



# Edmonson Park Site 5

## Noise and Vibration Impact Assessment

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## Document QA and Revisions

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# 1 INTRODUCTION

This Noise and Vibration Impact Assessment has been prepared in support of a Development Application (DA) made to Liverpool City Council for the proposed development at Edmondson Park Site 5. The application seeks to construct four (4) residential apartment buildings atop a carpark and residential podium to level 2.

In summary, this assessment shall address the following key considerations:

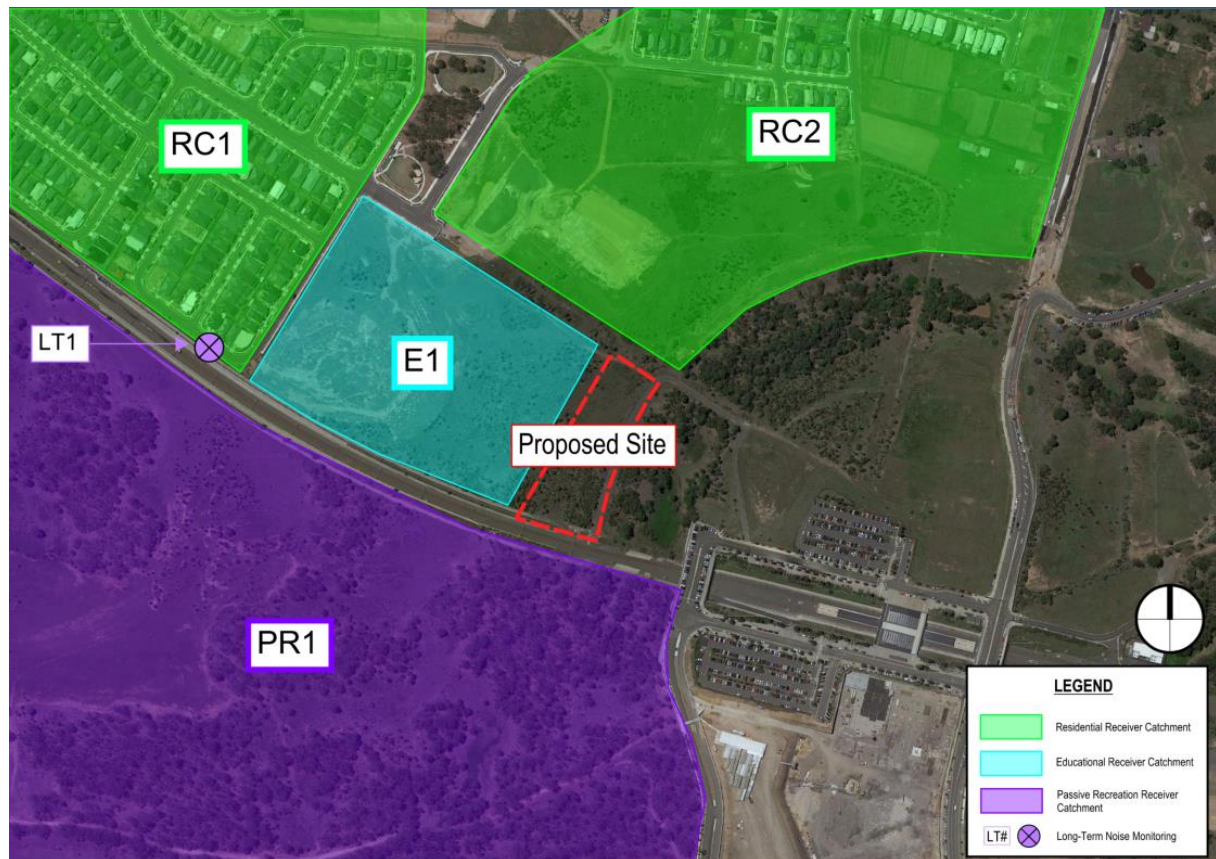
- Noise and vibration generated from the adjacent rail corridor to the south;
- Noise impacts of traffic on surrounding local roads generated by the proposed development; and
- Noise emissions from mechanical plant associated with the project building to surrounding noise-sensitive receivers.

## 2 PROJECT OVERVIEW

### 2.1 SITE DESCRIPTION

The location of the proposed development, noise monitoring and measurement positions, and the surrounding noise-sensitive receivers are shown in Figure 1. The noise-sensitive receivers have been delineated into receiver catchments (RCs) as noted in Figure 1, receiver catchments have been identified as comprising of general residential receivers.

Figure 1: Acoustic site plan identifying the surrounding noise-sensitive receivers and noise monitoring locations



### 2.2 SITE ACOUSTIC CONSIDERATIONS

Upon reviewing the design documentation prepared for the Development Application, the acoustic elements to consider for the proposed development are:

- Noise generated from the rail corridor adjacent to the development site
- Noise generated by vehicle movements from the development to surrounding noise-sensitive receivers
- Noise emissions from mechanical plant associated with the project building to surrounding noise-sensitive receivers.
- Noise emission from the communal outdoor areas located on level 2 podium

### 3 NOISE SURVEYS

#### 3.1 NOISE MONITORING – BACKGROUND NOISE

Background noise levels and subsequent Rating Background Noise Level (RBL) have been established in accordance with the Noise Policy for Industry 2017 using the results of the noise monitoring at location LT1. Noise monitoring were conducted between 18<sup>th</sup> May 2022 and 25<sup>th</sup> May 2022.

The noise monitoring results are presented in Table 1 and Table 2. Refer to Figure 2 for graphical noise monitoring data.

The description of time of day presented in Table 1 is outlined within the Noise Policy for Industry and described as follows:

- Day – the period from 7:00am to 6:00pm Monday to Saturday, 8am to 6pm on Sundays and public holidays
- Evening – the period from 6:00pm to 10:00pm
- Night – the period from 10:00pm to 7:00am

The local ambient noise environment is typical of a rural residential environment (as classified by the NPI).

The description of time of day presented in Table 2 as per the DoP's interim guideline is described as follows:

- Day – the period from 7:00am to 10:00pm
- Night – the period from 10:00pm to 7:00am

*Table 1: Unattended noise monitoring results*

LOCATION	MEASURED RATING BACKGROUND NOISE LEVELS- dB(A)		
	DAY	EVENING	NIGHT
LT1	41	40	38

*Table 2: Unattended noise monitoring results*

LOCATION	EQUIVALENT CONTINUOUS NOISE LEVEL – dB(A)	
	DAY $L_{Aeq, 15\text{hour}}$	NIGHT $L_{Aeq, 9\text{hour}}$
LT1	53	47

Edmondson Park Site 5

Wednesday 18 May 2022  
to  
Tuesday 24 May 2022

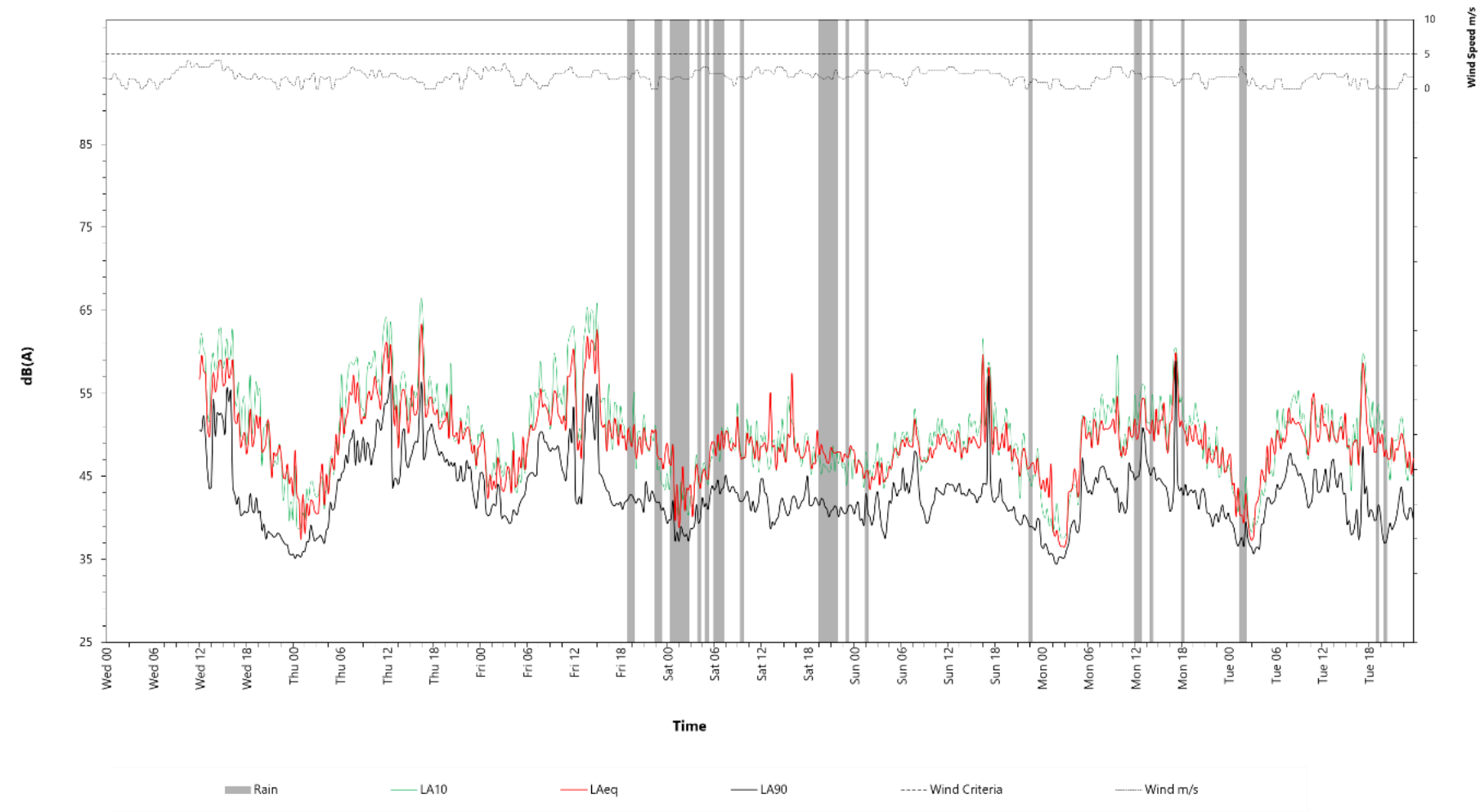


Figure 2: Long-term noise monitoring data graph



## 4 PROJECT NOISE AND VIBRATION CRITERIA

This section presents the regulatory requirements, and acoustic design criteria for the proposed development.

The acoustic, noise and vibration legislation, standards and guidelines applicable include:

- Campbelltown City Council's Development Control Plan for Edmondson Park South 2012 (DCP)
- NSW Government Department of Planning's document, Development Near Rail Corridors and Busy Roads – Interim Guideline, dated December 2008 (DoP Guideline)
- NSW EPA's document, NSW Road Noise Policy, dated March 2011 (RNP)
- NSW EPA's Noise Policy for Industry, dated October 2017 (NPI)
- NSW Department of Environment and Conservation document, Assessing Vibration: A Technical Guideline, dated February 2006 (AVTG)
- NSW State Environment Planning Policy (Infrastructure) 2021

### 4.1 LOCAL COUNCIL DEVELOPMENT CONTROL PLAN

The Edmondson Park South Development Control Plan (DCP) 2012 outlines the following acoustic requirements:

#### **4.3 Noise and Vibration**

*As parts of Edmondson Park South adjoin noise generators (i.e. rail corridors and motorway) it is important that new development considers the impact of this noise on the residential amenity for existing and future residents.*

#### **Objectives**

*1. To achieve an acceptable residential noise environment whilst maintaining well designed and attractive residential streetscapes.*

#### **Controls**

*1. Development in proximity to the rail corridor is to demonstrate consistency with the Infrastructure SEPP 2007 and 'Development Near Rail Corridors and Busy Roads - Interim Guideline'.*

#### **6.6 Residential Amenity, Solar Access and Privacy**

#### **Acoustic**

*10) Noise attenuation measures and double-glazed windows must be incorporated into all development along Campbelltown Road and Macdonald Road. A noise impact assessment may be required as part of the development application submission.*

*11) Acoustic protection may be required for dwellings adjacent to Hume Highway (M5 Motorway), unless other ameliorative measures are undertaken at subdivision stage.*

*12) The design of dwellings must minimise the opportunity for sound transmission through the building structure, with particular attention to protecting bedrooms and living areas.*

*13) In attached dwellings, bedrooms of one dwelling are not to share walls with living spaces or garages of adjoining dwellings, unless it is demonstrated that the shared walls and floors meet the noise transmission and insulation requirements of the Building Code of Australia.*

## 4.2 EXTERNAL NOISE EMISSIONS

### 4.2.1 NSW EPA Noise Policy for Industry (NPI) 2017 – Industrial Noise (Plant and Equipment)

In our experience in the area, The Liverpool City Council adopts the NSW EPA's Noise Policy for Industry (NPI) 2017 to assess the noise impacts of mechanical plant and equipment, as well as other industrial noise sources on the surrounding receiver catchments.

The NPI sets out a framework for the derivation of project noise trigger levels that are used to assess the potential impacts of noise from industry (and industrial noise sources) and indicate the noise level at which feasible and reasonable noise management measures should be considered.

This policy applies to noise sources from activities listed in Schedule 1 of the POEO Act and those regulated by the EPA. This includes noise sources from mechanical plant and equipment within the proposed redevelopment, for which this policy will be applied.

The project noise trigger level provides a benchmark for assessing a proposal, where if exceeded, indicates a potential noise impact on the community and so triggers a management response such as additional mitigation measures. The project noise trigger level is the lower (the more stringent) value of the project intrusiveness noise level and project amenity noise level determined in Sections 2.3 and 2.4 of the NPI, respectively.

#### Project Intrusiveness Noise Level

The intrusiveness of an industrial noise source may generally be considered acceptable if the level of noise from the source (in terms of  $L_{Aeq}$ ) measured over a 15-minute period does not exceed the background noise level by more than 5 dB when beyond a minimum threshold. The project intrusiveness noise level is only applicable to surrounding residential receivers.

To account for the temporal variation of background noise levels, the method outlined in Fact Sheet A of the NPI establishes a method in determining the Rating Background Noise Level (RBL) to be used in the assessment.

The intrusiveness noise level is determined as follows:

$$L_{Aeq,15min} \text{ (Intrusiveness Criteria)} = \text{Rating Background Noise Level (RBL)} + 5 \text{ dB(A)}$$

Where the RBLs established in accordance with Fact Sheet A are lower than the values presented in Table 3 for each assessment period, the values presented in Table 3 shall be used for that particular assessment period. These result in the minimum intrusiveness noise levels provided in Table 3.

*Table 3: Minimum assumed RBLs and project intrusiveness noise levels*

TIME OF DAY	MINIMUM ASSUMED RBL - dB(A)	MINIMUM PROJECT INTRUSIVENESS NOISE LEVELS - $L_{Aeq,15min}$ dB(A)
Day	35	40
Evening	30	35
Night	30	35

Table 4 provides the project intrusiveness noise levels applicable to each of the surrounding residential noise-sensitive receivers based on the measured background noise levels provided in Table 1.

*Table 4: Project intrusiveness noise level criteria for each residential receiver*

RECEIVER	TIME OF DAY	MEASURED RBL - dB(A)	PROJECT INTRUSIVENESS NOISE LEVELS - $L_{Aeq,15min}$ dB(A)
RC1 & RC2	Day	41	46
	Evening	40	45
	Night	38	43

### Project Amenity Noise Level

The recommended amenity noise levels represent the objective for total industrial noise at a receiver location, whereas the project amenity noise level represents the objective for noise from a single industrial development at a receiver location.

To ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows:

$$\text{Project Amenity Noise Level} = \text{Recommended Amenity Noise Level (see Table 5)} - 5 \text{ dB(A)}$$

The following exceptions to the above method to derive the project amenity noise level apply:

- In areas with high traffic noise levels. Where the level of transport noise, road traffic noise in particular is high enough to make noise from an industrial source inaudible, the project amenity noise level shall be set at 15 dB(A) below the measured  $L_{Aeq,period(traffic)}$  for the particular assessment period
- In proposed developments in major industrial clusters
- Where the resultant project amenity noise level is 10 dB(A) or more lower than the existing industrial noise level. In this case the project amenity noise levels can be set at 10 dB(A) below existing industrial noise levels if it can be demonstrated that existing industrial noise levels are unlikely to reduce over time
- Where cumulative industrial noise is not a necessary consideration because no other industries are present in the area, or likely to be introduced into the area in the future. In such cases the relevant amenity noise level is assigned as the project amenity noise level for the development

The recommended amenity noise level, project amenity noise level, and converted project amenity noise level for comparison with the intrusiveness criteria (from time of day period to 15-minute) is provided for each surrounding receiver catchment in Table 5.

*Table 5: Project amenity noise level criteria for each receiver catchment*

RECEIVER TYPE	TIME OF DAY	RECOMMENDED AMENITY NOISE LEVEL - $L_{Aeq,period}$ dB(A)	PROJECT AMENITY NOISE LEVEL - $L_{Aeq,period}$ dB(A)	PROJECT AMENITY NOISE LEVEL - $L_{Aeq,15min}$ dB(A)
Residential – Rural <sup>1</sup>	Day	50	45	48
	Evening	45	40	43
	Night	40	35	38
Passive Recreation	When in use	50	N/A	50
Educational	Noisiest 1-hour period when in use	35 (internal) 45 (external)	N/A	35 (internal) 45 (external)

**Note 1:** Rural residential as classified in Table 2.3 of the Noise Policy for Industry (NPI) 2017

### Sleep Disturbance and Maximum Noise Level Assessment

Where the proposed redevelopment night-time noise levels generated at a residential location exceed either:

- $L_{Aeq,15min}$  40 dB(A) or the prevailing RBL plus 5 dB(A), whichever is greater, and/or
- $L_{AFmax}$  52 dB(A) or the prevailing RBL plus 15 dB(A), whichever is greater,

a detailed maximum noise level event assessment should be undertaken.

### Corrections for Annoying Noise Characteristics – Noise Policy for Industry Fact Sheet C



Fact Sheet C contained within the Noise Policy for Industry outlines the correction factors to be applied to the source noise level at the receiver before comparison with the project noise trigger levels established within this report, to account for the additional annoyance caused by these modifying factors.

The modifying factor corrections should be applied having regard to:

- The contribution noise level from the premises when assessed/measured at a receiver location, and
- The nature of the noise source and its characteristics (as set out in Fact Sheet C)

Table C1 within Fact Sheet C sets out the corrections to be applied for any assessment in-line with the NPI. The corrections specified for tonal, intermittent and low-frequency noise are to be added to be added to the measured or predicted levels at the receiver before comparison with the project noise trigger levels. The adjustments for duration are to be applied to the criterion.

#### Project Noise Trigger Levels

Table 6 presents the project intrusiveness and project amenity noise levels for each period, and each receiver catchment, as well as the resultant project noise trigger levels (PNTLs) that shall be applied for any assessment of impacts of mechanical plant and equipment noise on the surrounding receiver catchments.

*Table 6: Project noise trigger levels (PNTL) to be applied to each surrounding receiver type*

RECEIVER TYPE	TIME OF DAY	PROJECT INTRUSIVENESS NOISE LEVEL - $L_{Aeq,15min}$ dB(A)	PROJECT AMENITY NOISE LEVEL - $L_{Aeq,15min}$ dB(A)	SLEEP DISTURBANCE NOISE LEVEL - dB(A)	PROJECT NOISE TRIGGER LEVEL - $L_{Aeq,15min}$ dB(A)
RC1 & RC2	Day	46	48	-	46
	Evening	45	43	-	43
	Night	43	38	43 $L_{Aeq, 15min}$ 53 $L_{AFmax}$	38
PR1	When in use	-	50	-	50
E1	Noisiest 1-hour period when in use	-	35 (internal) 45 (external)	-	35 (internal) 45 (external)

## 4.3 INTERNAL NOISE LEVELS

### 4.3.1 State Environment Planning Policy (Infrastructure) 2021

Clause 2.99 of the State Environment Planning Policy (Infrastructure) 2021, states:

#### 2.99 Impact of rail noise or vibration on non-rail development

- (1) *This section applies to development for any of the following purposes that is on land in or adjacent to a rail corridor and that the consent authority considers is likely to be adversely affected by rail noise or vibration—*
  - (a) *residential accommodation,*
  - (b) *a place of public worship,*
  - (c) *a hospital,*
  - (d) *an educational establishment or centre-based child care facility.*
- (2) *Before determining a development application for development to which this section applies, the consent authority must take into consideration any guidelines that are issued by the Secretary for the purposes of this section and published in the Gazette.*
- (3) *If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded—*
  - (a) *in any bedroom in the residential accommodation—35 dB(A) at any time between 10.00 pm and 7.00 am,*
  - (b) *anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.*

### 4.3.2 Development Near Rail Corridors and Busy Roads – Interim Guideline

The DoP's Development near Rail Corridors and Busy Roads – Interim Guideline governs the required maximum internal noise levels averaged over certain periods within bedrooms and living areas of apartments in the development. The guideline details the application of the State Environmental Planning Policy (SEPP) Infrastructure as provided in Section 4.3.1.

The DoP's Development near Rail Corridors and Busy Roads – Interim Guideline also recommends the following in relation to the assessment of ventilation by means of opened windows or doors:

*"If internal noise levels with windows or doors open exceed the criteria by more than 10dBA, the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia."*

Table 7 provides a summary of the criteria established in the DoP's Interim Guideline below.

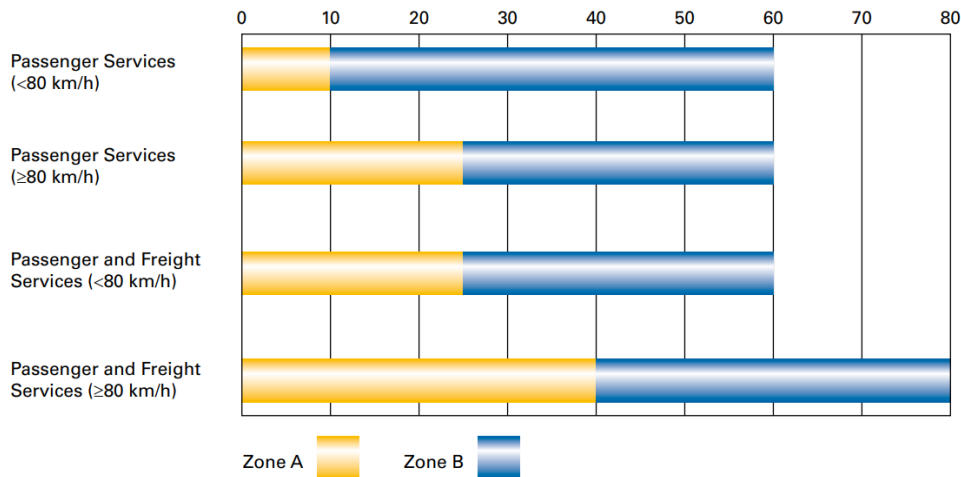
Table 7: Summary of DoP's Interim Guideline criteria for residential developments adjacent to rail corridors & busy roads

TYPE OF HABITABLE SPACE	APPLICABLE TIME PERIOD	INTERNAL NOISE LEVEL CRITERIA – WINDOWS/DOORS CLOSED	INTERNAL NOISE LEVEL CRITERIA – WINDOWS/DOORS OPEN
Sleeping areas (bedrooms)	10:00pm – 7:00am	35 dB(A) <sub>LAeq(9hour)</sub>	45 dB(A) <sub>LAeq(9hour)</sub>
Living rooms	At any time	40 dB(A) <sub>LAeq(15hour)</sub>	50 dB(A) <sub>LAeq(15hour)</sub>

## Rail Noise

Figure 3 has been extracted from the Interim Guideline, and provides a guide as to the level of assessment required when noise sensitive developments are located in the vicinity of existing rail lines. Zones A and B are indicative acoustic assessment zones where sensitive land-uses are likely to be adversely affected.

Figure 3: Acoustic assessment zones based on distance (m) of noise-sensitive development from operation track (not corridor)



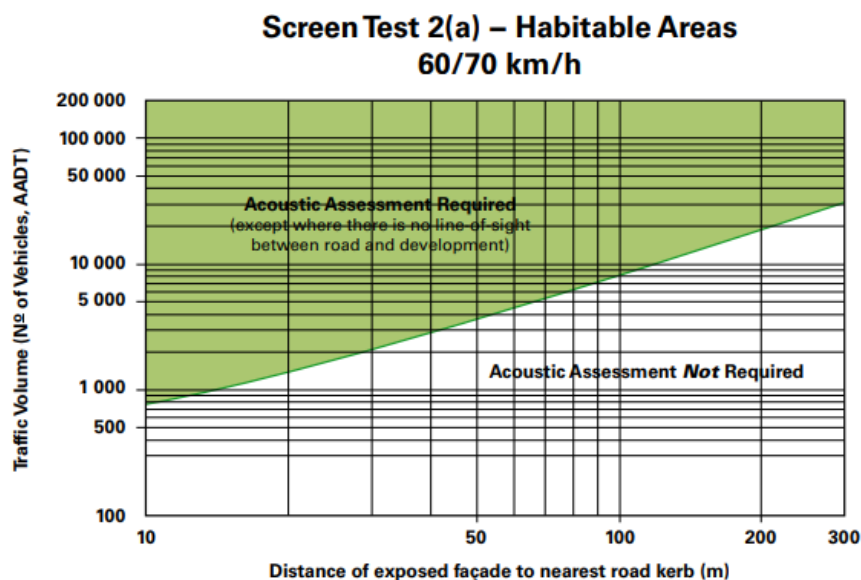
Given the proposed development boundary is located within 20 metres from the nearest rail corridor, an assessment of rail noise to the facades of the proposed development is required.

## Road Noise

Figure 4 has been extracted from the Interim Guideline and provides a screening test for noise sensitive developments that takes into account the volume of traffic and the distance between the proposed development and the busy road. Clause 2.119 of the State Environmental Planning Policy (Infrastructure) 2021, through which the Interim Guideline road noise criteria applies through, only applies for roads with an annual average daily traffic volume of more than 20,000 vehicles, or if the road is a freeway, tollway or transitway. The screen test has been conducted to establish whether or not an acoustic assessment is required.

If the façade of the development does not have direct line of sight to the busy road, an assessment is not required.

Figure 4: Screen tests for habitable areas of multiple dwellings (noting that any exposed facade is direct line-of-sight)



In this case, there are no major roads carrying more than 20,000 vehicles AADT adjacent to the site. As such, an acoustic assessment of the road noise emissions to the façade of the proposed development is not required.

## 4.4 GROUNDBORNE NOISE AND VIBRATION

Internal ground/structure borne noise and vibration levels to the proposal should be controlled to within the requirements of the NSW ISEPP and the NSW Assessing Vibration: a technical guideline 2006 (AVTG).

As per the AVTG, a detailed ground borne noise and vibration impact assessment of the existing railway corridor is required in accordance with the NSW ISEPP as the rail corridor is located within 20m of the site perimeter.

The ground-borne noise criteria applicable to the proposal is provided in Table 7.

Recommended vibration dose values for intermittent vibration as scheduled in the AVTG are summarised in Table 8.

*Table 8: Acceptable vibration dose values for intermittent vibration*

LOCATION	PREFERRED VALUES		MAXIMUM VALUE	
	DAY	NIGHT	DAY	NIGHT
Residential areas	0.20 m/s <sup>1.75</sup>	0.13 m/s <sup>1.75</sup>	0.40 m/s <sup>1.75</sup>	0.26 m/s <sup>1.75</sup>

## 4.5 TRAFFIC NOISE GENERATION

The  $L_{Aeq}$  noise level or the “equivalent continuous noise level” correlates best with the human perception of annoyance associated with traffic noise.

Road traffic noise impact is assessed in accordance with the NSW Road Noise Policy (RNP). The criterion (Table 3 – Road Traffic Noise Assessment Criteria for Residential Land Uses) divides land use developments into different categories and lists the respective criteria for each case. The category that is relevant to the proposed use of the site is shown below in Table 9.

*Table 9: NSW RNP – Traffic Noise Assessment Criteria*

ROAD CATEGORY	TYPE OF PROJECT/LAND USE	ASSESSMENT CRITERIA – dB(A)	
		DAY (7AM – 10PM)	NIGHT (10PM – 7AM)
Local Roads	4. Existing residences affected by noise from new local road corridors	$L_{Aeq}$ , (1 hour) 55	$L_{Aeq}$ , (1 hour) 50
	5. Existing residences affected by noise from redevelopment of existing local roads		
	6. Existing residences affected by additional traffic on existing local roads generated by land use developments		

In the event that the traffic noise at the site is already in excess of the criteria noted above, the NSW RNP states that the primary objective is to reduce the existing level through feasible and reasonable measures to meet the criteria above.

If this is not achievable, Section 3.4.1 of the RNP states that for existing residences affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise should be limited to 2 dB above that of the corresponding ‘no build option’.

Also, the inherent quality of noise from vehicles on public roads arriving to and departing from the site would be indistinguishable from other traffic noise on public roads.

## 5 NOISE AND VIBRATION IMPACT ASSESSMENT

### 5.1 RAIL AIRBORNE NOISE

An acoustic assessment of road and rail noise emissions to the façade of the proposed development is required in accordance with the NSW ISEPP and DPIE's Development near Rail Corridors and Busy Roads – Interim Guideline, as outlined in Section 4.3.

A preliminary façade noise model of the development to predict the rail noise incident on the facades of the development.

Appendix A provides façade noise maps to present rail airborne noise on each of the facades of the proposal developments. The modelling takes into account building shielding, directivity and calculations for railway and road noise. The incident noise level provided can be considered the “worst-case” noise level.

Table 10 outlines the required acoustic performance for the glazing based on each residential space in the proposed development. The acoustic ratings provided for each of the typical glazing arrangements in Table 10 are indicative of the glazing assembly in its entirety (glass and frame).

Table 10: Acoustic façade type designation for glazed elements

ACOUSTIC FAÇADE TYPE	AREA	ACOUSTIC PERFORMANCE (WEIGHTED SOUND REDUCTION INDEX, $R_w$ )	TYPICAL EQUIVALENT GLASS LITE
1	Living areas	25	6mm monolithic glass
1	Sleeping areas (Bedrooms)	25	6mm monolithic glass

Detailed design of the building façade glazing and non-glazed elements should be undertaken during the subsequent development applications to identify specific requirements to spaces located with direct line of sight to the adjacent railway line.

### 5.2 RAIL GROUND-BORNE NOISE

The DoP Guideline in Section 3.6.2 states that as a general guide, ground borne noise is not typically assessed for residential buildings near above ground rail corridors where there is a line of site between windows of habitable spaces and railway line. Therefore rail ground-borne noise is not further assessed.

### 5.3 RAIL VIBRATION

Operator attended measurements of vibration levels from passenger carriage trains on ballast tracks have been previously undertaken at four (4) representative locations with similar underlying geotechnical conditions.

Table 11 provides the measured VDV for human comfort and the maximum measured VDV values for passing trains and checks for compliance at the site boundary. As the night VDV criteria is the most stringent, this was used to check for compliance. VDV's in Table 11 represent a worst-case scenario.

Table 11 Rail vibration compliance

LOCATION	VIBRATION DOSE VALUE VDV ( $M/S^{1.75}$ )			COMPLIANCE
	PREDICTED	PREFERRED	MAXIMUM	
Edmondson Park Site 5 site boundary	0.051	0.13	0.26	Yes

## 5.4 TRAFFIC NOISE GENERATION

The traffic noise generation assessment has been based on the Ason Group Traffic Assessment, dated 3 June 2022 (Traffic Report). The traffic report references the Edmondson Park South Concept Plan MOD 5 – Transport Management and Accessibility Plan, dated 04 June 2020, prepared by AECOM (MOD 5 TMAP).

As outlined in the MOD 5 TMAP, the expected trips generated by MOD 5 of the Concept Plan are provided below in Table 12.

Table 12: Approved EPFTC Peak Hour Trip Generation summary – MOD 5

TYPE	TOTAL TRAFFIC VOLUME (VEHICLES/HOUR)		TOTAL TRAFFIC VOLUME (VEHICLES/HOUR)	
	Trip Generation (2ha School)		Trip Generation (6ha School)	
	AM	PM	AM	PM
Total traffic	6,335	5,877	7,170	5,712
Traffic generation from development	135	135	135	135
Predicted increase in traffic noise , dB(A)	< 1	< 1	< 1	< 1

The predicted increase in traffic noise has been based on the methodologies given in the UK Department of Transport ‘Calculation of Road Traffic Noise’ (CoRTN) document. This model describes noise emitted by a constant traffic flow. The model uses standard curves to approximate vehicle noise levels. It also assumes the traffic can be broken into two broad categories: cars, and heavy vehicles. The source sound levels used in this project to model traffic noise levels are contained within the calculation algorithms of the noise model. The values presented in Table 12 compare the existing noise levels estimated by the model with the estimated noise levels expected from an increase in vehicle movements associated with the proposed development.

As shown in Table 12, the predicted increase in peak traffic noise due to the development is less than 1dB(A), which is within the limits outlined in the Road Noise Policy criteria (as described in our summary in Section 4.5). For this reason, we understand that the traffic generated by the proposed development will not have an adverse impact on the surrounding residents.

## 5.5 MECHANICAL PLANT AND EQUIPMENT NOISE IMPACT ASSESSMENT

Plantrooms, noisy plant and equipment such as cooling towers and chillers, and other mechanical noise generating sources should be located and designed such that the noise emissions meet the requirements of the Noise Policy for Industry 2017, detailed in Section 4.2.1.

Mitigation measures for the mechanical plant should be considered during the design development stage to ensure compliance with the outlined criteria at the nearest sensitive receiver catchments. These mitigation measures could include but not limited to the following:

- Positioning mechanical plant away from nearby receivers;
- Acoustic attenuators fitted to duct work;
- Screening around mechanical plant; and
- Acoustic insulation within duct work.

It should be noted that the noise reduction requirements will likely be refined and reduced once the mechanical plant and equipment selections and designs have been progressed further during the detailed design of the proposed development. The mitigation measures proposed at this stage of the development are conservative in nature.

## 5.6 COMMUNAL OUTDOOR AREAS NOISE IMPACT ASSESSMENT

A communal outdoor area is currently proposed on the podium located on Level 2. The communal area is intended to be a place of sanctuary and retreat for residents.

Noise generated by residents using the communal outdoor areas may cause disturbance to noise-sensitive receivers surrounding the proposed development in proximity to the outdoors area, as well as the apartment occupants directly adjacent to the outdoor areas.

Specifically, noise generated by patrons during the night-time period (10pm – 7am) on the communal outdoor areas has the potential to be intrusive and offensive. To reduce the risk of intrusive and/or offensive noise emissions to surrounding noise-sensitive receivers, the communal outdoor areas should not be used during these hours.

In addition to this, operational noise management should be introduced to reduce the noise generated by patrons. The following operational noise management mitigation measures should be considered:

- Install signs in trafficable external areas asking patrons to consider the noise environment of the residents while utilising the communal outdoor areas
- Avoid playing amplified music in the communal outdoor areas.

## 6 CONCLUSION

This Noise and Vibration Impact Assessment has been prepared in support of a Development Application (DA) made to Liverpool City Council for the proposed development at Edmondson Park Site 5.

The following noise and vibration assessments were conducted as part of this noise and vibration impact assessment:

- Noise impact from railway corridor on the proposed development;
- Noise and vibration impact of mechanical plant and equipment serving the proposed development on surrounding noise and vibration sensitive receivers; and
- Noise impacts of additional traffic on surrounding local roads generated by the proposed development.

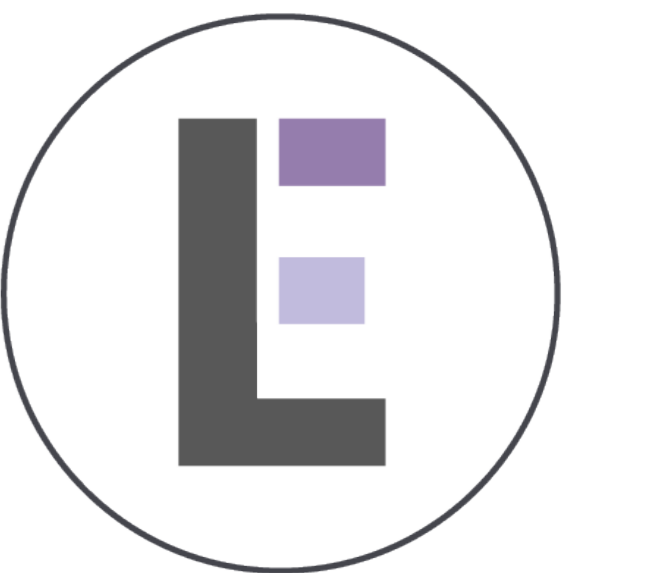
To assess each of the acoustic considerations for the proposed development, noise and vibration criteria has been established in Section 4 in accordance with the following documents:

- Edmondson Park South Development Control Plan (DCP) 2012;
- Development Near Rail Corridors and Busy Roads – Interim Guideline;
- NSW Road Noise Policy (RNP), 2011;
- NSW Noise Policy for Industry (NPI) 2017; and
- Assessing vibration: A Technical Guideline 2006.
- State Environment Planning Policy (Infrastructure) 2021

Having given regard to the assessment conducted within this report, it is the finding of this noise and vibration impact assessment that the proposed development is compliant with the relevant noise and vibration criteria controls for this type of development, with the recommended design consideration provided in this report.

## Appendix A      **Façade Noise Maps**

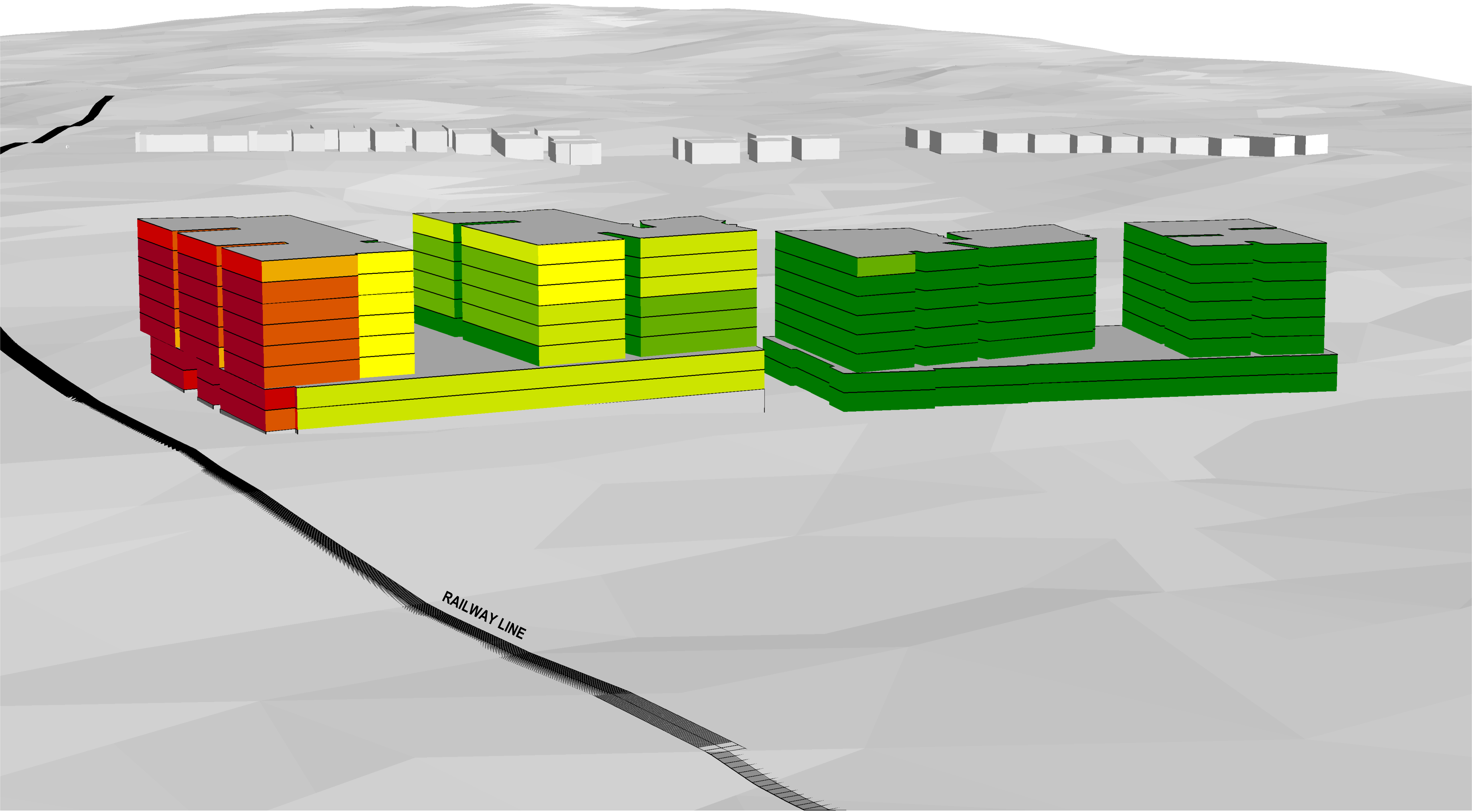
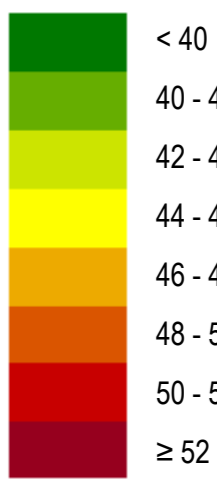




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Facade Noise Level -  $L_{eq,10m}$  dB(A)



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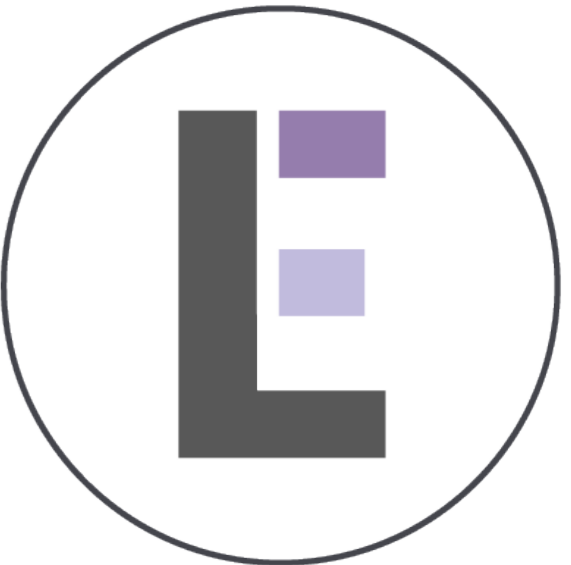
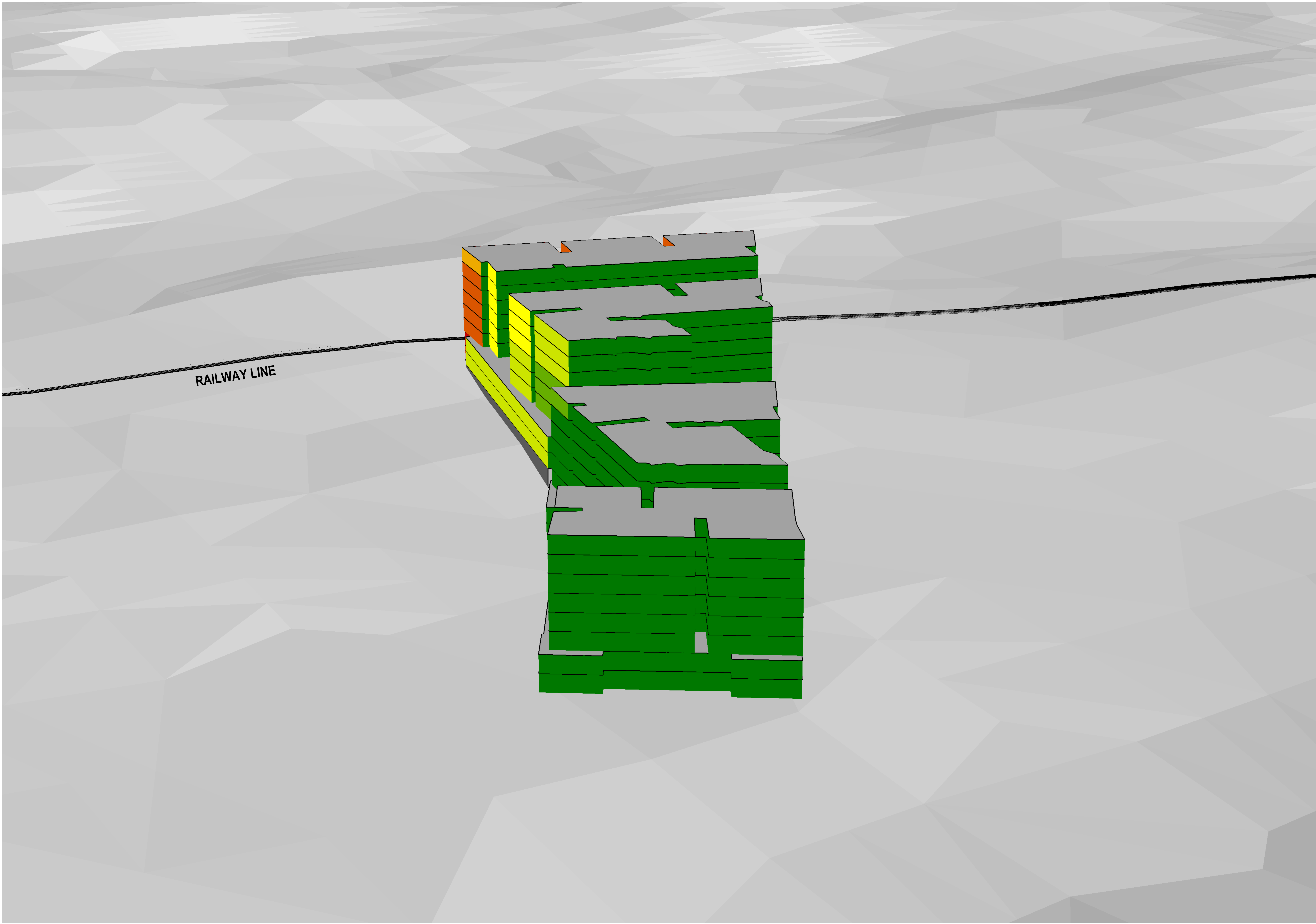
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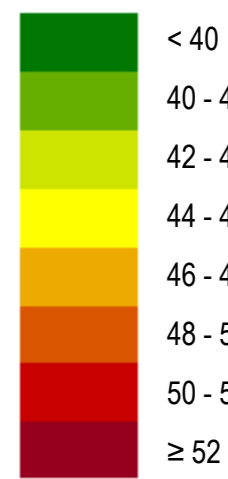
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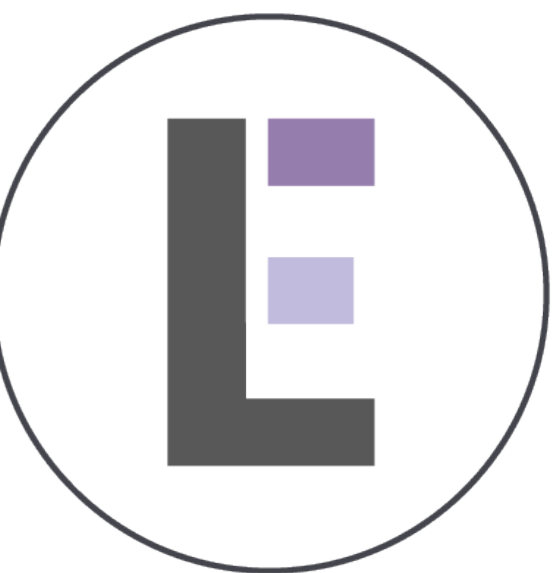
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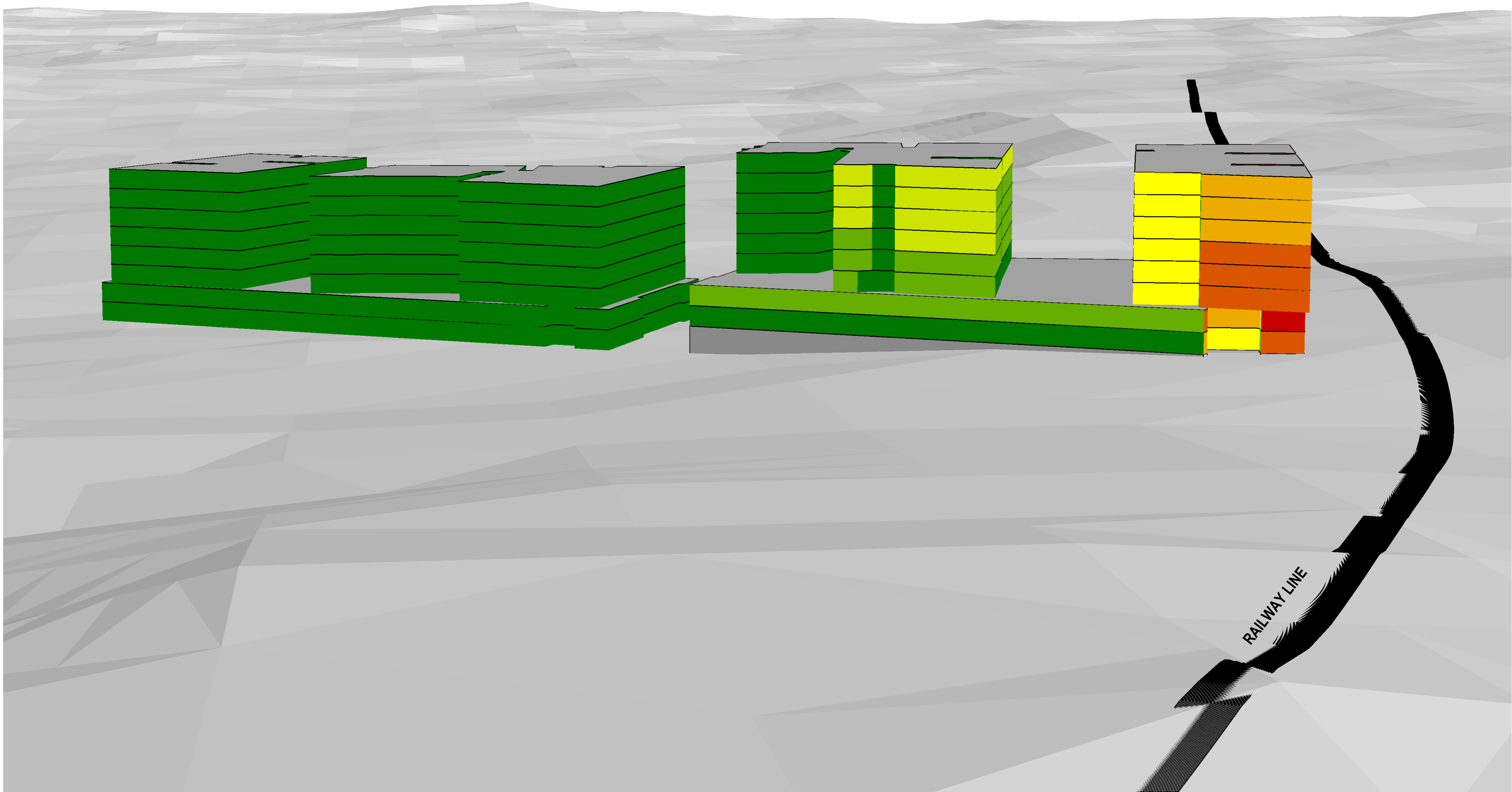
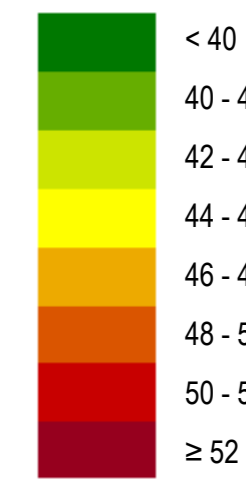
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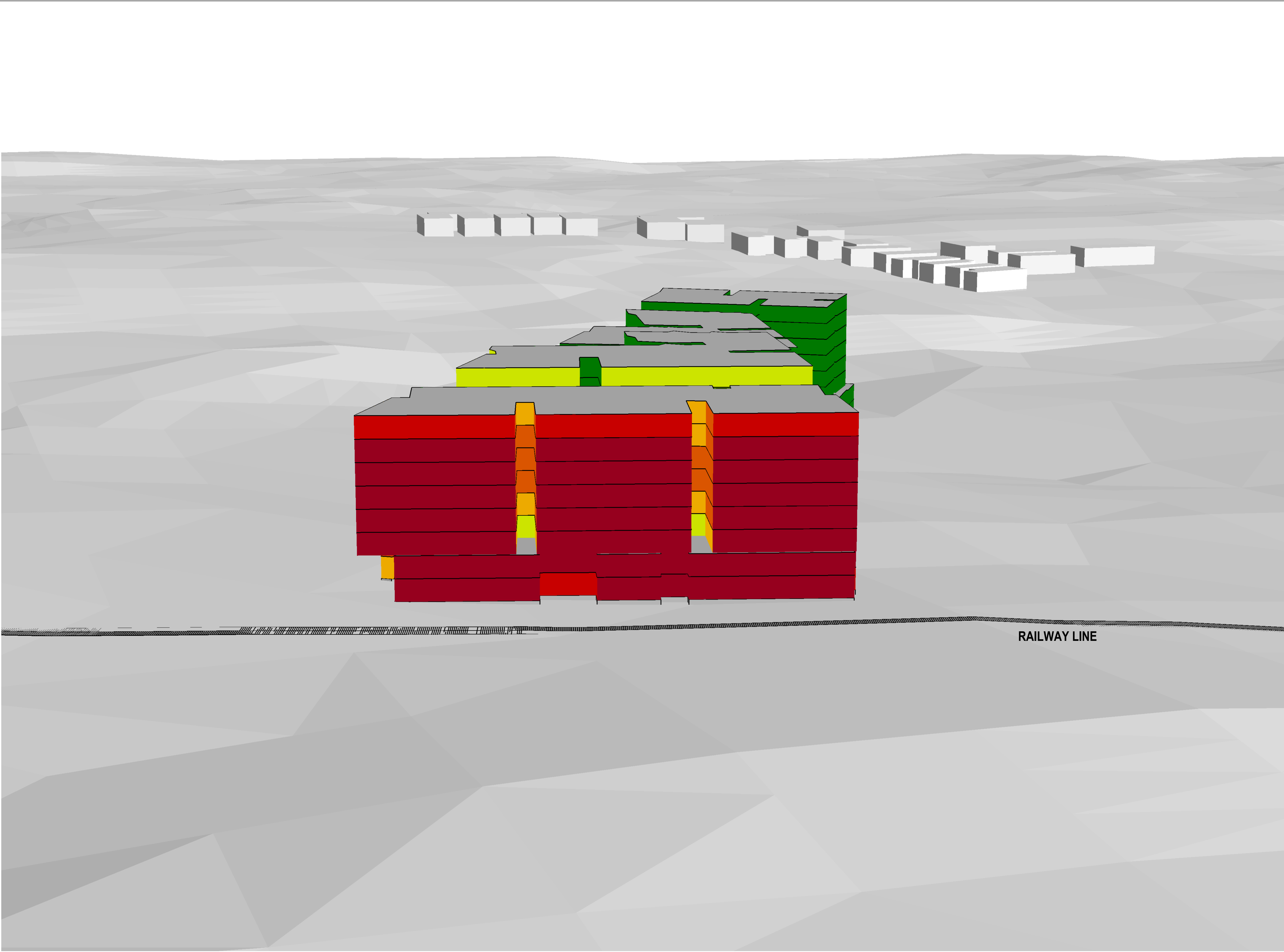
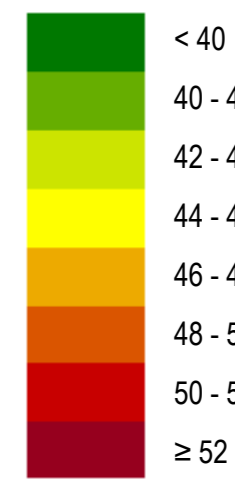
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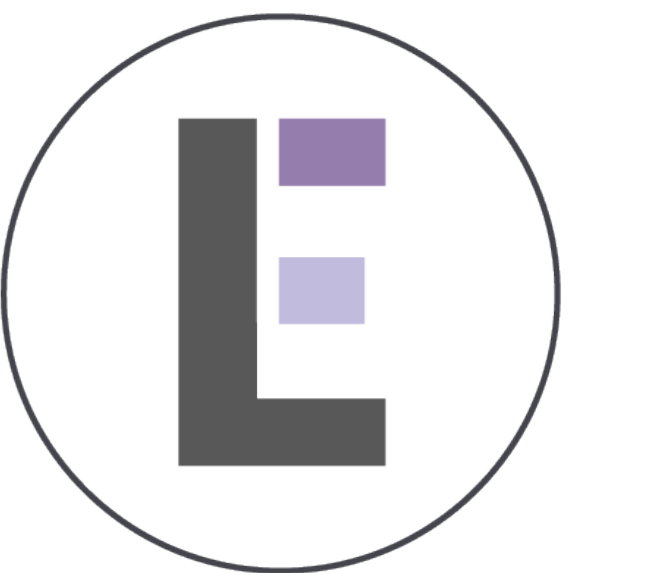
ISSUE	DATE	STATUS

Facade Noise Level -  $L_{eq,10m}$  dB(A)



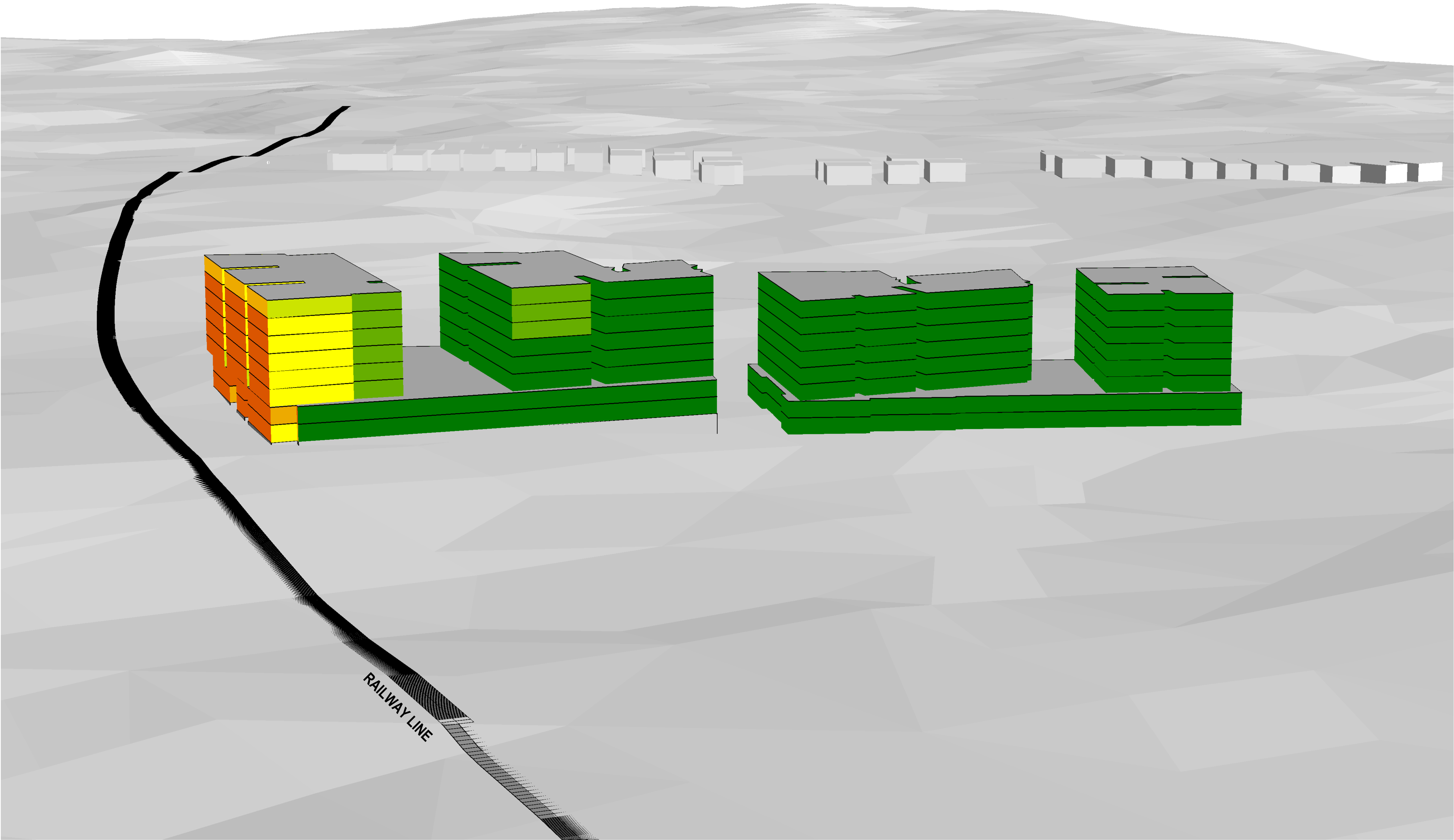
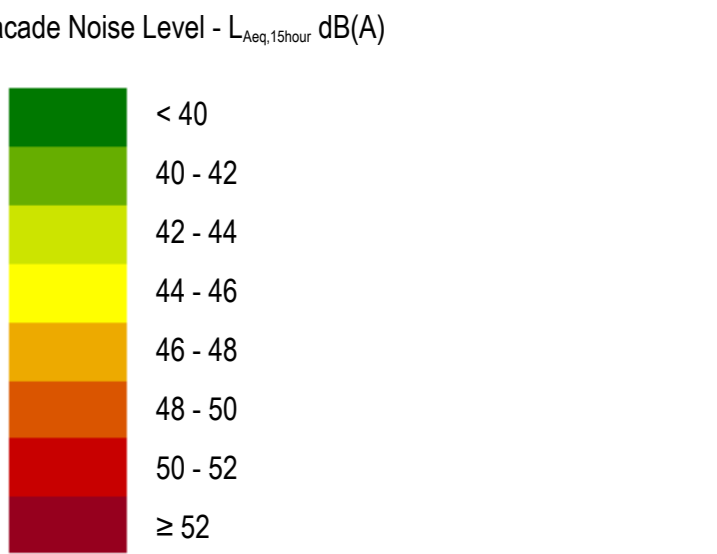
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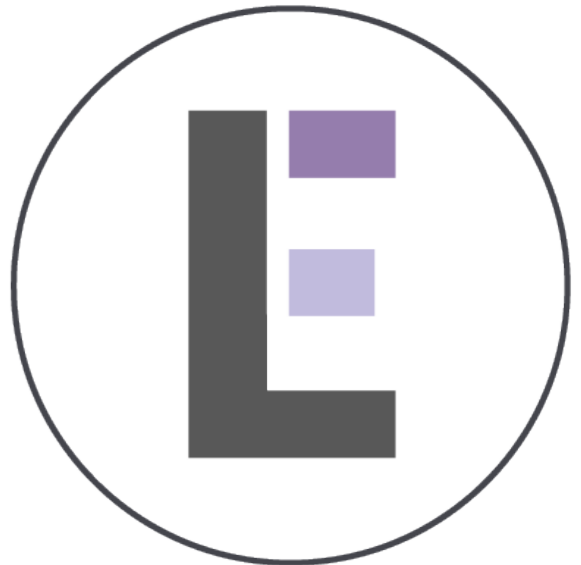
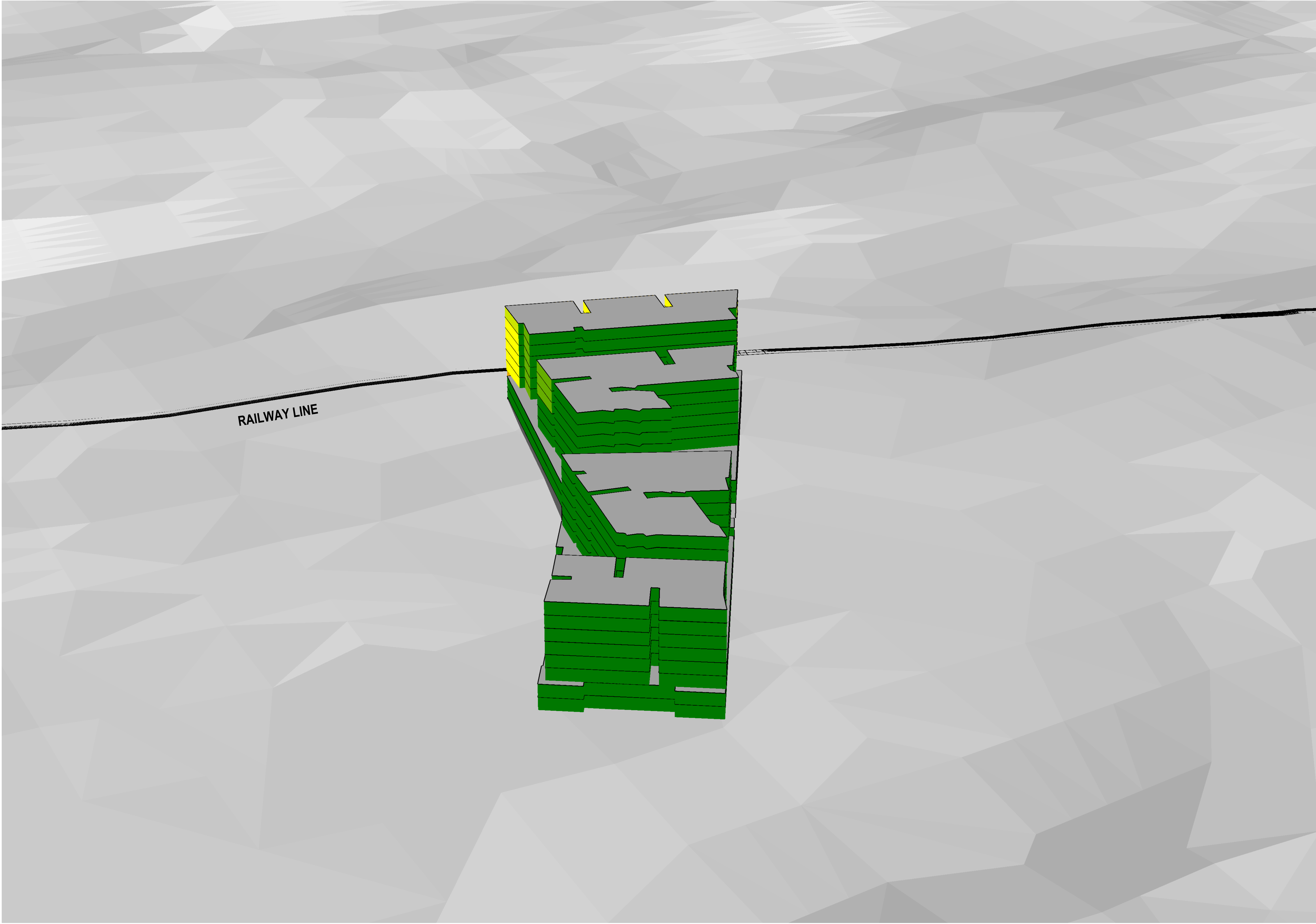
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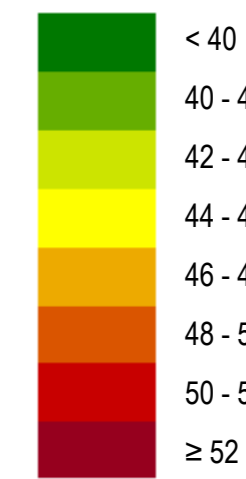
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Facade Noise Level -  $L_{eq,10m}$  dB(A)



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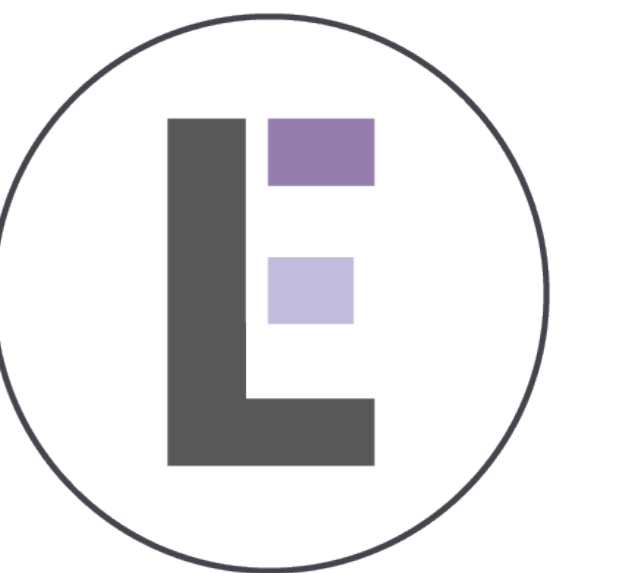
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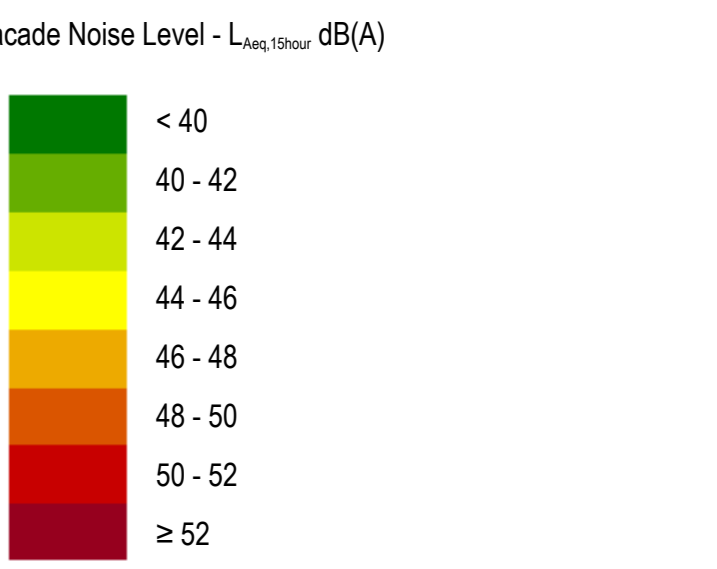
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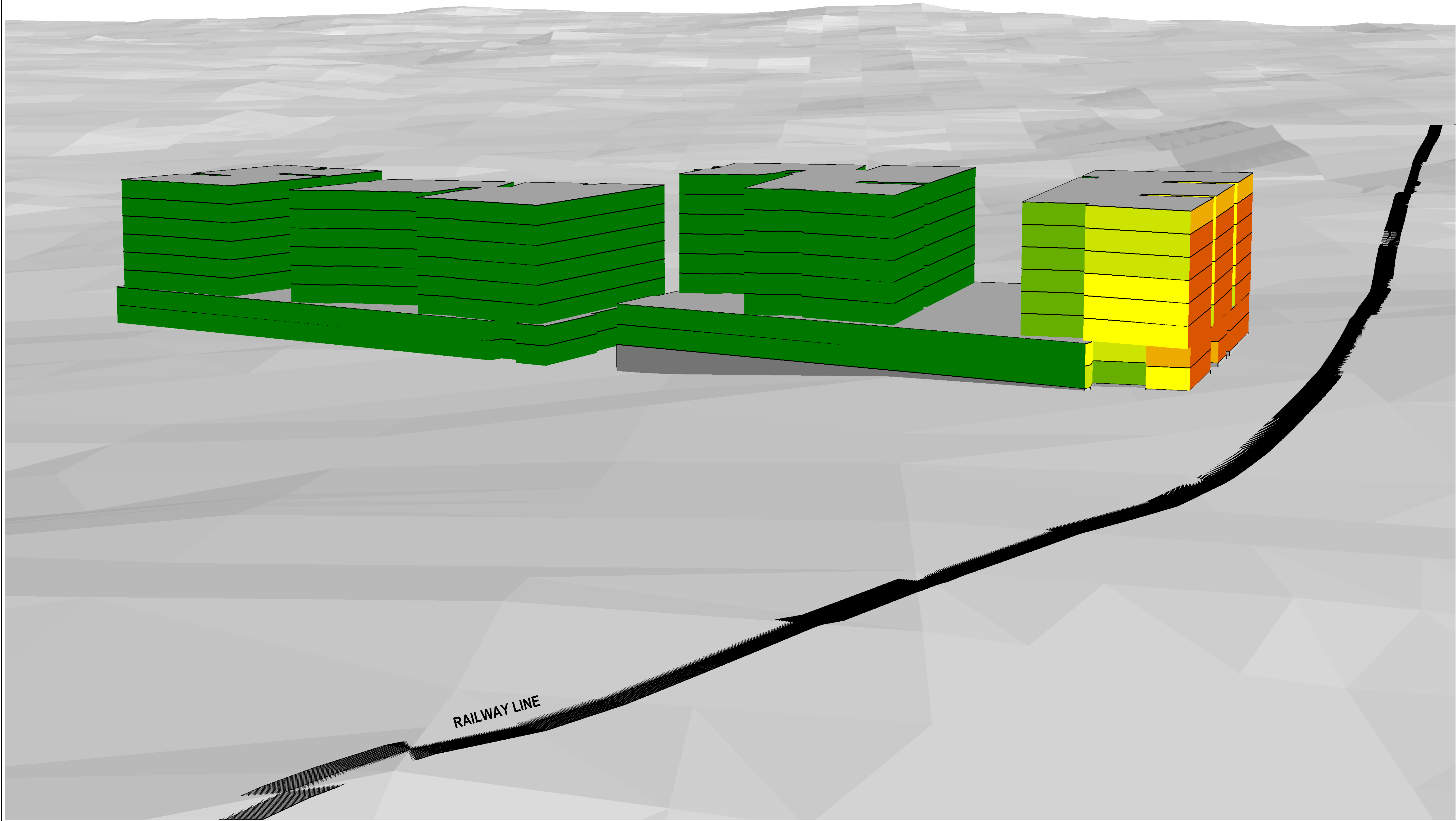
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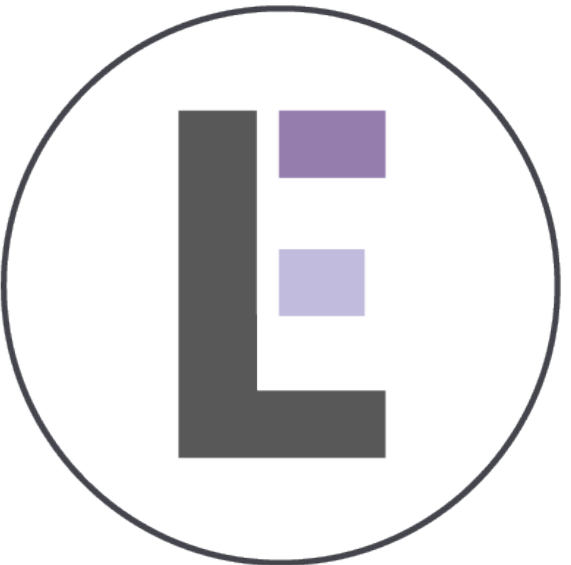
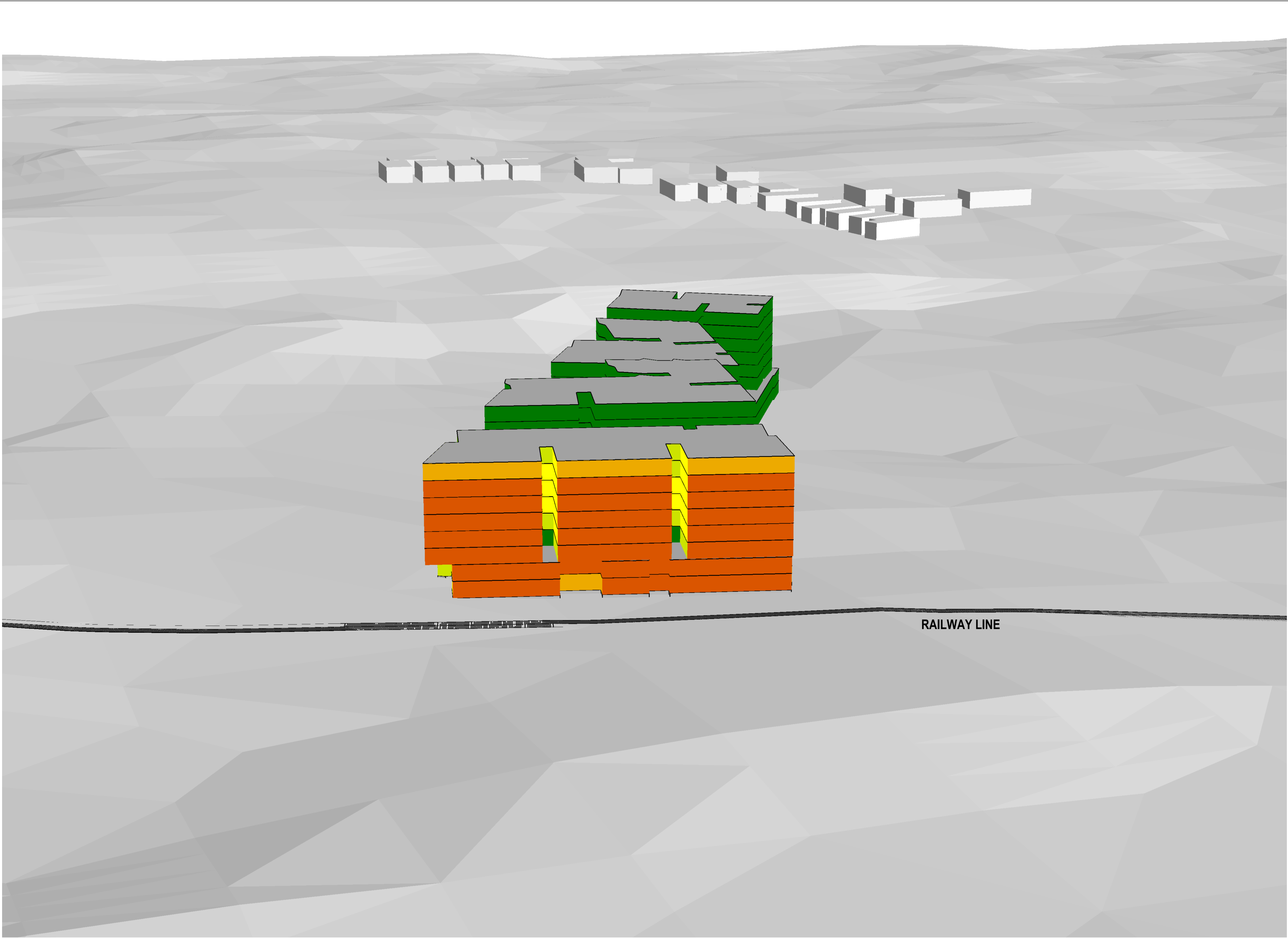
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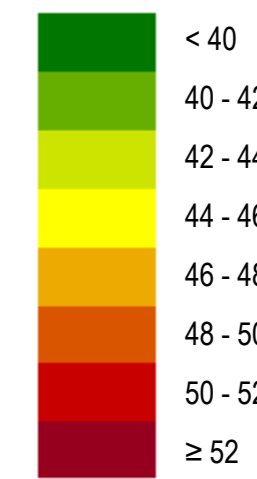




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