Technical Note – Hayes WTS Workshop

Overview of Water Risks from Site Development

Introduction and Background

This document has been prepared by the SUEZ Recycling and Recovery (SUEZ) Hydrogeology Team to review how the proposed construction works for a workshop at the site comply with the Hillingdon Local Plan Policy DMEI 11 on protecting the water environment.

DMEI 11 states the following:

'DMEI 11 Protection of Ground Water Resources. All development proposals within a Source Protection Zone, Safeguard Zone or Water Protection Zone must assess any risk to groundwater resources and demonstrate that these would be protected throughout the construction and operational phases of development.'

SUEZ propose to construct a new workshop at the site that will consist of a light-weight portal frame steel building with three roller shutter doors on the front elevation, which then lead on to three "vehicle maintenance bays" (Drawings of current and proposed site plan and workshop are provided in Appendix A). The workshop design draws on similar workshops in the SUEZ portfolio that have been constructed in recent years.

Site Geology / Hydrogeology

Phase 1 and 2 Site Investigations were carried out at the site in 2008. These studies did not directly investigate the area of the proposed workshop however, given the limited size of the WTS, ground conditions are representative. It should be noted that future ground investigations in the workshop area are planned prior to the construction phase.

The subsurface of Hayes WTS consists of concentre hardstanding to 0.2-0.6m below ground level (bgl), which in turn is underlain by a shallow thickness of Made Ground to 0.45-1.35m bgl. The Made Ground is composed of variable amounts of gravels, brick, concrete, and flint. Beneath this, a 0.5m thick layer of orange clay was encountered which overlies water bearing gravels (the Lynch Hill Gravel). The Lynch Hill Gravel, silty clay river terrace deposits, is present between 0.7-2.4m bgl, overlying the London Clay Formation.

During the SLR study, groundwater was found to be present between 0.97-1.75m bgl and generally static. The direction of shallow groundwater flow in an urban environment is uncertain but may be in a westerly direction.

The Lynch Hill Gravel is classified by the Environment Agency as a "Principal Aquifer" due to its high permeability whereas the underlying London Clay has insignificant groundwater content and is generally impermeable and therefore classed as an "Unproductive strata" (formerly a "non-aquifer").

Site Location and Environmental Regulatory Status

Hayes WTS is located in the town of Hayes in Greater London. The vehicle workshop is proposed to be located on the south eastern portion of Site (Appendix C).

The workshop area (as opposed to the small cycle shelter which is to be constructed by the entrance) is located 100m from the nearest surface water receptor, the Grand Union Canal. In the area between the WTS and the canal, both Rigby Lane and a retail truck dealer are present meaning any surface water run-off not collected by engineered drains must flow through both areas before reaching the canal. No further changes to land operated by SUEZ is planned outside of the application area, and as the other land is not under the control of SUEZ, no further changes to surface water management or flow is expected.

The nearest surface water abstraction point is located approximately 400m to the north of the site and is for lake / reservoir filling for spray irrigation purposes and there are no potable water groundwater abstractions located within 2km of the site (Appendix B).

The WTS is located in a non-statutory Drinking Water Safeguard Zone (Surface Water), indicated by the DEFRA interactive MAGIC map.

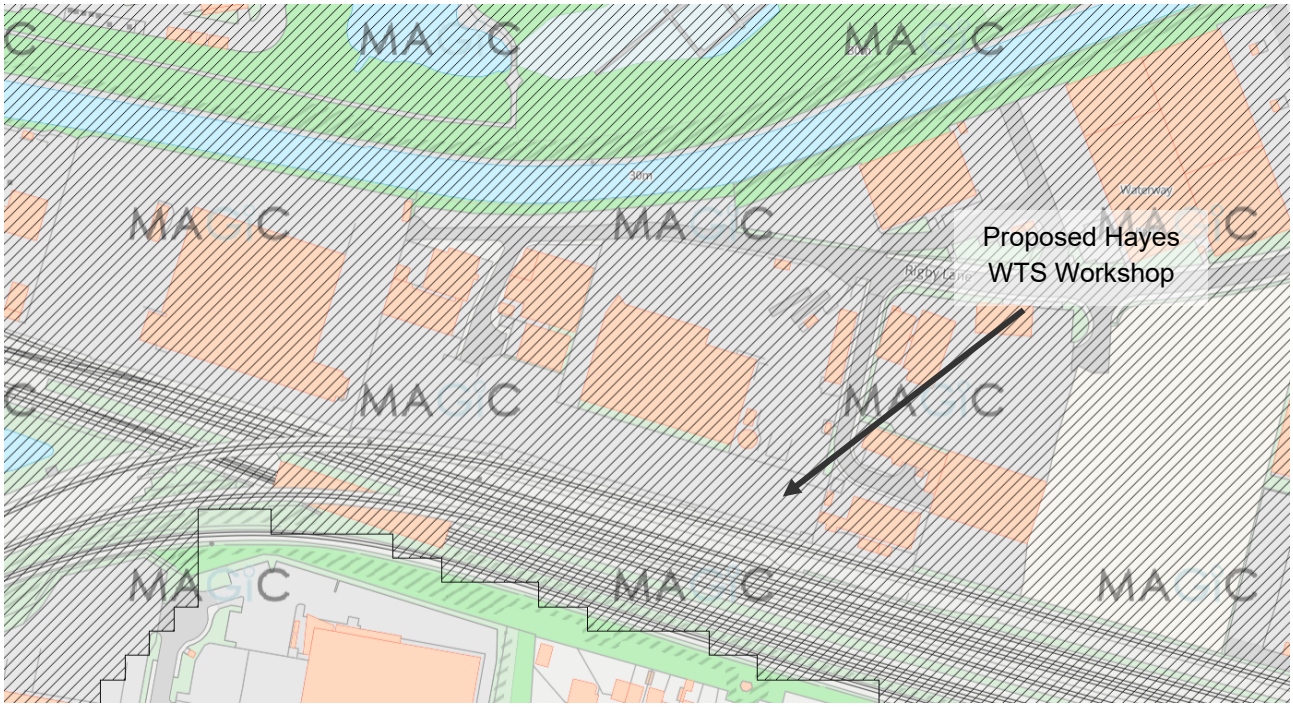


Figure 1. DEFRA MAGIC Map (Grey shaded area indicates Drinking Water Safeguard Zone for Surface Water)

Hayes WTS is in the 'Thames_SWSGZ4015, 4016_Cookham Teddington & Wey' Drinking Water Safeguard Zone (Surface Water). This zone covers an area of at least 100km^2 of which the whole of the Hayes WTS covers approximately 0.012km^2 (12,000m^2).

The Drinking Water Safeguard Zone classifies receiving surface water as being at risk from nitrates, PAHs (benzo(a)pyrene), and a number of pesticides (24D, Carbetamide, Chlorinated pesticides, Glyphosate, Isoproturon, MCPA, Mecoprop, Metal-based pesticides, Metazachlor, Propyzamide, and Quinmerac).

The local geology at Hayes WTS is classified as at Medium-Low groundwater vulnerability, meaning that the potential for contaminants to migrate through the bedrock is limited by the moderate to low permeability of the bedrock in the area.

The Site is **not located** in or adjacent to the following:

- Any Drinking Water Protected Area for Groundwater,
- Any Source Protection Zone for Groundwater or Surface Water,
- Any Drinking Water Safeguard Area for Surface Water (*a statutory designation for drinking water abstraction areas, distinct from a Drinking Water Safeguard Zone*),
- Any Sites of Special Scientific Interest.

Groundwater Risk Assessment

Based on the environmental setting and the proposed workshop plans, the risk posed and measures to protect the local groundwater environment can be assessed and demonstrated during both the construction and operational phases of development.

The method of risk assessment during each development phase in Table 1 (overleaf) outlines uses the Source, Pathway, Receptor (SPR) model whereby each is identified and linkages are assessed from very low risk to high risk to the receiving groundwater environment.

Table 1. Groundwater Risk Assessment (Source-Pathway-Receptor Model)

Phase	Source	Pathway	Receptor	Time Period	Risk Summary
Existing	None	Concrete - Made Ground - Insitu Clay	Groundwater in Lynch Hill Gravels	Not applicable	No risk: *No source term is present*
Construction	Construction Activities	Made Ground and Insitu Clay		Approximately 6 months	Low risk: *Short time period for constructional risk, Insitu clay left above gravels*
Operational	Waste Operations	Concrete / Building Structure - Made Ground - Insitu Clay		Operational life period	Very low risk: *Workshop roof and concrete hardstanding redirecting run-off*

Existing Phase

Currently, the area to be used for the proposed workshop hosts a mixed use area underlain by 0.5m of concrete hardstanding. The current land use does not represent any source of groundwater contamination and, with the concrete hardstanding acting to prevent a pathway to the underlying Lynch Hill Gravels, no risk is presented to the groundwater environment.

Construction Phase

In the construction phase, concrete hardstanding, where it is required, will be removed with an excavation planned to a maximum of 1m depth. During this period, incidental rainfall will be able to percolate into the unsaturated zone due to the lack of concrete however, this phase is short term and localised to the area of the footings of the new building.

The workshop foundations are to be 400mm concrete, 200-300mm Type 1 granular aggregate, and 200-300mm of similar Type 1 granular aggregate and compacted material. No deeper pilings or foundations are planned in the construction of the workshop. As the groundwater table is greater than 1m bgl, the direct contact between the excavation and foundations with the saturated zone is unlikely, restricting any linkage (or direct discharge) between the water passing through the construction area and the underlying groundwater environment.

Operational Phase

Once construction is complete and operations of the workshop are ongoing, both the roof of the workshop and the concrete hardstanding will prevent migration of surface water run-off to the groundwater environment, with any incidental rainfall and surface water migrating to surface drains.

Summary

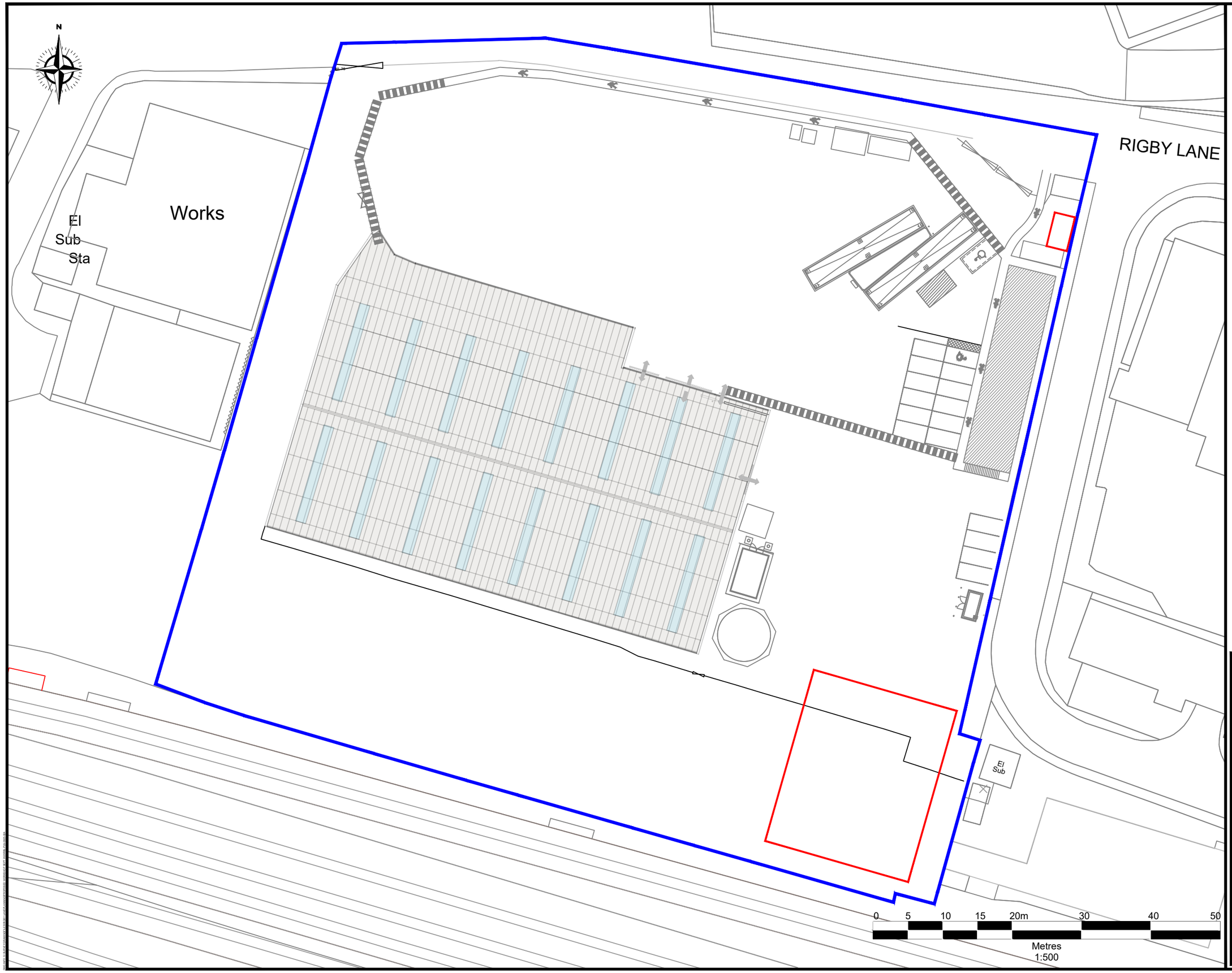
The proposed Hayes WTS Workshop is located in a Drinking Water Safeguard Zone for Surface Water and is therefore subject to Hillingdon Local Plan Policy DMEI 11. This policy requires that the developer must assess any risk to water resources and demonstrate that these would be protected throughout the construction and operational phases of development.

This Technical Note has:

- summarised the geological and hydrogeological setting of the site,
- confirmed that the site only lies within a Drinking Water Safeguard Zone for Surface Water,
- assessed the risk to the groundwater environment from the proposed Hayes WTS Workshop,
- outlined the protective measures and risk based safeguarding of the groundwater environment during the construction and operational phases of the Site.

The proposed Hayes WTS Workshop presents a low to very low risk to the local water environment (that being groundwater beneath the site) and no discernible or quantifiable risk to any surface water feature within 1km of the site boundary. It is therefore assessed that the proposed development complies with the requirements of the Hillingdon Local Plan Policy DMEI 11 for protecting the local water environment.

Appendix A. Proposed Workshop Drawings



Notes

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Land Under Applicants Control

Red Line Application Boundary

Rev	subject	date
A	Redline Boundary Amended	Sept 2025

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Site

Rigby Lane, Hayes
Vehicle Workshop

Title

Existing Site Layout

Scale

1:500 @ A3

Date

September 2025

Drawing Ref

Rbl-PLN-0925-02a

Drawn by

RB

Checked by

EC

N

RIGBY LANE

Works

El Sub Sta

CYCLE SHELTER FOR 6No. CYCLES

PV Solar Panel Arrangement

El Sub

0 5 10 15 20m 30 40 50

Metres
1:500

Notes

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Land Under Applicants Control

Red Line Application Boundary

Rev	subject	date
B	PV Solar Panel Added	Oct 2025
A	Redline Boundary Amended	Sept 2025

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Site

Rigby Lane, Hayes
Vehicle Workshop

Title

Proposed Site Layout

Scale

1:500 @ A3

Date

September 2025

Drawing Ref

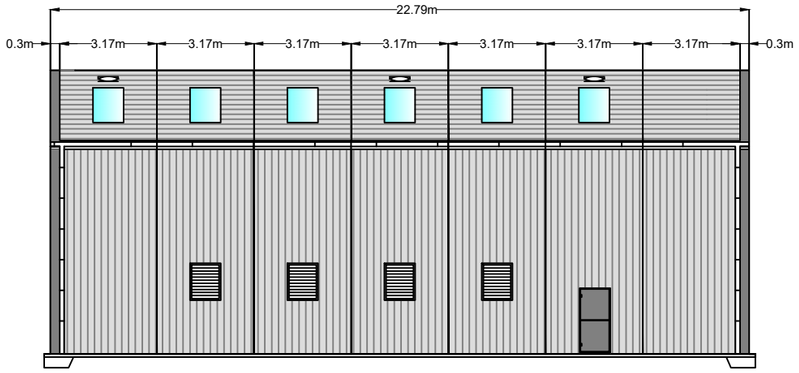
Rbl-PLN-0925-03b

Drawn by

RB

Checked by

EC



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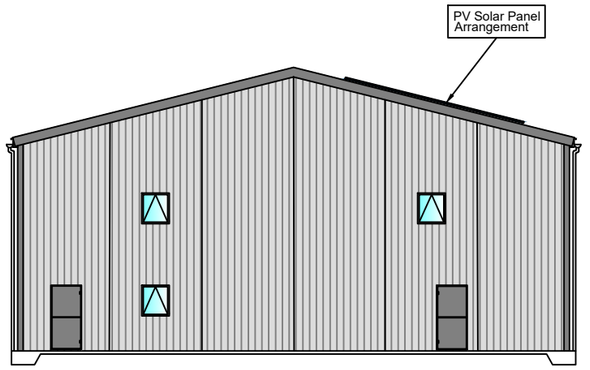
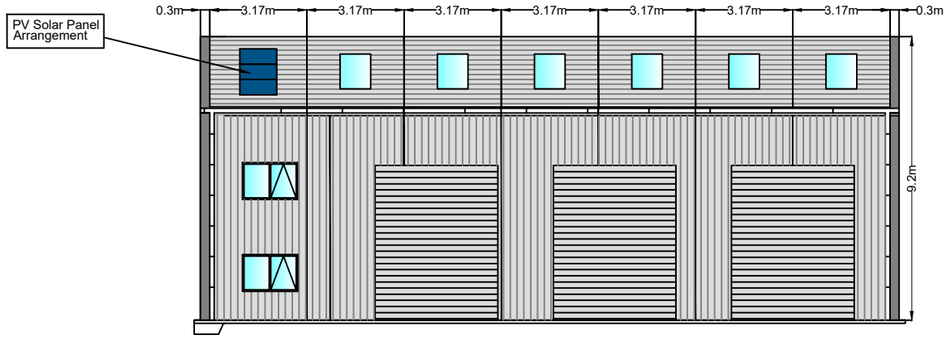
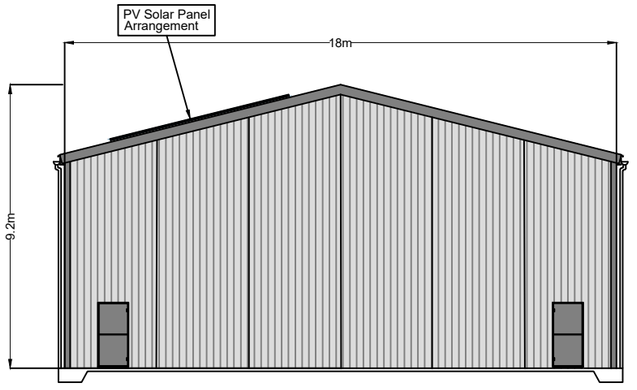


LEFT ELEVATION



FRONT ELEVATION



RIGHT ELEVATION

0 1 2 3 4m 6 8 10

Metres
1:100

Notes

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Rev	subject	date
A	PV Solar Panel Added	Oct 2025

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Site

Rigby Lane, Hayes
Vehicle Workshop

Title

Proposed Workshop Elevations

Scale

1:100 @ A3

Date

September 2025

Drawing Ref

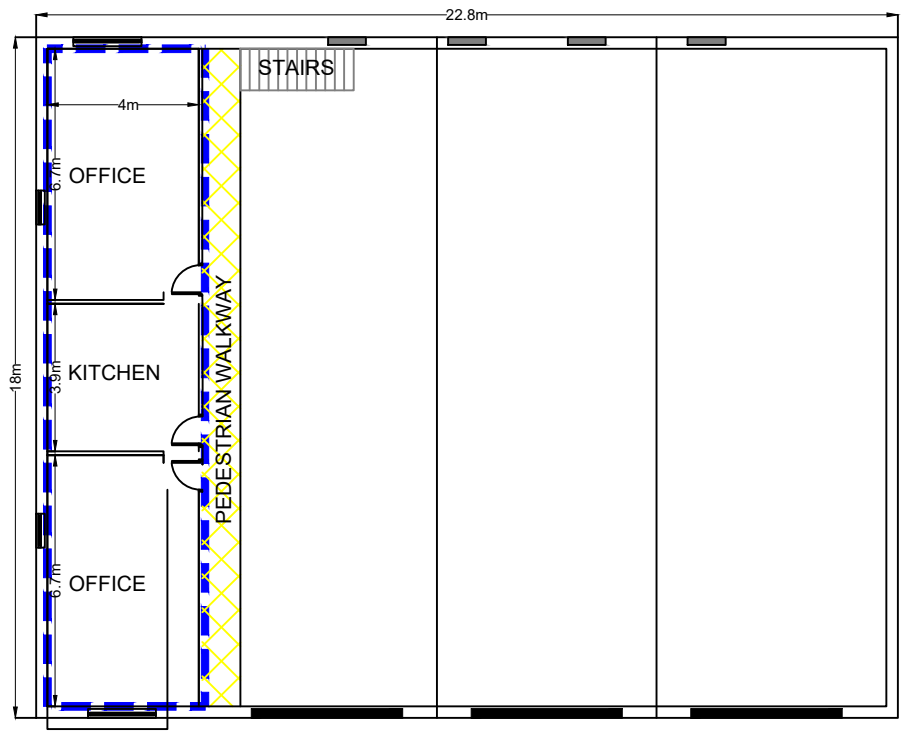
Rbl-PLN-0925-04a

Drawn by

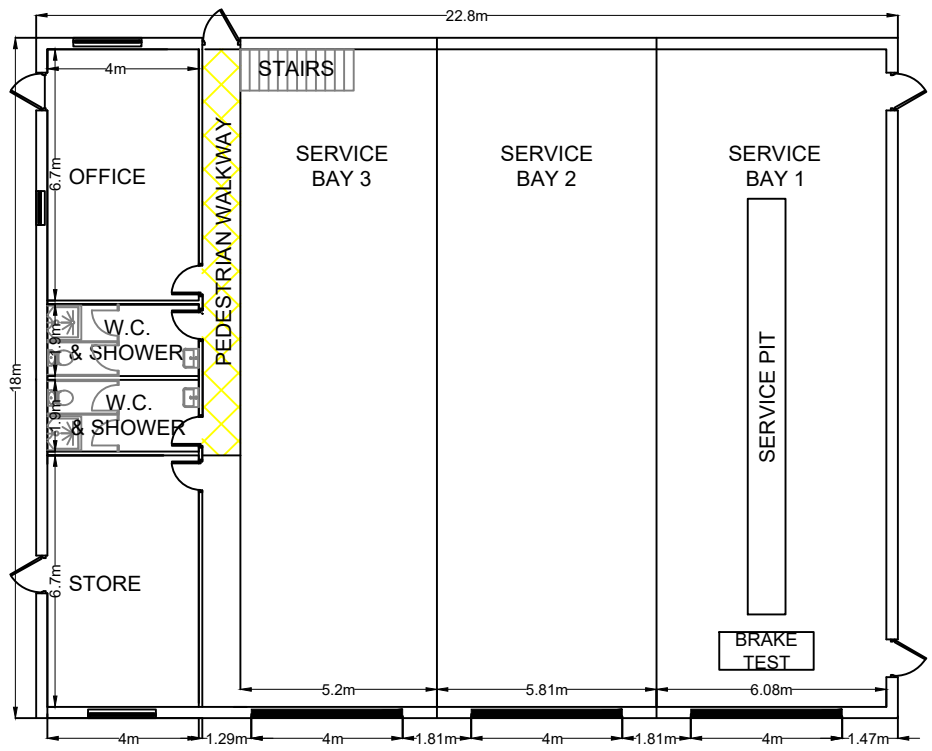
RB

Checked by

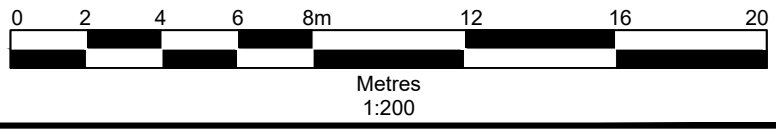
SS



MEZZANINE



GROUND FLOOR



Notes

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Key:

Upper Mezzanine

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Site: Rigby Lane, Hayes Vehicle Workshop

Title: Proposed Floor Layouts

Scale: 1:200 @ A3

Date: September 2025

Drawing Ref: Rbl-PLN-0925-05a

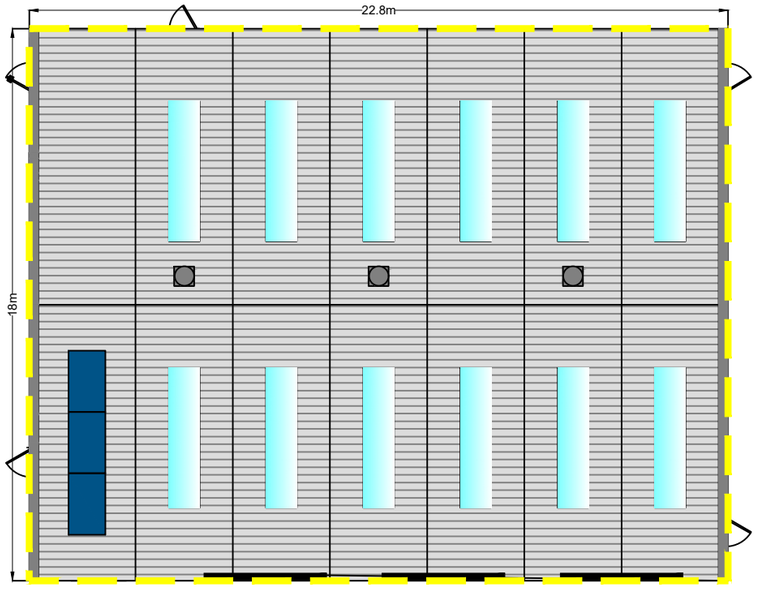
Drawn by: RB

Checked by: SS

Rev	subject	date

PV Solar Panel Arrangement
- Minimum Of 3no. Panels.

(Extent Of Yellow Dashed Line To Proposed Roof Plan Indicates Extent Of Potential Solar Panel Coverage Installed To Roof. Extent & Configuration To Be Confirmed During Detailed Design).



0 2 4 6 8m 12 16 20

Metres
1:200

Notes

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Rev	subject	date
A	PV Solar Panel Added	Oct 2025

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Site
Rigby Lane, Hayes
Vehicle Workshop

Title
Proposed Workshop Roof Plan

Scale
1:200 @ A3

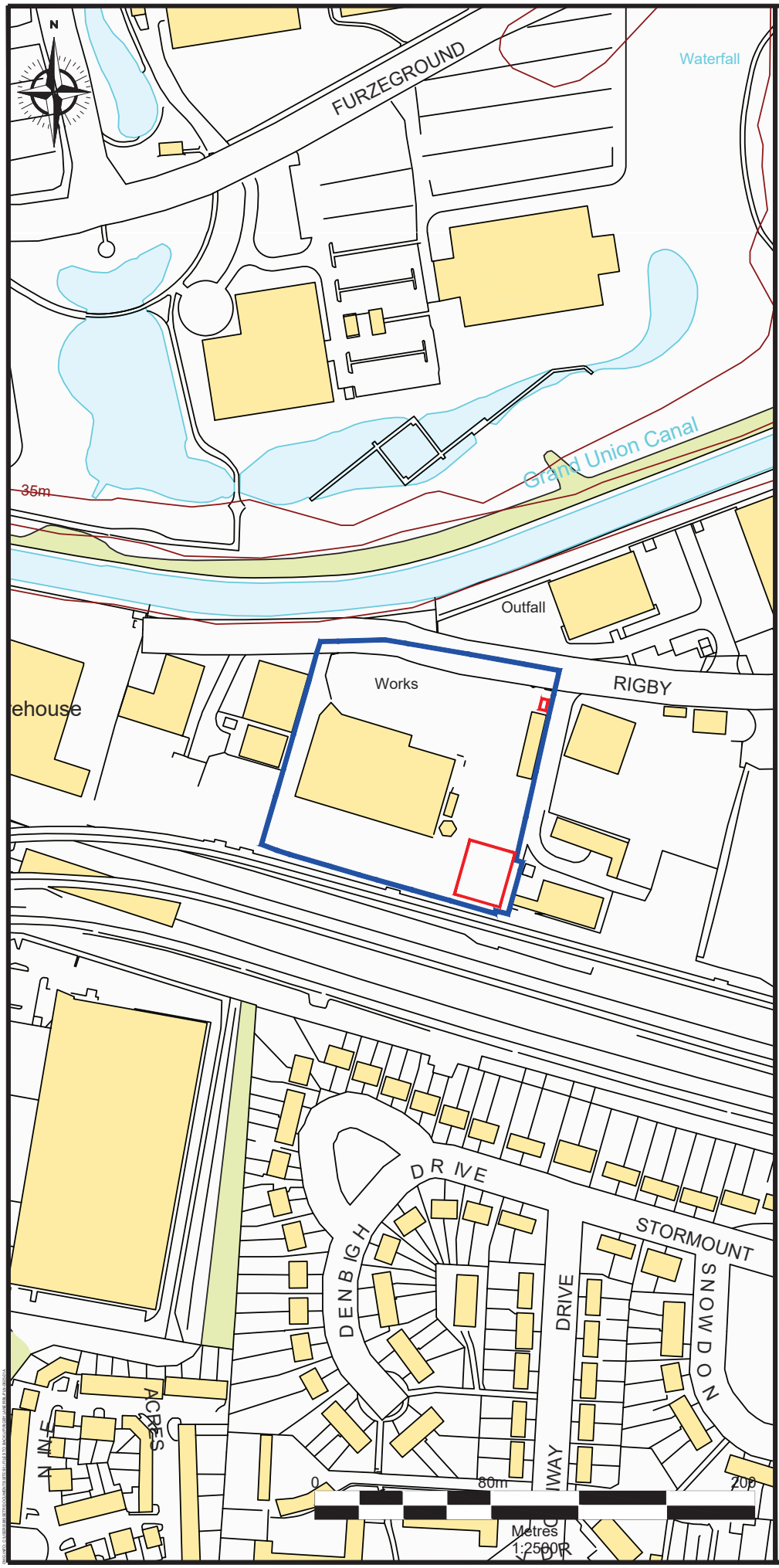
Date
September 2025

Drawing Ref
Rbl-PLN-0925-06a

Drawn by
RB

Checked by
SS

Appendix B. Site Location Plan



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Site: Rigby Lane, Hayes Vehicle Workshop

Title: Site Location Plan

Scale: 1:2500 @ A4

Date: September 2025

Drawing Ref: Rbl-PLN-0925-01a

Drawn by: RB

Checked by: EC