



Noise Impact Assessment

Land on Gorton Road, Manchester M11 2DZ

World Metal Recycling Ltd

07 June 2024

Project Information

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2. Noise Regulations, Guidance & Standards

This section summarises all relevant legislation, policy, statutory and non-statutory guidelines and standards relevant to the proposed development. Furthermore, the latest local planning policy guidance specifically applicable to the proposed development has been reviewed.

2.1 The 'National Planning Policy Framework (NPPF)

The updated 2023 version of the 'National Planning Policy Framework (NPPF)'¹ contains information and general guidance to Local Authorities in relation to considering and taking into account noise. The National Planning Policy Framework (NPPF) guidance reinforces that noise should be taken into account when considering planning policies and decisions. Some of the guidance contained in the 'National Planning Policy Framework (NPPF)' includes the following:

- Paragraph 180e: "...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability..."
- Paragraph 191a,b: "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:
 - (a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life...
 - (b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;..."
- Paragraph 193: Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues, and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

In conjunction with the 'National Planning Policy Framework (NPPF)', 'The Noise Policy Statement for England (NPSE)'², dated March 2010, states the following regarding a long-term vision of government noise policy:

"Noise Policy Statement for England Aims:

- *The first aim of the NPSE:*
Avoid significant adverse impacts on health and quality of life from environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.
- *The second aim of the NPSE:*
Mitigate and minimize adverse impacts on health and quality of life from environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development.

¹ The National Planning Policy Framework (2023) <https://www.gov.uk/guidance/national-planning-policy-framework>

² Noise Policy Statement for England (NPSE) <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

- **The third aim of the NPSE:**

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour, and neighbourhood noise within the context of Government policy on sustainable development."

In terms of the NPSE, the impact of noise can be categorised by the following terms:

- **NOEL** – No Observed Effect Level – The level where no effect can be detected
- **LOAEL** – Lowest Observed Adverse Effect Level – The level where adverse effects on health and quality of life can be detected
- **SOAEL** – Significant Observed Adverse Effect Level – The level where significant adverse effects on health and quality of life may occur.

The NPSE further states that:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors, and at different times."

No specific guidance is detailed or given in the 'National Planning Policy Framework (NPPF)', or 'The Noise Policy Statement for England (NPSE)' in terms of acceptable acoustic criteria/noise criteria in order to achieve the 'NOEL, LOAEL, or SOAEL'. Therefore, it is considered necessary to refer to alternate national guidance, preferably standardised or regulated such as an appropriate British Standard (BS), or in the absence of this, alternate World Health Organisation (WHO) guidelines, etc.

The British Standard 8233: Sound Insulation and Noise Reduction for Buildings/Code of Practice BS 8233: Sound Insulation and Noise Reduction for Buildings/Code of Practice states that for different spaces, there might be a range of noise levels that are considered acceptable.

2.2 **BS4142:2014+A1:2019; Methods for rating and assessing industrial and commercial sound**

In terms of industrial/commercial development, guidance is set out in British Standard BS4142:2014+A1:2019, 'Methods for rating and assessing industrial and commercial sound'. This standard requires the noise from the process/equipment (in $L_{Aeq,T}$) to be compared with the background sound level ($L_{A90,T}$) in conjunction with the new noise source.

BS:4142:2014+A1:2019 assesses potential significant effect by comparing the source's rating level (e.g. extractor duct vent noise) with the measured background noise level ($L_{A90,T}$) outdoors at the residential receptor. The standard provides penalties (correction factor) for acoustic features for instance bangs or tonal qualities that can increase the likelihood of noise complaints and in these cases, the standard requires a correction to be added to the specific noise level. The specific sound level along with the correction factor is referred to as the 'rating level'. The rating level is then compared with the background level ($L_{A90,T}$). BS 4142 advocates the use of the $L_{Aeq,T}$ parameter - a level, which is directly measurable or predictable and termed the Specific Sound Level.

BS:4142:2014+A1:2019 states that if the rating noise level exceeds the L_{A90} background sound level by around +10dB or more, then it is likely that the resultant noise may have a significant adverse impact, a difference of around +5 dB over the background sound level is likely to have an adverse impact, and where the rating level does not exceed the background sound level it is an indication that the resultant noise is likely to have a low adverse impact.

BS 4142:2014+A1:2019 provides a method for assessing whether an industrial or commercial sound source (e.g. fixed mechanical plant) is likely to cause a disturbance to persons living near to the sound source.

The standard considers three main acoustic features:

- **Tonality:** Defined as more sound in the 1/3 octave band than those nearby 1/3 octave bands or more sound in a given frequency than in those nearby frequencies. The

tonality feature correction +6dB and can be applied using subjective method or an objective method using 1/3 octave bands.

- **Impulsivity:** defined as sound that increases by a rate of at least 10dB per second, regardless of its duration. The impulsivity feature correction range from 0-9 dB and can be applied using a subjective method or an objective method using a sound level meter capable of sampling sound at either once every 0.01s interval or once every 0.025s interval.
- **Intermittency:** Defined as sound that can be identified as being on/off during the measurement period in which case the correction factor that is applied to the specific sound source (e.g. fume extraction system) is +3 dB.

The BS:4142:2014+A1:2019 standard also provides the methodology for measuring the on times of the equipment involved and specifies how measurements should be taken for continuous, cyclic and intermittent sound sources.

The result of the above numerical assessment is termed the 'initial estimate of the impact' as in some cases it's necessary to take account of the context. In such cases the assessment result is modified taking account of all pertinent factors such as the absolute level of sound, the character and level of the residual sound and sensitivity of the receptor.

2.3 Manchester City Council Planning and Noise - Technical Guidance

The Manchester City Council's Planning and Noise - Technical Guidance (October 2022) contains requirements for a variety of developments in relation to noise emissions and control.

Section 3.7.1.5 Industrial/Commercial Developments highlights the main noise requirements for industrial and commercial developments:

'The development should be designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.'

A similar requirement is set out in relation to noise levels emitting from externally mounted plant equipment:

'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location'.

Consultation was undertaken with Manchester City Council regarding the noise survey scoping and the assessment methodology. The council mentioned the need to for vehicle movements and externally mounted plant equipment to be assessed against their requirements within the Planning and Noise – Technical Guidance document.

3. Noise Survey

3.1 Overview

This section provides the details of the methodological approach taken to measure the baseline noise levels at the development site. It should be noted that as there were no receptors within 200m from the site, measurements at the sensitive receptors were not undertaken to determine the prevailing noise levels.

Establishing the current acoustic environment was achieved by monitoring of noise levels at the site and where applicable using the key noise indicators namely $L_{Aeq,T}$ and $L_{A90,T}$, as described in Appendix A.

3.2 Noise Monitoring Locations

The noise monitoring survey was carried out within the development site area, as indicated in Figure 3.1. As there were no activities within the site, the measured background noise levels were deemed to be representative of the background noise levels that would be experienced in the general neighbourhood by the other commercial developments nearby to the development site.

It should be noted that the background measurement was not undertaken at the closest residential receptor. This was due to the fact that the background noise levels being experienced by the residential receptors would be higher due to the A635 located beside the receptors. Therefore, a lower background level measured on-site would allow for a worst-case scenario assessment.

All measurements were taken in accordance with the requirements of BS7445-1:2003 'Description and Measurement of Environmental Noise Part 1 - Guide to Quantities and procedures' and BS7445-2:1991 'Description and Measurement of Environmental Noise Part 2 - Guide to the Acquisition of Data Pertinent to Land Use'. Since the noise monitor's microphone was located in a non-restricted space, free-field acoustic conditions were achieved.



Figure 3.1 Noise Monitoring Location



Figure 3.2 On-site Noise Monitoring - Microphone Located 1.5m above Ground Level

3.3 Noise Survey Periods

A 1-hour on-site attended noise monitoring was carried out to determine the prevailing background and ambient noise levels. Details of the survey period have been tabulated below.

Table 3.3 Noise Survey Periods

Start Date	Start Time	End Date	End Time
29/04/2024	14:09	29/04/2024	15:09

3.4 Weather Conditions and Observations

The following weather conditions were recorded:

- Wind speed(s) and direction(s):
 - Average wind speed of 0.4 m/s, north-west direction
- Presence of conditions likely to lead to temperature inversion:
 - Cloud cover, calm day
- Precipitation:
 - None
- Fog:
 - None
- Wet ground:
 - None
- Frozen ground or snow coverage:
 - None

- Temperature:
 - 18 Degrees Celsius
- Cloud cover:
 - Yes

3.5 Details of Noise Monitoring Equipment

The details of the equipment used for all noise monitoring have been tabulated below. The sound level meter used for this survey was a Class 1 device which has been laboratory calibrated ⁽³⁾, as well as field calibrated before and after the surveys (no calibration drift was recorded).

All measurements were undertaken at 1/1 Octave Bands and then converted to A-weighted and logarithmically summed up to provide the single-figure sound levels.

Equipment	Serial Number
BSWA 308 Class 1 Sound Level Meter	570134
BSWA CA111 Class 1 Calibrator (UKAS)	550282

Table 3.4 Noise Equipment Details

³ Please note that, if required, calibration certificates can be made available upon request.

4. Survey Results

4.1 Baseline Noise Levels

Measurements were obtained in 1-second intervals. The results have been summarised below in Table 4.1 for the daytime values.

Table 4.1 Background Noise Survey Results

Noise Parameters	Measured Noise Level	Commentary
Ambient/Residual Sound Level $L_{Aeq,1hr}$	53.6dB	Measured within the proposed development site, was deemed to be representative of the ambient and background sound at sensitive receptors
Background Sound Level $L_{A90,1hr}$	47.3dB	

Baseline sound levels were monitored during the daytime only as the proposed development will not operate during night-time as per the times provided below by the client:

- Monday to Friday – 08:30 to 18:00
- Saturday and Sunday – reduced hours, yet to be confirmed but will be in operation during day-time hours only.

It should be noted that the baseline sound levels were measured as Z-weighted (LIN) and were then converted to A-weighted as part of the analysis.

As there are no activities currently being undertaken at the site, the measured ambient sound level can be considered to be the residual sound level for the purposes of BS4142.

5. Noise Impact Assessment – BS4142

It should be noted that the proposed development does not include any plant equipment as the building design relies upon passive ventilation. Therefore, the assessment will consider the sound levels during the daytime from the number of proposed visiting vehicles within the site (entering/existing), as well as any potential vehicles such as forklifts and trolleys that might be used as part of the proposed development. The 'Transport Statement' undertaken by Aval Consulting Group Ltd includes the trip generation to/from the proposed development. The trip generation concluded that the peak hours of the development would be between 08:00hrs to 09:00hrs, with 9 vehicles entering the site and 5 vehicles exiting the site, totalling 14 vehicles during the peak hour. The types of vehicles are split as follows:

- 6no. cars arriving and 2no. cars departing;
- 2no. LGVs arriving and 1no. LGV departing; and
- 1no. OGVs arriving and 2no. OGVs departing

Table 5.1 shows the typical Sound Emission Levels (SEL) from vehicles travelling at low speed, as well as SELs of vehicles turning on and leaving the site and vehicle doors being slammed open/shut. The source of the SEL data has been taken from noise.co.uk (report reference 15657-1 Car Park).

Table 5.1 Typical Noise Levels of Various Transport Sources

Noise Source	Height of Source (m)	Single-Noise Event, L_{Ax} (dB) measured at 10m
Vehicle Passing by	0.5	67.0
Vehicle Ignition and Pull Out	0.5	72.0
Vehicle door slamming	0.5	64.0

The following assumptions have been made in regard to the use of vehicle door slamming:

- The number of vehicle door slamming events have been predicted based on the total number of vehicles entering/exiting during 8am to 9am where customers may open/close doors 6 times per visit on average when loading/unloading. This is considered a worst-case scenario as not all visits will involve loading/unloading a full vehicle.

Considering the number of trip generations and the noise levels of various events, Table 5.2 shows the rating level of each event when considering the number of vehicles entering and exiting the site in relation to the nearest residential receptor located 250m north of the site.

Table 5.2 Noise Source Rated Levels within the Site

Noise Source	SEL dB(A)	Measurement distance (m)	Total Number of Events (N, peak hour)	Rating Level $L_{Aeq,60mins} = SEL - 10\log(T) + 10\log(N)$	L_{Aeq} Rating level at Nearest Residential Receptor (at 250m)
Vehicle Passing by	67.0	10.0	14	42.9	14.9
Vehicle Ignition and Pull Out	72.0	10.0	14	47.9	19.9
Vehicle door slamming	64.0	10.0	84	47.7	19.7
Cumulative L_{Aeq} Rating Level				51.5	23.5

Table 5.3 shows the overall impact at the nearest residential receptor.

Table 5.3 Summary of Overall Impact at Adjacent Development

Results	Sound Pressure Levels	Relevant clause within BS4142:2014	Commentary
Predicted L_{Aeq} Cumulative Specific Sound Level of all events within the site	$L_{Aeq} = 52\text{dB}$		Cumulative sound levels taken from Table 5.2
Measured Background sound level	$L_{A90,1hr} = 47\text{ dB}$	8.1.3 8.3	Measured in the middle of site, no existing commercial operations at the site. Background levels at the nearest residential receptor would be higher due to the A635.
Assessment made during the daytime, so reference time interval is 1 h		7.2	
Specific sound level at the receptor	$L_{Aeq,1hr} = 24\text{ dB}$	7.3.4 7.3.5	Implementation of Distance Correction Factor formula
Acoustic feature correction	+6 dB	9.2	+3dB for Intermittency due to frequent stop and start nature of vehicles and equipment during operations, +3dB for impulsivity for sudden increase in sound due to vehicle doors slamming
Rating level	$(24 + 6)\text{ dB} = 30\text{ dB}$	9.2	
Restricted Background sound level	$L_{A90(60min)} = 42\text{ dB}$	8	5dB below background level requirements as per the council's planning guidance [(47 – 5) dB]
Excess of rating over background sound level	$(30 - 42)\text{ dB} = -12\text{ dB}$	11	
Assessment indicates likelihood of no impact		11	
Uncertainty of the assessment	Not significant	10	The nearest residential receptor is located beside an A road (A635), therefore background levels in reality would be higher.

5.1 Discussion and Uncertainty

Section 10.2 of the BS4142 provides information on the uncertainty of the measured values. As mentioned in Section 3.2, the background noise level was not measured at the nearest residential receptor, located 250m north of the development site.

The residential receptors are adjacent to the A635, which would produce much higher prevailing noise levels due to the high number of traffic counts. This can be evident when looking at online Noise Maps which provide indications on the background noise levels at and near the A635.

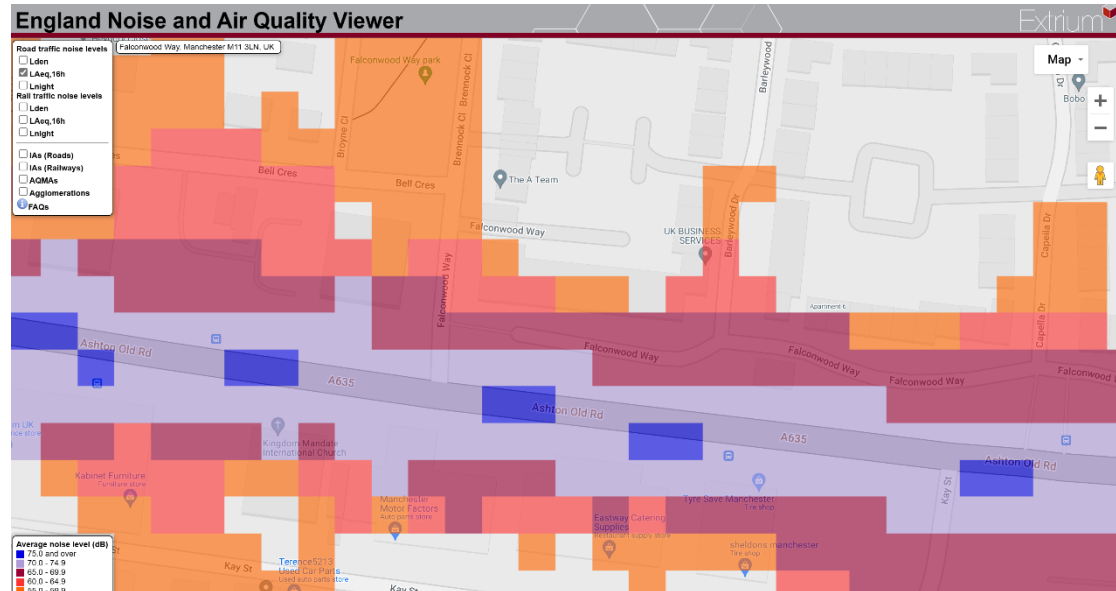


Figure 5.1 Modelled Background Noise Level at Residential Receptors due to Road Noise (Source: Extrium England Noise and Air Quality Viewer)

Figure 5.1 shows the prevailing $L_{Aeq,16hr}$ noise levels due to the A635. It can be seen that at the residential receptor, the prevailing noise levels due to the A635 is between 55dB and 59dB $L_{Aeq,16hr}$. This suggests the residential receptors experience higher prevailing noise levels compared to the ambient/residual noise levels measured at the development site.

For the purposes of this assessment, it was assumed the background noise levels measured within the proposed development site would be the same as the background noise levels experienced by the residential receptors. This provides an absolute worst-case scenario, when in reality the background levels experienced by the residential receptors are much higher.

Assuming the same background level, the distance between the development site and the nearest residential receptor reduces the overall rating level of the site to be more than 10dB below the L_{Aeq} noise levels at the residential receptor. This therefore results in the activities of the proposed development site being masked by noise levels being emitted from the A635 and therefore, the proposed development has no impact on to the nearest residential receptor.

6. Conclusions

An environmental noise survey has been undertaken for the proposed development at Land on Gorton Road, Manchester M11 2DZ, allowing the assessment of daytime levels likely to be experienced by the nearest residential receptor in line with the BS4142 assessment methodology.

It was identified that with all expected events such as traffic flows and the use of vehicle doors and ignition, the rating noise level of the site in relation to the nearest residential receptor (located 250m north of the site) is within the background level limits set out by Manchester City Council's Noise and Planning guidance.

The proposed development does not include any plant equipment of any kind and therefore, no assessment in regard to the plant equipment has been undertaken.

Therefore, the proposed development meets all relevant policies and requirements in regard to Noise.

Appendix A: Noise Indicators

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Reference Time Interval, T

The specified time interval over which an equivalent continuous A-weighted sound pressure level is determined.

$L_{Aeq,T}$

The A-weighted equivalent continuous sound level. This is the sound level of a notionally steady sound having the same energy as the fluctuating sound over a specified measurement period, T.

$L_{A10,T}$

The A-weighted sound level exceeded for 10% of the specified measurement period, T.

L_{Amax}

The highest short duration A-weighted sound level recorded during a noise event.

L_{A90}

The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 % of a given time interval, T.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible

6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.

Appendix B: Proposed Site Plans

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PLANNING

A REV INITIAL DRAFT ISSUE TO CLIENT FOR CONSIDERATION AMENDMENTS 23.12.23 DATE

PROJECT CLIENT World Metal Recycling Ltd

Commercial Development

LOCATION Gorton Rd Manchester, M11 2DZ

CONTENT Topographical Survey

DATE December 2023

SCALE 1 : 200

SHEET A2

ALL DIMENSIONS TO BE CHECKED ON SITE

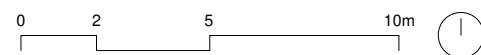
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Area Schedule		
Number	Name	Area

Unit 01		
Unit 01	GFL	157 m ²
Unit 01	FFL	157 m ²
Unit 02		
Unit 02	GFL	119 m ²
Unit 02	FFL	119 m ²
Unit 03		
Unit 03	GFL	106 m ²
Unit 03	FFL	106 m ²
Unit 04		
Unit 04	GFL	90 m ²
Unit 04	FFL	90 m ²
Unit 05		
Unit 05	GFL	93 m ²
Unit 05	FFL	93 m ²
Unit 06		
Unit 06	GFL	72 m ²
Unit 06	FFL	72 m ²
Unit 07		
Unit 07	GFL	55 m ²
Unit 07	FFL	55 m ²
Grand total		1385 m ²

PLANNING

B	UPDATE FOLLOWING LEVELS REVIEW	05.01.23
A	INITIAL DRAFT ISSUE TO CLIENT FOR CONSIDERATION	23.12.23
REV	AMENDMENTS	DATE

PROJECT CLIENT
World Metal Recycling Ltd

PROJECT
Commercial Development

LOCATION
Gorton Rd
Manchester, M11 2DZ

CONTENT
Site Layout

DATE
December 2023

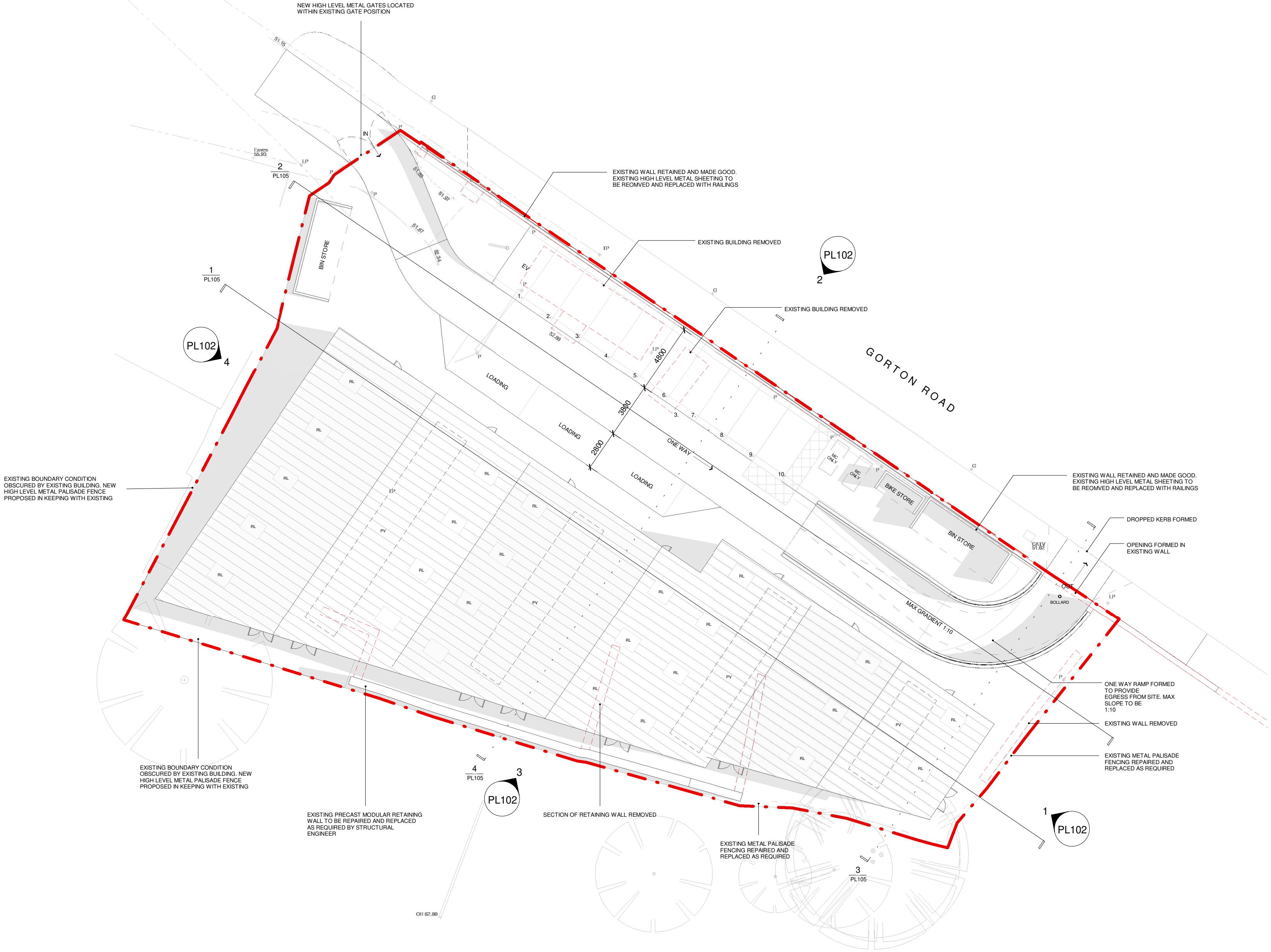
SCALE
1 : 200
SIZE
A2

ALL DIMENSIONS TO BE CHECKED ON SITE

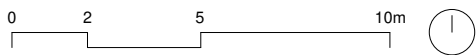
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ARCHITECTURE

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DRAWING
2434 PL101
REV
B



SITE LAYOUT
1 : 200



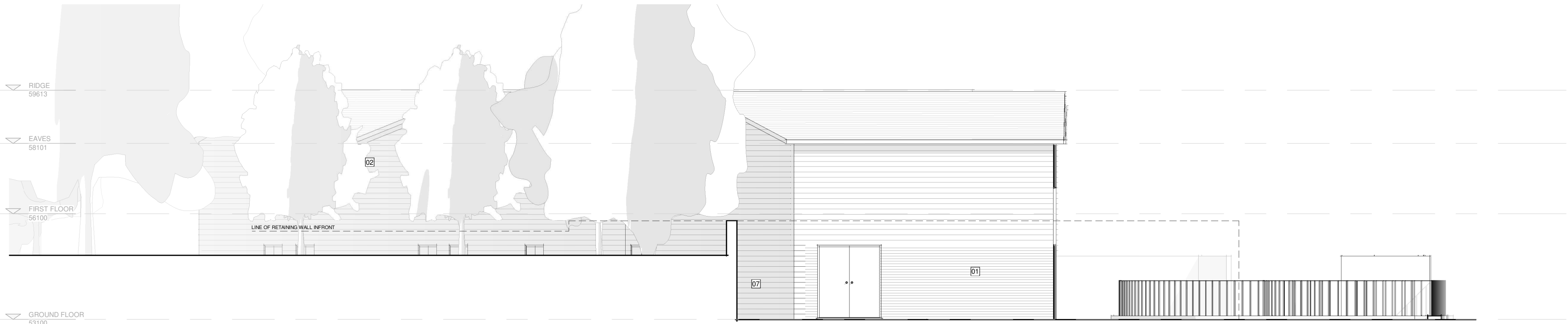
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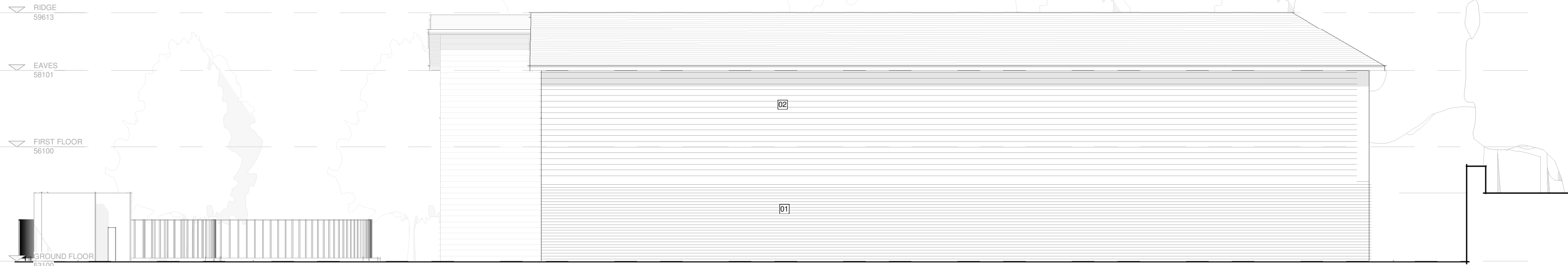
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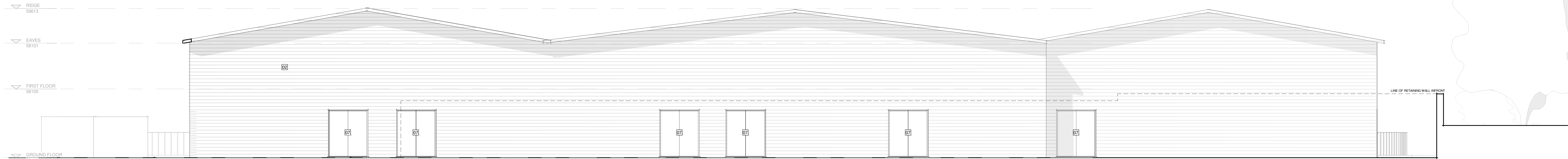
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EAST ELEVATION
1 : 100



WEST ELEVATION
1 : 100



SOUTH ELEVATION
1 : 100



NORTH ELEVATION
1 : 100



NORTH ELEVATION - STREET SCENE
1 : 100

Material Key

- 01 Brickwork Plymth col: red multi
- 02 Horizontal profiled sheeting col: light grey
- 03 Profiled roof sheeting col: light grey
- 04 Aluminium double glazed door col: RAL7016
- 05 Aluminium double glazed windows col: RAL7016
- 06 Roller shutter RAL7016
- 07 Fire escape RAL7001

0 2 5m

PLANNING

REVISIONS
REV. NO. DATE DESCRIPTION
1 01.01.23 UPDATE FOLLOWING LEVELS REVIEW
2 01.01.23 REV. NO. 100 TO CLIENT FOR CONSIDERATION
3 01.01.23 DATE

World Metal Recycling Ltd

Commercial Development

Gorton Rd

Manchester, M11 2DZ

Proposed Elevations

December 2023

1 : 100 A1

ALL DIMENSIONS TO BE CHECKED ON SITE

ATELIER TWO
ARCHITECTURE

01773 227771
www.ateliertwo.co.uk

2434 PL102 B

Area Schedule GFL		
Number	Name	Area
Unit 01		
Unit 01	GFL	157 m²
Unit 02		
Unit 02	GFL	119 m²
Unit 03		
Unit 03	GFL	106 m²
Unit 04		
Unit 04	GFL	90 m²
Unit 05		
Unit 05	GFL	93 m²
Unit 06		
Unit 06	GFL	72 m²
Unit 07		
Unit 07	GFL	55 m²
Grand total		693 m²

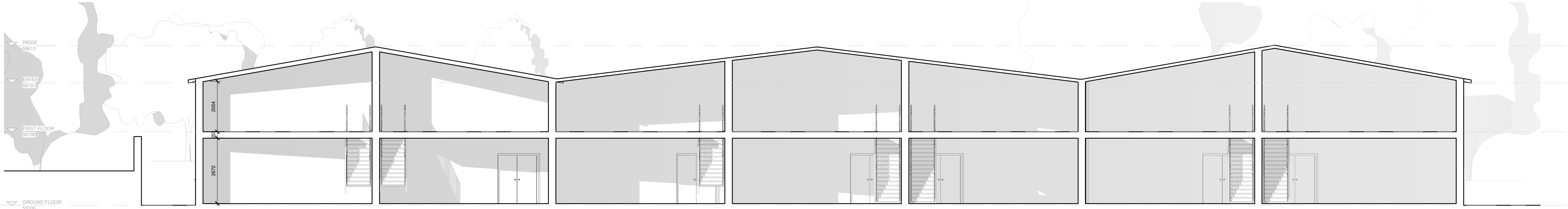
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OTHER INFORMATION MUST BE CHECKED IN WRITING TO THE ENGINEER

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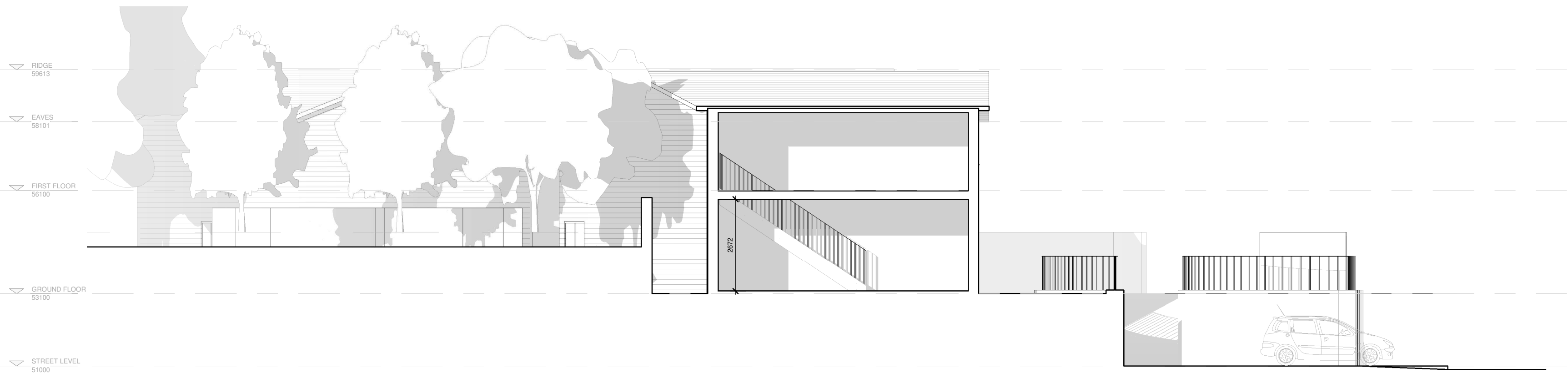
AREAS
ALL AREAS ARE APPROXIMATE AND SHOULD BE VERIFIED BY AN ILLUMINATED
DIMENSIONAL SURVEY OF THE BUILDING. ANY DISCREPANCY ON THESE
PROJECTIONS SHOULD BE USED AS A GUIDE TO THE PROPORTION AND
SCALES OF THE BUILDING. IN THE DESIGN DEVELOPMENT AND CONSTRUCTION
PHASES, EXISTING BUILDINGS MAY PRESENT ANCHORS IN RELATION TO
THE DIMENSIONS OF THE INFORMATION WHICH MAY ALSO AFFECT THE EXISTING
AREAS OR DIMENSIONS



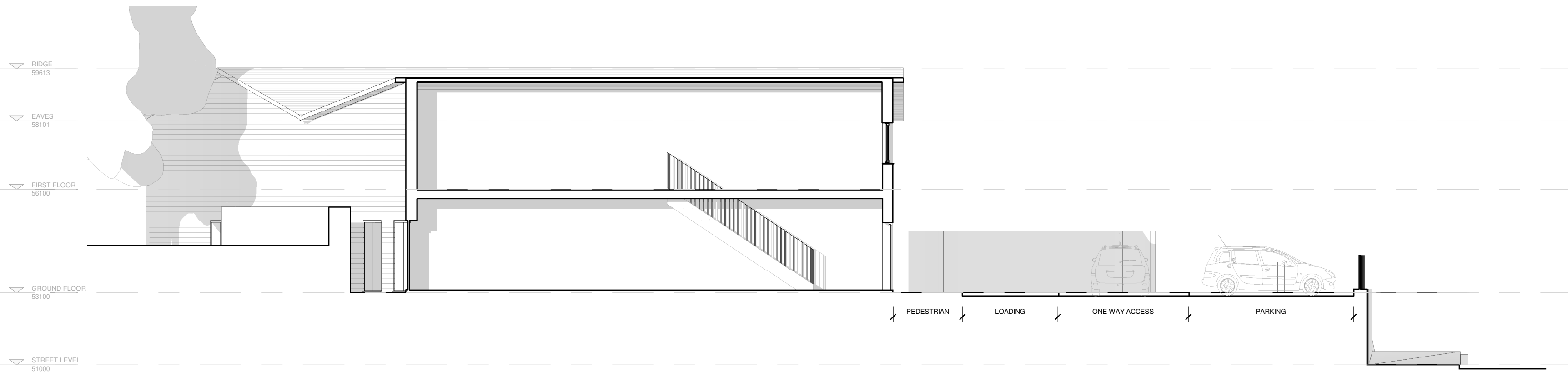
LONG SECTION 01
1 : 100



LONG SECTION 2
1 : 100



SHORT SECTION 3
1 : 100



SHORT SECTION 4
1 : 100

0 2 5m