

Favelle Faco Cranes Pty Ltd



Remedial Action Plan:
Proposed Warehouse Development
28 Yarrunga St, Prestons, NSW.

ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT
MANAGEMENT



P1907209JR04V01
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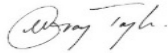
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General Abbreviations

AASS	Actual acid sulfate soil
ABC	Ambient background concentrations
ACM	Asbestos containing material
AEC	Area of environmental concern
AF	Asbestos fines
AMP	Asbestos Management Plan
ANZECC	Australia and New Zealand Environment Conservation Council
ANZG	Australian and New Zealand Governments
ASC NEPM	National Environmental Protection (Assessment of Site Contamination) Measure (2013)
ASS	Acid sulfate soil
ASSMAC	Acid Sulfate Soils Management Advisory Committee
AST	Above ground storage tank
BGL	Below ground level
BH	Borehole
BTEXN	Benzene, toluene, ethylbenzene, xylene, naphthalene
CEMP	Construction Environmental Management Plan
COC	Chain of custody
COPC	Contaminants of potential concern
DA	Development application
DBT	Dibutyltin
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DNAPL	Dense non aqueous phase liquid
DP	Deposited Plan
DPI	NSW Department of Primary Industry
DPIW	NSW Department of Primary Industry – Water
DQI	Data quality indicators
DQO	Data quality objectives
DSI	Detailed Site Investigation
EAC	Ecological assessment criteria
EIL	Ecological investigation level
EMP	Environmental Management Plan
EPA	NSW Environmental Protection Authority
EQL	Estimated quantitation limit (Interchangeable with PQL and LOR)
ESA	Environmental Site Assessment
ESL	Ecological screening level
FA	Fibrous asbestos
GIL	Groundwater investigation level
HIL	Health investigation level
HM	Heavy metals
HSL	Health screening level
IA	Investigation area
ISQG	Interim Sediment Quality Guideline
ITP	Inspection Testing Plan
LGA	Local government area
LNAPL	Light non aqueous phase liquid
LOR	Limit of reporting (Interchangeable with EQL and PQL)
MA	Martens & Associates Pty Ltd
mAHD	Metres, Australian Height Datum
mbgl	Metres below ground level

MBT	Monobutyltin
MNA	Monitored natural attenuation
MPE	Multi phase extraction
NAPL	Non aqueous phase liquid
NATA	National Association of Testing Authorities
ND	No data
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP	Organochloride pesticides
OEH	NSW Office of Environment and Heritage
OPP	Organophosphorus pesticides
PACM	Potential asbestos containing material
PAH	Polycyclic aromatic hydrocarbons
PASS	Potential acid sulfate soil
PCB	Polychlorinated biphenyl
PCEMP	Post Construction Environmental Management Plan
PESA	Preliminary Environmental Site Assessment
PFAS	Per- and polyfluoroalkyl substances
PID	Photoionisation detector
ppb	Parts per billion
ppm	Parts per million
PQL	Practical quantitative limit (Interchangeable with EQL and LOR)
PSI	Preliminary Site Investigation
QA/QC	Quality assurance / quality control
RAC	Remediation acceptance criteria
RAP	Remedial Action Plan
HHRA	Human Health Risk Assessment
RPD	Relative percentage difference
SAC	Site assessment criteria
SAQP	Sampling and Analysis Quality Plan
SEPP	State Environmental Planning Policy
SIL	Soil investigation level
SOP	Standard operating procedure
SWL	Standing water level
SWMS	Safe Work Method Statement
TB	Trip blank
TBT	Tributyl tin
TCLP	Toxicity characteristics leaching procedure
TEQ	Toxic equivalency factor
TP	Test pit
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
TS	Trip spike
UCL	Upper confidence limit
UPSS	Underground petroleum storage system
UST	Underground storage tank
VHC	Volatile halogenated compounds
VOC	Volatile organic compounds
WHS	Work health and safety
WHSP	Work Health and Safety Plan

1 Introduction

1.1 Overview

This Remediation Action Plan (RAP) has been prepared by Martens and Associates Pty Ltd (MA) for 28 Yarrunga St, Prestons, NSW ('the site'), as shown in Attachment A.

This RAP outlines remedial actions and validation methodology to render the site suitable for a proposed warehouse development.

Hydrocarbon contamination was identified during a Detailed Site Investigation (DSI) completed by MA (2019b), which should be read in conjunction with this document.

This report has been prepared in general accordance with the ASC NEPC (1999, amended 2013), NSW EPA (2017) and NSW OEH (2011).

1.2 Proposed Development

The proposed development consist:

Stage 1

- Demolition of structures and slabs at the site, excluding the main warehouse in the central north portion of the site.
- Decommissioning the underground petroleum storage systems (UPSS) infrastructure.
- Construction of a two storey warehouse in the southern portion of the site with heavy vehicles docks, hardstands, car parks, landscaping, installing electrical substation and associated infrastructure.

Stage 2

- Demolition of the main warehouse in the central north portion of the site.
- Construction of a two storey warehouse in the northern portion of the site with basement car park, heavy vehicle docks, landscaping and associated infrastructure.

Refer to Attachment B for proposed development plans.

1.3 Scope of work

The scope of work for the RAP includes:

- Developing remediation goals and criteria.
- Define the extent of areas requiring remediation.
- Review possible remedial options.
- Provide rationale for the preferred remedial option.
- Provide a remediation plan to implement and validate the preferred remediation option.
- Provide a site management plan for the remediation.
- Outline contingency plans.
- Outline regulatory compliance requirements.
- Provide details of contacts for the period of remediation works.

2 Site Background Information

2.1 Location and Setting

Site information is summarised in Table 1. The site and surrounds are shown in Attachment A.

Table 1: Site background information.

Item	Description / Detail
Site address	28 Yarrunga Street, Prestons, NSW.
Lot and DP	Lot 2 DP 536915
Site area	46839.7 m ² (SJD, 2018)
Local Government Area (LGA)	Liverpool City Council (Council).
Existing site development	The site is currently being used to construct cranes and contains a large warehouse in the centre, with associated workshops and storage sheds. A single storey brick building in the southwest portion of the site was used as an administration building. The site is bordered by Yarrunga Street to the south and commercial developments to the north, east and west.
Topography	The site is relatively flat with grades < 5%. Site elevation ranges between approximately 44 mAHD in the southeast to 34 mAHD to the northwest (SJD, 2019).
Surrounding land use	Heavy industrial uses consisting of large sheds surrounding the site with an Environmental Conservation (E2) zone to the northwest.
Geology and soil landscapes	The Penrith 1:100,000 Geological Sheet 9030 describes site geology as Bringelly Shale, containing fine to medium grained lithic sandstone, rare coal and tuff. The NSW Environment and Heritage eSPADE website identify the site as having soils of the Blacktown Landscape having soils of red and brown podzolic soils (grading to yellow podzolic soils).
Surface hydrology	Drainage of the site is via overland flow and onsite drainage via pit and pipe to the northwest towards Cabramatta Creek.

3 Previous Site Investigation

Site contamination has been assessed in the following documents:

- Martens and Associates (2019a) *Preliminary Site Investigation: 28 Yarrunga Street, Prestons, NSW* (Ref: P1907209JR01V01).
- Martens and Associates (2019b) *Detailed Site Investigation: 28 Yarrunga Street, Prestons, NSW* (Ref: P1907209JR03V01).

3.1 Preliminary Site Investigation

A Preliminary Site Investigation (PSI) was completed (MA, 2019a) which provided a review of historic land use and current activities that have the potential to cause contamination at the site. The summary of key findings of the PSI are outlined in Table 2.

Table 2: PSI summary (MA, 2019a).

Investigation Details	Investigation Task and Findings
Scope of works	○ Review of available site information including NSW EPA records notices under the <i>Contaminated Land Management Act (1997)</i>, Council records and aerial photography. ○ Site walkover inspection to review current land use, potential contaminating activities and neighbouring land uses. ○ Identification of areas of environmental concern (AECs) and associated contaminants of potential concern (COPC). ○ Prepare a PSI report in general accordance with the relevant sections of ASC NEPM (1999, amended 2013), NSW OEH (2011) and NSW EPA (2017).
Key findings	○ A review of aerial photography indicated site was pasture land prior to 1955, with a shared building, a large workshop constructed between 1955 and 1970. The site has remained a light to heavy industrial property since. ○ Historic records held by Council indicate an awning was erected to the northern side of the existing factory building in 1978, and extensions to the industrial building to accommodate a grit blast area and painting facility in 1995. ○ NSW EPA records identified three potentially contaminating activities within 500 m of the IA were located down gradient of the site. ○ Eight external potentially contaminating activities were identified to be down gradient of the site.
Site walkover key findings	A walkover inspection on 19 July 2019, observed the following: ○ The site was bordered by Yarrunga Street to the south. ○ The site was occupied by a large workshop in the central portion of the site and office building in the southwest. The site was used for crane machinery manufacture and equipment storage. ○ Centralised working crane, car parks and UPSS for diesel located adjacent to the south entrance. ○ Water pooling was observed in the northwest corner and along the east boundary.

Investigation Details	Investigation Task and Findings
	- o Use of fill material was noted in the northwest portion of the site. - o Small stockpiles of blast waste material were observed to the north and east of the central workshop. - o Possible asbestos containing materials (PACM) were observed within fill adjacent to buildings along the western boundary. - o Septic tank wastewater was discharged along the east boundary. - o Storage of lubricants, fuel and oils were observed in the southern workshop. Hydrocarbons staining was observed at a number of locations in this area. - o Hydrocarbon pooling and staining were observed adjacent to the outdoor crane. - o Incidental information provided by staff indicated that crushed aggregates had been used to create the haul roads and parking areas. Fill had been placed in the northwest of the site.
Site walkover key findings	The following AECs were identified: - o AEC A – Administration building and previous sheds and dwellings, including a 1 m curtilage. - o AEC B – Workshop areas and slabs, including a 3 m curtilage. - o AEC C – Diesel UPSS. - o AEC D – Blast waste material. - o AEC E – Hydrocarbon storage areas and observed surface staining. - o AEC F – Fill areas. - o AEC G – Storage areas. - o AEC H – Haul road around the workshop.
Conclusion	The PSI recommended a DSI including intrusive soil sampling regime to address identified AEC and COPC.

3.2 Detailed Site Investigation

A DSI was completed for the site by MA (2019b). Key findings are outlined in Table 3.

Table 3: DSI summary (MA, 2019b).

Investigation Details	Investigation Task and Findings
Scope of works	- o Review of PSI (MA, 2019a). - o Intrusive subsurface investigation and sampling of potential AECs as identified in the PSI, where access is available. - o Laboratory analyses of selected samples for identified COPC and assessment against site acceptance criteria (SAC) for industrial land. - o Preparation of a report in general accordance with the relevant sections of ASC NEPM (1999, amended 2013), NSW OEH (2011) and NSW EPA (2017).

Investigation Details	Investigation Task and Findings
Field investigations	Field investigations undertaken on 8 October 2019 included: ○ Boring of 26 boreholes (BH201 - 226) using a 4wd ute mounted drill rig to a maximum investigation depth of 1.7 metres below ground level (mbgl). ○ Collection of 35 near surface soil samples across the site. ○ Field screening of soil samples for volatiles using a photo ionisation detector (PID). ○ Laboratory analysis of representative soil samples. ○ Collection of five QA / QC samples for laboratory analysis.
Key findings	The following soil SAC exceedances were identified: ○ TRH C16 - C34 exceeded management limits at SS27 and SS28. PACM fragments were observed at the surface to the north of the administration buildings during the DSI walkover. These fragments are likely to be in the fill profile beneath the building.
Data gaps	Data gaps identified in the DSI included: ○ AEC A – Administration building and sheds and dwellings. ○ AEC B – Workshop areas and slabs.
Conclusion	The DSI recommended that a RAP be prepared for the site, outlining remediation and management requirements to address identified hydrocarbon contamination at SS27 and SS28. The DSI recommended further investigation of the identified data gaps areas following demolition of structures.
Post DSI comments	Post DSI, client indicated that the UPSS was to be decommissioned. During the DSI, four boreholes were completed around the UPSS with no indication of hydrocarbon contamination and all tested samples results below the SAC.

4 Data Gap Closure

4.1 Data Gap Extents

The following data gaps were identified in the DSI (MA, 2019b) as requiring additional assessment:

1. Data Gap Area A – Administration building.
2. Data Gap Area B – Workshop areas, slab, building fill pads and sheds.
3. Data Gap Area C – Warehouse at the central north portion of the site.
4. Data Gap Area D – UPSS comprising of one underground storage tank, underground fuel lines and above ground fuel browser, all of which are to be removed.

Due to the nature of the building fill pads, a 5 m curtilage will be adopted for the Data Gap Areas A, B and C.

Data gap locations are provided in Attachment A.

4.2 Data Gap Closure

Following demolition of structures and removal of hardstands and UPSS infrastructure, the following works are required to address data gaps as noted above:

1. Visual inspection of data gap areas for evidence of contamination (i.e. soil staining, odours and / or fibrous cement sheeting).
2. Investigate depth of fill with selected sampling of fill material. Where natural soils are encountered, samples are to be collected. For Data Gap Areas A, B and C, investigate and sampling to be completed at rate of 1 per 100 m².
3. Samples from Data Gap Area A are to be laboratory analysed for heavy metals, OCP / OPP and asbestos.
4. Samples from Data Gap Area B and C are to be laboratory analysed for heavy metals, TRH, BTEXN, PAH, OCP / OPP and asbestos.
5. Samples to be collected for UPSS infrastructure remediation excavation

6. Samples from Data Gap Area D are to be collected of excavation floor at 1 per 10 linear metre of excavation face (minimum one per face) and laboratory analysed for TRH and PAH.
7. Preparation of a supplementary DSI for Stage 1 and 2 works, to address data gap investigation results and provide assessment of laboratory results against the SAC to determine if additional contamination is present.
8. Preparation of an addendum to this RAP if any contamination requiring remediation and / or management is identified.

If any PACM is identified by the environmental consultant during visual inspection, collected samples are to also be tested for asbestos in soil as per the WA Dept. Health (2009) *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in WA*.

4.3 Data Gap SAC

The SAC for data gap investigation (Table 4) are adopted from the DSI (MA, 2019b).

Table 4: Data gap SAC.

Media	Adopted Guidelines	Applicability
Soil	ASC NEPM (2013)	<u>Health investigation levels (HIL)</u> HIL D – Commercial / industrial was adopted based on the proposed land use. <u>Health screening levels (HSL)</u> HSL D – Commercial / industrial land use for sand was adopted based on granular natural and fill material as a conservative measure. <u>Management Limits</u> Commercial / industrial use, coarse soil <u>Asbestos</u> Asbestos in soil assessed on HSL (w/w) Commercial / industrial D.

5 Remediation Areas

The following area requiring remediation was identified to address contamination to render the site suitable for the proposed development:

- Remediation Area A – Hydrocarbon impacted soils in the vicinity of the central crane pad.
- Remediation Area B – ACM impacted soils in building pads at western portion of the site.

The extent of remediation areas is shown on the figure in Attachment A.

6 Remediation Options

6.1 Remediation Goal

The remediation goal is to render the site suitable for the proposed land use and to mitigate exposure risks.

6.2 Remediation Action Criteria (RAC)

To ensure that site remediation works have rendered the site fit for the proposed land use, validation testing is to confirm contamination levels are below adopted RAC for commercial / industrial in Table 5.

Table 5: Remediation acceptance criteria (RAC).

Contaminant	Adopted Validation Level
TRH fraction C16 – C32	< 5000 mg/kg
All forms of asbestos	No visible asbestos for surface (upper 100 mm) soils.
Bonded ACM in soil (>100 mm depth)	HSL D – 0.05 w/w% for bonded ACM.
AF/FA in soil (>100 mm depth)	HSL D – 0.001 w/w% for AF / FA.

Remediation areas are to be visually validated for bonded ACM.

6.3 Conceptual Site Model

The conceptual site model (CSM) developed in the DSI was assessed and refined based on the identified hydrocarbon contamination, and shown in Table 6.

Table 6: Contamination sources and potential receptors.

Contamination Source	Contaminant Pathway	Receptors
Hydrocarbon contaminated soil	Leaching of contaminants through the soil profile. Transport of contaminants via air (dust). Transport of contaminants by mechanical disturbance (e.g. earthworks). Transport of contaminants via surface water (runoff). Biomagnification and / or bioaccumulation along food chains.	<u>Possible Human Receptors</u> Current or future site users such as workers and visitors. On and off site construction or maintenance workers. Current or future users of surrounding premises. <u>Possible Environmental Receptors</u> Flora and fauna that may inhabit or migrate through the site. Contaminant pathway / sink areas. Surface water sinks located on or near the site.

Contamination Source	Contaminant Pathway	Receptors
Asbestos	Transport of contaminants via air and inhalation of particles. Transport of contaminants by mechanical disturbance (e.g. earthworks). Transport of particles on clothing.	<u>Possible Human Receptors</u> Current or future site users. On- and off-site employees. Current or future users of surrounding commercial or industrial premises.

6.4 Assessment of Remedial Options

6.4.1 Overview

The following section outlines the process for selecting appropriate remedial strategies, and is completed in general accordance with the guidance outlined in NSW OEH (2011).

6.4.2 Assessment of Remedial Options for Soil Remediation

A review of soil remedial technologies has been undertaken to establish which technology or combination of technologies is most suitable to meet the site remediation objectives. Soil remediation options were considered, with reference to NSW EPA (2017) and ASC NEPM (2013), for the preferred hierarchy of options for site clean-up and / or management, as follows:

- Onsite treatment of the contamination so that it is destroyed and the associated risk may be reduced to an acceptable level.
- Offsite treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level, after which the soil is returned to the site.
- Removal of contaminated material to an approved facility, followed, where necessary, by replacement with appropriate material, if required.
- Cap and contain material onsite with an appropriately designed barrier.
- Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy would be required.

Review of available soil remediation strategies and technologies is considered on the basis of:

- Effectiveness at achieving remediation objectives.

- Suitability in light of the proposed development.
- Anticipated costs.
- Ongoing environmental and public health adequacy.

A review of treatment options for hydrocarbon contamination is presented in Table 7 and ACM contamination in Table 8.

Table 7: Review of soil remediation options – hydrocarbon contamination.

Remediation Options	Advantages	Disadvantages	Comments
Onsite treatment (land farming)	- Allows for the reuse of site soils for site earthworks. - Offsite removal of soils not required thereby limiting landfill use.	- Require space onsite to treat soil. - Removal of material from site is required to achieve development objective (i.e. basement)	Onsite treatment could be a suitable remediation technique to address contaminated soil, however, it will take considerable time to cohere the RAC. Excavation of material from site to facilitate basement construction is required. This means options where contaminated material is removed from site are preferable.
Offsite disposal	- Provides the shortest timeframe for remediation. - Removes human and ecological risks and long term site management requirements. - Meets redevelopment objective of creating void for basement construction. - Suitable to remove hydrocarbon contamination.	- Cost for material transport and disposal. - Cost associated with classifying wastes prior to offsite disposal.	This proven and reliable technique for managing onsite contamination is suitable as it removes identified contamination and associated risk to humans and environment.
Offsite treatment for onsite reuse	- Does not require space onsite for treatment. - Soil can be reused after treatment	Cost for material transport and treatment charges.	As the development plans involve future excavation of the site, soils will not be required for reuse onsite.

Table 8: Review of soil remediation options – ACM.

Remediation Options	Advantages	Disadvantage	Comments
Capping and containment of untreated ACM impacted fill	Likely to be lowest cost option.	- Will not remove contamination. - Will require further assessment to determine if ACM is present at levels above RAC. - Human health risk is mitigated through separation but contamination remains onsite. - Future liability due to entombed contamination. - ACM impacted soils may only be handled through the remediation process by suitably qualified and licenced personnel / contractors.	Additional assessment of asbestos impacted areas is required to determine w/w% of asbestos in fill. If the asbestos exceeds RAC, an EMP shall be required with a note on title to identify and manage the risk associated with that material once entombed. Where material does not exceed the RAC, capping and containment is a suitable management method to manage residual risk associated with fill material without the need for a note on title. For future low density residential development at the site, capping must be of sufficient depth to appropriately restrict long term potential access to ACM impacted material.
ACM onsite treatment (picking) and burial	- Allows for the reuse of site soils for site earthworks. - Offsite removal of soils not required thereby limiting landfill use. - Removes the need for an EMP or note on title.	- Sorting and picking site soils will increase the time frame and cost of site remediation. - ACM impacted soils may only be handled through the remediation process by suitably qualified and licenced personnel / contractors. - Residual risk requires management with treated ACM impacted soils capped and disposal of collected ACM.	Additional assessment of asbestos impacted areas is required to determine w/w% of asbestos in material. Where ACM inclusions exceed remediation criteria, hand picking of ACM inclusions followed by capping is a suitable remediation technique for asbestos impacted material.
ACM Offsite disposal	- Generally provides the shortest timeframe for remediation. - Removes human health risks and long-term management requirements.	High cost for material classification, transport and disposal.	This technique for managing onsite contamination is suitable as it removes identified contamination and associated risk from the site, as well as long term site management responsibilities.

6.4.3 Preferred Soil Remediation Option

In consideration of soil remediation technologies presented in Table 7 and Table 8, and the proposed development including basement construction, the excavation, waste classification and offsite disposal of contaminated soil is considered the most suitable remediation solution for hydrocarbon and ACM impacted soils.

Details of remediation and validation methodology are provided in Section 7.

6.5 Updated Conceptual Site Model

By removing the hydrocarbon and ACM impacted soil from site, the contamination pathway is removed from the site and therefore the risk to receptors is removed from the conceptual site model

Table 9: Updated Conceptual Site Model.

Contamination Source	Contaminant Pathway	Receptors
Hydrocarbon contaminated soil	Nil	Nil
Asbestos	Nil	Nil

7 Remediation Plan

7.1 Introduction

The following sections outline works required to remediate identified contamination such that the site is fit for the proposed development. The remediation work is considered Category 2 works (works not requiring consent but requiring notification to Council) under *SEPP 55 – Remediation of Land (1998)*.

Unless otherwise identified, activities discussed below will be the responsibility of the contractor or its representative.

7.2 Stage 1 – Notifications

The following notifications are required (unless approved by consent conditions):

- Council is to be notified 30 days before commencement of works.
- A notice of completion of remedial works must be given to Council within 30 days after completion of remedial works

7.3 Stage 2 – Appointment of Remediation Contractor / Environmental Consultant

For remediation works to be successfully completed the appointment of a suitability qualified environmental / earthworks contractor is required.

It is recommended that the selected contractor have (or be supervised by) a SafeWork NSW Class A (friable) licenced contractor as outlined in the NSW Work Health and Safety Regulation (2017).

An asbestos management plan is to be prepared by the nominated contractor prior to the commencement of onsite works.

The environmental consultant should be engaged to:

- Supervise all remediation and validation works.
- Monitor the excavation and stockpiling of hydrocarbon impacted material.
- Document all stages of the excavation and stockpiling of contaminated soil.
- Waste classification of soil requiring disposal offsite.

- Monitor and document the offsite disposal of material to appropriately licenced landfill.
- Perform validation inspections and testing of remediation areas.
- Prepare a validation report documenting remediation and validation reports, and confirming final site status.

7.4 Stage 3 – Site Establishment

Prior to any remediation / construction works, the site shall be prepared for the works. This will include:

- Establishment of site offices, work sheds and amenities for site workers.
- Appropriate decontamination facilities for personnel and plant / equipment.
- Appropriate physical barriers and site signage is to be erected surrounding site areas requiring remediation.
- Installation of any asbestos air monitoring equipment around asbestos impacted soil location
- Installation of appropriate dust control measures (i.e. dust screens and water sprays).
- Establishment of site holding areas for both contaminated material and remediated material. Site areas nominated to store material (both contaminated and remediated) are to have appropriate environmental controls in place including storm water diversion, erosion and sedimentation controls and dust suppression.

7.5 Stage 4 – Remediation Work

The adopted remediation strategy for the contaminated soil area is excavation, waste classify and offsite disposal. The proposed works sequence in Remediation Area A is:

1. Environmental consultant to delineate remediation area.
2. Excavate full depth of observed fill within limit of the remediation area. Excavated material is to be placed either:
 - i. Directly into trucks for offsite disposal if *in-situ* waste classified as per Section 7.6; or

- ii. In the designated contaminated material holding area for waste classification as per Section 7.6.
3. Transport excavated material by an appropriately licenced operator to an appropriate landfill.
4. At the completion of the excavation, the environmental consultant will examine the base and walls of the excavation for evidence of contamination.
5. Validation samples shall be collected and analysed. The appointed environmental consultant shall validate remediation excavations, in accordance with Section 7.7.
6. Further remedial excavation shall be completed with subsequent revalidation should validation testing fail.

7.6 Stage 5 - Waste Classification

7.6.1 Waste Classification

Prior to any soil or material being removed from site, material is to be sampled and waste classified in accordance with NSW EPA (2014) Waste Classification Guidelines. Sampling is to be undertaken at:

- o One sample per 100 m³ for stockpiles with a minimum of three samples per stockpile.
- o For *in-situ* classification, sampling is to be undertaken at rates provided in Table 2 and 3 of the NSW EPA (2014) Excavated Natural Material Order.
- o Samples are to be analysed for heavy metals, hydrocarbons (TPH, PAH and BTEX), OC/OP pesticides and asbestos. Where past testing of material has been undertaken, results are to be considered in selecting the testing regime and must be considered in classification.

A waste classification document shall be prepared for offsite disposal of material to an appropriately licensed landfill facility.

7.6.2 Waste Disposal, Materials Tracking and Management

Stockpiled contaminated material shall be recorded on a site diagram and daily site logs by the remediation contractor. These documents shall be updated daily and kept in the site office. The daily site log shall record the area in which work was conducted for that day, general description of the works completed, onsite movement of materials, etc.

Transportation of waste shall be, where applicable, undertaken by appropriately qualified and licensed contractor.

7.7 Stage 6 – Site Validation

Prior to the site being declared fit for the proposed land use, a validation report documenting the completed remediation works and results of site validation testing must be prepared by the appointed site environmental consultant. The following sections outline the site validation requirements.

7.7.1 Data Quality Objectives

The data quality objective (DQO) process is required to define the type, quantity and quality of data needed to support decisions relating to the environmental condition of the site. Table 10 outlines the process used to develop the DQO for the site post remediation and were developed with reference to NSW EPA (2017) and ASC NEPM (2013).

Table 10: Data quality objectives for site validation.

Step 1 Stating the Problem	Previous site investigations have identified the presence of hydrocarbon and contamination in surface soils and ACM impacted soils in fill, which requires appropriate remediation before the site can be deemed suitable for the intended land use.
Step 2 Identifying the Decision(s)	To assess the suitability of the site for future land use, decisions are to be made based on the remediation removing the identified risk to future site users. - Has the completed remediation works removed the identified risk to future site users? - Is the soil quality suitable for the intended land use? - Are future management of site soils required?
Step 3 Identification of Inputs to the Decision	The inputs to the validation of the site will include: - Observations during remedial activities. - Soil sampling results from remediation and validation works. - Assessment of analytical results against site RAC.
Step 4 Study Boundary Definitions	Study boundaries are as follows: - Lateral – Lateral boundary of the assessment is defined by the remediation area boundary. - Vertical – Vertical boundary will be governed by the maximum depth of impacted soil. - Temporal – The dates of remediation inspection and validation works.
Step 5 Development of Decision Rules	The decision rules for this remediation area are as follows: - If the concentration of contaminants in the soil data collected from a remediation area do not exceed the RAC, then the area can be confirmed as validated. - If the concentration of contaminants in the soil data collected from a remediation area exceeds the RAC, then additional remediation or management strategies will be required for that remediation area. - If ACM fragments are not observed in the excavation area, and clean fill and / or natural soil has been reached, RAC for ACM is

	met and the base of the excavation can be confirmed as validated. - o If ACM fragments are observed in the excavation, then further excavation is required. - o Any material nominated for offsite disposal shall be classified in accordance with NSW EPA (2014) Waste Classification Guidelines. - o Material tracking is to be appropriately documented and waste disposal dockets validated.
Step 6 Specification of Limits on Decision Errors	For interpretation of data, guidance found in ASC NEPM (2013) Schedule B2 regarding 95% upper confidence limit (UCL) may be applied. Schedule B2 states that the 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than or equal to this value. Therefore, a decision can be made based on a probability that 95% of the data collected will satisfy the site acceptance criteria for all analytes except asbestos. Generally, a limit on decision error will be 5% that a conclusive statement may be incorrect. For asbestos, strict compliance strict compliance / noncompliance basis for each sample. In applying the statistical analysis of the data: - o No individual sample results have a concentration that exceeds 250% of the RAC. - o The standard deviation of the sampled population should not exceed 50% of the RAC.
Step 7 Optimisation of Sampling Design	Validation based on the remediation option, to ensure that all the necessary data is collected to confirm site suitability the proposed land use.

7.7.2 Validation Program

Table 11 outlines the soil validation sampling frequency and analytical program. Sampling frequency has been set to satisfy the requirements of NSW EPA (1995).

Table 11: Proposed validation sampling program

Remediation Area	Remediation Process	Required Testing
Remediation Area A	Excavation and offsite disposal	Following remediation excavation, a visual and olfactory inspection, with PID screening shall be undertaken. Sampling rate is to be one sample per 25 m² of floor and minimum 1 sample per 10 linear metres of walls (or one per face if this requires more samples). Samples are to be tested for TRHs, and be assessed against the adopted RAC.
Remediation Area B	Excavation and offsite disposal	Following the completion of remediation, visual validation of remedial excavations will be required. Visual validation is to confirm that no visible asbestos contamination or associated builders' rubble are present in the fill profile. Where exposed material is fill (i.e. not clearly natural material), samples are to be taken to verify the materials character. Samples are to be taken at a rate of 1 / 25 m² (base) and 1 per 10 linear metres (walls). At each testing location, a 10 L bulk sample is to be sieved to 7 mm on site with any PACM

fragments collected and analysed for w/w% of ACM.

At each testing location, a 500 mL sample is to be collected for laboratory AF / FA testing with results compared to project RAC. A final visual validation assessment is to be completed with a validation criteria of no visible ACM

Depending on final soil batch size and any noted heterogeneity, more than one sample per soil batch maybe required to maintain the required testing frequency

7.7.3 Validation Test Failure

The following steps shall be taken should the remediation area fail validation:

- Laboratory assessment fail – If the RAC is exceeded in a validation sample, the area is to be further excavated by a minimum 0.2 m for a failed floor sample, or the excavation is to be extended laterally by a minimum 0.5 m for a failed wall sample.
- Excavated material is to be disposed offsite with other remediation spoil or waste classified as per Section 7.6. The process is to be repeated until validation is successful.

7.7.4 Imported Fill Protocol

Where any fill is imported to the site during remediation or for further earthworks, the fill is to be documented and verified as VENM, ENM or other waste exempt material. Waste classification documentation is to be provided in accordance with the applicable exemption and reviewed by the appointed environmental consultant prior to material importation.

All imported material is to be tracked and reviewed by the environmental consultant at initial importation.

7.7.5 Quality Control/Quality Assurance

Where samples are to be collected (i.e. for waste classification), the following field QA / QC measures will be used for validation sampling:

- Collection of one intra laboratory duplicate sample per ten primary samples or one per sampling event.
- Collection of one inter laboratory duplicate sample per twenty primary samples.
- Completion of one duplicate w/w% sieve analysis per 25 tests.

All samples will be analysed by a NATA accredited testing laboratory.

7.7.6 Data Assessment

Where duplicate samples have been collected, analysis of data shall identify, then use for assessment, the highest result of either the primary or duplicate.

Laboratory data will be reviewed by the environmental consultant and assessed by applying data validation guidelines. The data will be compared to the adopted RAC or waste classification criteria. Adequacy of remediation shall be assessed on a strict compliance or noncompliance basis for each sample.

Statistical interpretation of waste classification data may be used to establish material waste classification.

7.7.7 Validation Reporting

A site validation report is to be prepared by the environmental consultant at the completion of remediation works. This report shall document remediation and validation sequence, detail all sampling and results of the assessment, provide material tracking data for material taken from the site and document any imported material (and testing or supporting documentation for it).

The document shall include details regarding any remaining site contamination, and identify residual risks posed by remaining contaminants, and provide comment on whether remediation has been successful and suitability of the site for the proposed land use.

8 Site Management Plan for Remediation

8.1 Overview

Prior to the commencement of onsite works, the contractor shall prepare a site-specific Construction Environmental Management Plan (CEMP) and Worker Health and Safety Plan (WHSP). The following sections are intended as a guide for preparing these plans.

8.2 Construction Environmental Management Plan

A site specific CEMP shall be prepared to ensure the remediation works:

- Do not negatively impact on human and ecological receptors.
- Comply with applicable environmental legislation.

Based on the site condition and proposed remediation method, primary environmental hazards requiring management during remediation works will include:

- Soil and stockpile management.
- Transport and off site disposal of contaminated soil to landfill.
- Noise and vibration controls.
- Odour control.
- Air quality / dust control.
- Waste management.

Onsite management issues that should be included in the CEMP are:

- Site access and security.
- Signage and contact Information.
- Traffic control.
- Hours of operation.

Suggested requirements for these management points are discussed in the following section.

8.2.1 Soil and Stockpile Management

The following points should be addressed regarding soil and stockpile management:

1. Detailed records of excavated and / or stockpiled contaminated material, location and volume are to be prepared and kept onsite. Stockpile records are to be maintained and updated with any changes (i.e. offsite disposal).
2. No placement of soil or other material on Council properties (footpaths / nature strips) unless prior approval is obtained.
3. If deemed necessary by the appointed remedial contractor, contaminated stockpiles may be covered by appropriate weighted plastic liners to reduce the potential for dust pollution.
4. All stockpiles containing soil or material identified as contaminated shall be stored in clearly marked areas with appropriate signage.

8.2.2 Noise Control

To mitigate noise impacts which may arise because of remediation works, the Contractor will undertake works in accordance with state and local noise regulations. Machinery used onsite is to be in good working order so that abnormal machine noise is avoided.

All works are to be undertaken within Council designated working hours (Section 8.2.8).

8.2.3 Odour Control

Based on the identified site contaminants, odour is not considered to be major environmental concern. Should odours be encountered contingency measures including the covering of stockpiles and / or the use of odour suppressant sprays should be implemented.

8.2.4 Air Quality / Dust Control

Given the site's proximity to surrounding sensitive receptors (residential), the appointed remedial works contractor may consider asbestos fibre air monitoring necessary during remediation excavation works for Remediation Areas B.

Should complaints arise, dust monitoring shall be undertaken.

8.2.5 Site Access and Security

Prior to works commencing, barricades shall be erected to control access to the designated work area, along the proposed remediation area boundary. Signage should be erected, identifying the area as asbestos contaminated and no unauthorised access is permitted. Site security and access controls must remain in place during all onsite remedial works.

8.2.6 Signage and Contact Information

Security fencing and appropriate signage around all open excavations must be installed and maintained by the contractor.

A sign displaying the contact details of the contractor (including the onsite foreman or manager) shall be displayed for the duration of onsite works.

8.2.7 Traffic Control

Prior to exiting the site, vehicles must pass through a stabilised exit point to remove potentially contaminated soil that may have accumulated while onsite.

Prior to leaving the site, earthworks machinery must be cleaned on plastic sheeting laid beneath vehicles, with all accumulated soil stockpiled for waste classification.

8.2.8 Hours of Operation

Onsite works are only permitted during the following hours; as outlined in the Council conditions of consent specifications:

- Monday to Friday: 7 am to 6 pm.
- Saturday: 8am to 1pm.
- Sunday and public holidays: No work permitted.

8.3 Worker Health and Safety Plan (WHSP)

Worker health and safety of all onsite workers or visitors is the responsibility of the contractor. The purpose of a WHSP is to provide relevant health and safety information for all personnel working on or visiting the site.

The WHSP should include (but not necessarily be limited to):

- WHS legislative requirements.

- Hazardous materials identification (including fuel and chemical management).
- Induction requirements. All onsite personnel and visitors must be suitably inducted prior to entering the site.
- Worker facilities.
- Designation, delineation and control of access to various work zones.
- Community notification.
- Roles and responsibilities.
- Training and competency.
- Hazard identification and risk assessment.
- Control measures including personal protective equipment (PPE).
- Incident and emergency response.
- Safe work method statements.
- Toolbox meetings.
- Audits and inspections.

8.3.1 WHS Legislation and Standards

All onsite works should comply with the WHS Act, Regulations, codes of practice, and with relevant Australian Standards. As a minimum all work must comply with:

- Workplace Health and Safety Act (2011).
- Workplace Health and Safety Regulation (2017).
- Work Safe Australia – How to Safely Remove Asbestos: Code of Practice (2011).
- AS 1940 (2017) – The Storage and Handling of Flammable and Combustible Liquids;
- AS 2436 (2010) – Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites;
- Managing the Work Environment and Facilities Code of Practice (December 2011);

- Managing Noise and Preventing Hearing Loss at Work Code of Practice (September 2015);
- Hazardous Manual Tasks Code of Practice (February 2016)
- Work Health and Safety Consultation, Co-operation and Co-ordination Code of Practice (December 2011).

8.3.2 Hazard Assessment

A WHS hazards assessment is to be completed by the contractor and incorporated into the WHSP. Key hazards may include:

- Asbestos containing material and asbestos fibres in air.
- ASS impacted soils.
- Onsite chemical hazards (storage of fuels, contaminated soils).
- Heat exposure for workers.
- Buried services.
- Noise.
- Vibration.
- Dust.
- Operation of heavy equipment.
- Operation of electrical equipment.

8.3.3 Worker Facilities

Facilities for workers at the site must be supplied in accordance with the Work Health and Safety Regulation (2017) including the relevant Codes of Practice.

Lunch rooms and toilet / washing facilities shall be separate from the designated work areas.

8.3.4 Site Inductions

Prior to starting works, site workers and subcontractors involved in the project shall attend a site specific safety induction.

Documented evidence of the safety inductions must be available onsite.

8.3.5 Personal Protective Equipment (PPE)

Table 12 lists the PPE required to prevent exposure to contaminants, in designated remediation areas.

Table 12: Personal protective equipment.

Type	Description	When Required
Head protection	Hard hat	All site activities
Eye protection	Safety glasses	All site activities
Hand protection	Disposable nitrile gloves	Soil sampling activities
	Cut resistant gloves	Manual handling activities
Respiratory protection	Minimum P2 rated particulate respirator	During asbestos removal works and dusty conditions
Body protection	Disposable overalls	During asbestos remediation works
	High visibly clothing	All site activities
	Sunhat, sun screen	All site activities
Foot protection	Steel toed boots	All site activities
Hearing protection	Ear plugs or ear muffs	During high noise generating activities

Site personnel should be aware that personal protection equipment required to be worn may limit manual dexterity, hearing, visibility and may increase the difficulty of performing tasks. PPE may place an additional strain on the user when performing work that requires physical activity.

Eating, drinking, chewing gum or tobacco, smoking or any practice that involves hand to mouth transfer increases the probability of ingestion of foreign matter into the body. Hands must be thoroughly washed before eating, drinking or smoking. Clothing which becomes dirty from onsite work should be washed separately from other clothing.

8.3.6 Personal Decontamination

Personal decontamination must be undertaken each time a person leaves a designated asbestos contaminated area. Personal decontamination procedures are to include the following:

- The removal of all visible asbestos dust / residue from PPE.

- Disposable overalls, outer gloves and respirators must not be transported outside the designated asbestos work area except for disposal or following decontamination.

9 Environmental Regulatory Requirements

9.1 State Environmental Planning Policy (SEPP) 55

In accordance with State Environmental Planning Policy 55 - Remediation of Land (SEPP 55), it is considered that proposed remediation works would likely be classified as Category 2.

In accordance with SEPP 55 - Remediation of Land (1998), Council are to be notified 30 days prior and post completion of remedial works, unless works are .

9.2 Waste Disposal Requirements

All waste soil must be classified in accordance with EPA (2014) waste classification guidelines prior to offsite disposal to a suitably licenced waste receiving facility.

Waste classification documentation must be kept for validation of the remediation works.

9.3 Asbestos Licences

If any asbestos is detected during remedial works, it shall be assessed by the appointed environmental consultant. Any removal shall be undertaken in accordance with relevant work health and safety regulation including but not limited to:

- Safework NSW – Applicant Guide for Asbestos Licences and Notifications (2019).
- Work Safe Australia – How to Safely Remove Asbestos: Code of Practice (2016).

10 Remediation Contacts

Names and phone numbers of appropriate personnel for contact during the remediation will be provided prior to commencement of remediation work.

11 Contingency Plan for Remediation and Redevelopment

11.1 Overview

It is considered possible that unexpected situations may occur during remediation and site redevelopment works including the possibility to uncover unidentified contamination. A site contingency plan for managing unexpected situations should be prepared by the Contractor. Unexpected situations that may arise include:

1. Uncovering types of contamination that are not presently identified.
2. Generation of unacceptable levels of dust.
3. Generation of an unacceptable level of noise.
4. Excessive rainfall, and collection of excessive water in excavations.

The following sections outline contingency procedures for the events listed above.

11.2 Unexpected Finds

It is considered possible that unexpected situations may occur during remediation and site redevelopment works including the possibility to uncover unidentified environmental concerns. A site contingency plan for managing unexpected situations should be prepared by the Contractor to address unexpected finds. All site personnel are to be aware of their responsibilities under the unexpected finds protocol and are to report any potential signs of contamination (e.g. observed PACM, petroleum and / or oil spills, chemical odours or staining) to the site manager immediately.

In the event of uncovering unexpected finds during remedial works, the following steps are to be undertaken by the contractor:

- Cease all work in the area and notify site foreman / manager and environmental consultant.
- Notify any relevant authorities (e.g. fire brigade) if an emergency response is required.
- Construct temporary barricading to prevent worker / public access to any unexpected and / or unknown substances.

- Install appropriate stormwater diversion and sediment controls as required.
- Notify relevant authorities that the contractor is legally required to notify (e.g. NSW EPA and / or Council).
- Site foreman / manager is to arrange site inspection by the environmental consultant to assess the unexpected find and determine if any further investigation, management or remedial action is required in the area.

The environmental consultant is to prepare an assessment and, if required, validation of each unexpected find to the contractor prior to the recommencing of works ceased as a result of the unexpected find.

All unexpected finds are to be documented in the site Validation Report prepared by the environmental consultant at the end of remediation works.

11.3 Unacceptable Level of Dust

Contingency measures must be prepared to control unacceptable dust levels. Excessive dust may be identified by workers, dust monitoring equipment or community complaints. Actions to control excessive dust can include:

- Increased use of water sprays.
- Covering soil stockpiles.
- Changing work protocols (e.g. avoiding work on windy days).

11.4 Unacceptable Level of Asbestos Fibres

Due to surrounding receptors, asbestos fibre air monitoring will be required throughout the excavation, stockpiling and removal of asbestos impacted material (Remediation Area B). The following provides asbestos fibre trigger levels and actions should these trigger levels be exceeded.

- If airborne fibres reach / exceed 0.01 fibres/ml at the site boundary, the source of the fibre release must be identified and the risk of exposing off-site receptors contained.
- If airborne fibres reach / exceed 0.02 fibres/ml at the site boundary, all work must cease and Safework NSW must be notified

11.5 Unacceptable Level of Noise

Contingency measures must be prepared to control unacceptable noise levels. Excessive noise may be identified by workers, noise monitoring equipment or community complaints. Actions to control excessive noise can include:

- Identification and isolation of the source of noise.
- Modification of the action of the source to reduce the noise.
- Erection of temporary noise barriers.

11.6 Excessive Rainfall

Contingency measures must be prepared to control the effects of excessive rainfall. Actions to control the effects of excessive rainfall can include:

- Construction of sediment and surface water controls.
- Diversion of surface water away from excavations, soil stockpiles and active work areas.
- Appropriate stockpile covers.

12 Conclusion

This RAP has outlined necessary methods to address remediation and validation requirements for data gaps identified and to document hydrocarbon and ACM contamination at 28 Yarrunga St, Prestons, NSW.

From review of assessment findings, and the proposed development, excavation, waste classification and offsite disposal of hydrocarbon and asbestos contaminated soil was considered the most appropriate remediation technique.

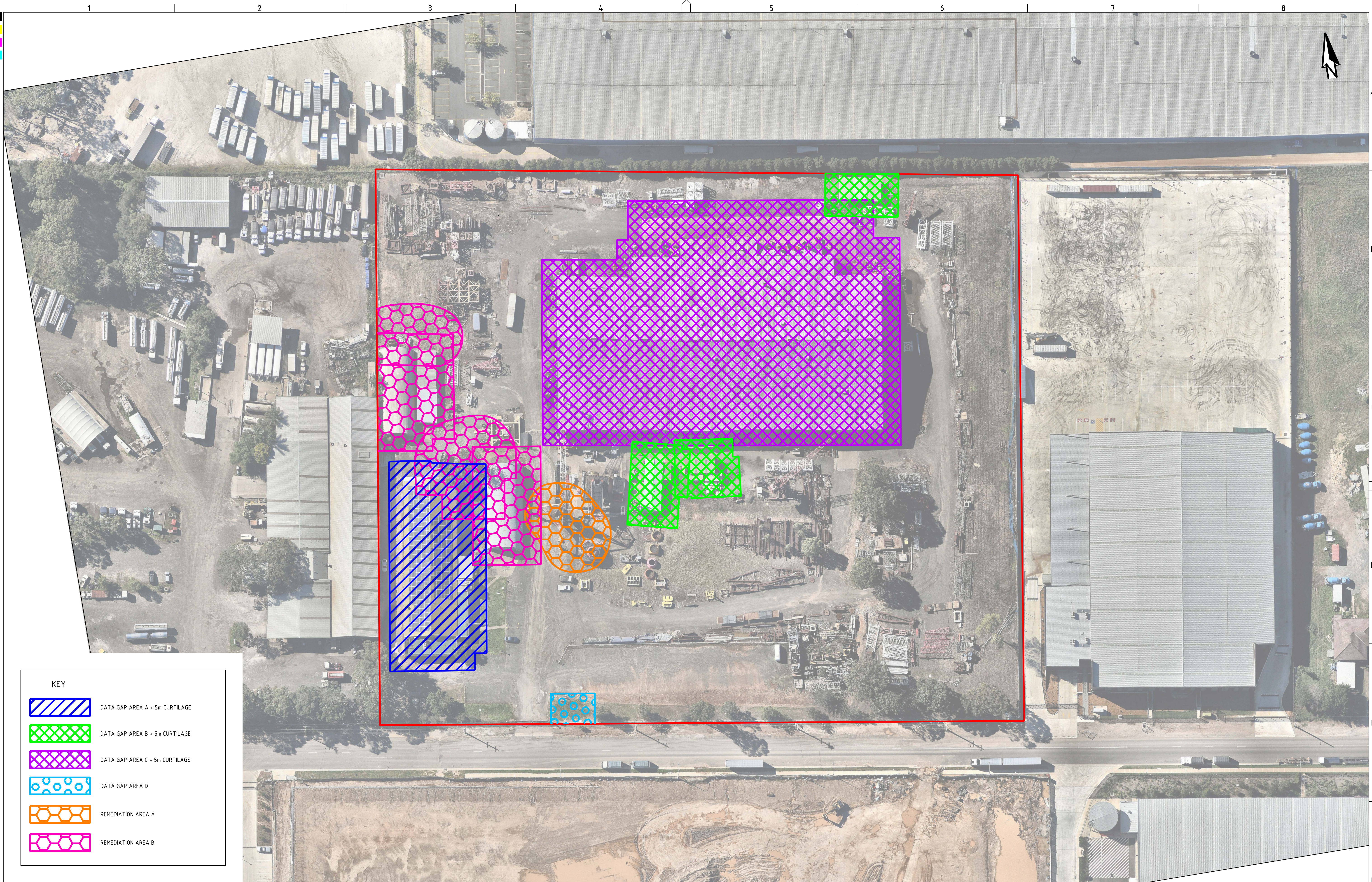
This RAP provides data gap closure, remediation and validation methodology to manage risk posed by contamination and render the site suitable for the proposed development.

It is likely that, following successful remediation and validation of the site, the site can be made suitable for the proposed development.

13 References

- Bureau SRH Architecture (2019) *Architectural Drawings*, Project No. 18144, Drawing Nos. DD301 and DD302, dated April 2019. (BSRH, 2019).
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- Landcom (2004) 4th Ed. *Managing Urban Stormwater: Soils and Construction*.
- Martens and Associates (2019a) *Preliminary Site Investigation: 28 Yarrunga St, Prestons, NSW* (Ref: P1907209JR01V01).
- Martens and Associates (2019b) *Detailed Site Investigation: 28 Yarrunga St, Prestons, NSW* (Ref: P1907209JR03V01).
- NEPC (1999, amended 2013) *National Environmental Protection (Assessment of Site Contamination) Measure*. Referred to as NEPM (1999, amended 2013).
- NSW Department of Environment & Heritage eSPADE, NSW soil and land information (www.environment.nsw.gov.au).
- NSW Department of Mineral Resources (1983) *Wollongong-Port Hacking 1:100,000 Geological Sheet 9130*.
- NSW EPA (2017) 3rd Ed. *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme*.
- NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines*.
- NSW EPA (2009) *Interim Construction Noise Guideline*.
- NSW EPA (2010) *UPSS Technical Note: Decommissioning, abandonment and removal of UPSS*.
- NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste*.
- NSW OEH (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*.
- S.J. Dixon Surveyors (2018) *Detail and Level Plan*, Reference No. 51995, Revision A, dated October 2018. (SJD, 2018).
- State Environmental Planning Policy No. 55 (1998) – *Remediation of Contaminated Land*.

14 Attachment A – Site Plan and Remediation and Data Gap Areas



KEY

DATA GAP AREA A + 5m CURTLAGE

DATA GAP AREA B + 5m CURTLAGE

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	06/12/2019	PB	WX	AN/BM	AN/BM

SCALE

07.515.022.530.037.545.052.560.067.575.0

A1 (A3) 1:750 (1:1,500)

METRES

GRID

MGA

DATUM

mAHD

PROJECT MANAGER

GT

CLIENT

FAVELLE FAVCO CRANES PTY LTD

PROJECT NAME/PLANSET TITLE

REMEDIAL ACTION PLAN

28 YARRUNGA STREET, PRESTONS, NSW

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DRAWING TITLE

REMEDIATION AREA & DATA GAP AREAS

PROJECT NO.

P1907209

PLANSET NO.

PS03

RELEASE NO.

R01

DRAWING NO.

PS03-J101

REVISION

A

PRINTED: 11/01/2020 11:00:00 AM

A1 / A3 LANDSCAPE (A1L_C_v02.0.01)

DRAWING ID: P1907209-PS03-R01-J101

0 10 20 30 40 50 60 70 80 90 100

15 Attachment B – Proposed Development Plan

28 YARRUNGA ST, PRESTONS NSW
DEVELOPMENT APPLICATION

DRAWING LIST

DRAWING NUMBER	DRAWING NAME	SCALE @ A1
DA000	COVER SHEET	
DA001	SITE ANALYSIS	1:750
DA002	STAGE 1- SITE PLAN	1:500
DA003	STAGE 2- SITE PLAN	1:500
DA004	STAGE 1 - DEMOLITION PLAN	1:500
DA005	STAGE 1 TEMPORARY OPERATION PLAN	1:500
DA006	STAGE 2 - DEMOLITION PLAN	1:500
DA100	KEY PLAN - STAGE 1 GROUND	1:500
DA101	KEY PLAN - STAGE 1 GROUND MEZZANINE	1:500
DA102	KEY PLAN - STAGE 1 LEVEL 01	1:500
DA103	KEY PLAN - STAGE 1 LEVEL 01 MEZZANINE	1:500
DA104	KEY PLAN - STAGE 1 LEVEL 01 MEZZANINE 2	1:500
DA105	KEY PLAN - STAGE 1 ROOF	1:500
DA106	KEY PLAN - STAGE 2 BASEMENT	1:500
DA107	KEY PLAN - STAGE 2 GROUND	1:500
DA108	KEY PLAN - STAGE 2 GROUND MEZZANINE	1:500
DA109	KEY PLAN - STAGE 2 LEVEL 01	1:500
DA110	KEY PLAN - STAGE 2 LEVEL 01 MEZZANINE	1:500
DA111	KEY PLAN - STAGE 2 LEVEL 01 MEZZANINE 2	1:500
DA112	KEY PLAN - STAGE 2 ROOF	1:500
DA200	STAGE 1 - ELEVATIONS	1:400
DA201	STAGE 2 - ELEVATIONS	1:400
DA300	STAGE 1 - SECTIONS	1:400
DA301	STAGE 2 - SECTIONS	1:400
DA500	STAGE 1 - WINTER SOLSTICE	1:3000
DA501	STAGE 2 - WINTER SOLSTICE	1:3000
DA600	3D PERSPECTIVES 1	NTS
DA601	3D PERSPECTIVES 2	NTS
DA602	MATERIALS & FINISHES SCHEDULE	NTS
DA701	NOTIFICATION PLANS	1:3000, 1:1200



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NOMINATED ARCHITECT:
SIMON HANSON # 6739

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NOT FOR CONSTRUCTION

REV	DATE	NAME
A	Work in Progress	-

28 YARRUNGA ST,
PRESTONS

STAGE:
DESIGN
DEVELOPMENT

SCALE:

DRAWING TITLE:
COVER SHEET

CLIENT: FAVELLE FAVCO PTY. LTD.
DRAWN: EO
DATE: 29/11/2019
CHECKED: MH
APPROVED: SRH

PROJECT No: 18144

DRAWING No:
DA000

REVISION:
A - WIP

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SCALE:
1:500 @ A1
1:1000 @ A3

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
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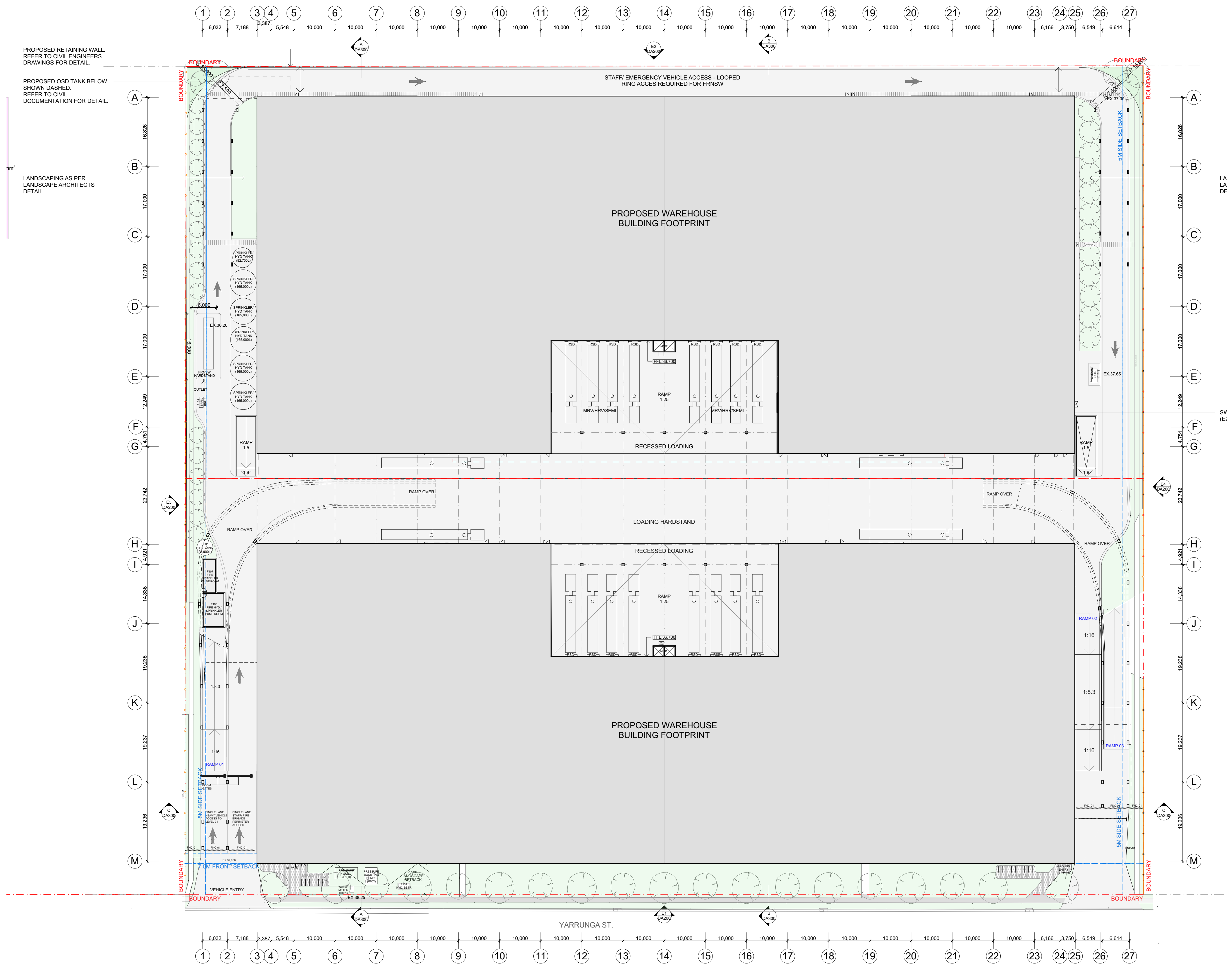
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SCALE:
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1:1000 @ A3

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 ITEMS TO BE DEMOLISHED
 MATERIAL STOCKPILES TO BE REMOVED OR RELOCATED C.O.S.
 ITEMS TO BE RELOCATED
 EXISTING WAREHOUSE TO REMAIN OPERATIONAL DURING & AFTER STAGE 1 CONSTRUCTION
 TREE TO BE REMOVED

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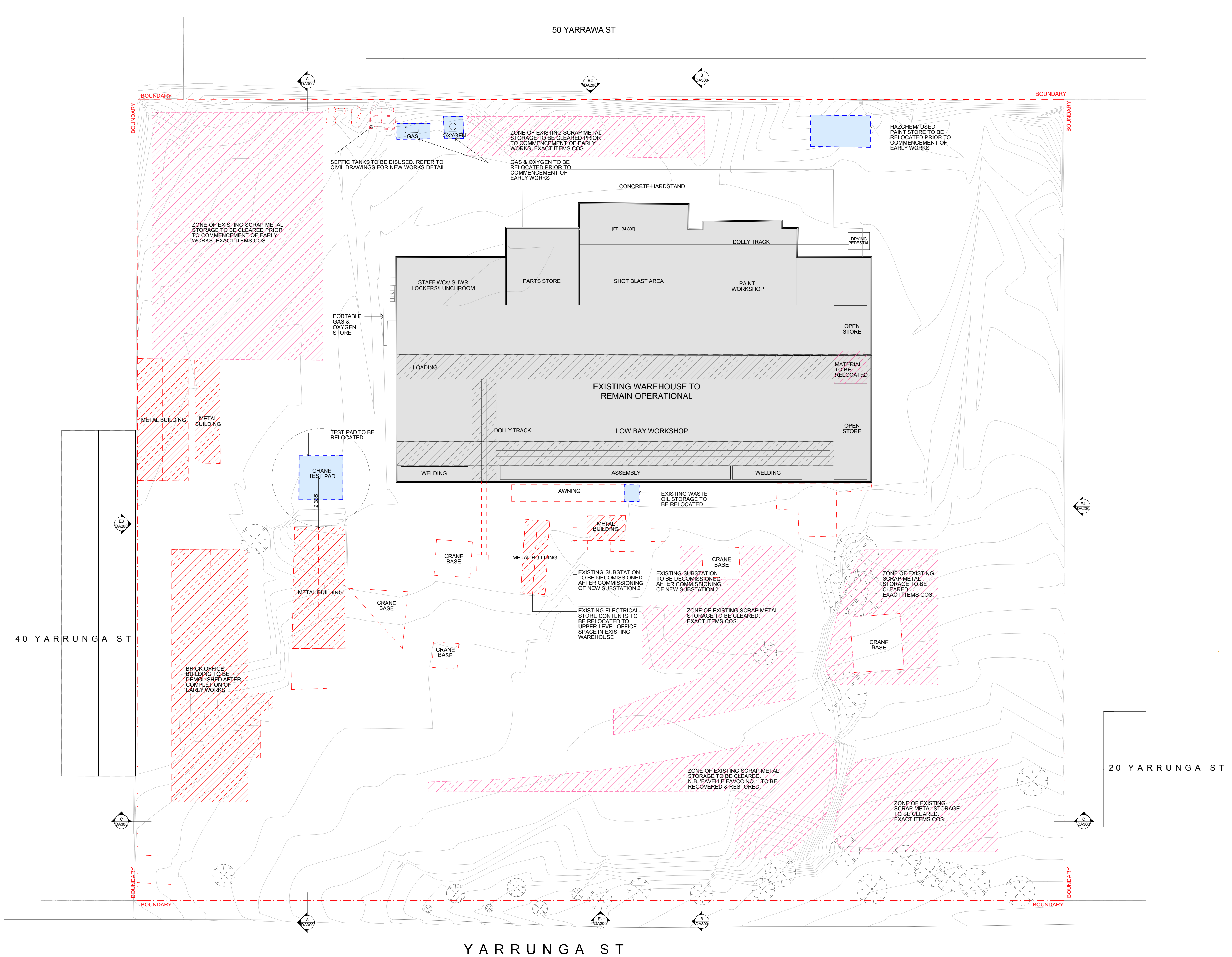
STAGE:
**DESIGN
DEVELOPMENT**

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No:

DA004

REVISION: **A - WIP**



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	TEMPORARY MODULAR DEMOUNTABLE OFFICE STRUCTURE
	FAVELLE FAVCO DEDICATED SITE ACCESS & PARKING
	STAGE 1 CIVIL/ EARTHWORKS/ SITE PREPARATION WORKS
	FAVELLE FAVCO WORKSHOP CURTILAGE
	STAGE 1 LANDSCAPE WORKS

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STAGE:
**DESIGN
DEVELOPMENT**

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No: **DA005**

REVISION: **A - WIP**

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	ITEMS TO BE DEMOLISHED
	MATERIAL STOCKPILES TO BE REMOVED OR RELOCATED. C.O.S.
	ITEMS TO BE RELOCATED
	EXISTING WAREHOUSE TO REMAIN OPERATIONAL DURING & AFTER STAGE 1 CONSTRUCTION
	TREE TO BE REMOVED

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DEVELOPMENT**

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APPROVED:	SRH

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REV	DATE	NAME
A - WIP	Work in Progress	-

SCALE:
1:500 @ A1
1:1000 @ A3

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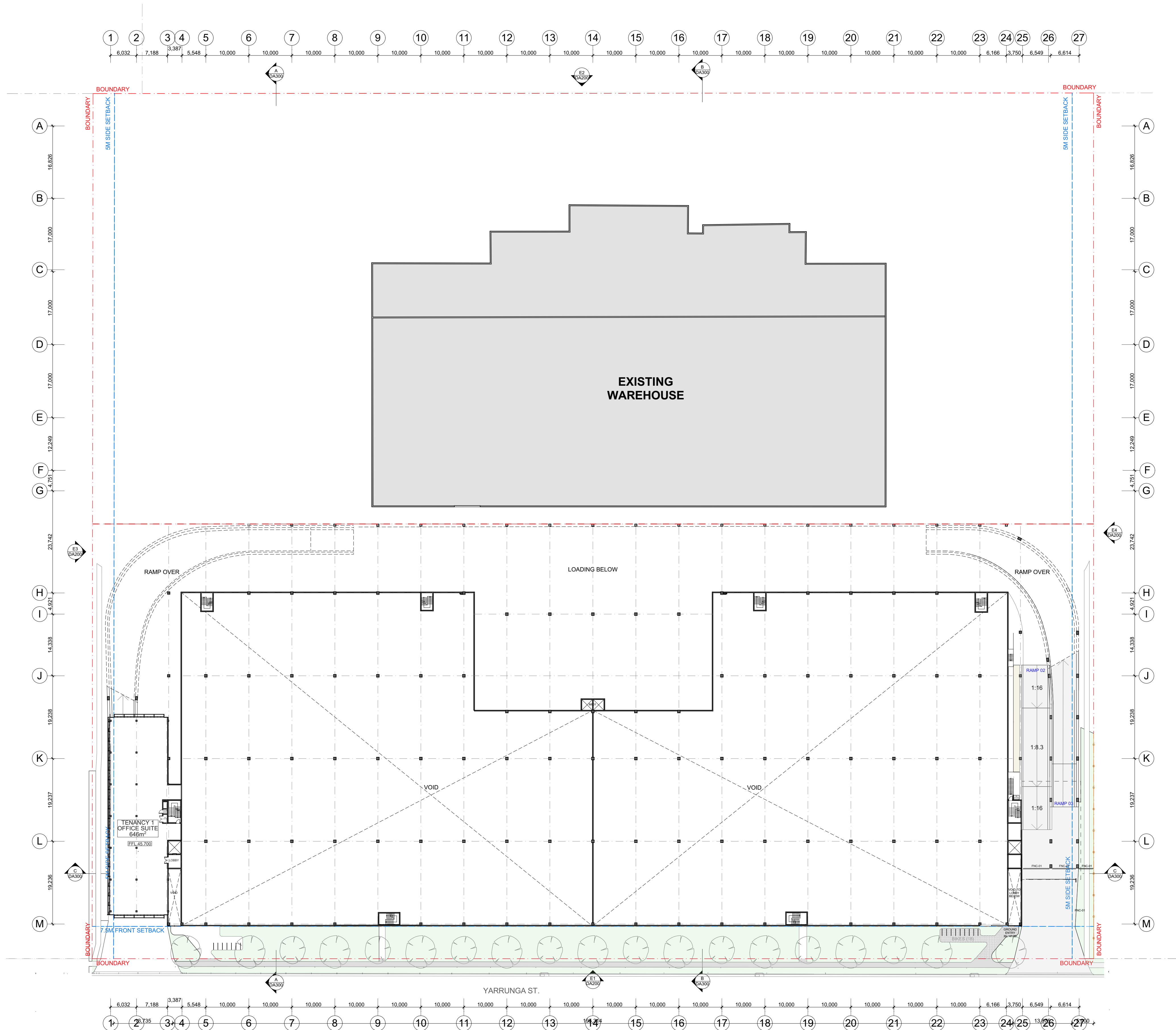
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STAGE:
**DESIGN
DEVELOPMENT**

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APPROVED:	SRH

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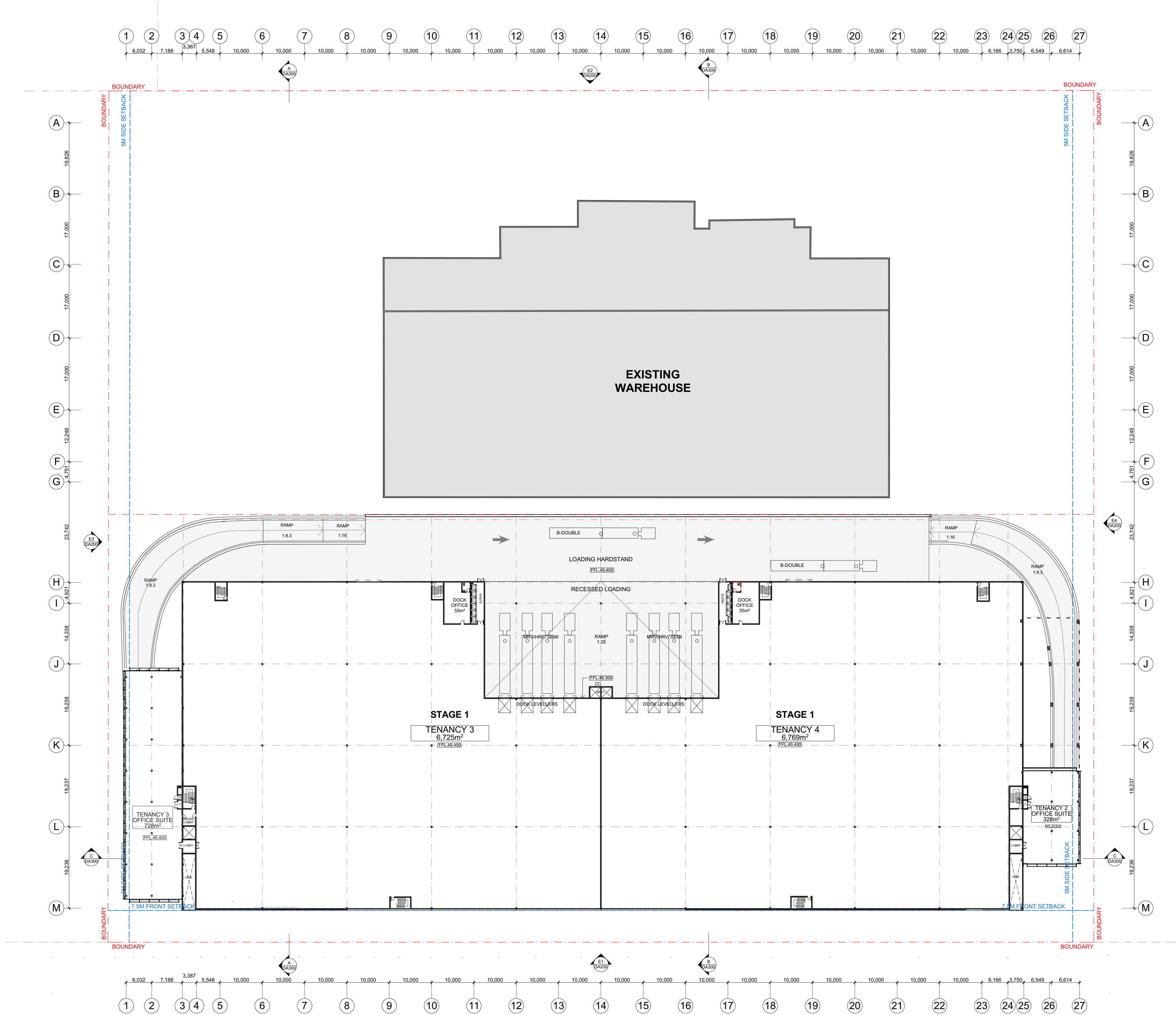
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SCALE:
1:500 @ A1
1:1000 @ A3

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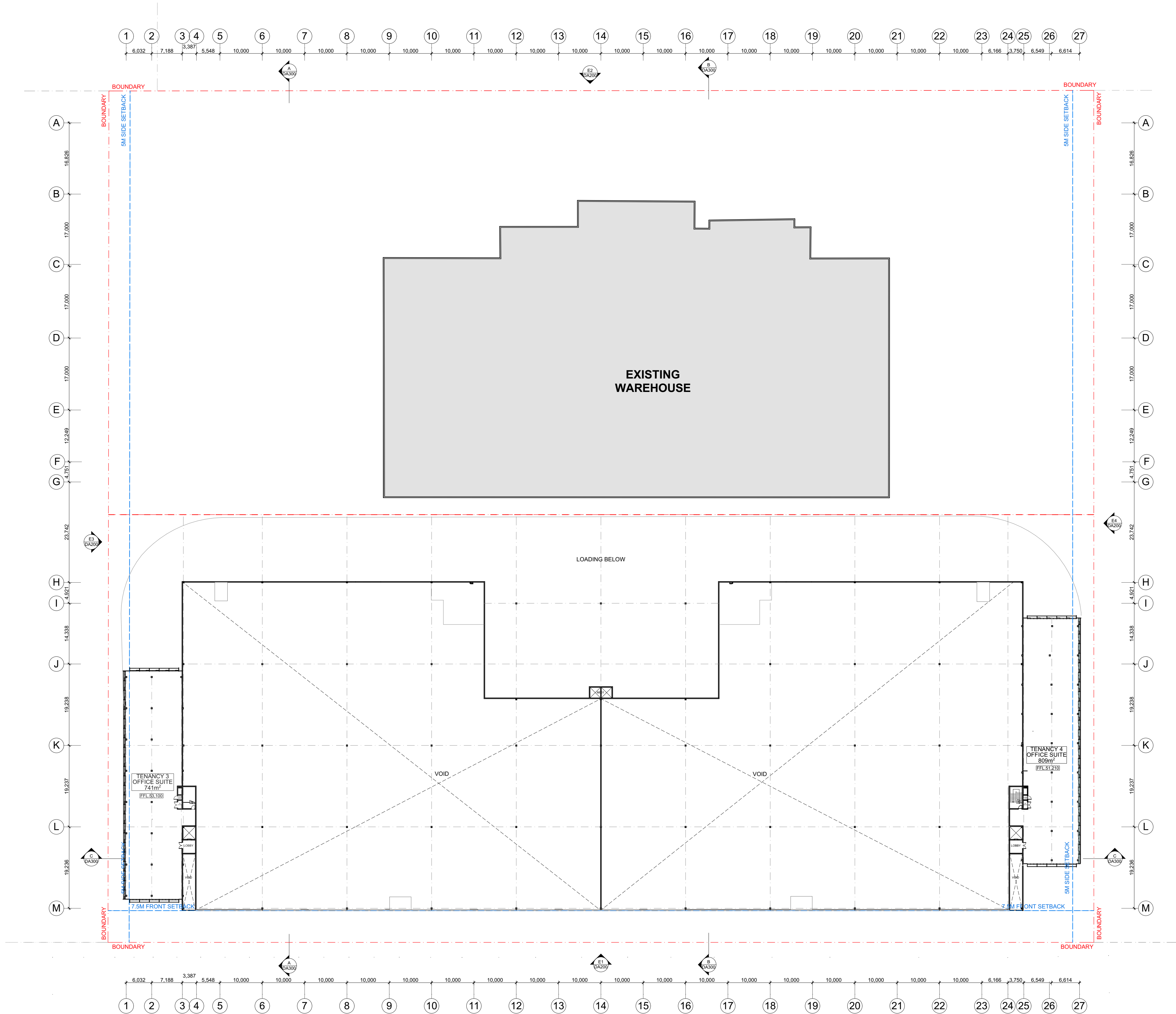
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DEVELOPMENT**

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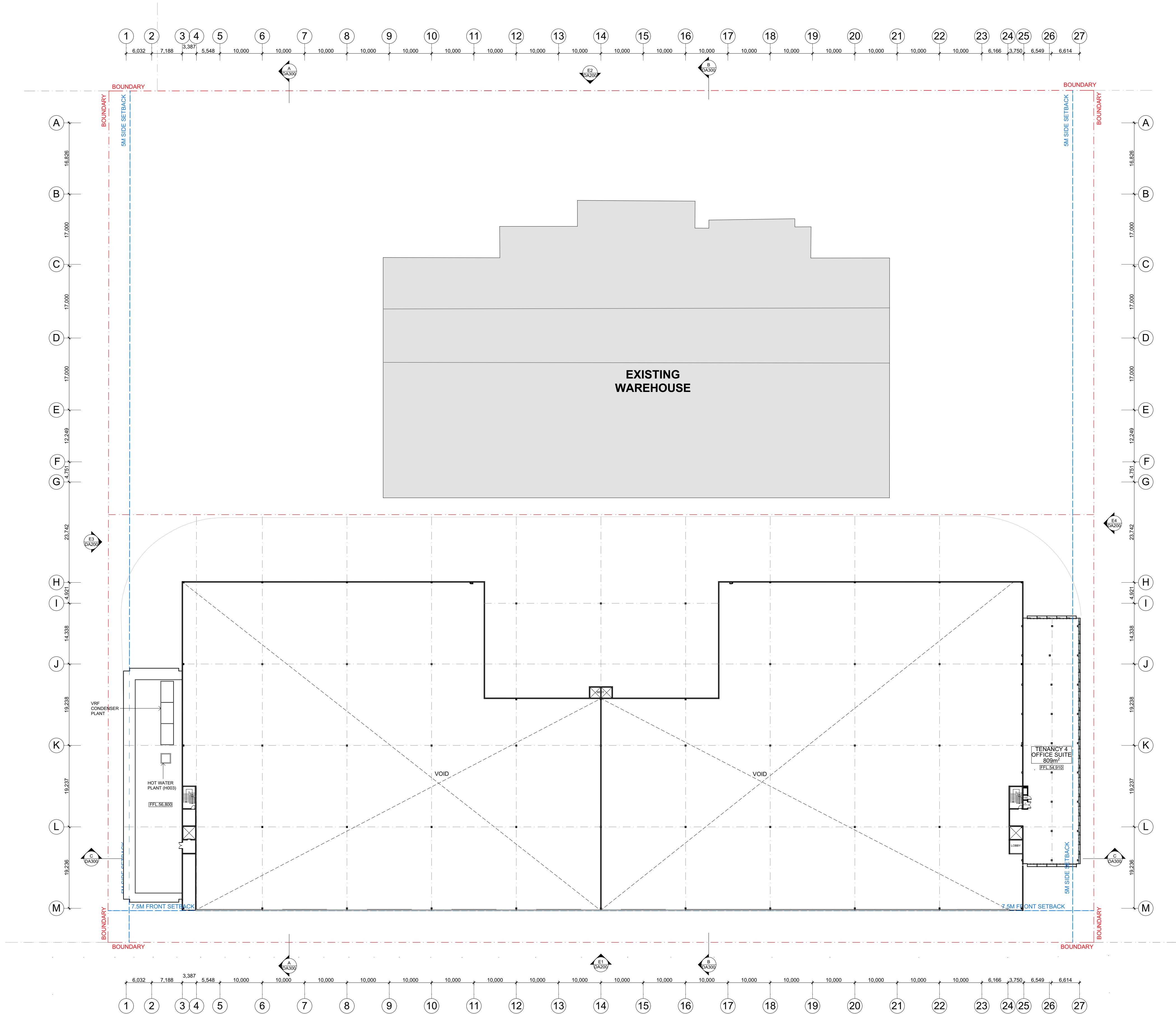
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STAGE:
**DESIGN
DEVELOPMENT**

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SCALE:
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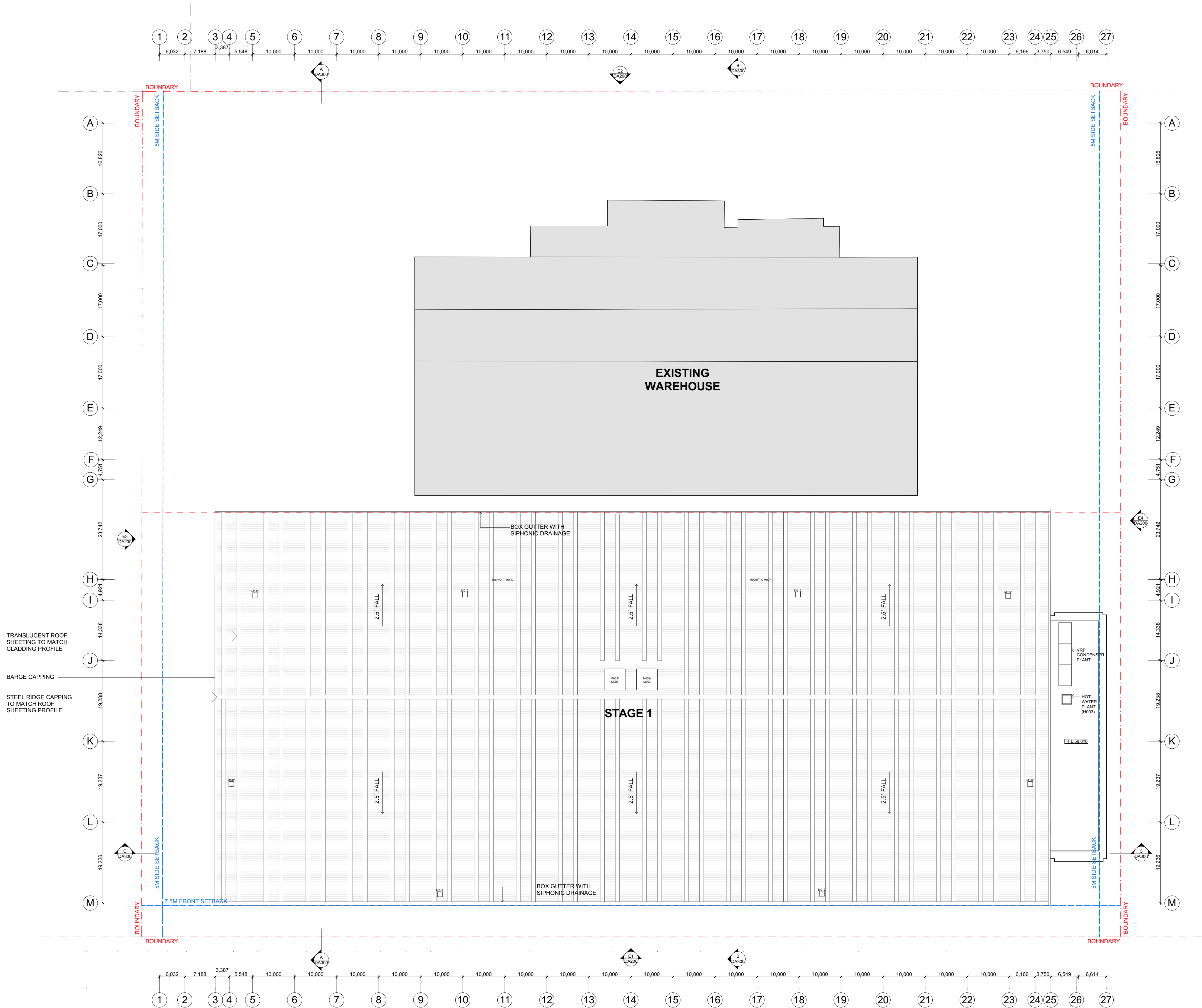


CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No:

DA105

REVISION: **A - WIP**



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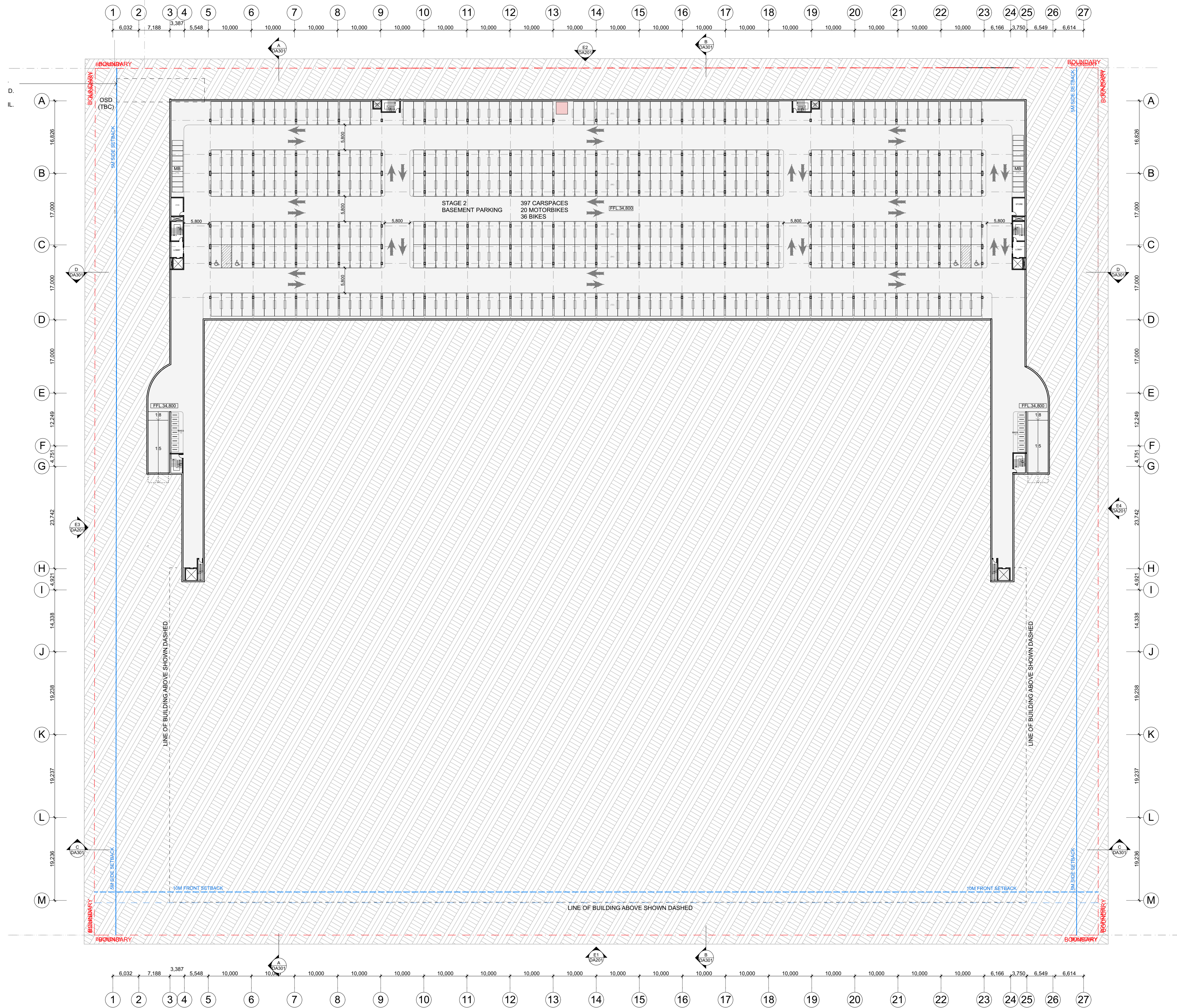
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1:500 @ A1
1:1000 @ A3

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No:

REVISION: **A - WIP**



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[illegible]

SCALE:
1:500 @ A1
1:1000 @ A3

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
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[illegible]

STAGE:
**DESIGN
DEVELOPMENT**

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No:

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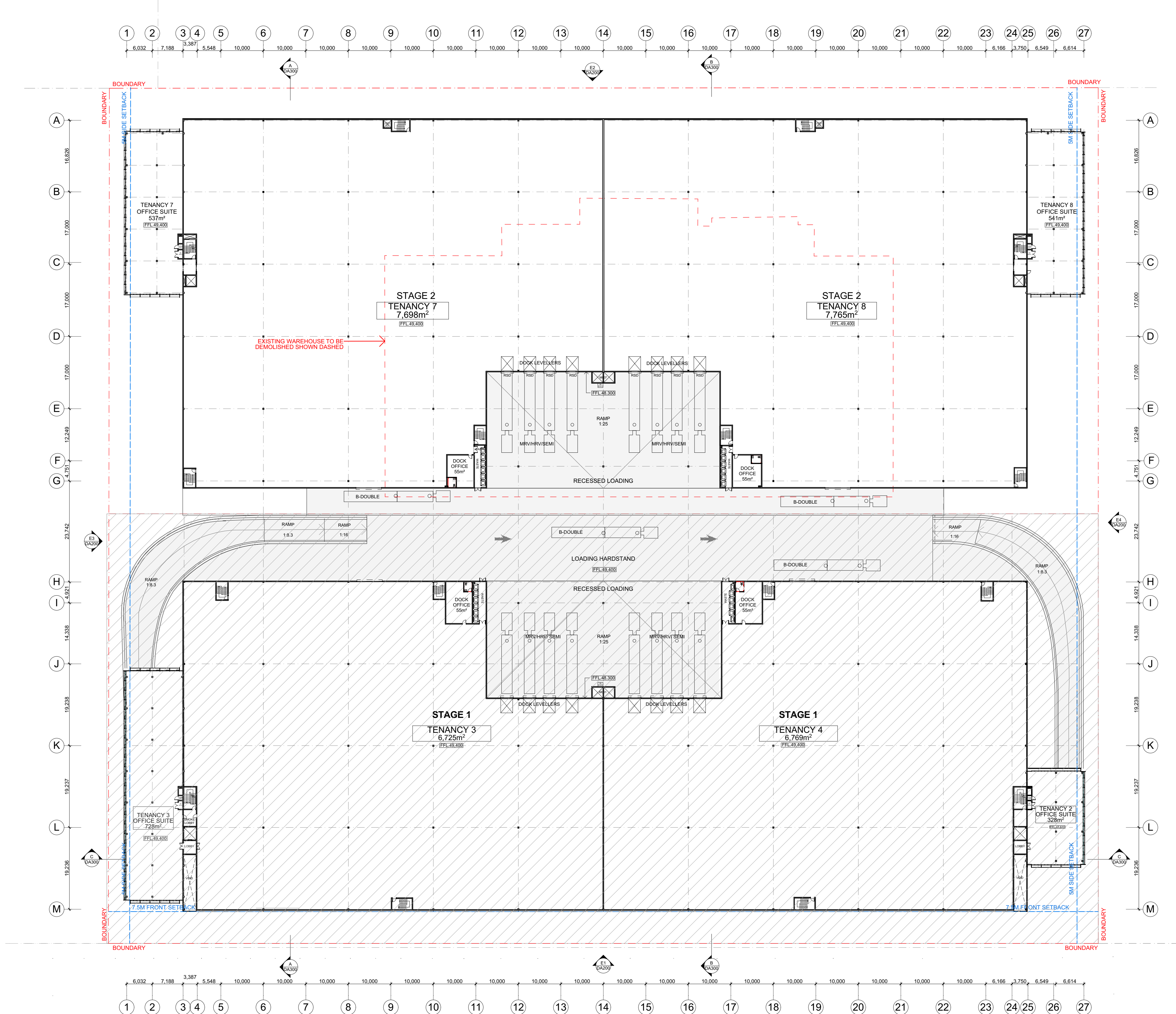
REV	DATE	NAME
A - WIP	Work in Progress	-

SCALE:
1:500 @ A1
1:1000 @ A3

CLIENT:	FAVELLE FAVCO PTY. LTD.
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[illegible]

STAGE:
**DESIGN
DEVELOPMENT**

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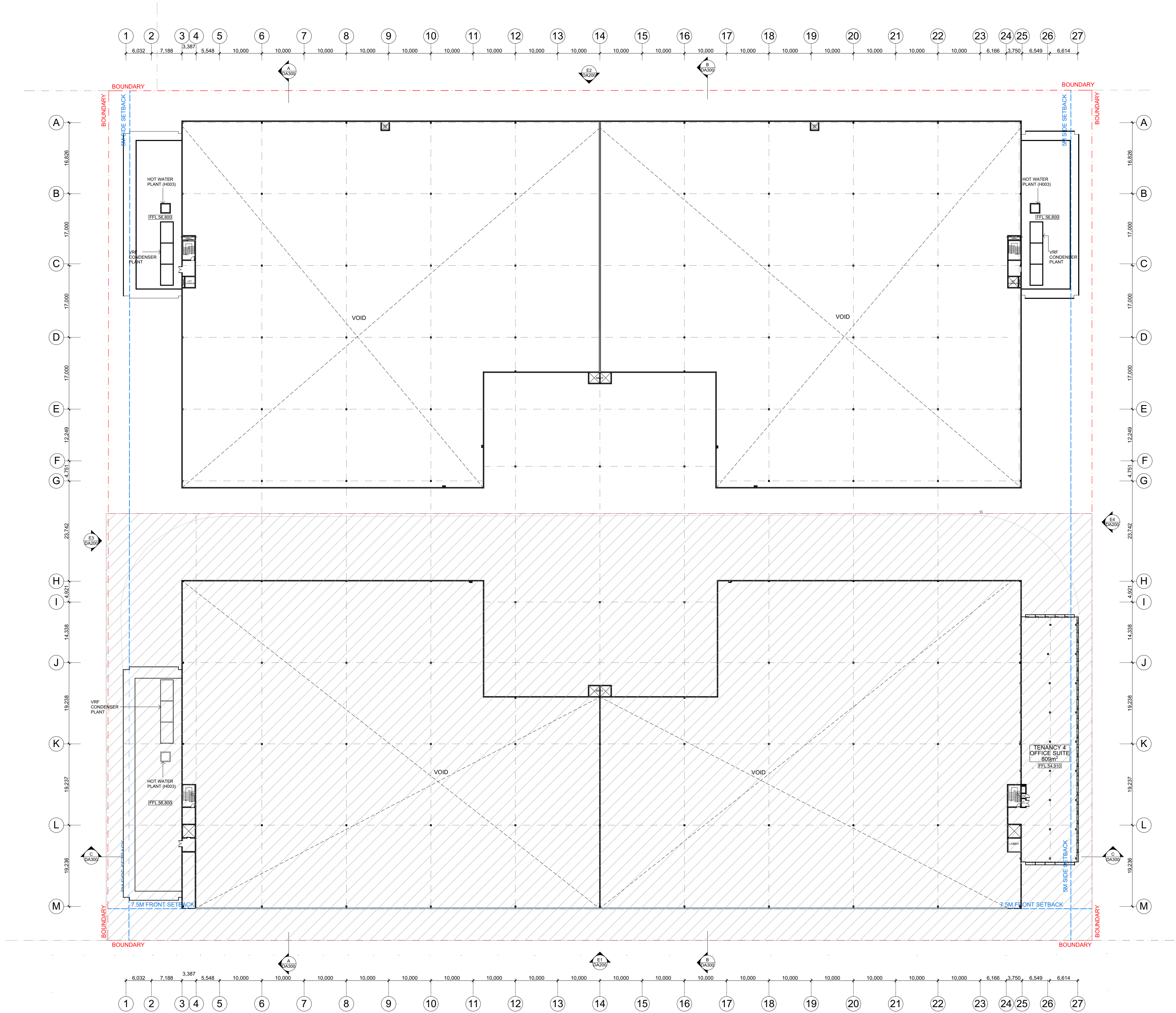
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STAGE:
**DESIGN
DEVELOPMENT**

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

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REVISION: **A - WIP**



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REV	DATE	NAME
A - WIP	Work in Progress	-

[illegible]

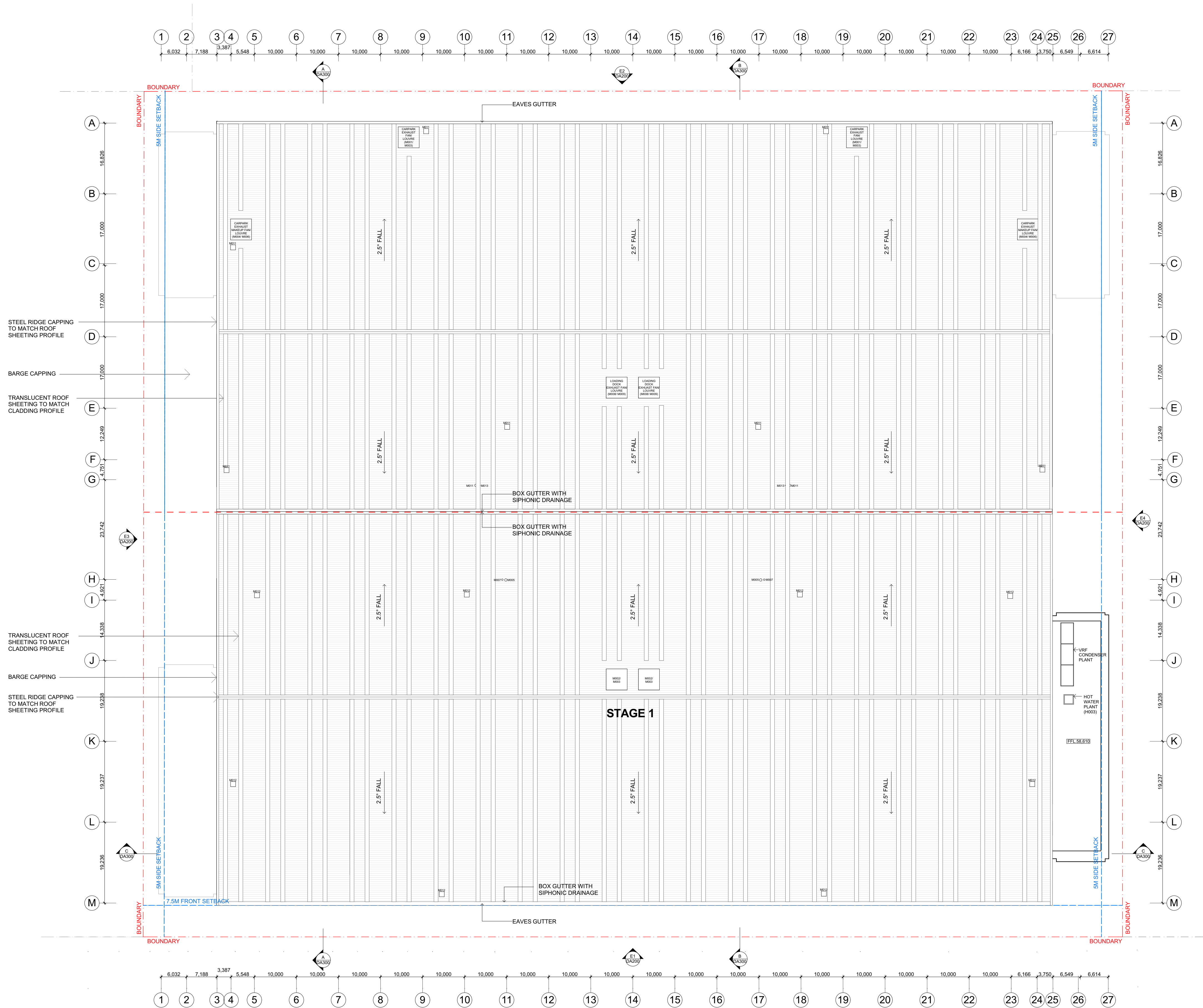
STAGE:
**DESIGN
DEVELOPMENT**

SCALE:
1:500 @ A1
1:1000 @ A3

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No:

REVISION: **A - WIP**



NOMINATED ARCHITECT:

SIMON HANSON # 6739

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LEGEND:

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NOT FOR CONSTRUCTION

REV	DATE	NAME
A	Work in Progress	-

28 YARRUNGA ST,
PRESTONS

STAGE:

DESIGN
DEVELOPMENT

SCALE:
1:400 @ A1
1:1000 @ A3

DRAWING TITLE:
STAGE 1 - SECTIONS

CLIENT: FAVELLE FAVCO PTY. LTD.

DRAWN: EO

DATE: 29/11/2019

CHECKED: MH

APPROVED: SRH

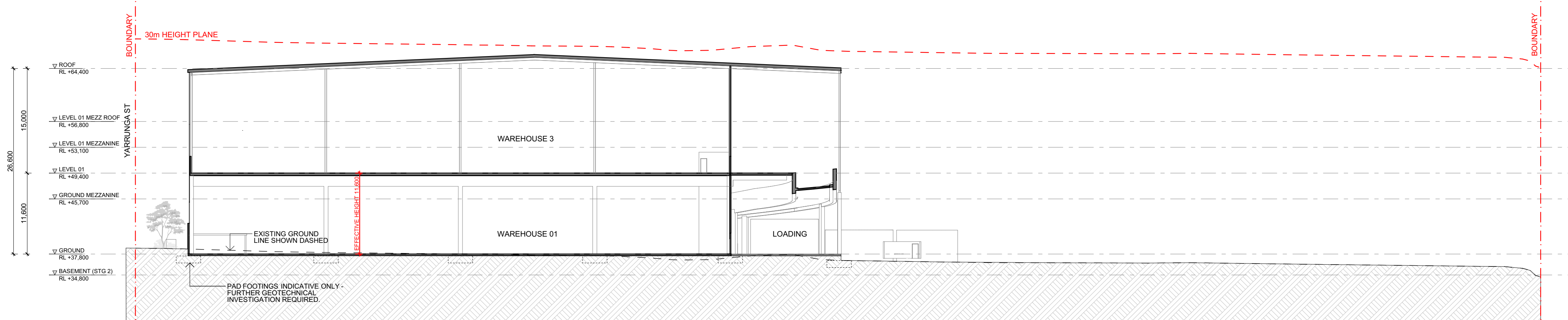
PROJECT No: 18144

DRAWING No:

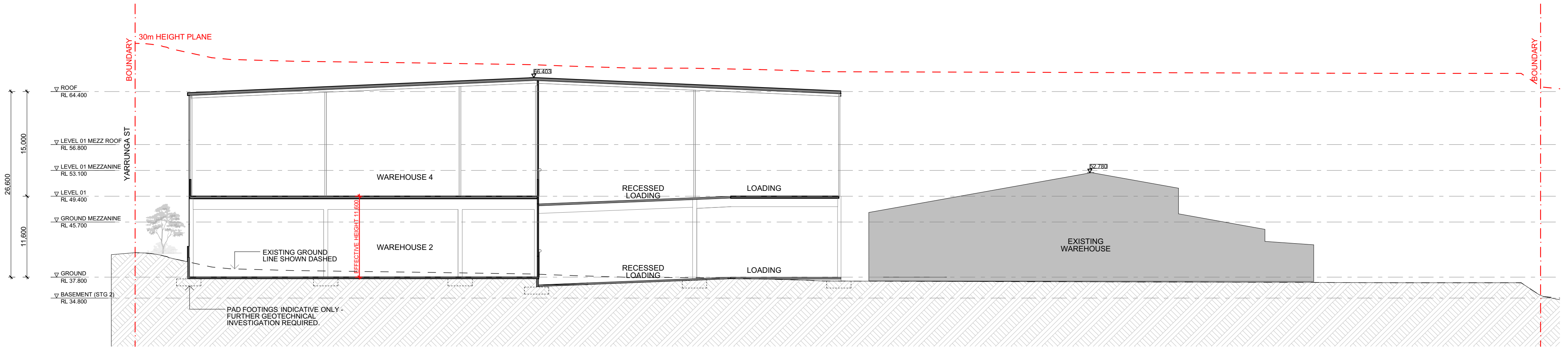
DA300

REVISION:

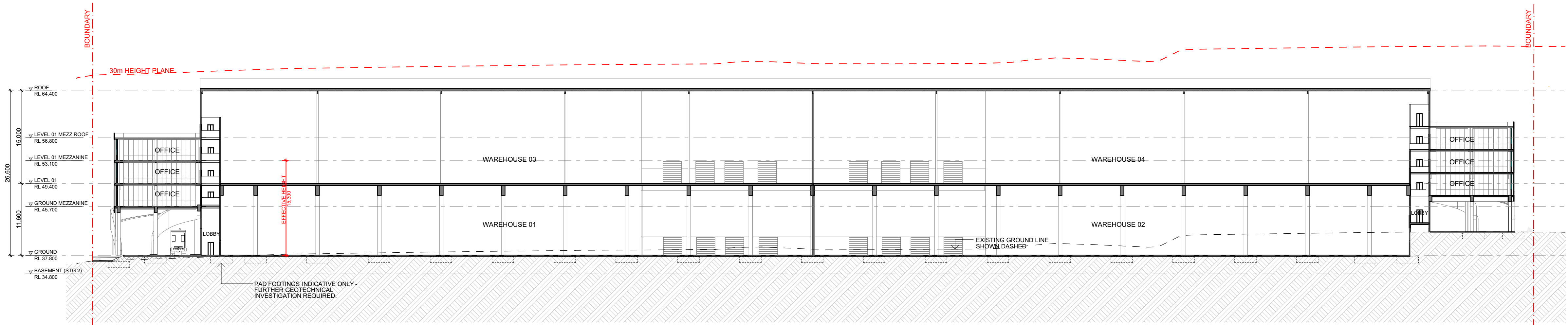
A - WIP



1 SECTION A-A (STAGE 1)
1:400



2 SECTION B-B (STAGE 1)
1:400



3 SECTION C-C (STAGE 1)
1:400

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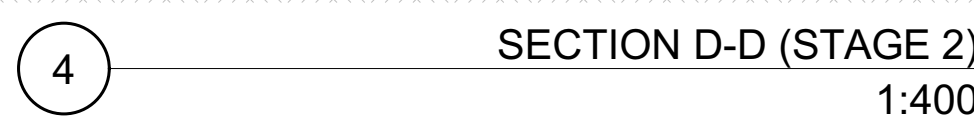
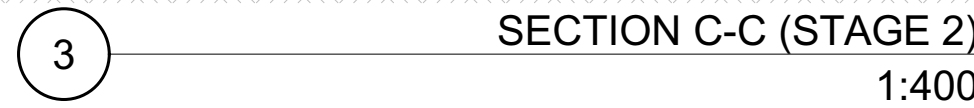
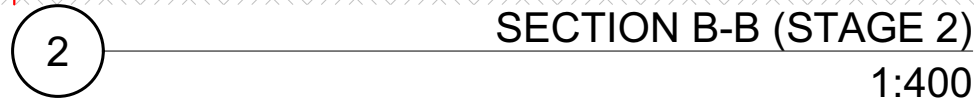
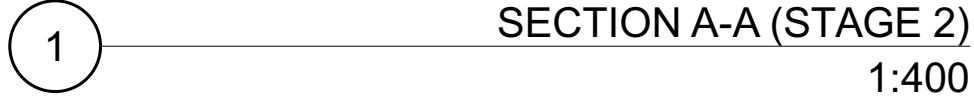
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[illegible]

SCALE:
1:400 @ A1
1:1000 @ A3

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH
PROJECT No:	18144

REVISION: **A - WIP**



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[illegible]

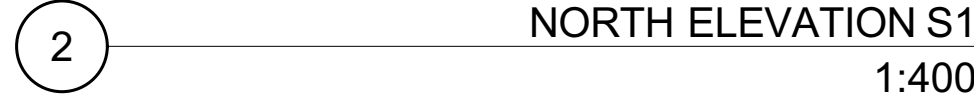
STAGE:
**DESIGN
DEVELOPMENT**

DRAWING TITLE:
STAGE 1 - ELEVATIONS

PROJECT No: **18144**

DA200

A - WIP



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[illegible]

STAGE:
**DESIGN
DEVELOPMENT**

DRAWING TITLE:
STAGE 2 - ELEVATIONS

DRAWING No:

DA201

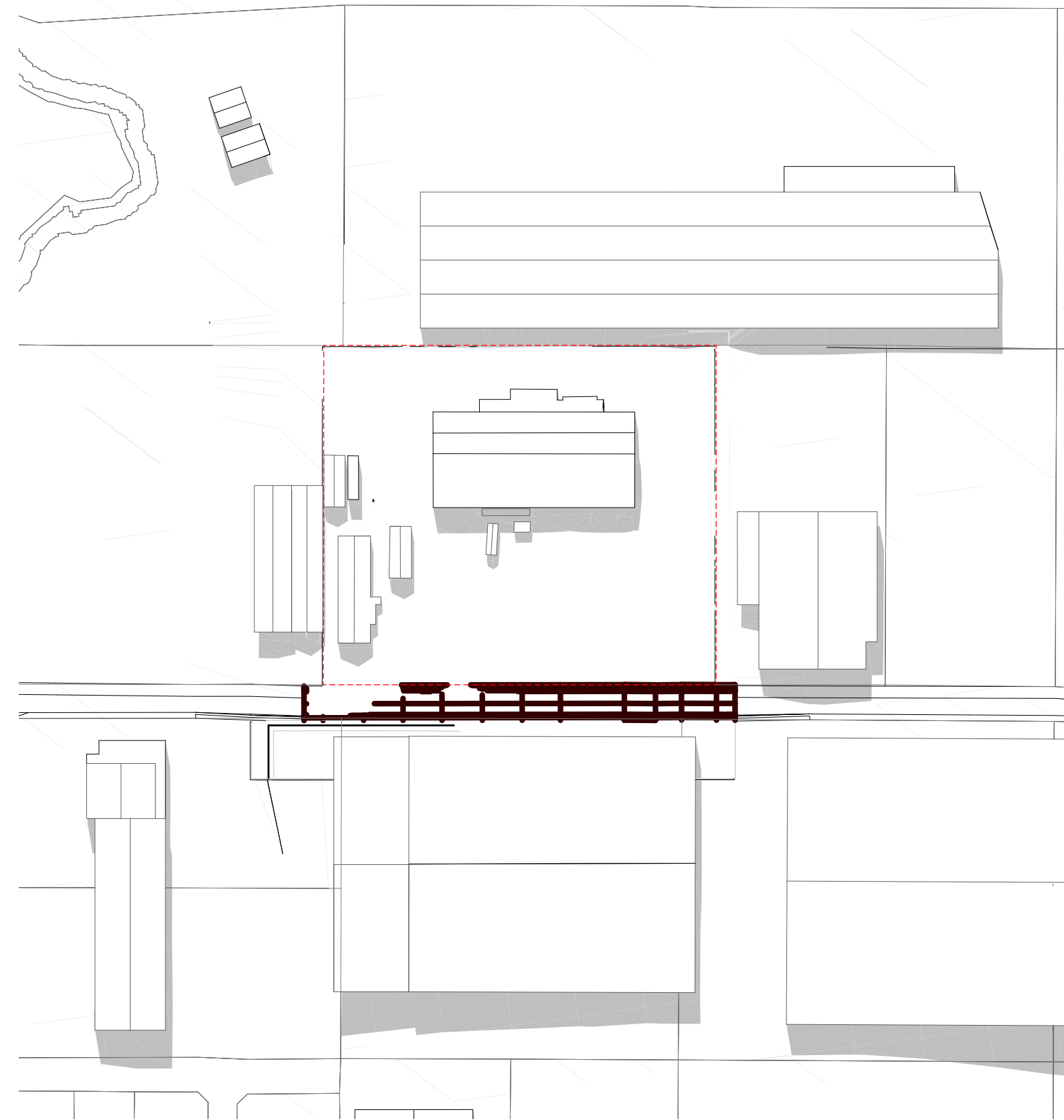
REVISION:

A - WIP

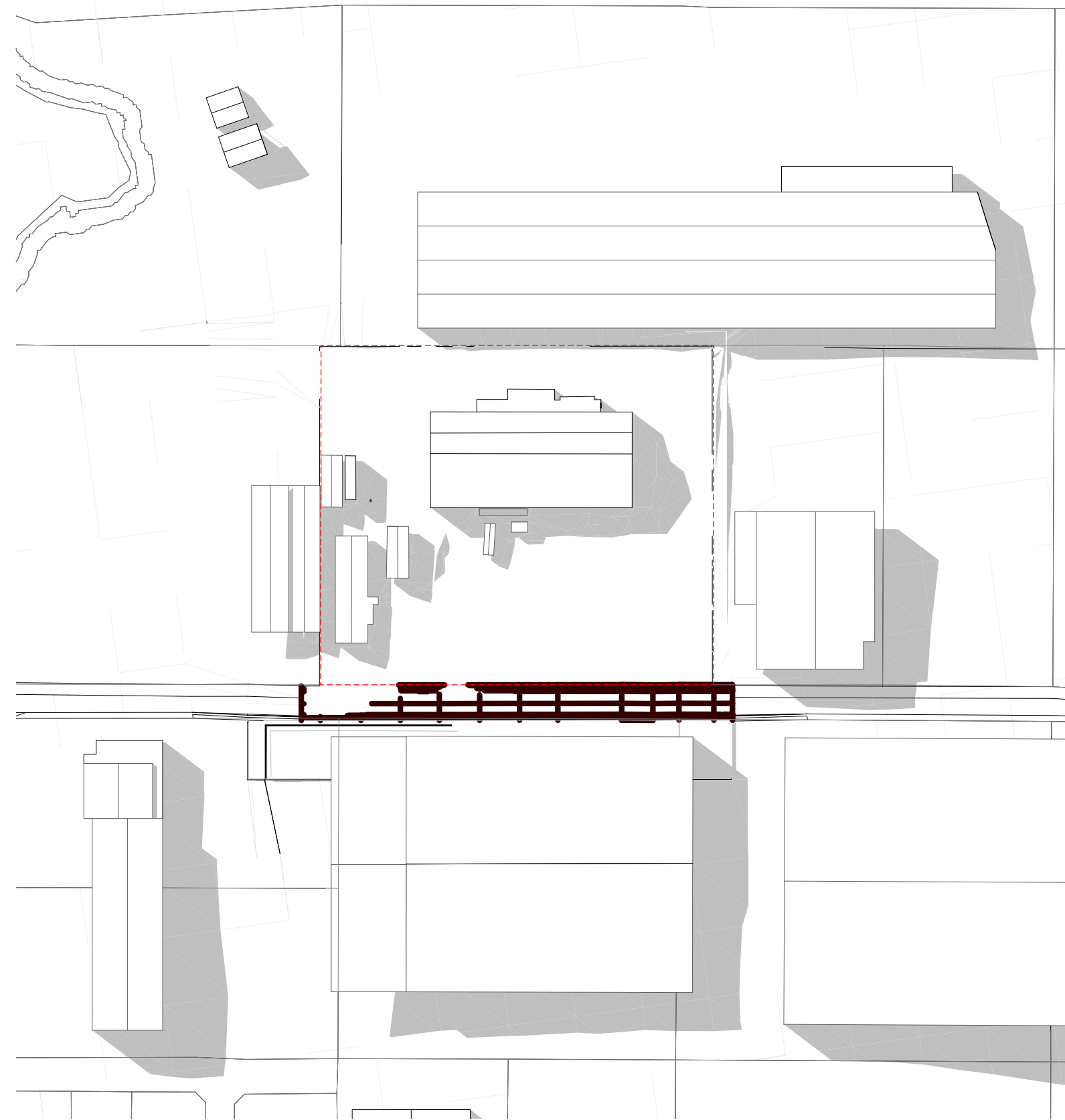


An aerial photograph of a city block with various buildings. A red dashed rectangle highlights a specific area in the center of the block, indicating the proposed building footprint. The surrounding area includes other buildings, streets, and a small park area with trees and a path.

SHADOWS EX 21 JUNE 9AM

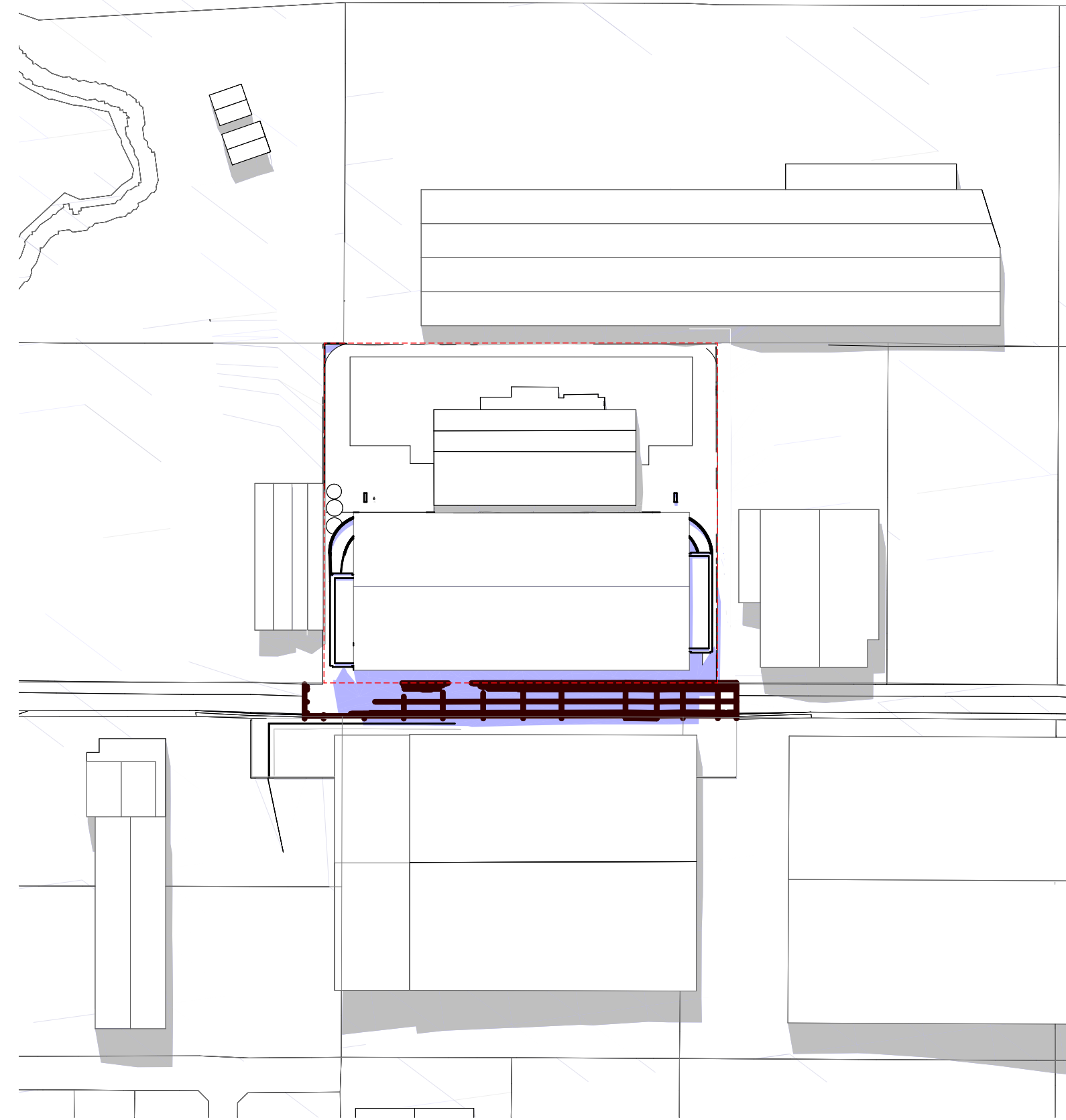


SHADOWS EX 21 JUNE 12PM

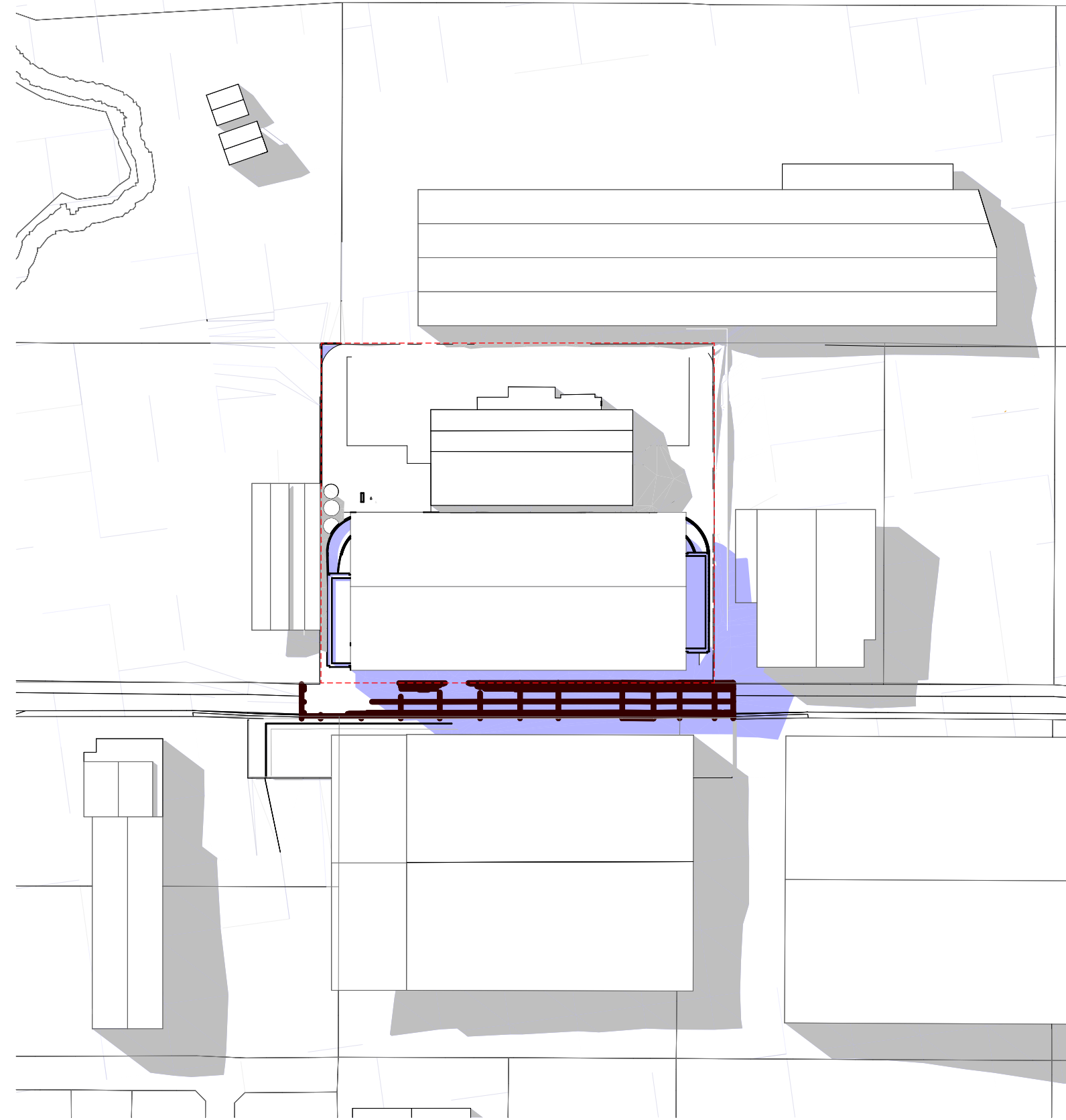


SHADOWS EX 21 JUNE 3PM

SHADOWS NEW 21 JUNE 9AM (STG 1)



SHADOWS NEW 21 JUNE 12PM (STG 1)

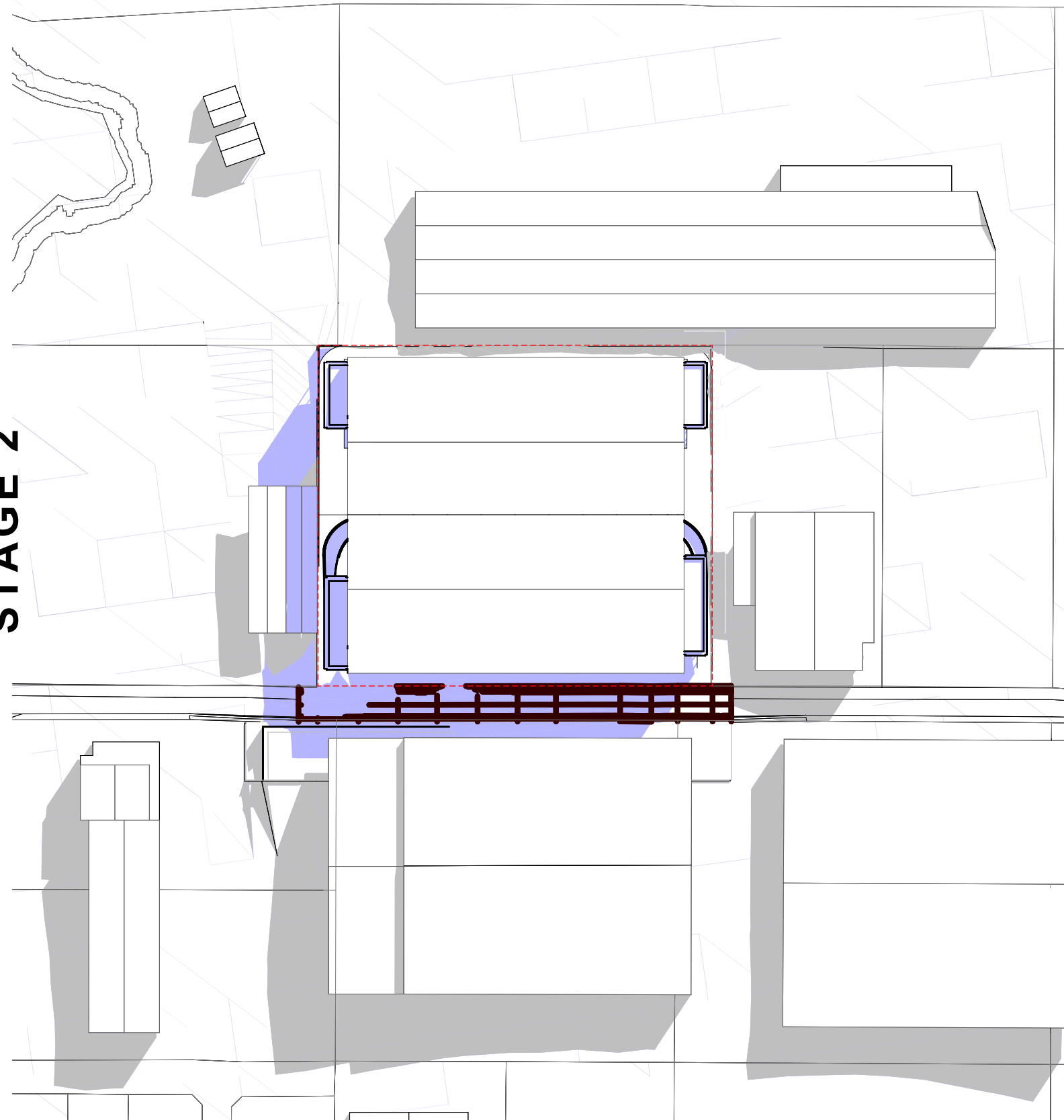


SHADOWS NEW 21 JUNE 3PM (STG 1)

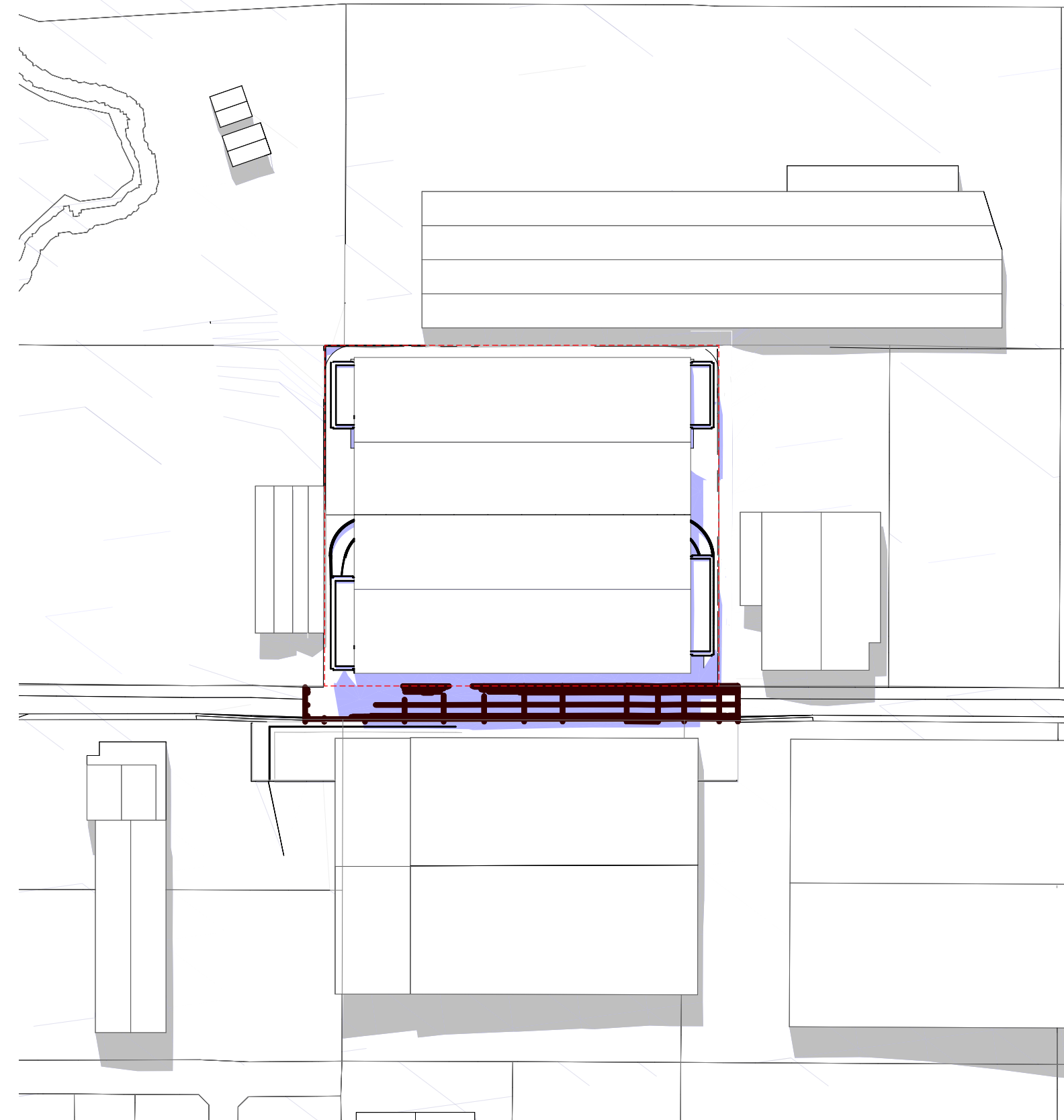
A - WIP

STAGE:

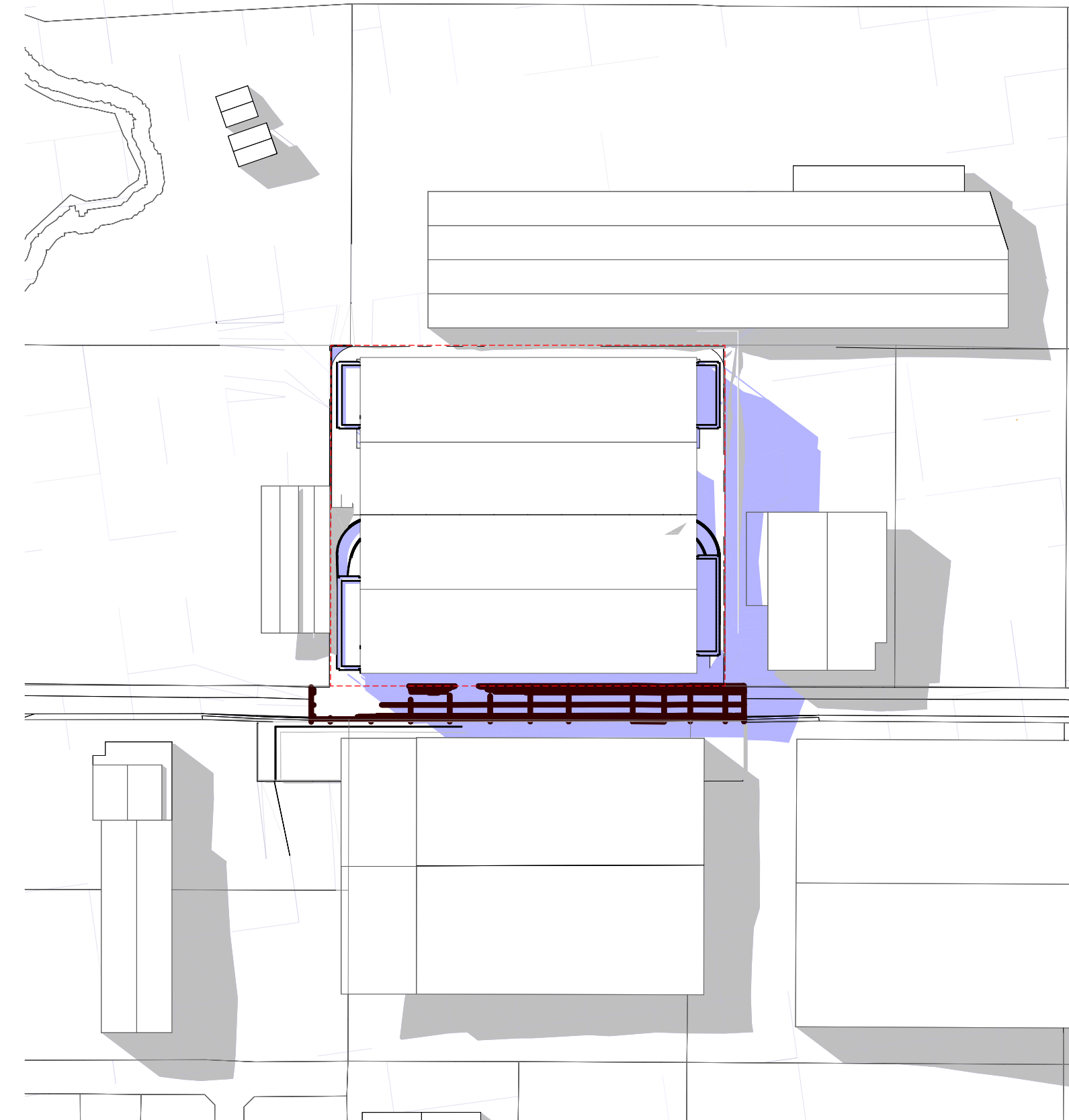
PROPOSED SHADOWS DIAGRAMS STAGE 2



SHADOWS EX 21 JUNE 9AM



SHADOWS EX 21 JUNE 12PM



SHADOWS EX 21 JUNE 3PM

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[illegible]

STAGE:
**DESIGN
DEVELOPMENT**

CLIENT:	FAVELLE FAVCO PTY. LTD.
DRAWN:	EO
DATE:	29/11/2019
CHECKED:	MH
APPROVED:	SRH

DRAWING No:

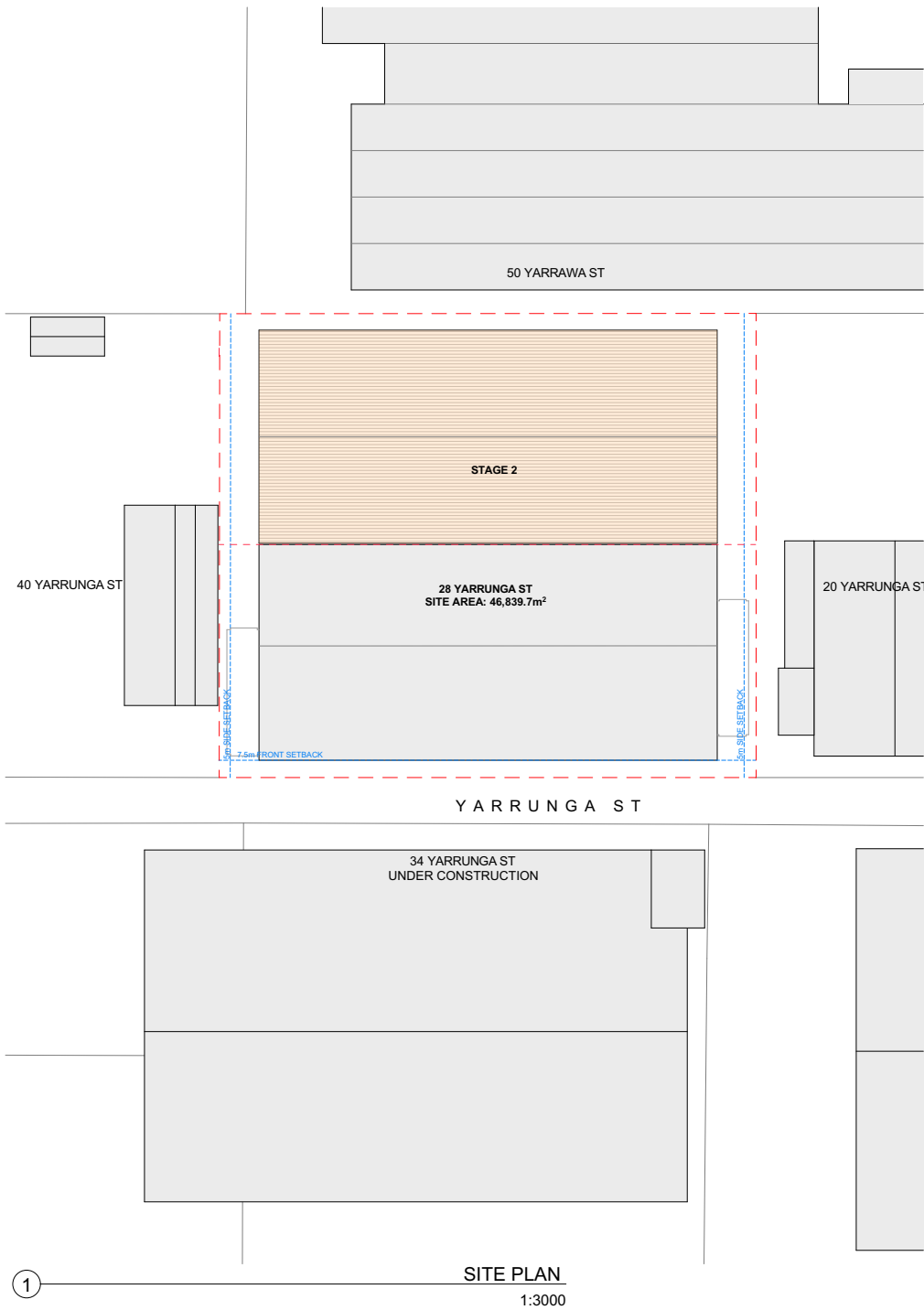
REVISION:

A - WIP

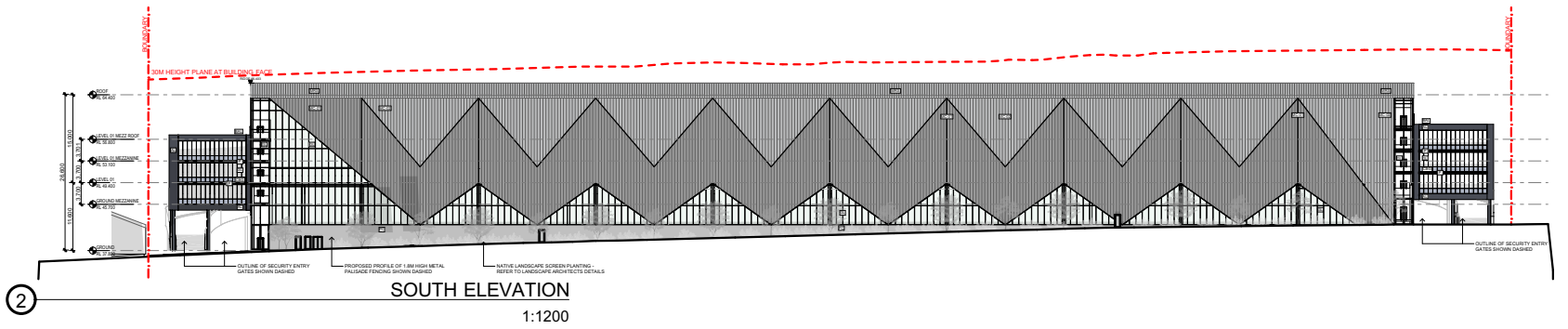


A - WIP

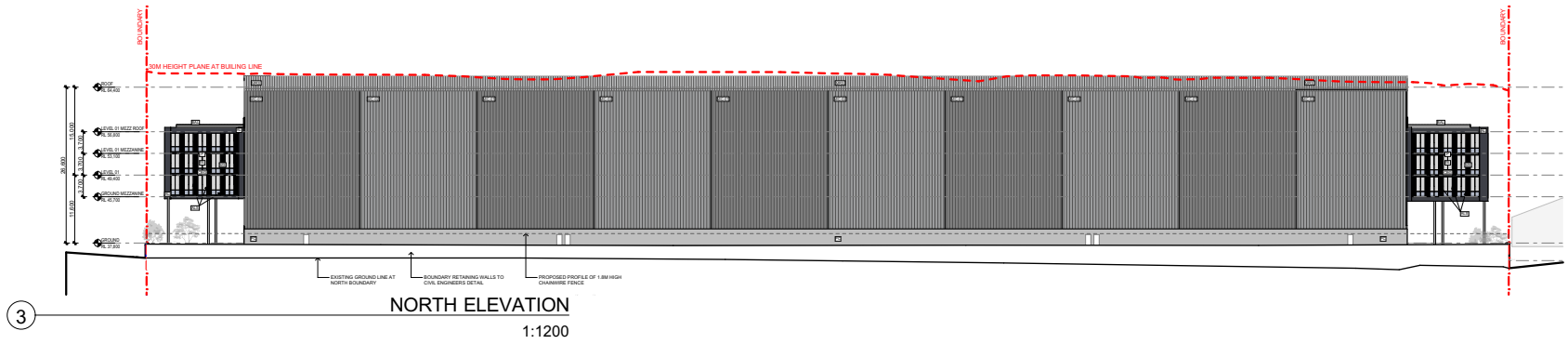
(08)
FNC-1: METAL PALISADE SECURITY
FENCE



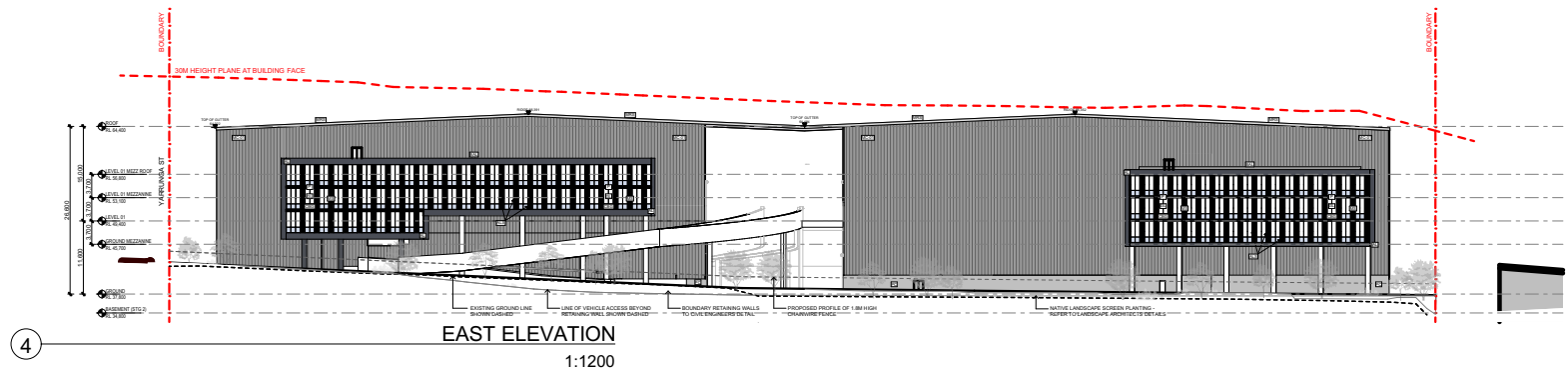
SITE PLAN
1:3000



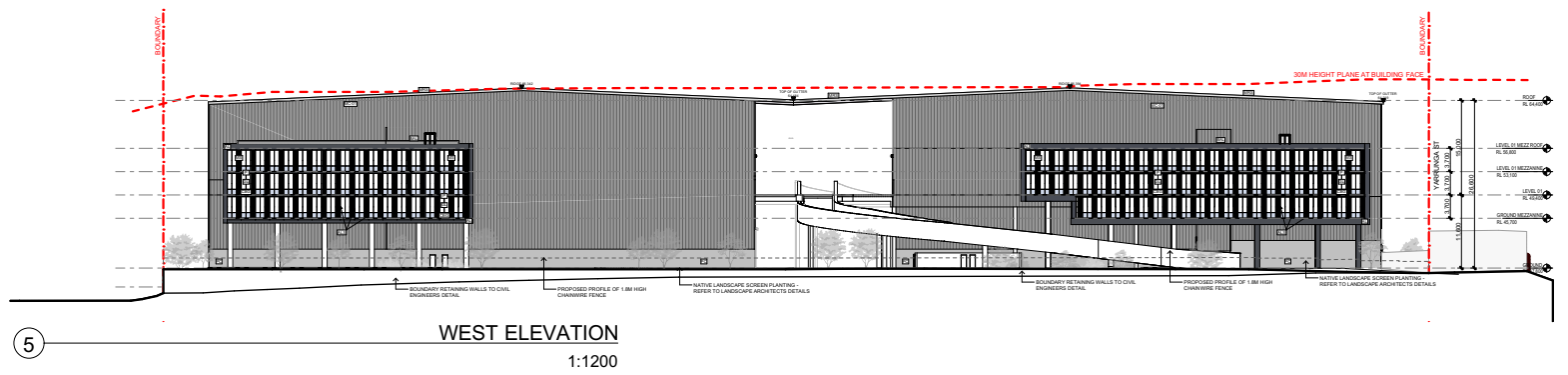
SOUTH ELEVATION
1:1200



NORTH ELEVATION
1:1200



EAST ELEVATION
1:1200



WEST ELEVATION
1:1200

BUREAU SRH architecture

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NOMINATED ARCHITECT:
SIMON HANSON #6739

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LEGEND:

REV.	DATE	AMENDMENT
###	09/11/2019	###

28 YARRUNGA ST,
PRESTONS

STAGE:
**DESIGN
DEVELOPMENT**

SCALE @ A3:
**1:3000,
1:1200**



DRAWING TITLE:
NOTIFICATION PLANS

CLIENT: **FAVELLE FAVCO PTY. LTD.**
DRAWN: **EO**
DATE: **29/11/2019**
CHECKED: **SRH**
APPROVED: **SRH**

PROJECT No: **18144**

DRAWING No:

DA701

REVISION: