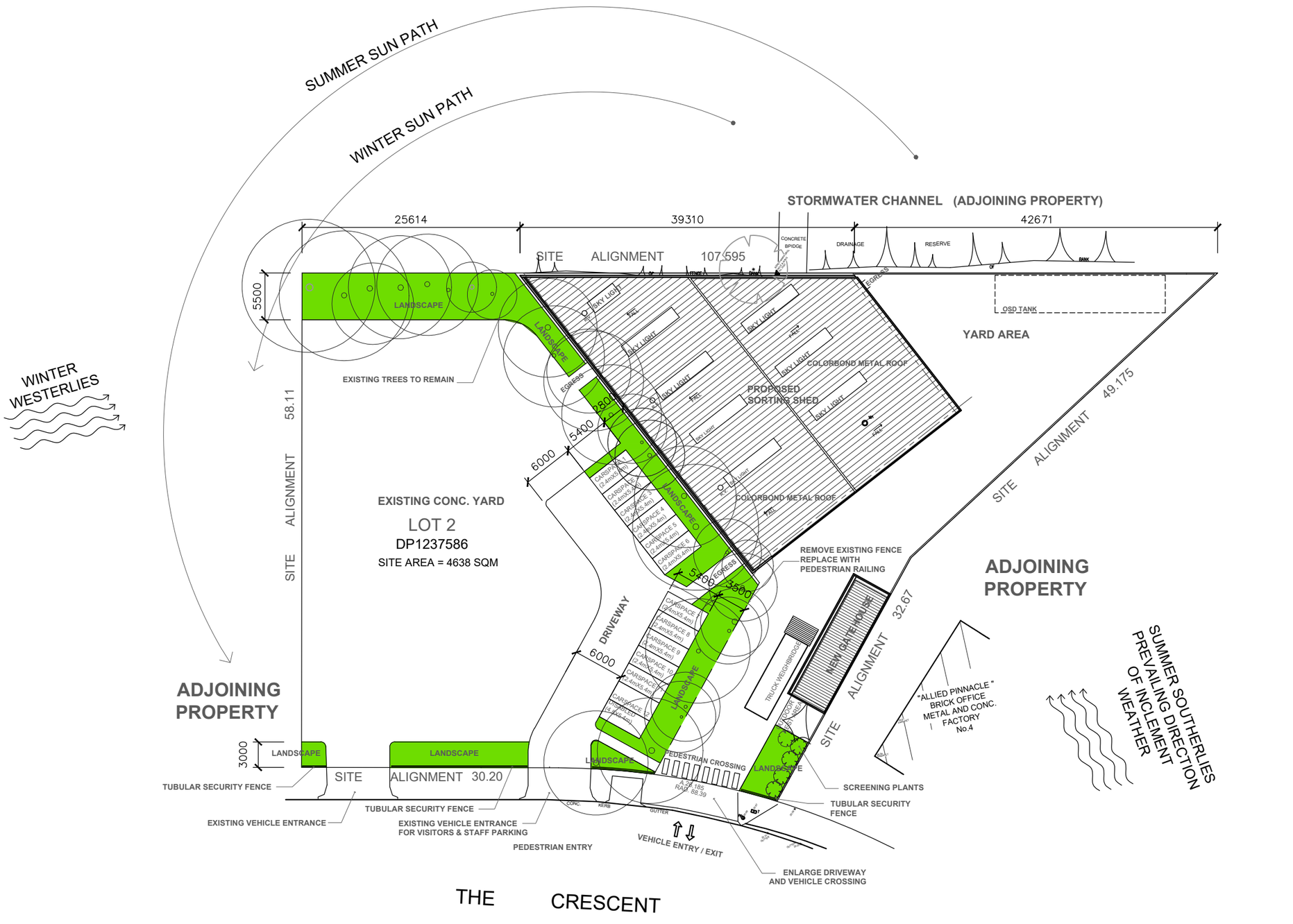
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

GATEHOUSE NORTH EAST & SOUTH WEST ELEVATIONS SECTION 3-3

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:100
DATE OCT 2019	DRG No. DA-9A
DRAWN BY Fang Zhou	



N

SITE AND CONTEXT ANALYSIS

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	20.11.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

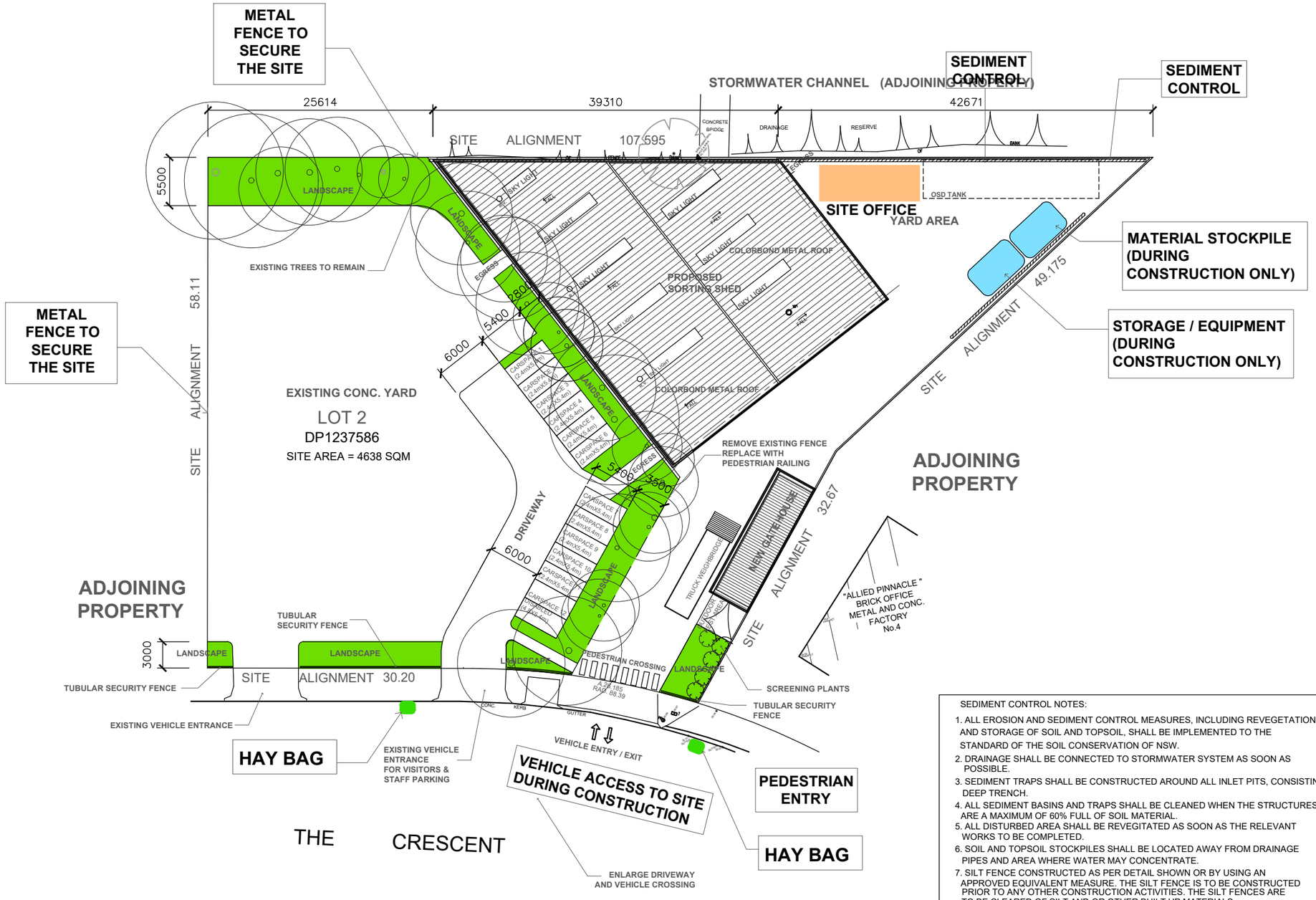
W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

SITE AND CONTEXT ANALYSIS

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE NOV 2019	DRG No. DA-10A
DRAWN BY Fang Zhou	



SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE STANDARD OF THE SOIL CONSERVATION OF NSW.
2. DRAINAGE SHALL BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.
3. SEDIMENT TRAPS SHALL BE CONSTRUCTED AROUND ALL INLET PITS, CONSISTING DEEP TRENCH.
4. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM OF 60% FULL OF SOIL MATERIAL.
5. ALL DISTURBED AREA SHALL BE REVEGITATED AS SOON AS THE RELEVANT WORKS TO BE COMPLETED.
6. SOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE PIPES AND AREA WHERE WATER MAY CONCENTRATE.
7. SILT FENCE CONSTRUCTED AS PER DETAIL SHOWN OR BY USING AN APPROVED EQUIVALENT MEASURE. THE SILT FENCE IS TO BE CONSTRUCTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITIES. THE SILT FENCES ARE TO BE CLEARED OF SILT AND OR OTHER BUILT UP MATERIALS.

SEDIMENT & EROSION CONTROL PLAN
SITE MANAGEMENT PLAN

NOTE:

VERIFY ALL DIMENSIONS WITH ACTUAL JOB SIZES AND MODIFY WHERE NECESSARY BEFORE COMMENCING SITE WORK OR SHOP FABRICATION.

N°	DATE	REVISION
A	20.11.19	SUBMIT FOR DA

PROPOSED RESOURCE RECOVERY FACILITY

at

2F THE CRESCENT
KINGSGROVE
(LOT2, DP 1237586)
(Georges River Council)

for

W & J LEE PROPERTY INVESTMENT PTY LTD

DRAWING TITLE

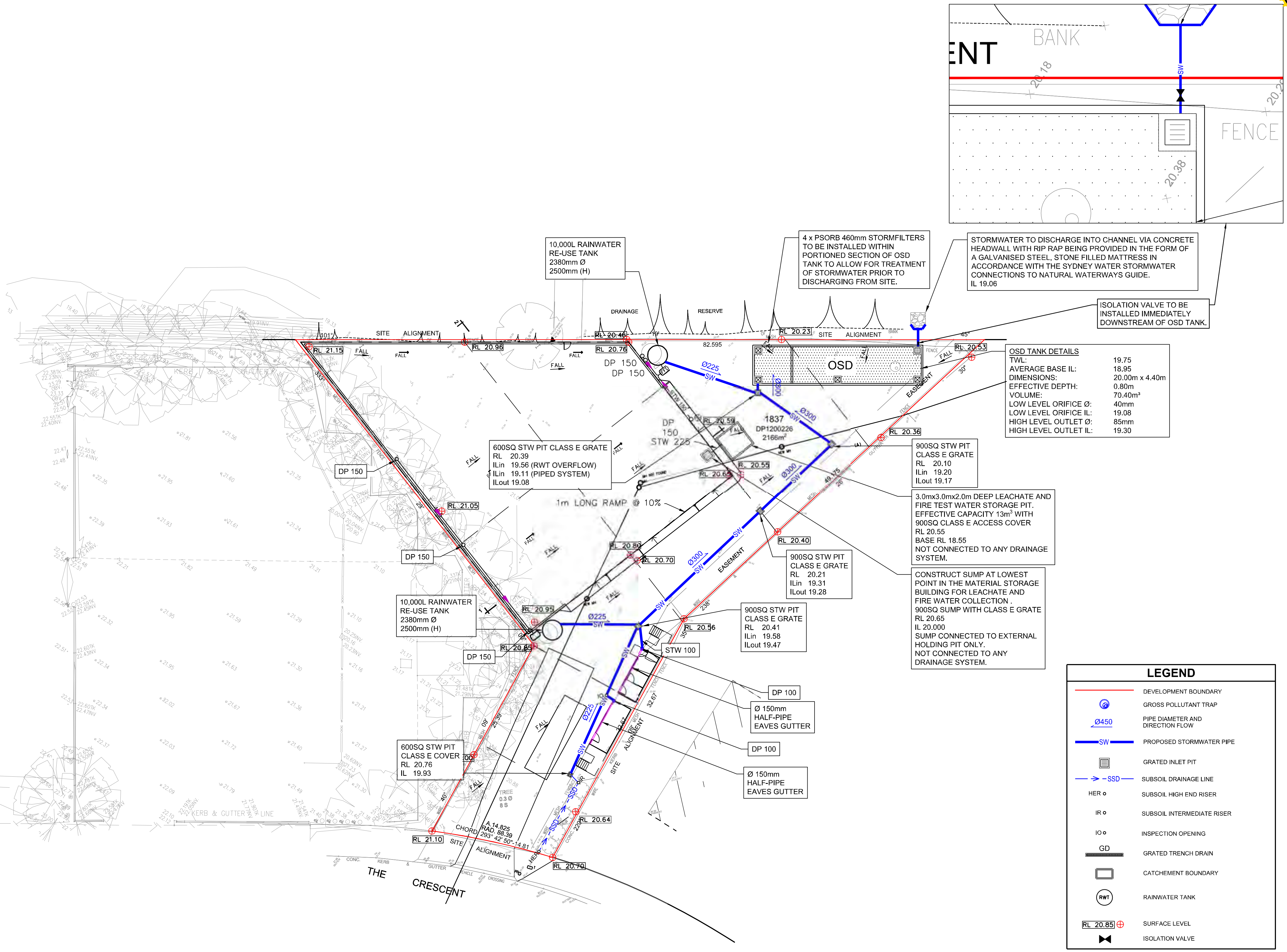
SEDIMENT & EROSION CONTROL PLAN / SITE MANAGEMENT PLAN

ROBERT LEE ARCHITECTS PTY LTD
ABN 25 000 971 488
SUITE 7 LEVEL 1
578 RAILWAY PDE. HURSTVILLE
NSW 2220
TELEPHONE: (02) 9570 1644
FACSIMILE: (02) 9570 3034
NOMINATED ARCHITECT:
RUSSELL C. LEE (ARN 4190)

SHEET SIZE A3	SCALE 1:500
DATE NOV 2019	DRG No. DA-11A
DRAWN BY Fang Zhou	

ATTACHMENT D

WARREN SMITH AND PARTNERS PLANS



STORMWATER DRAINAGE PLAN

SCALE 1:200

LEGEND

(red line)	DEVELOPMENT BOUNDARY
(symbol)	GROSS POLLUTANT TRAP
Ø450	PIPE DIAMETER AND DIRECTION FLOW
SW	PROPOSED STORMWATER PIPE
(symbol)	GRATED INLET PIT
SSD	SUBSOIL DRAINAGE LINE
HER	SUBSOIL HIGH END RISER
IR	SUBSOIL INTERMEDIATE RISER
IO	INSPECTION OPENING
GD	GRATED TRENCH DRAIN
(symbol)	CATCHMENT BOUNDARY
RWT	RAINWATER TANK
RL 20.85	SURFACE LEVEL
(symbol)	ISOLATION VALVE

NOTES:-
1. ALL STORMWATER GRATED INLET PITS WITHIN THE DEVELOPMENT SITE TO BE FITTED ENVIROPOD FILTER BASKETS.
2. 4 x PSORB 460mm STORMFILTERS TO BE INSTALLED WITHIN THE PORTIONED SECTION OF THE OSD TANK.

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

NORTH POINT
NORTH

NOTES

SCALE 1:200 A1 SHEET

ISSUE	AMENDMENT	DATE
A	PRELIMINARY ISSUE	01.04.15
B	RE-ISSUE FOR REVIEW	14.04.15
C	RE-ISSUE FOR DA	02.05.16
D	FIRE WATER PIT ADDED	17.05.18
E	OSD TANK ADDED	21.05.18
F	SUBSOIL DRAINAGE ADDED	23.05.19
G	ADDITION OF ISOLATION VALVE	05.06.19
H	ADDITION OF OUTLET DETAILS	12.09.19
J	RE-ISSUE FOR DA	12.12.19

CLIENT: Combined Skips

PROJECT: PROPOSED RESOURCE MANAGEMENT FACILITY
2D THE CRESCENT, KINGSGROVE

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 8299 1312 F 02 8290 1255 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 432 126
CONSULTING ENGINEERS
Hydraulic Services, Fire Protection, Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
Design Project Management - Building Plan Approvals
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981

TITLE: STORMWATER DRAINAGE PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.M	L.S	M.C.	M.C.

DATE	DRAWING No.	ISSUE
APRIL 2015	C-20	J

JOB No. 4986000
STATUS: PRELIMINARY ISSUE

SHEET SIZE: A1

STORMWATER CATCHMENT PLAN

SCALE 1:200

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH POINT

NORTH

NOTES

ISSUE	AMENDMENT	DATE
A	PRELIMINARY ISSUE	01.04.15
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CLIENT: Combined Skips

PROJECT: PROPOSED RESOURCE MANAGEMENT FACILITY
2D THE CRESCENT, KINGSGROVE

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

CONSULTING ENGINEERS
Hydraulic Services · Fire Protection · Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981

TITLE: STORMWATER CATCHMENT PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.M	L.S	M.C.	M.C.

DATE	DRAWING No.	ISSUE
APRIL 2015	C-22	J

JOB No. 4986000

STATUS: PRELIMINARY ISSUE

SHEET SIZE: A1

ATTACHMENT E

SOIL EROSION AND SEDIMENT CONTROL PLANS

'ER COUNCIL

ESCENT, KINGSGROVE

IT APPLICATION

LOCALITY
NOT TO SCALE

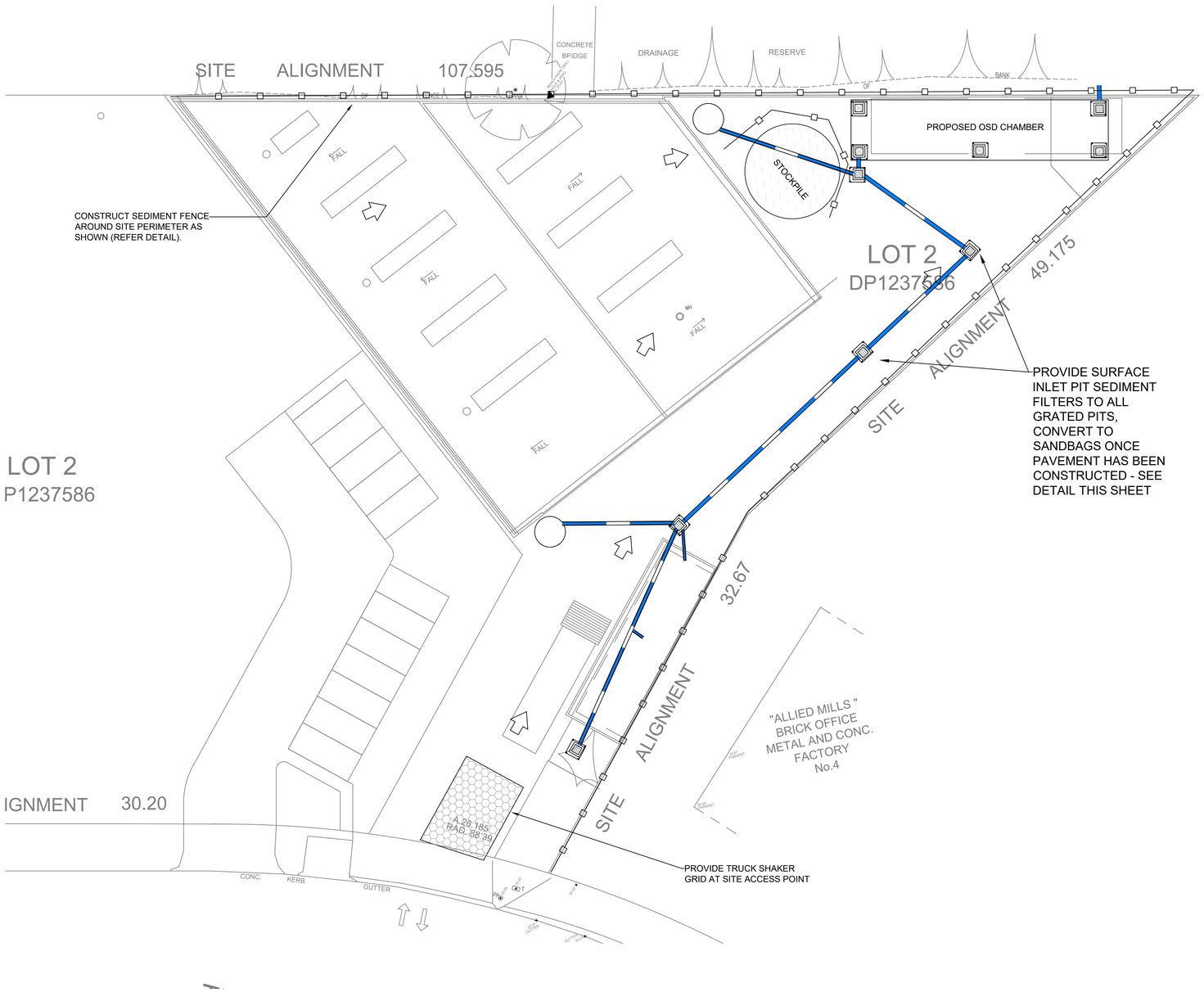
Sheet List Table	
Sheet Number	Sheet Title
001	COVER SHEET
011	EROSION AND SEDIMENT CONTROL PLAN
012	EROSION AND SEDIMENT CONTROL DETAILS

BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS

W & J LEE PROPERTY INVESTMENT PTY LTD

Revision A
Date 19/06/27
Project No. SY180154-01

A1



EROSION AND SEDIMENTATION CONTROL

1. PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CON SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THI DEPARTMENT OF HOUSING'S PUBLICATION "MANAGING URBAN ST
2. THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVI ADJUSTED TO SUIT SITE CONDITIONS.
3. WHERE WORKS ARE DELAYED OR IN ABEYANCE AND DISTURBED A MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL B
4. ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULC
5. ALL AREAS WITH SLOPES STEEPER THAN 12% (1 in 8) SHALL BE ST
6. SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SH LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
7. SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONST EROSION OF THE CONSTRUCTED MATERIAL.
8. THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF TH HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
9. TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON TH LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD E BY SEEDING OR EQUIVALENT METHODS.
10. ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING W COMPLETION OF THE MAINTENANCE PERIOD.
11. THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE C VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UND
12. SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON T SHOWN.
13. DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHA GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMEN
14. MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL B AND APPROPRIATELY TREATED AND DISPOSED OF.
15. ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL RE REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERT

LEGEND

SEDIM
STABIL AT ENT
SURFA SEDIM
HAY BA
STRAW SEDIM
OVERL
SAND
SWALE

SEDIMENT CONTROL PLAN
NOT TO SCALE

4 0

REV	AMENDMENT	ISSUED	DATE
A	DA ISSUE	DV	19/06/27

BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS
ENGINEERING | PLANNING | PROJECT MANAGEMENT | SURVEYING | CERTIFICATION.
SYDNEY P: 02 9659 0005
CENTRAL COAST P: 02 4325 5255
HUNTER P: 02 4966 8388
S.E. QLD P: 07 5582 6555
www.brs.com.au
mail@brs.com.au
ABN: 26 134 067 842

Client:

W & J LEE PROPERTY INVESTMENTS PTY LTD

2F THE CRESCENT, KINGSGROVE
DEVELOPMENT APPLICATION

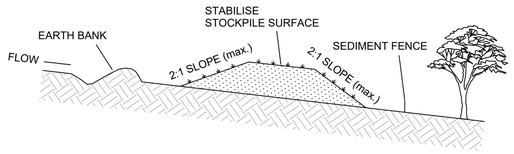
EROSION AND SEDIMENT CONTROL PLAN

Designed: DV
Drawn: DV
Checked: GJ

Scales: Plan
Horiz
Vert.
X-Se

Datum: A

A1



CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.

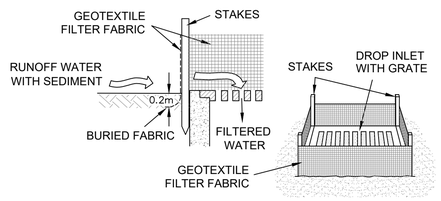
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.

3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.

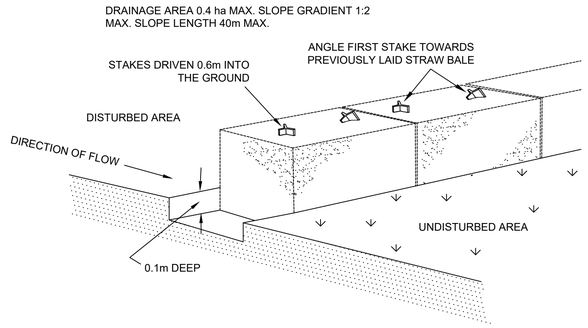
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.

5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

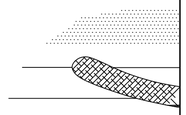
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



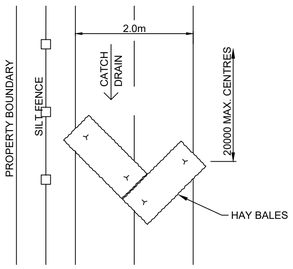
STRAW BALE SEDIMENT FILTER



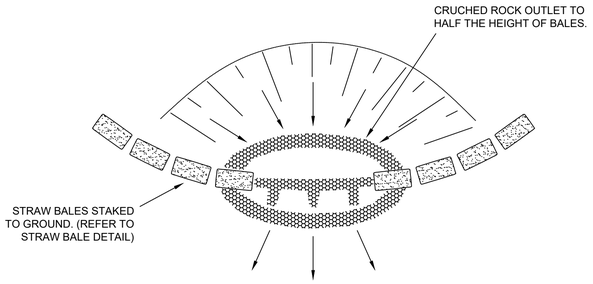
CONSTRUCTION NOTES

1. FABRICATE A SLEEVE MADE FROM
50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECT
3. FORM A SEAL WITH THE KERB TO F
4. SANDBAGS FILLED WITH GRAVEL C
THEY ARE PLACED SO THAT THEY
CANNOT PASS BETWEEN.

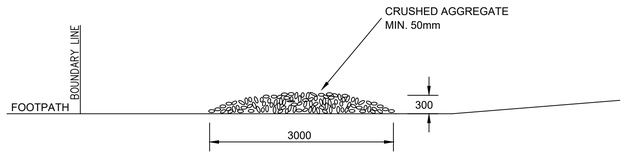
MESH & GRAVEL



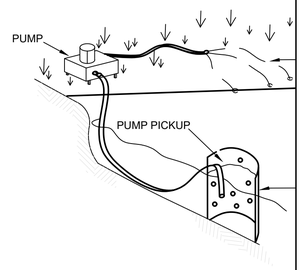
CATCH DRAIN DETAIL



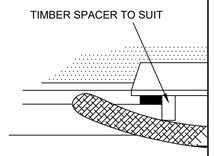
STRAW BALE & CRUSHED ROCK SEDIMENT FILTER

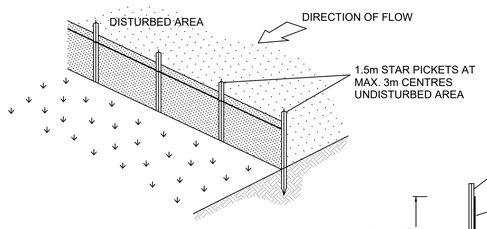


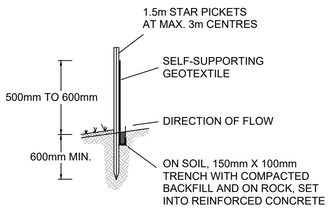
VEHICLE DUST SHAKE DOWN DETAIL



FLOCCULATI







SECTION DETAIL

CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARRALLEL TO THE CONTOURS OF THE SITE.

2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX.)

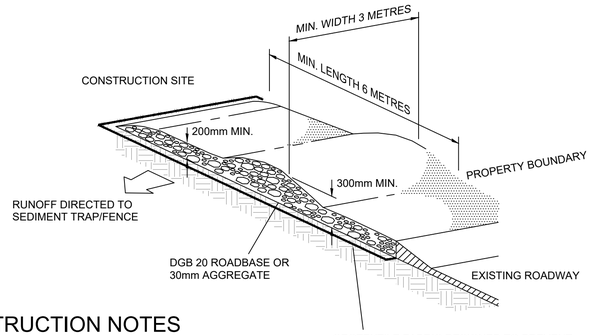
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.

4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.

5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE



CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.

2. COMPACT SUBGRADE.

3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.

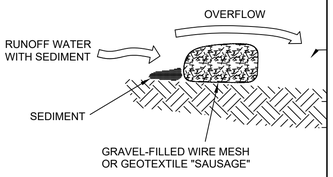
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.

5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS.

GEOFABRIC MAY BE A WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

STABILISED SITE ACCESS



CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLET ONLY AT SA
2. FABRICATE A SLEEVE MADE FROM GEOTEXTI
THE INLET PIT AND FILL IT WITH 25mm TO 50m
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT
4. PLACE THE FILTER AT THE OPENING LEAVING
KERB INLET MAINTAIN THE OPENING WITH SP
5. FORM A SEAL WITH THE KERB TO PREVENT SE
6. SANDBAGS FILLED WITH GRAVEL CAN SUBST
THEY ARE PLACED SO THAT THEY FIRMLY AB
CANNOT PASS BETWEEN.

MESH & GRAVEL

REV	AMENDMENT	ISSUED	DATE
A	DA ISSUE	DV	19/06/27

BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS
ENGINEERING | PLANNING | PROJECT MANAGEMENT | SURVEYING | CERTIFICATION

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CENTRAL COAST
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HUNTER
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Client:

W & J LEE PROPERTY INVESTMENTS PTY LTD

2F THE CRESCENT, KINGSGROVE
DEVELOPMENT APPLICATION

EROSION AND SEDIMENT CONTROL DETAILS

Designed: DV
Drawn: DV
Checked: GJ

Scales: Plan
Horiz
Vert.
X-Se

Datum: A