

Environmental Impact Assessment

October 2020

India: Bengaluru Metro Rail Project

Phase 2B (Airport Metro Line)

KR Puram to Kempegowda International Airport

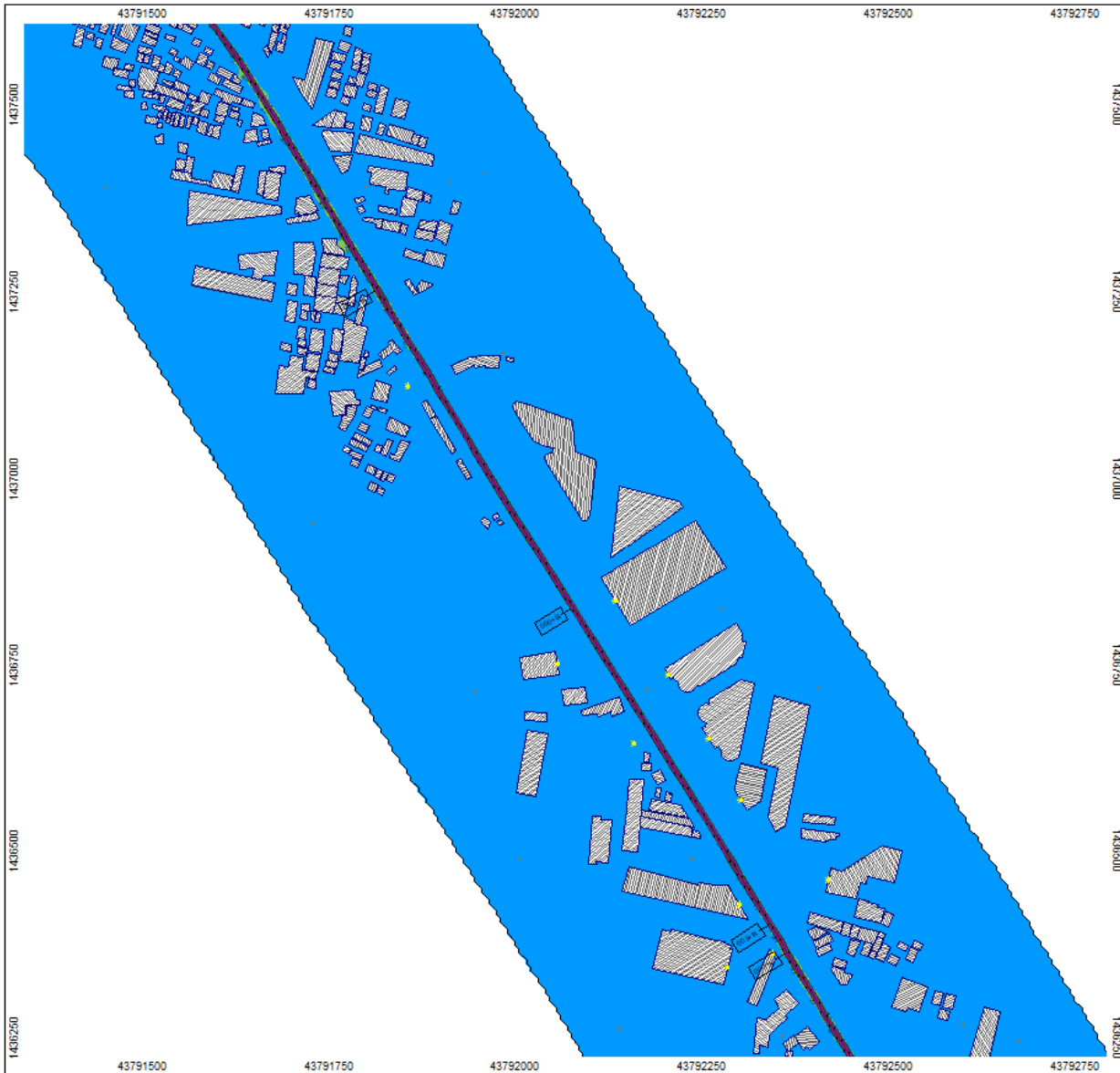
Volume 7
Annex 5

NOTES

- (i) The fiscal year (FY) of the Government of India and its agencies ends on 31 March. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2019 ends on 31 March 2019.
- (ii) In this report, "\$" refers to United States dollars.

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“ORR Metro Line” on Outer Ring Road from Central Silk (CSB) Junction to KR Puram

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

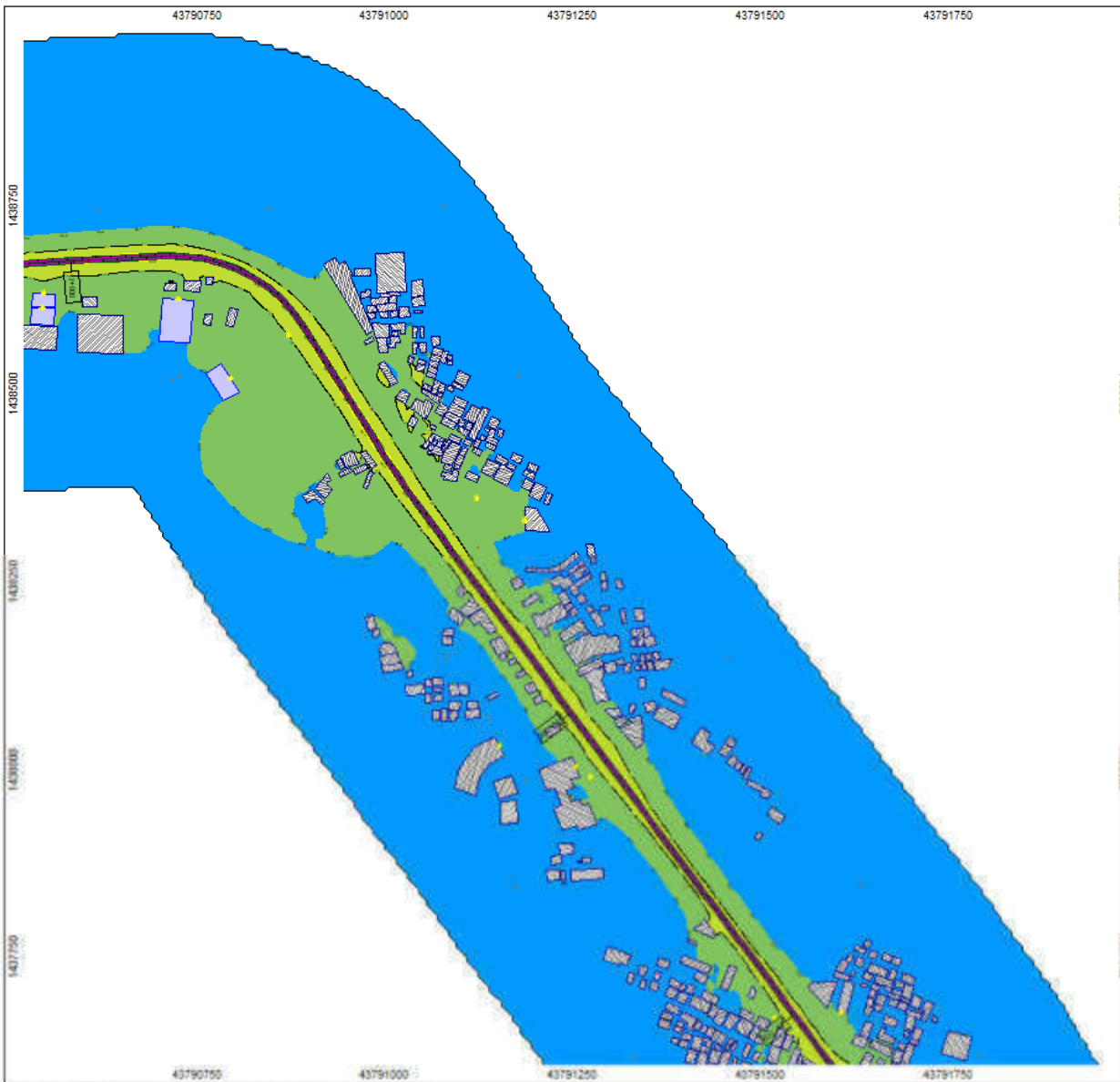
110 2041 2A with Parapet Wall Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
> 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:5181
0 45 90 180 270 360 m

North arrow pointing up.



“ORR Metro Line” on Outer Ring Road from Central Silk (CSB) Junction to KR Puram

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

110 2041 2A with Parapet Wall Noise Contour Map Leq,d

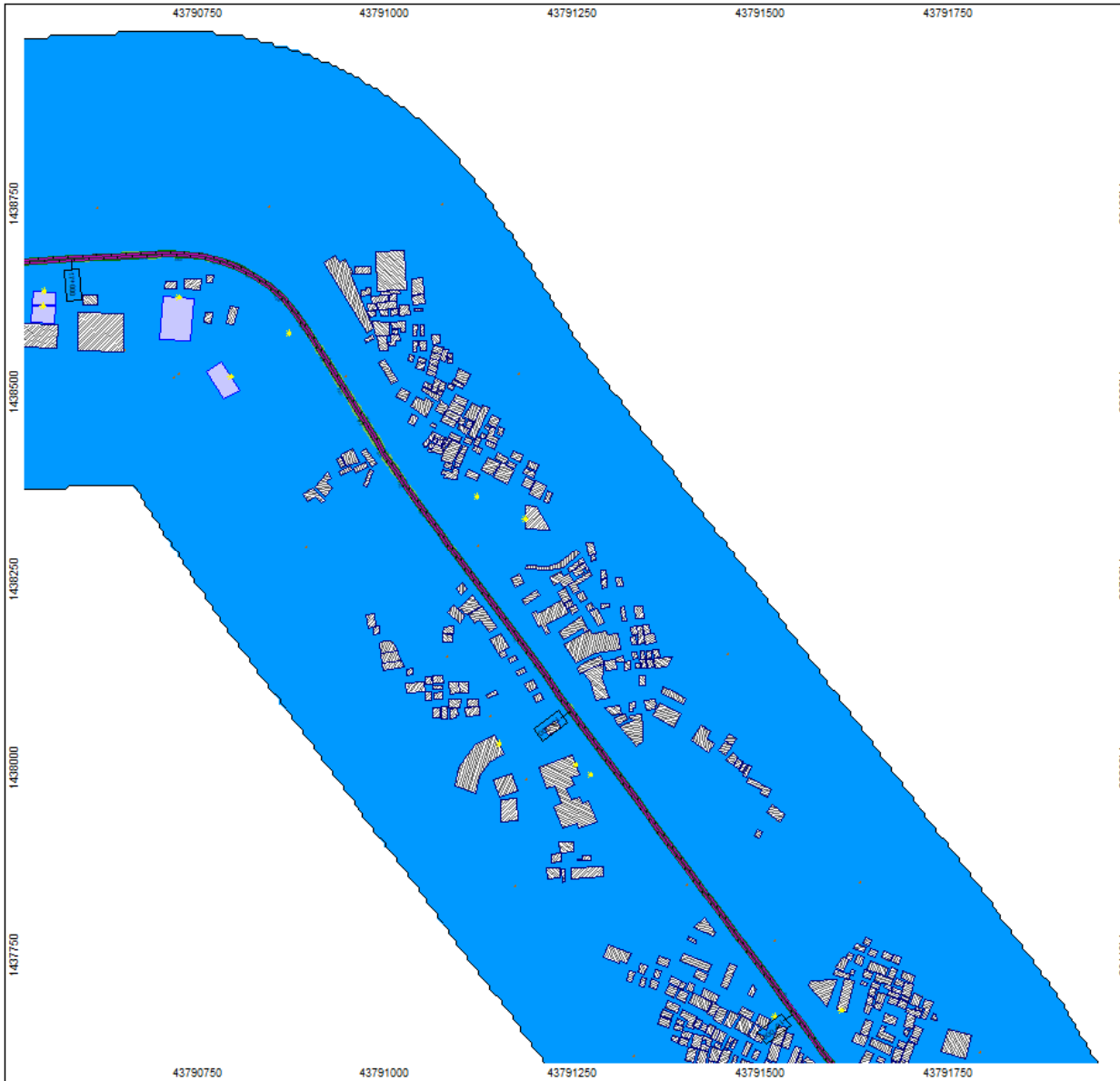
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 >= 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Source Line source Geometry blimp Wall Wall Diwater point Emission floor Noise calculation area
--	--

Length scale 1:5181

0 45 90 180 270 360 m



“ORR Metro Line” on Outer Ring Road from Central Silk (CSB) Junction to KR Puram

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

110 2041 2A with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

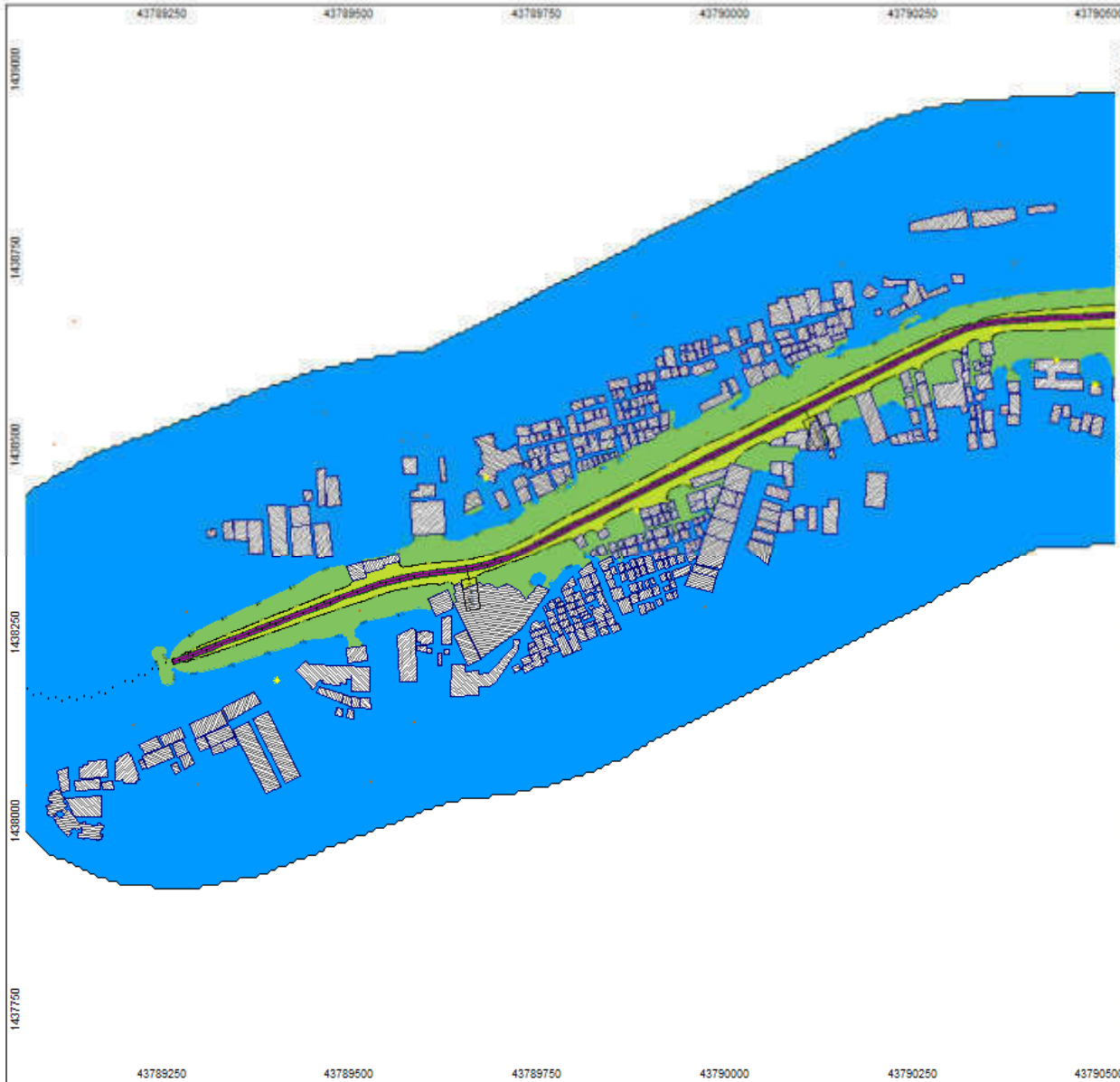
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:5181

0 45 90 180 270 360 m

North arrow pointing up.



"ORR Metro Line" on Outer Ring Road from Central Silk (CSB) Junction to KR Puram

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from IMA Soundplan 8.1 Library and ENRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**110 2041 2A with Parapet Wall
 Noise Contour Map
 Leq,d
 Calculation in 1.5 m above ground**

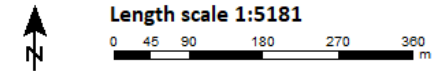
Project engineer: CMR
 Created: 9/10/2018
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

Blue	< 45
Light Blue	45 - 50
Yellow	50 - 55
Orange	55 - 60
Dark Orange	60 - 65
Red	>= 65

Signs and symbols

Green line	Wall
Red dot	Construction Equip
Hatched pattern	Main building
Yellow star	Point receiver
Black line	+3dB(A) increase from
Red dot	Point Sources
Pink line	Line source
Green line	Geometry bitmap
Green line	Wall
Red dot	Elevation point
Hatched pattern	Bodeneffekte
Green line	Noise calculation area





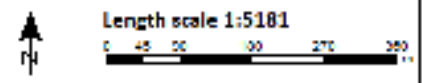
"ORR Metro Line" on Outer Ring Road from Central Silk (CSB) Junction to KR Puram

Operational Noise
 Building Footprint Map and Sample Data
 User: [noise@pwr.com](#)
 Model: [NoiseMap](#)
 Date: 10/10/2011
 Time: 10:10:10

110 2041 2A with Parapet Wall Noise Contour Map
 Leq,n
 Calculation in 1.0 m above ground

Project engineer: DMR
 Created: 10/10/2011
 Projected with: [NoiseMap](#)

Levels Leq,n (in dB)	Signs and symbols
40 - 45	Wall
45 - 50	Construction barrier
50 - 55	Urban building
55 - 60	Urban building
60 - 65	Urban building
65 - 70	Urban building
70 - 75	Urban building
75 - 80	Urban building
80 - 85	Urban building
85 - 90	Urban building
90 - 95	Urban building
95 - 100	Urban building
100 - 105	Urban building
105 - 110	Urban building
110 - 115	Urban building
115 - 120	Urban building
120 - 125	Urban building
125 - 130	Urban building
130 - 135	Urban building
135 - 140	Urban building
140 - 145	Urban building
145 - 150	Urban building
150 - 155	Urban building
155 - 160	Urban building
160 - 165	Urban building
165 - 170	Urban building
170 - 175	Urban building
175 - 180	Urban building
180 - 185	Urban building
185 - 190	Urban building
190 - 195	Urban building
195 - 200	Urban building
200 - 205	Urban building
205 - 210	Urban building
210 - 215	Urban building
215 - 220	Urban building
220 - 225	Urban building
225 - 230	Urban building
230 - 235	Urban building
235 - 240	Urban building
240 - 245	Urban building
245 - 250	Urban building
250 - 255	Urban building
255 - 260	Urban building
260 - 265	Urban building
265 - 270	Urban building
270 - 275	Urban building
275 - 280	Urban building
280 - 285	Urban building
285 - 290	Urban building
290 - 295	Urban building
295 - 300	Urban building



KR Puram to Kempegowda International Airport

2024, 2031, 2041



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

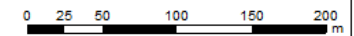
Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Grey	60 - 65
Orange	>= 65

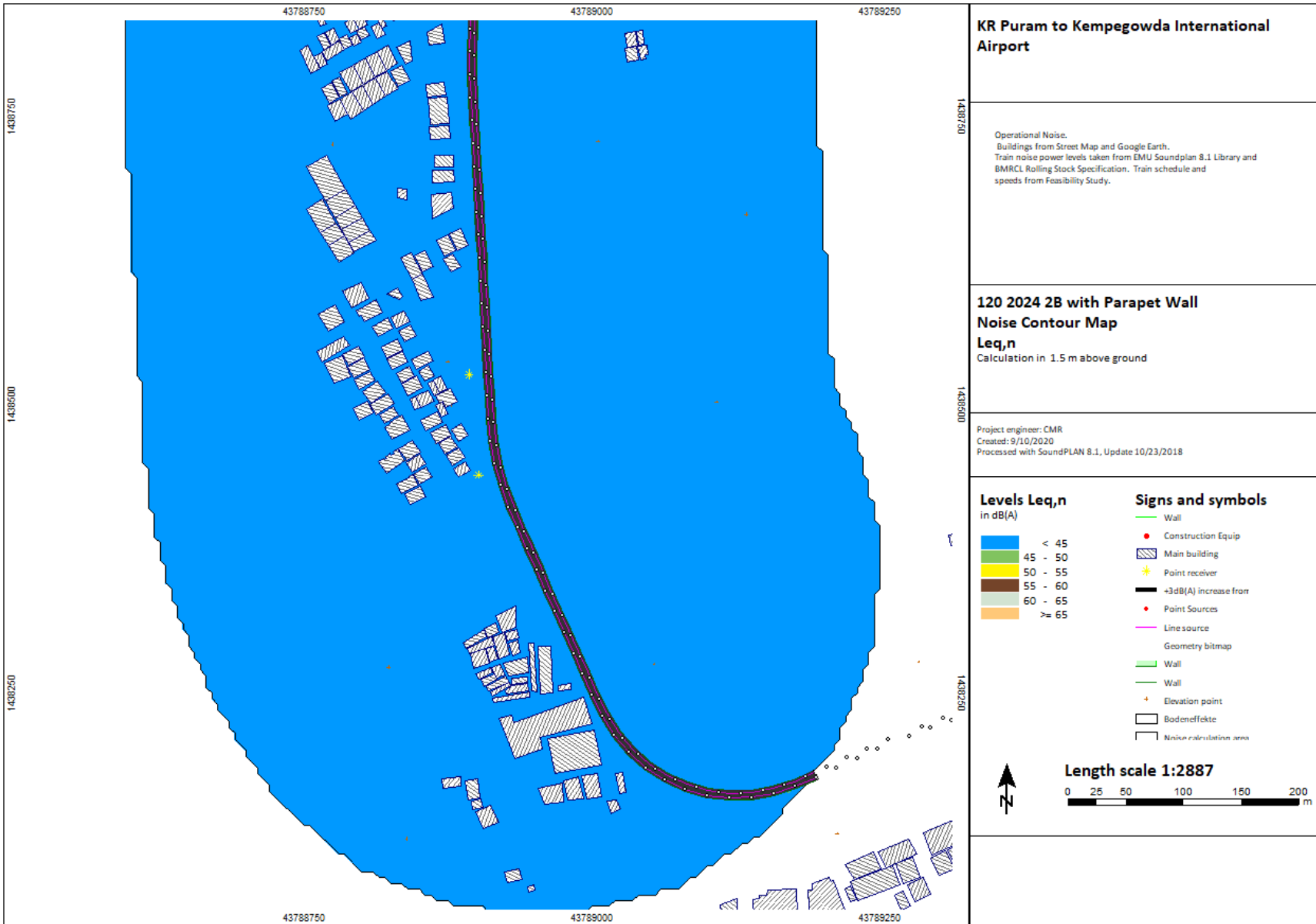
Signs and symbols

- Green line: Wall
- Red dot: Construction Equip
- Hatched rectangle: Main building
- Yellow star: Point receiver
- Black line: +3dB(A) increase from
- Red dot: Point Sources
- Pink line: Line source
- Green rectangle: Geometry bitmap
- Green line: Wall
- Orange triangle: Elevation point
- White rectangle: Bodeneffekte
- Black outline: Noise calculation area



Length scale 1:2887







KR Puram to Kempegowda International Airport

Operational Noise.
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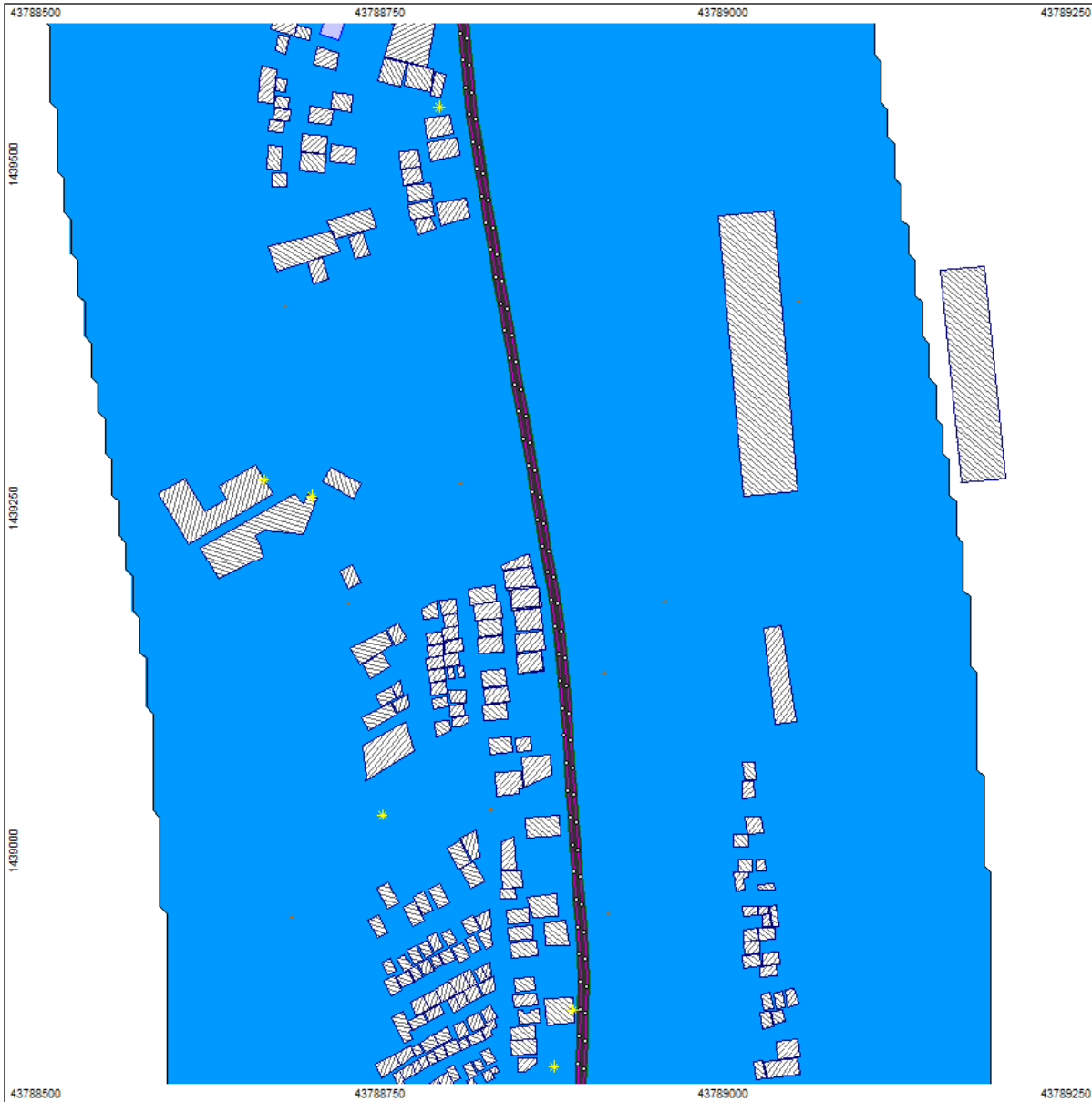
120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
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Levels Leq,d in dB(A)	Signs and symbols
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60 - 65	+3dB(A) increase from
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	Line source
	Geometry bitmap
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2887

0 25 50 100 150 200 m



KR Puram to Kempegowda International Airport

Operational Noise.
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120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
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Levels Leq,n in dB(A)

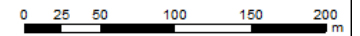
Blue	< 45
Light Blue	45 - 50
Yellow	50 - 55
Orange	55 - 60
Red	60 - 65
Dark Red	≥ 65

Signs and symbols

Green line	Wall
Red dot	Construction Equip
Hatched rectangle	Main building
Yellow star	Point receiver
Black line	+3dB(A) increase from
Red dot	Point Sources
Pink line	Line source
Green line	Geometry bitmap
Green line	Wall
Green dot	Elevation point
White rectangle	Bodeneffekte
Black outline	Noise calculation area



Length scale 1:2887





KR Puram to Kempegowda International Airport

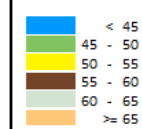
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Levels Leq,d in dB(A)

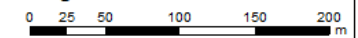


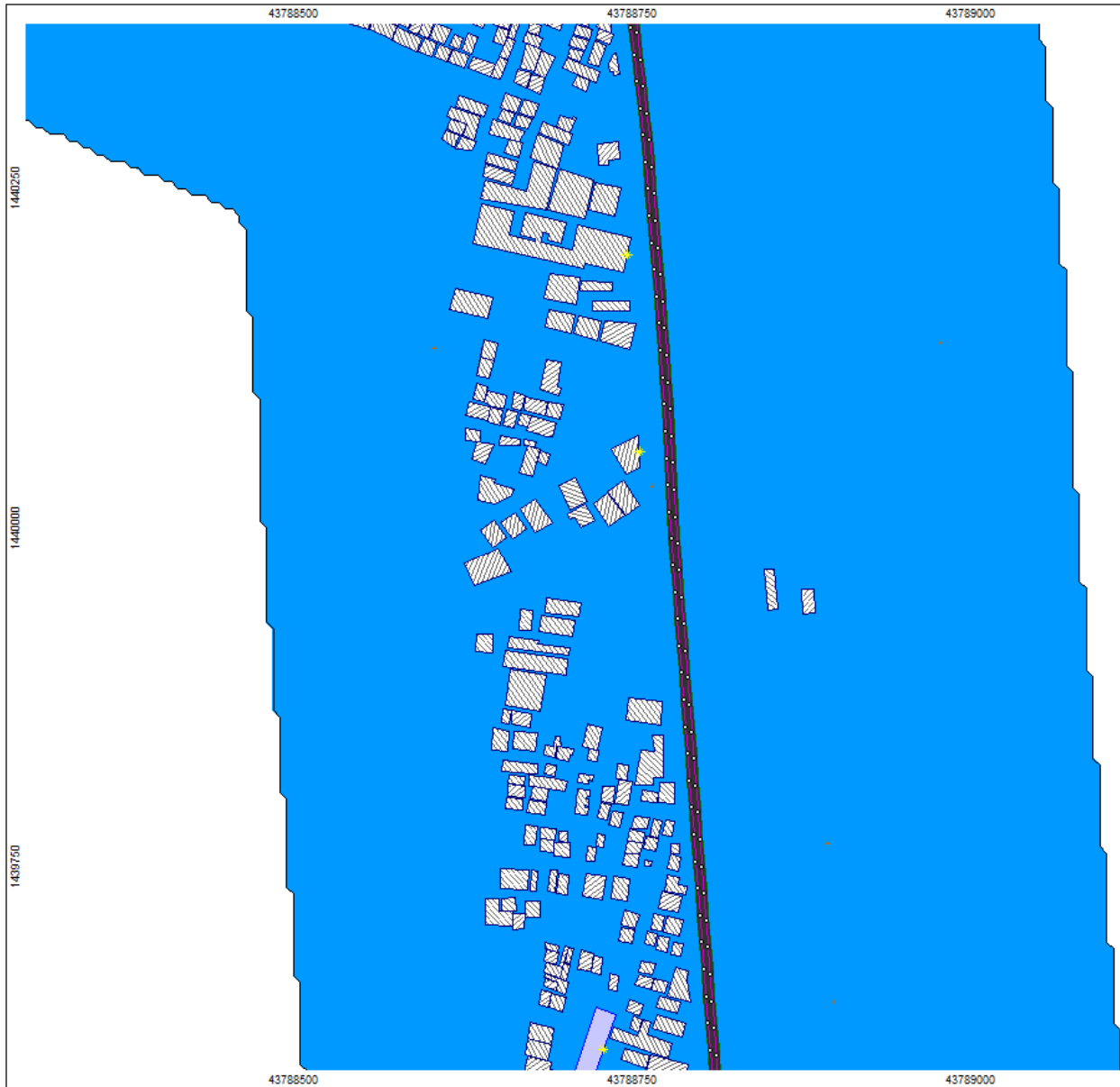
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
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Length scale 1:2887





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**Levels Leq,n
in dB(A)**

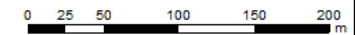
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
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- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2887





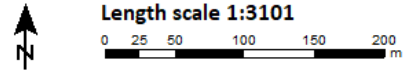
KR Puram to Kempegowda International Airport

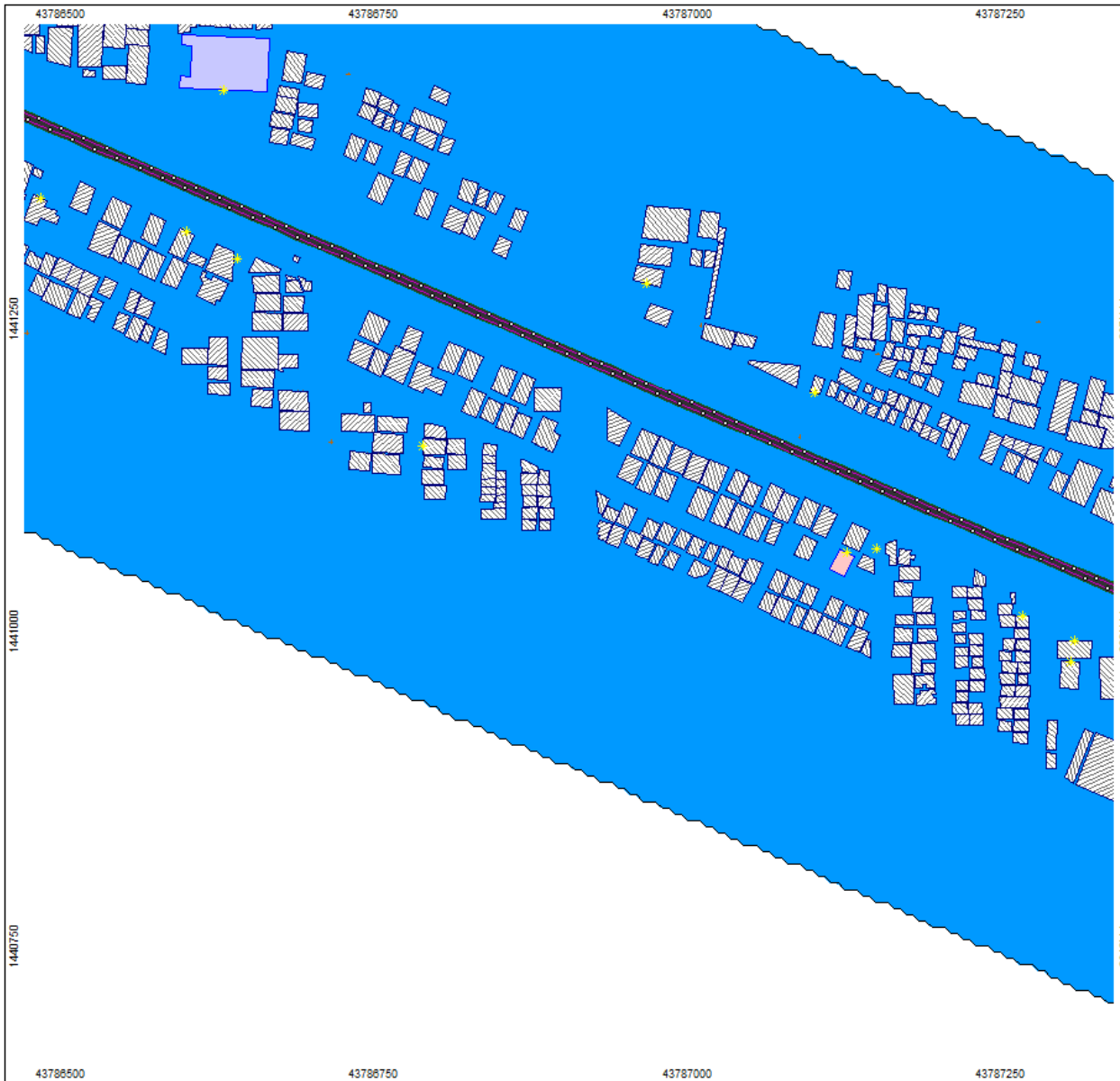
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- | | |
|------------------------------|--------------------------|
| Levels Leq,d in dB(A) | Signs and symbols |
| < 45 | Wall |
| 45 - 50 | Construction Equip |
| 50 - 55 | Main building |
| 55 - 60 | Point receiver |
| 60 - 65 | +3dB(A) increase from |
| >= 65 | Point Sources |
| | Line source |
| | Geometry bitmap |
| | Wall |
| | Elevation point |
| | Bodeneffekte |
| | Noise calculation area |





KR Puram to Kempegowda International Airport

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120 2024 2B with Parapet Wall Noise Contour Map Leq,n Calculation in 1.5 m above ground

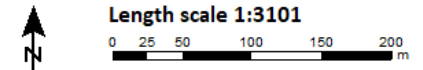
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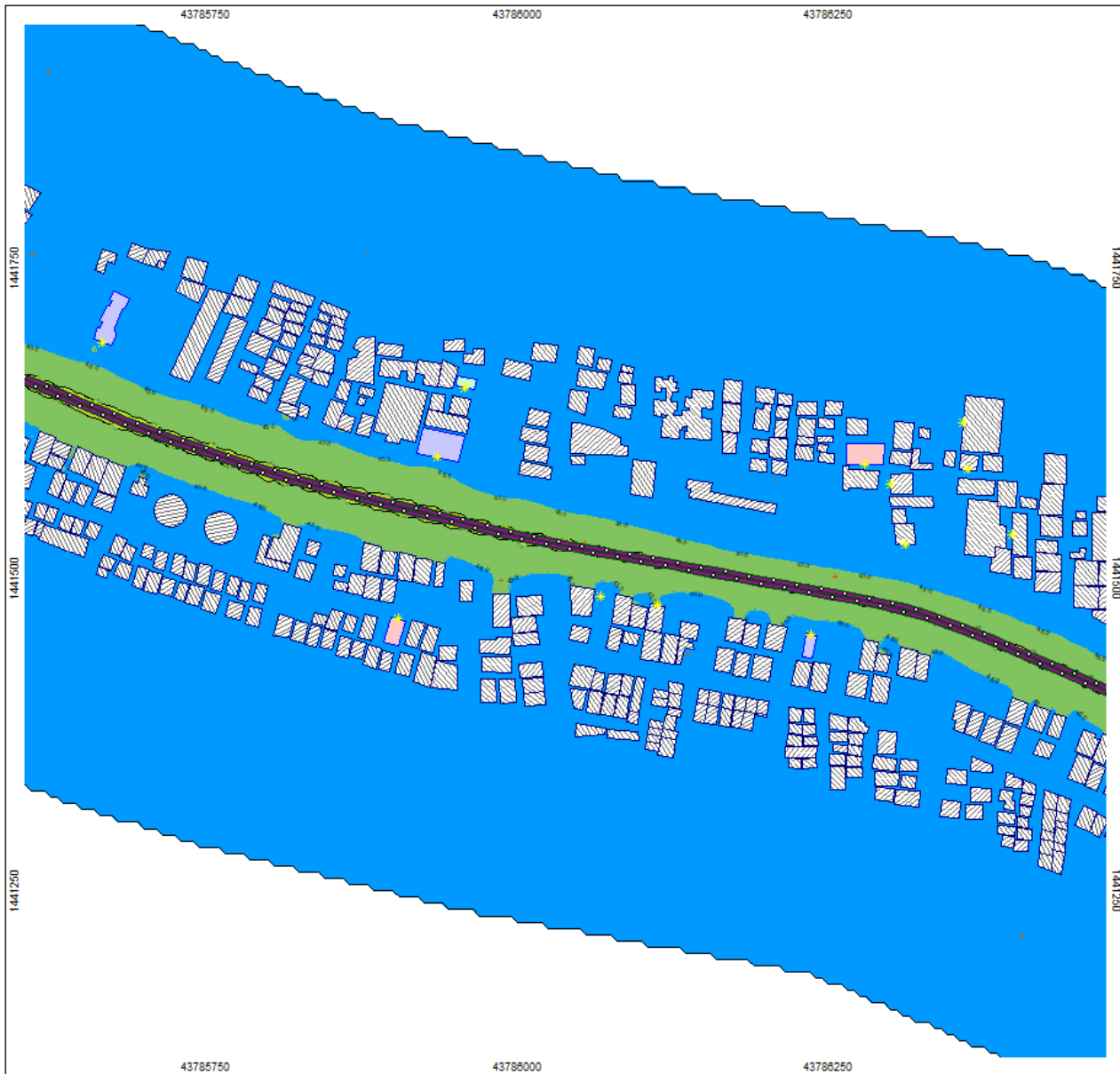
Levels Leq,n in dB(A)

Blue	< 45
Light Blue	45 - 50
Yellow	50 - 55
Orange	55 - 60
Red	60 - 65
Dark Red	>= 65

Signs and symbols

Green line	Wall
Red dot	Construction Equip
Hatched rectangle	Main building
Yellow star	Point receiver
Black line	+3dB(A) increase from
Red dot	Point Sources
Pink line	Line source
Green rectangle	Geometry bitmap
Green line	Wall
Green dot	Elevation point
White rectangle	Bodeneffekte
Blue outline	Noise calculation area





KR Puram to Kempegowda International Airport

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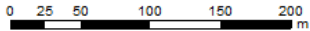
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

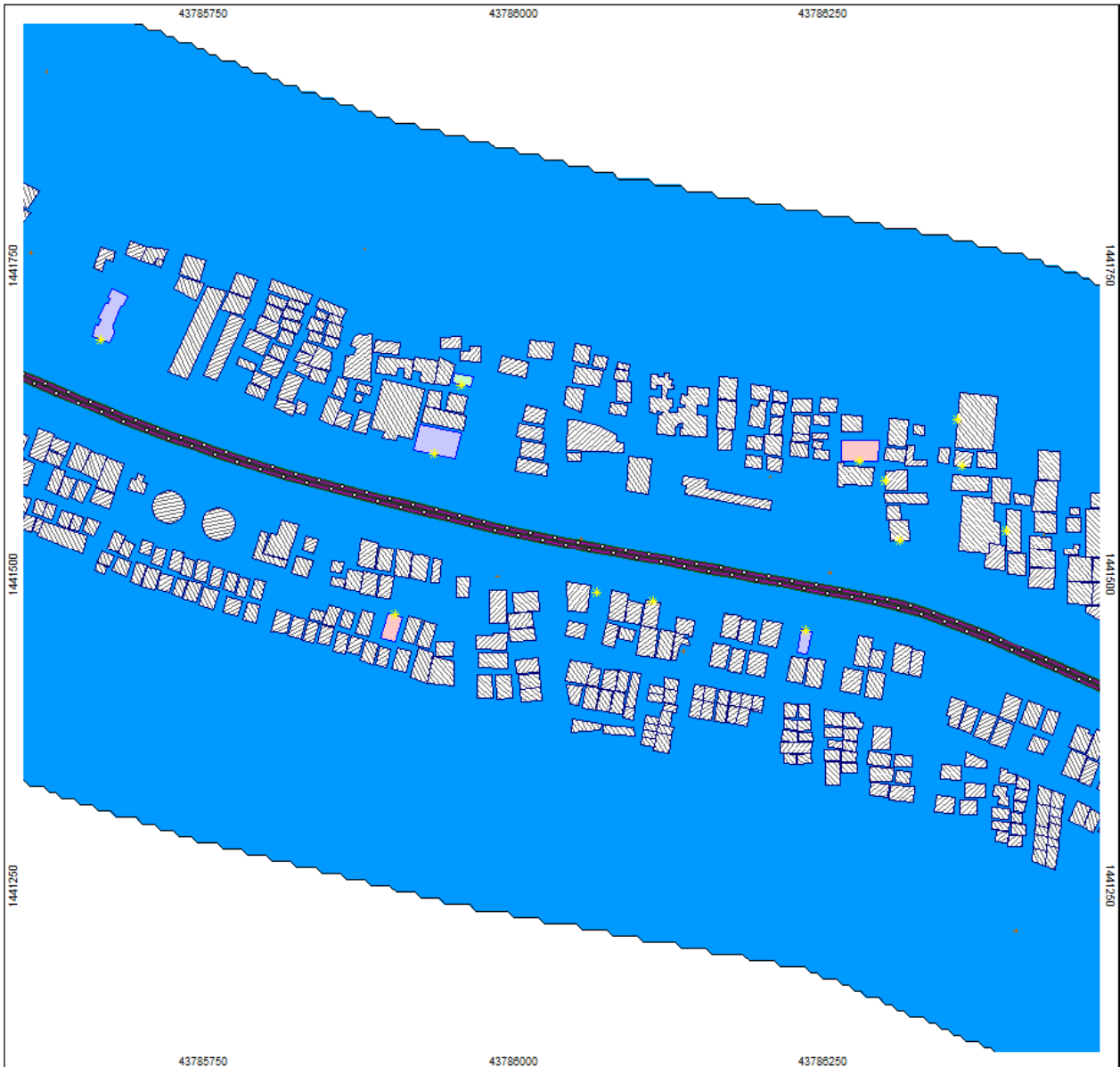
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:3101





KR Puram to Kempegowda International Airport

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**120 2024 2B with Parapet Wall
Noise Contour Map**

Leq,n
Calculation in 1.5 m above ground

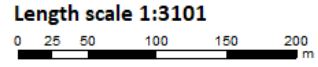
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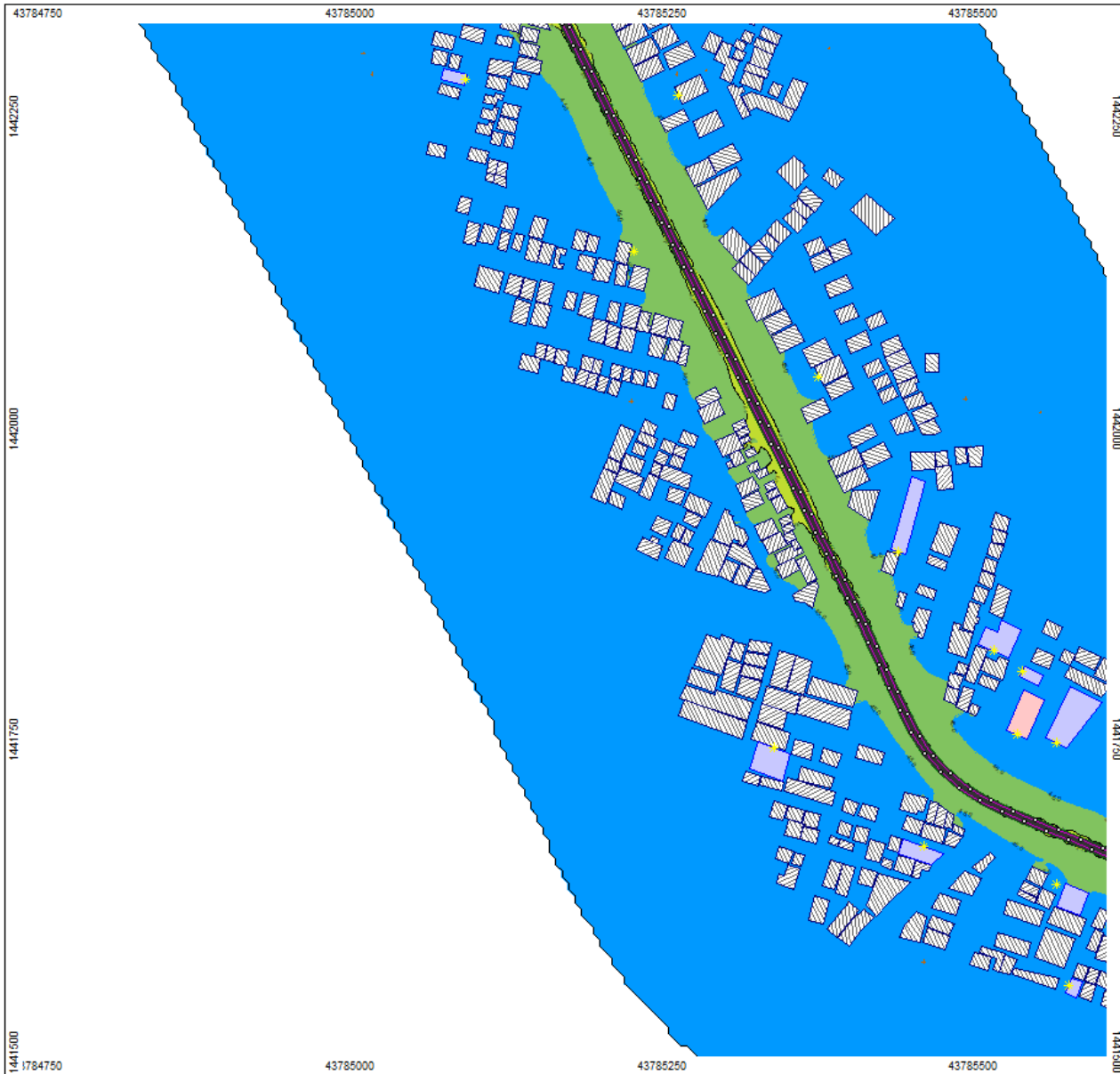
**Levels Leq,n
in dB(A)**

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
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- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area





KR Puram to Kempegowda International Airport

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**Levels Leq,d
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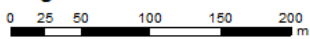
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

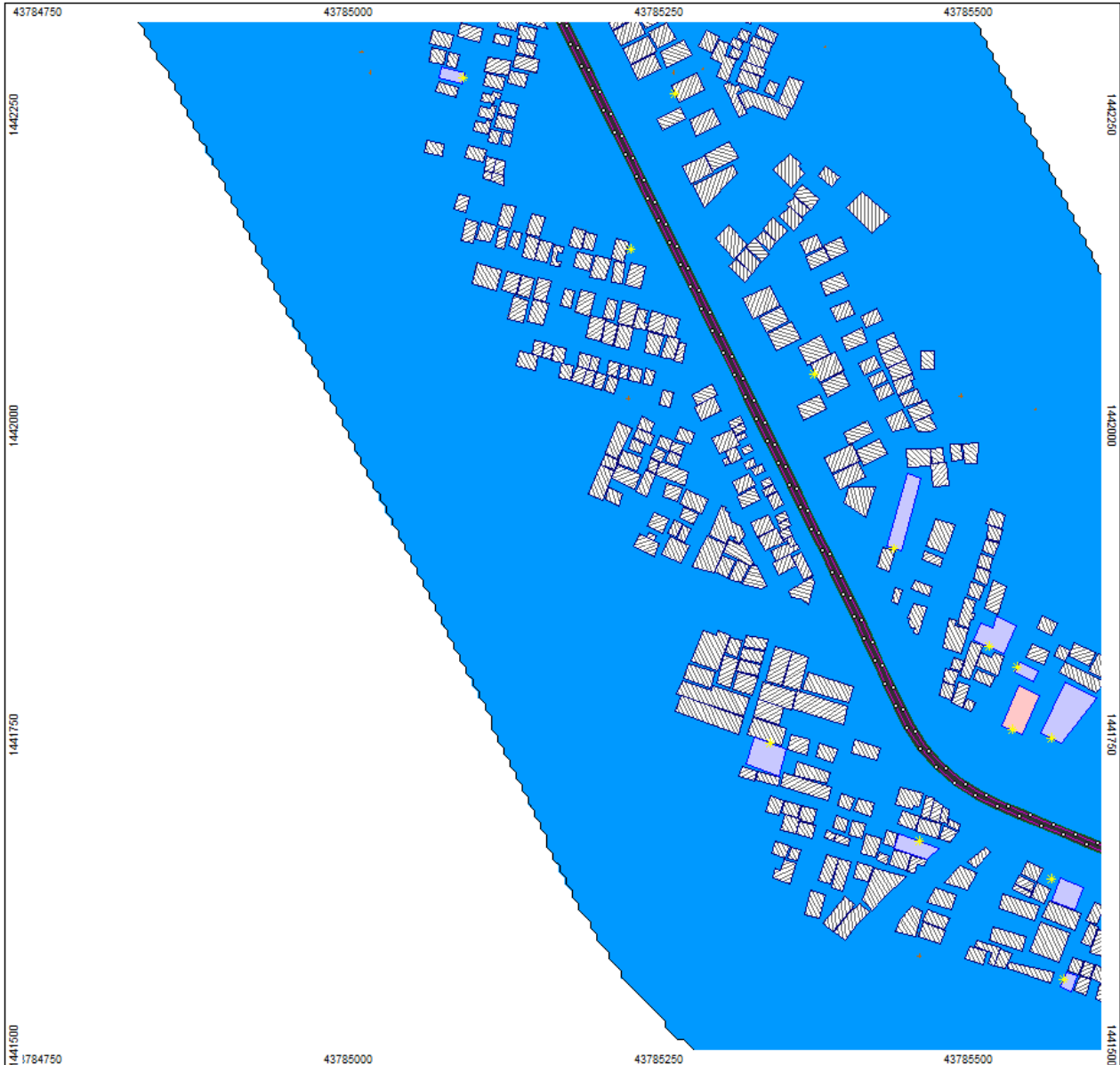
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
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- Wall
- Elevation point
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- Noise calculation area



Length scale 1:3101





KR Puram to Kempegowda International Airport

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120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
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KR Puram to Kempegowda International Airport

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Noise Contour Map
Leq,d**
Calculation in 1.5 m above ground

Project engineer: CMR
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<p>Levels Leq,d (in dB(A))</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 > 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Ramp Main building Point receiver +3dB(A) increase from Point Source Line source Geometry bitmap Wall Elevation point Bodeneffekte Nicht-einzelwertig
--	---

Length scale 1:3101

0 25 50 100 150 200 m



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
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Levels Leq,n
in dB(A)

Signs and symbols

North arrow



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- Wall
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Length scale 1:2727





KR Puram to Kempegowda International Airport

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Length scale 1:2727





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- 60 - 65
- >= 65

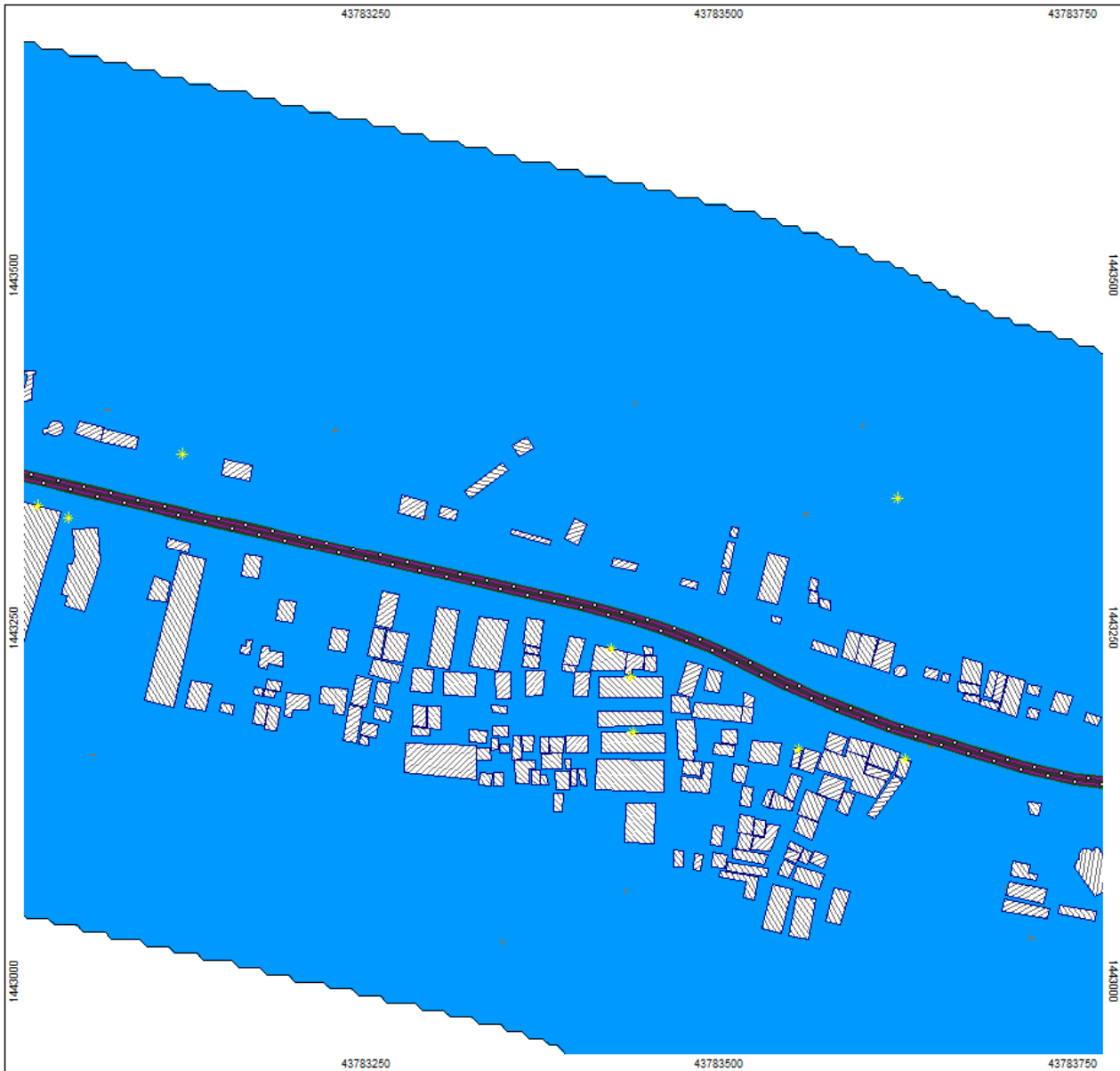
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and
BMRC Rolling Stock Specification. Train schedule and
speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)

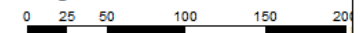
Light Blue	< 45
Medium Blue	45 - 50
Yellow	50 - 55
Brown	55 - 60
Dark Brown	60 - 65
Orange	>= 65

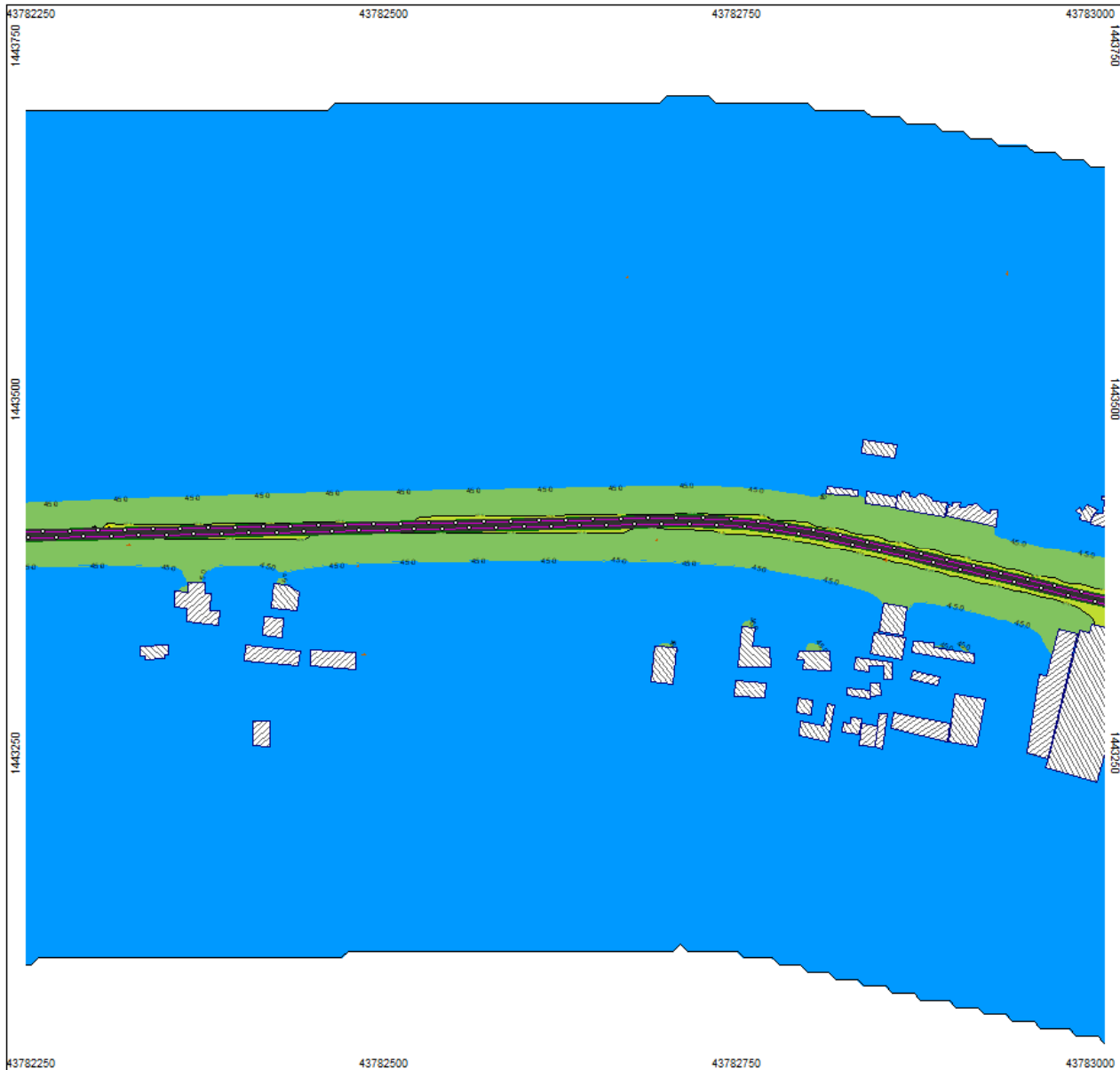
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification, Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Orange	55 - 60
Red	60 - 65
Dark Red	≥ 65

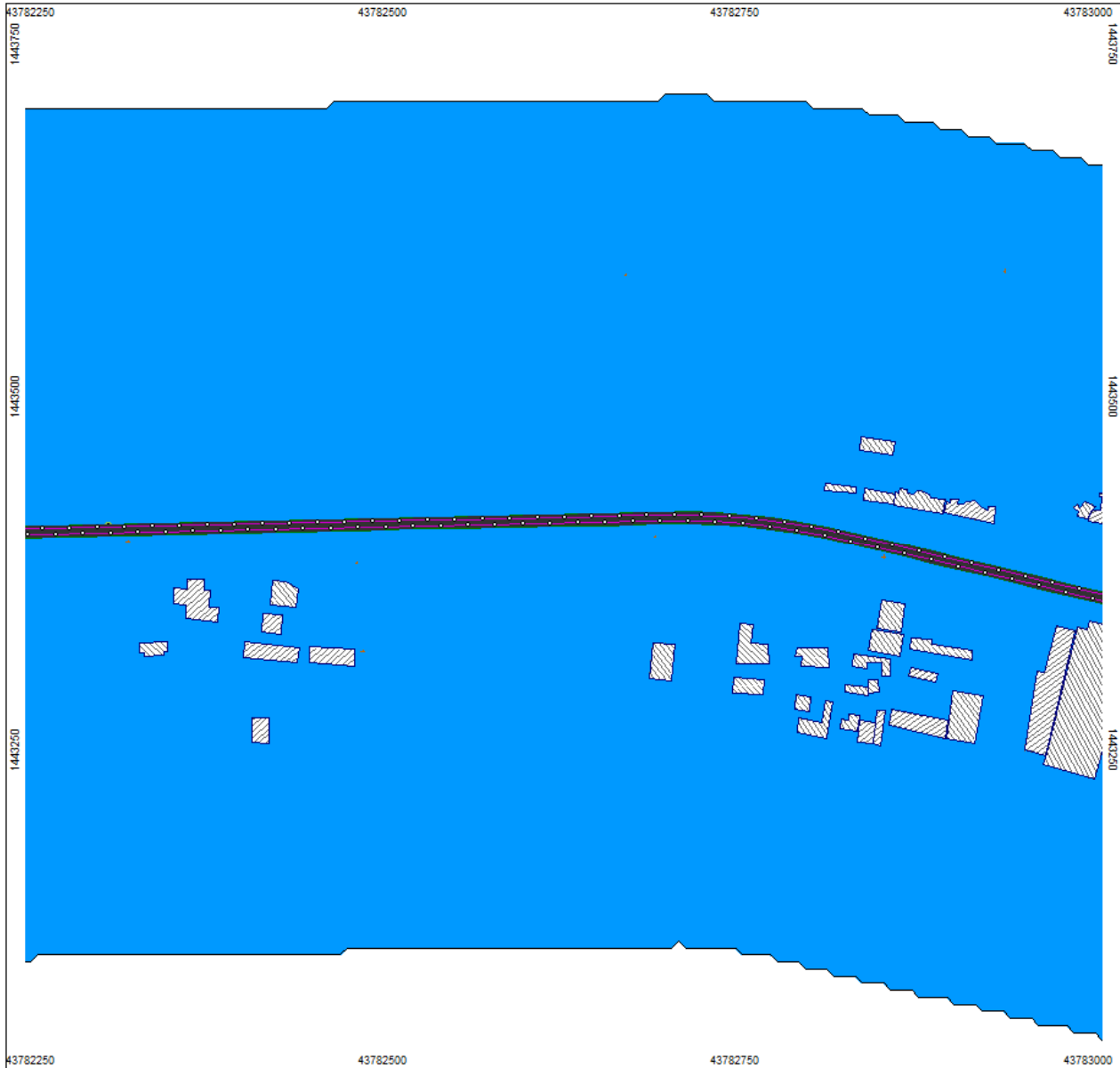
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)		Signs and symbols	
	< 45		Wall
	45 - 50		Construction Equip
	50 - 55		Main building
	55 - 60		Point receiver
	60 - 65		+3dB(A) increase from
	>= 65		Point Sources
			Line source
			Geometry bitmap
			Wall
			Wall
			Elevation point
			Bodeneffekte
			Noise calculation area

Length scale 1:2727

0 25 50 100 150 200



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

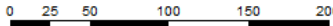
Blue	< 45
Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Grey	60 - 65
Orange	>= 65

Signs and symbols

- Wall
- Construction Equip
- ▨ Main building
- ★ Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

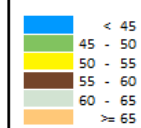
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)



Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line-source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise:
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map**

Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,d
in dB(A)**

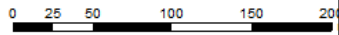
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

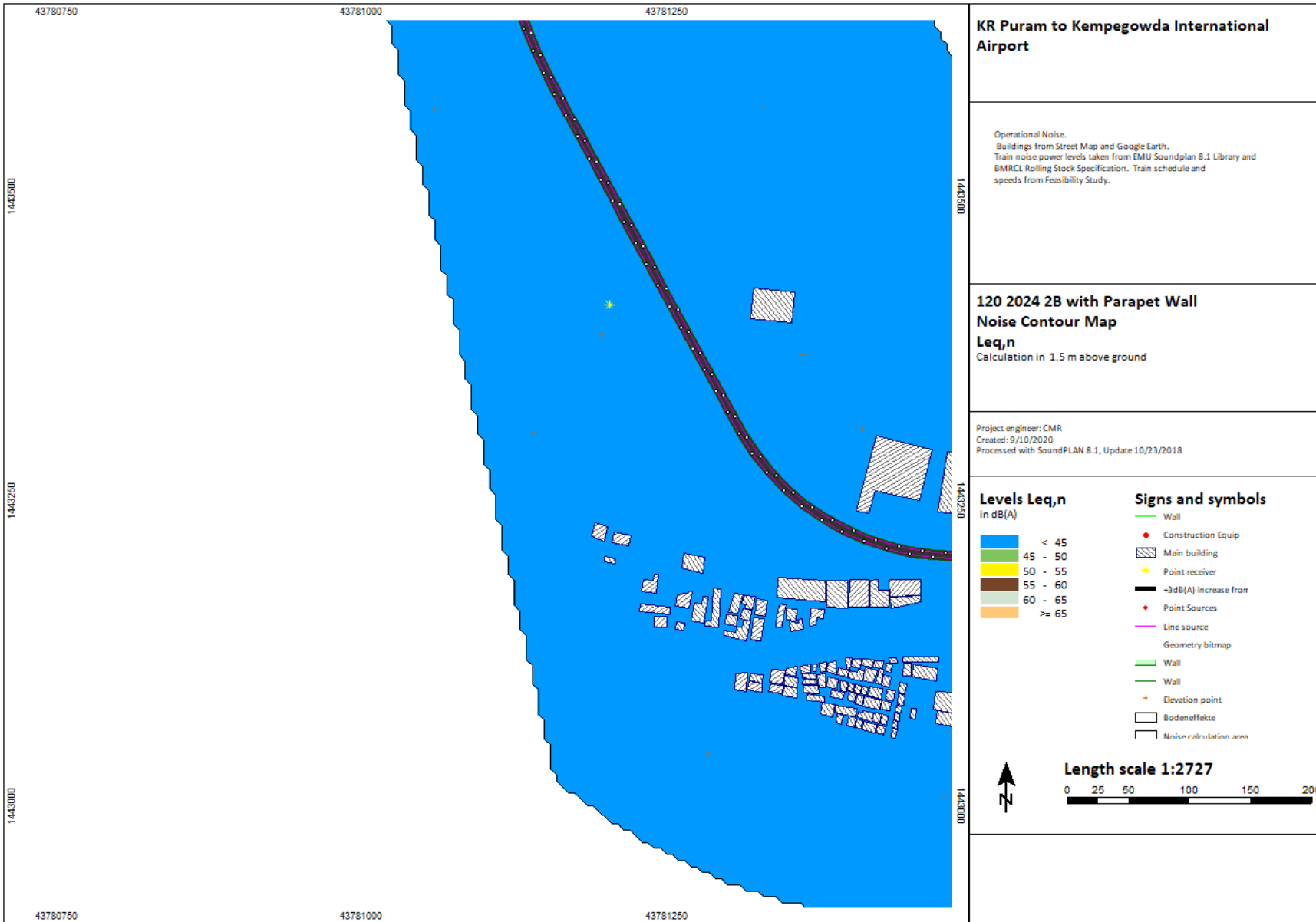
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727







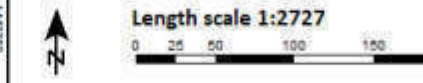
KR Puram to Kempegowda International Airport

Operational Noise
 Buildings from Street Map and Google Earth
 Train noise power levels taken from UMI Soundplan 8.1 Library and
 BMCL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 8/10/2020
 Processed with SoundPLAN 8.1, Update 10/21/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Paint reviver →dB(A) increase track Paint Sources Line source Geometry bitmap Wall Wall Elevation point Buffer offset Noise prediction area
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KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,n in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area
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Length scale 1:2727



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

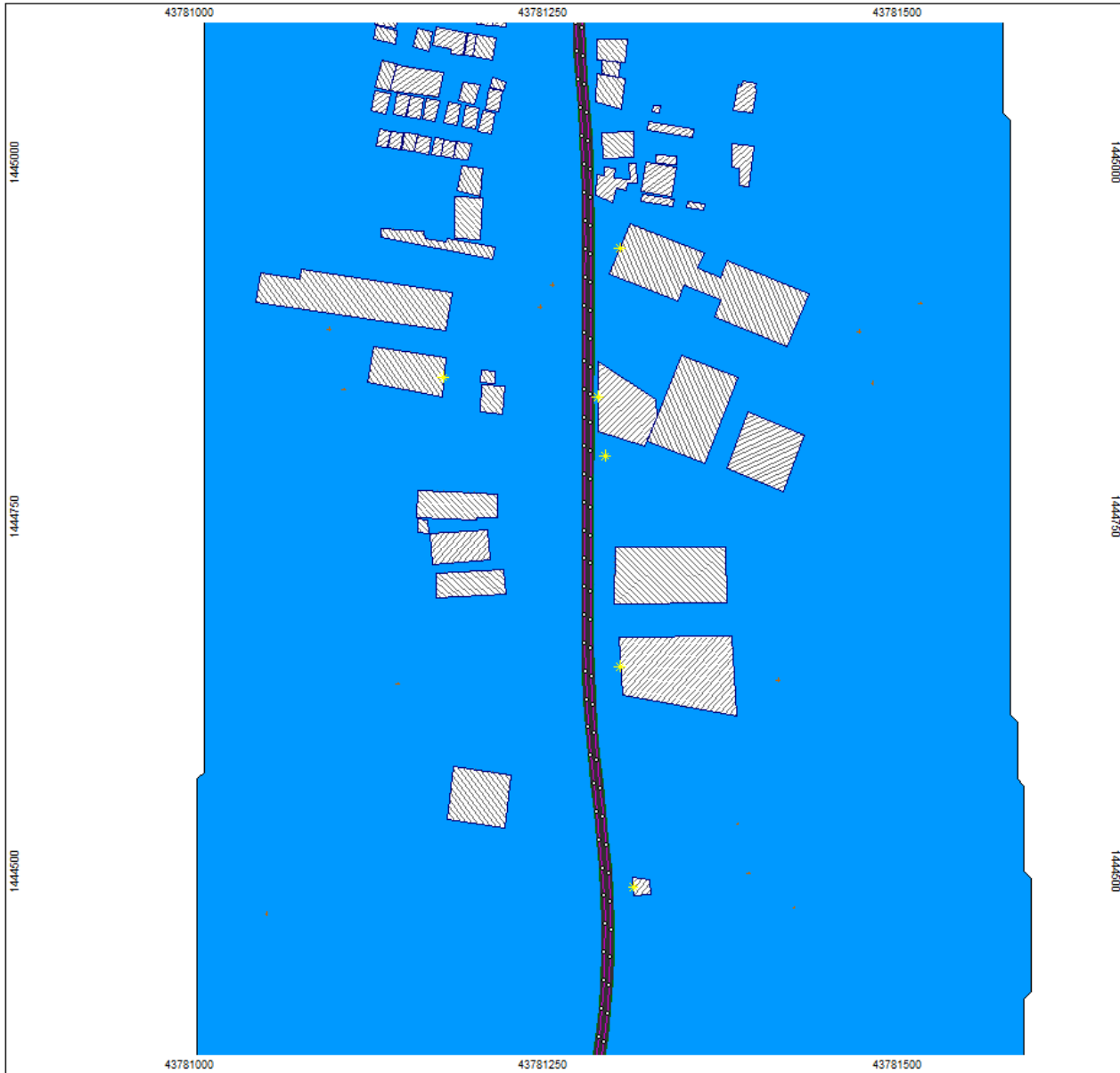
120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2727

0 25 50 100 150 200



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

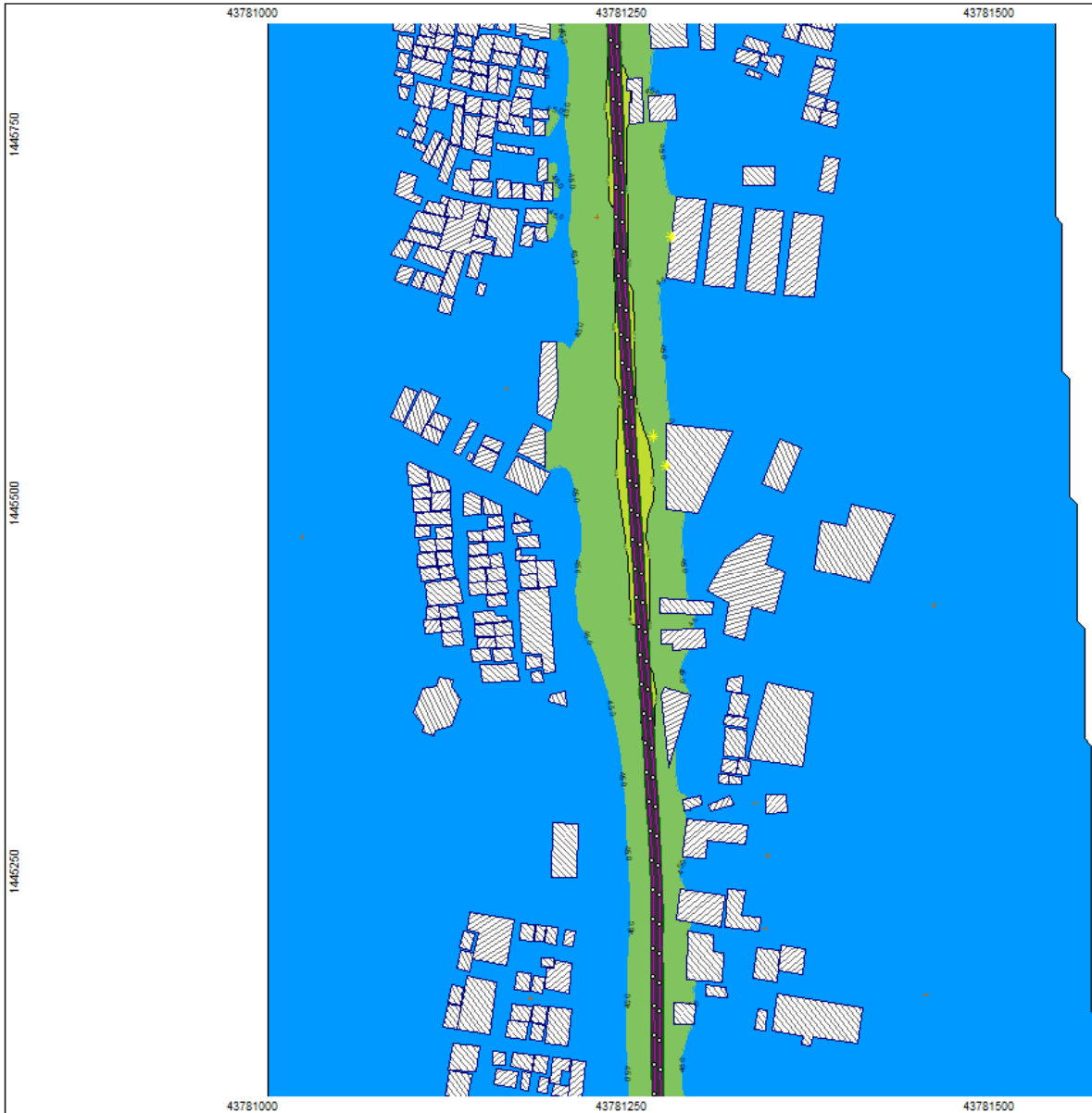
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2727

0 25 50 100 150 200

North arrow pointing up.



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

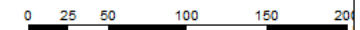
Light Blue	< 45
Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Light Green	60 - 65
Orange	>= 65

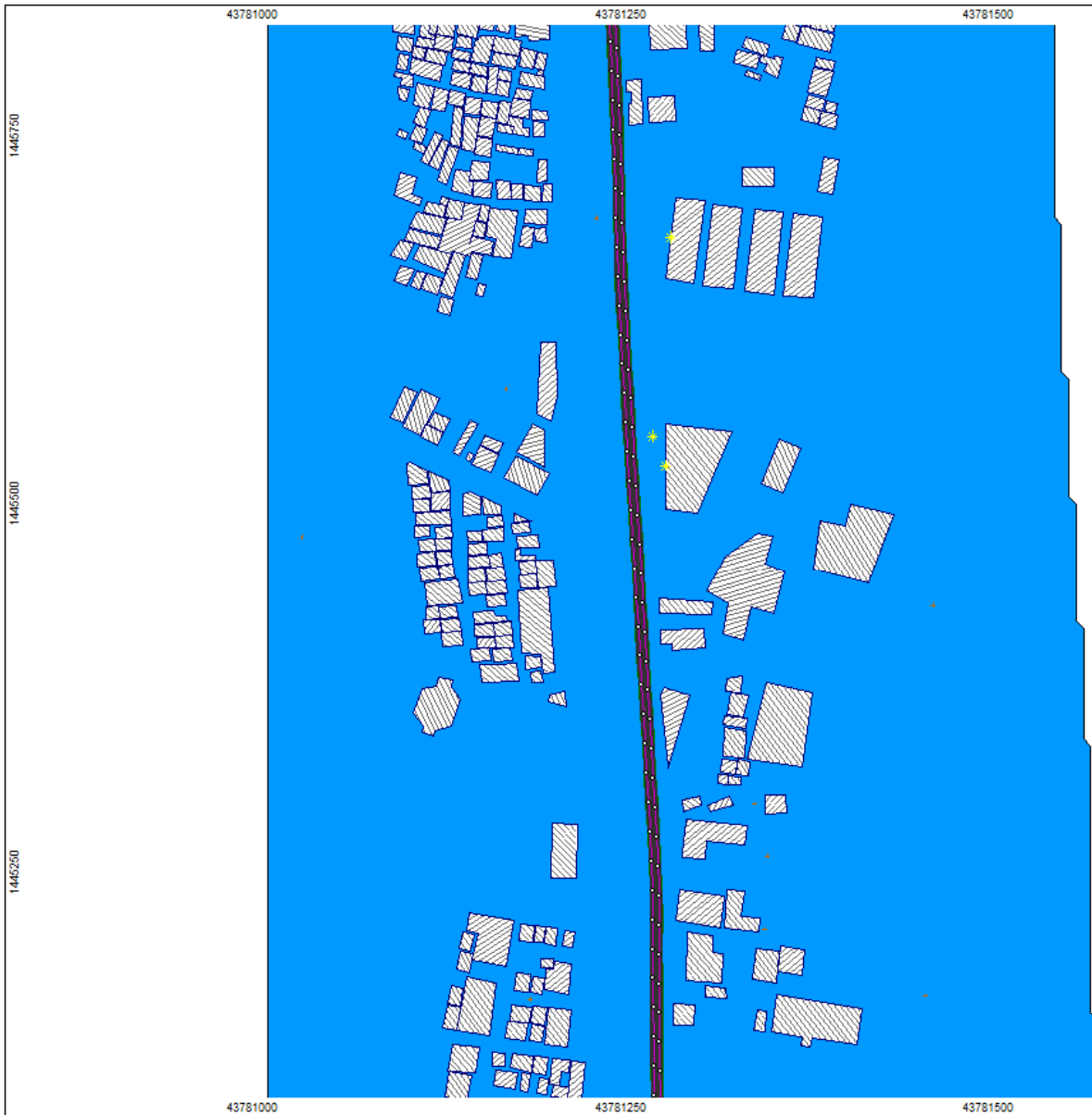
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

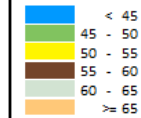
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapot Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)



Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2727

0 25 50 100 150 200





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification, Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d
in dB(A)

Blue	< 45
Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Orange	60 - 65
Light Orange	≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area

Length scale 1:2727

0 25 50 100 150 200

North arrow pointing up.





KR Puram to Kempegowda International Airport

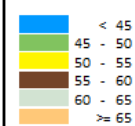
Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRCL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,d
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)



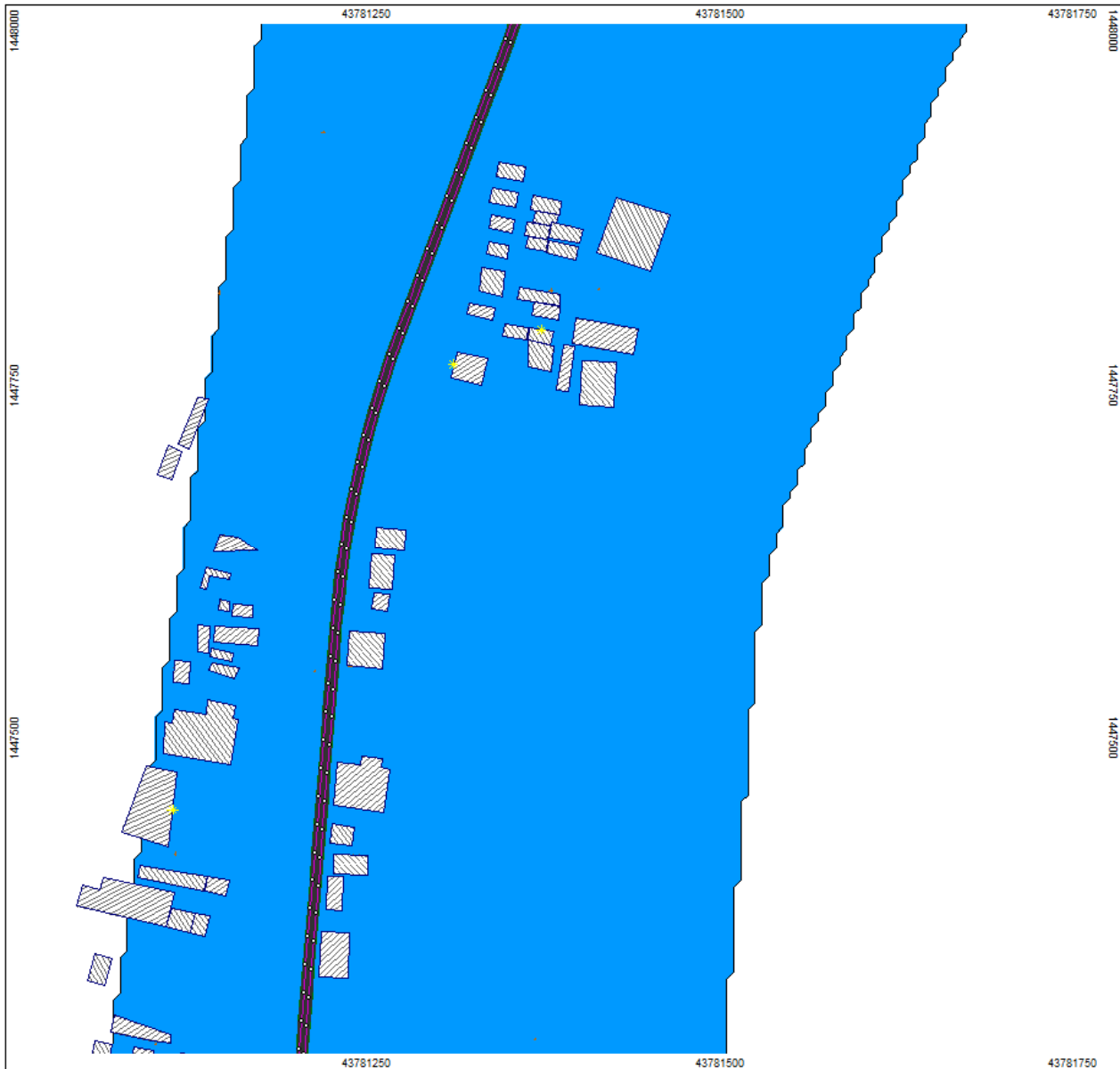
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





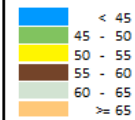
KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,n Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)

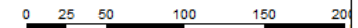


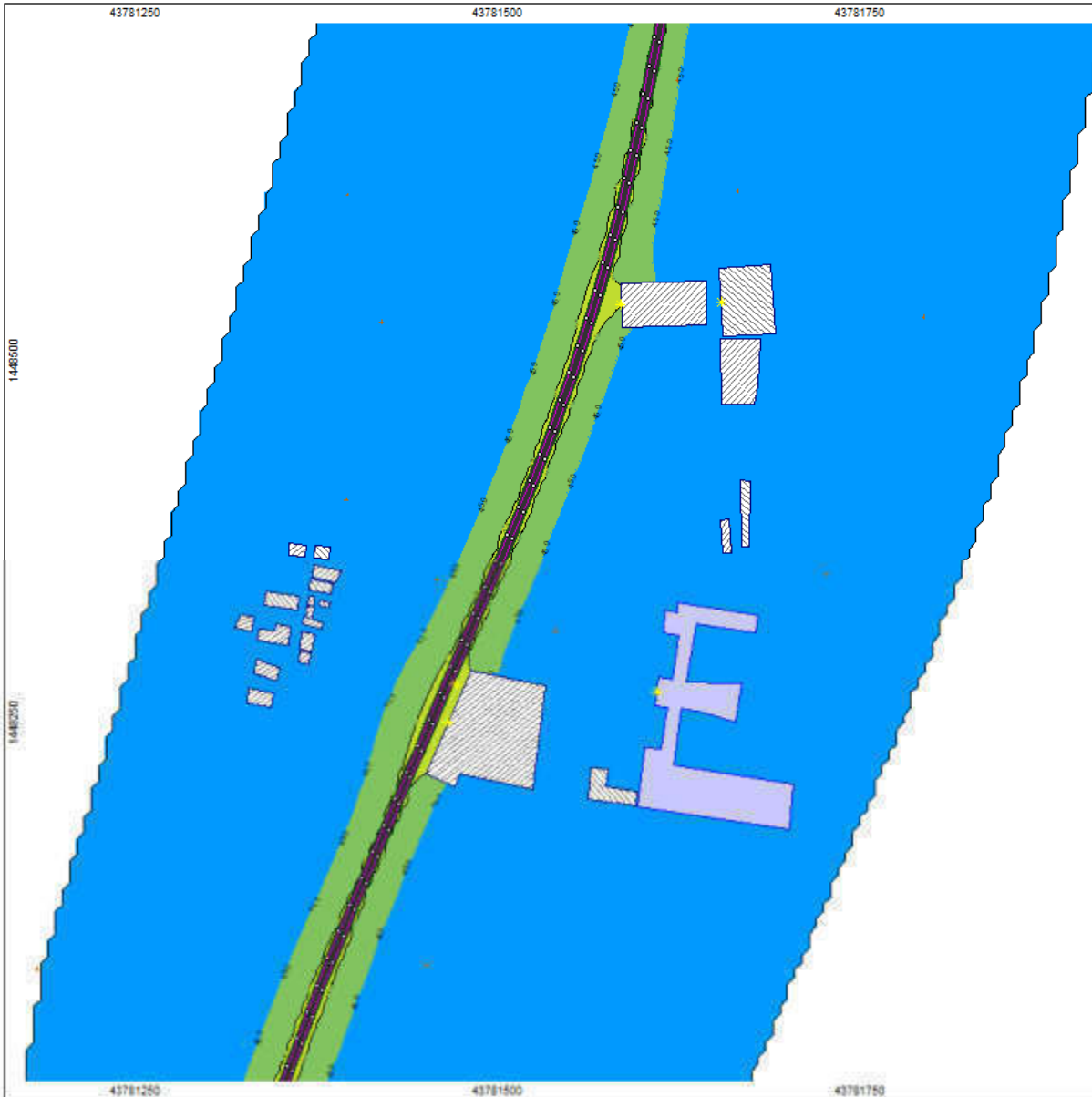
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and
BMRC Rolling Stock Specification. Train schedule and
speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

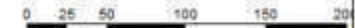
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

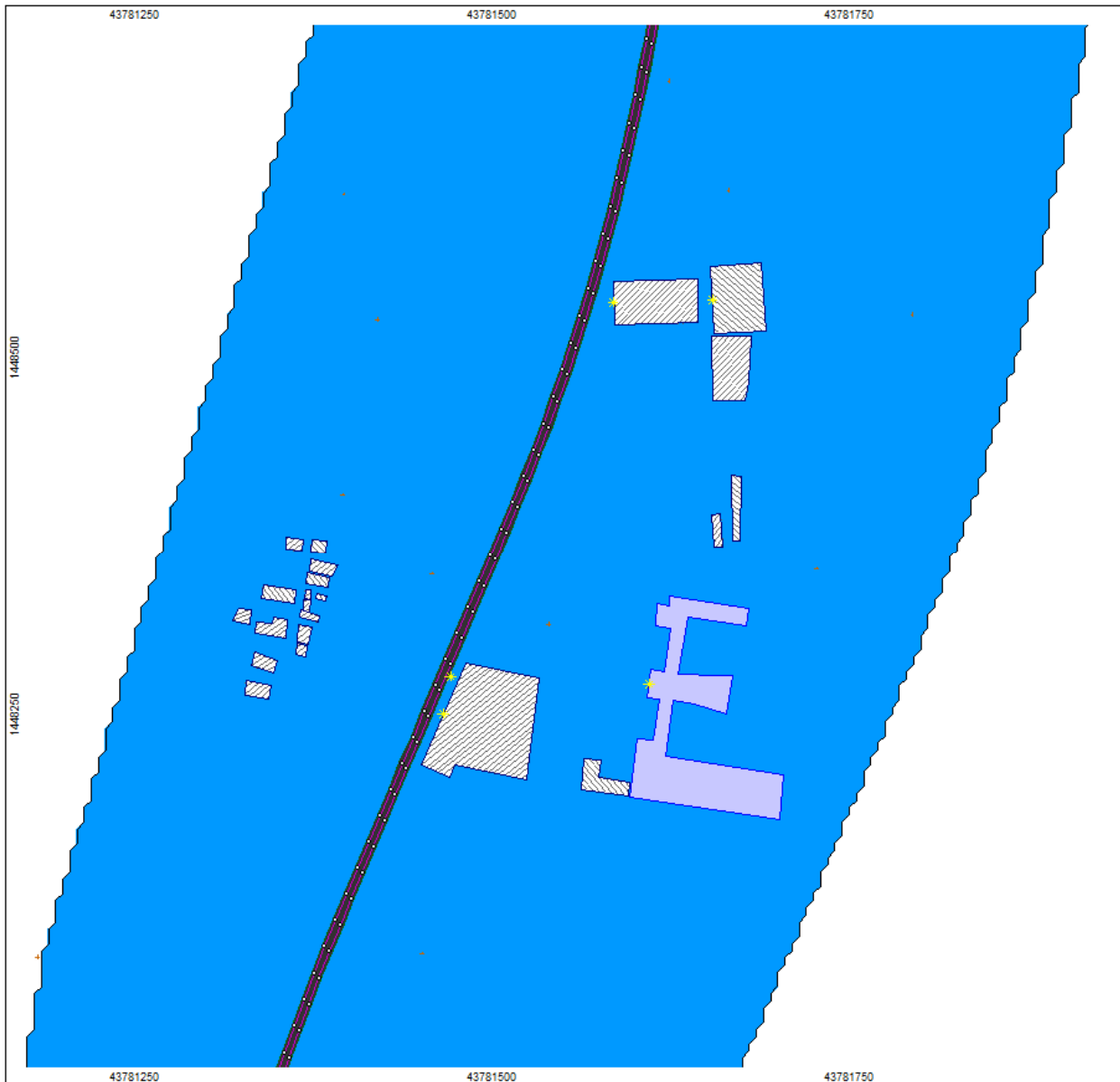
Levels Leq,d in dB(A)	
Blue	< 45
Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Grey	60 - 65
Orange	> 65

Signs and symbols	
Red line	Wall
Red square	Construction Equip
Hatched rectangle	Main building
Yellow star	Point receiver
Black line with red dot	-3dB(A) increase from
Red dot	Point Source
Pink line	Line source
Pink line	Geometry blimp
Green line	Wall
Green line	Wall
Orange dot	Elevation point
White rectangle	Bottom offset
Black rectangle	Main noise barrier area



Length scale 1:2727





KR Puram to Kempegowda International Airport

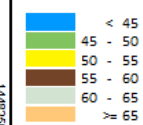
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)



Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map**

Leq,d
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,d
 in dB(A)**

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- > 65

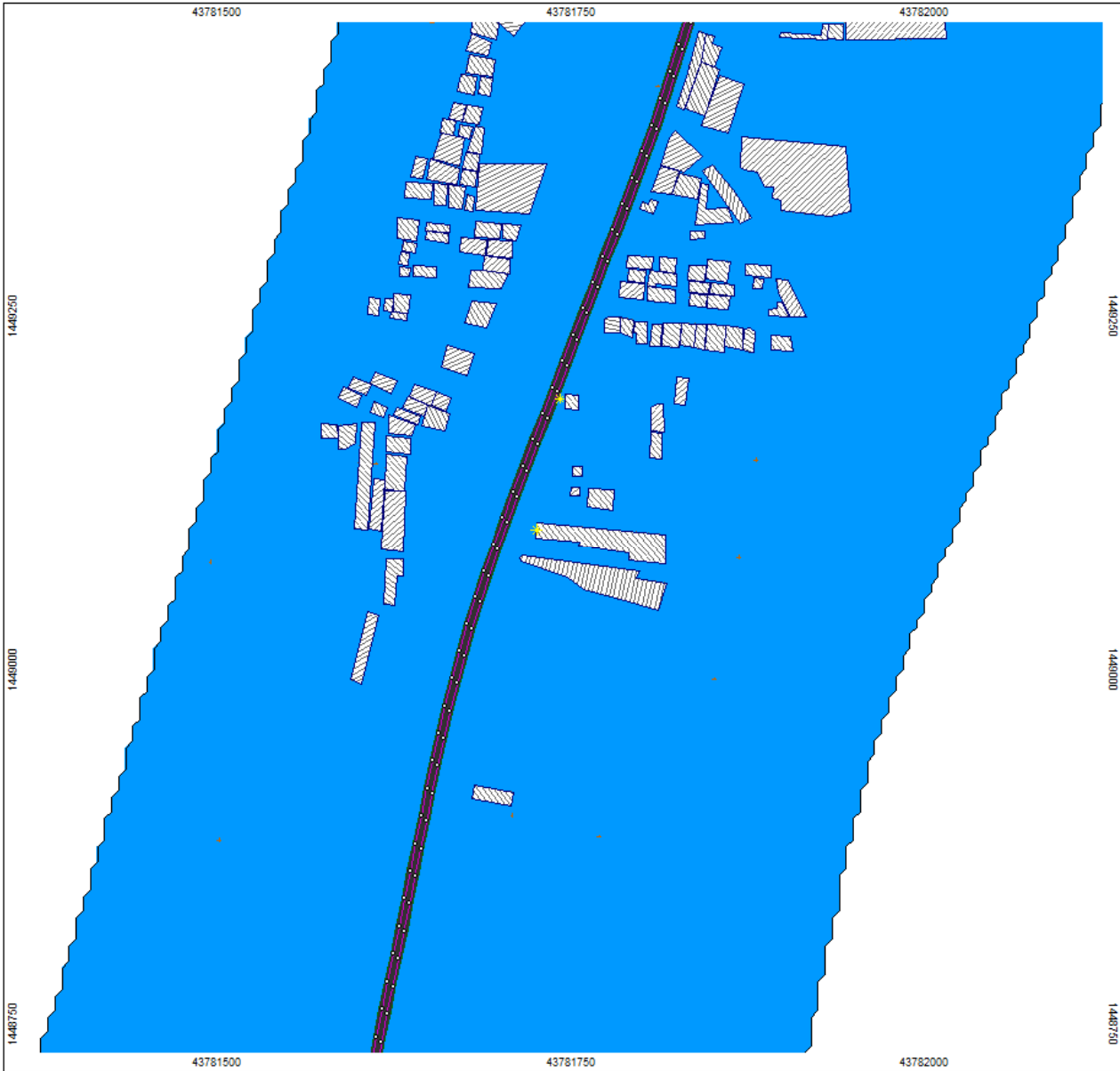
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)

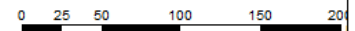
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

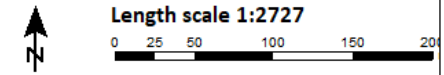
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

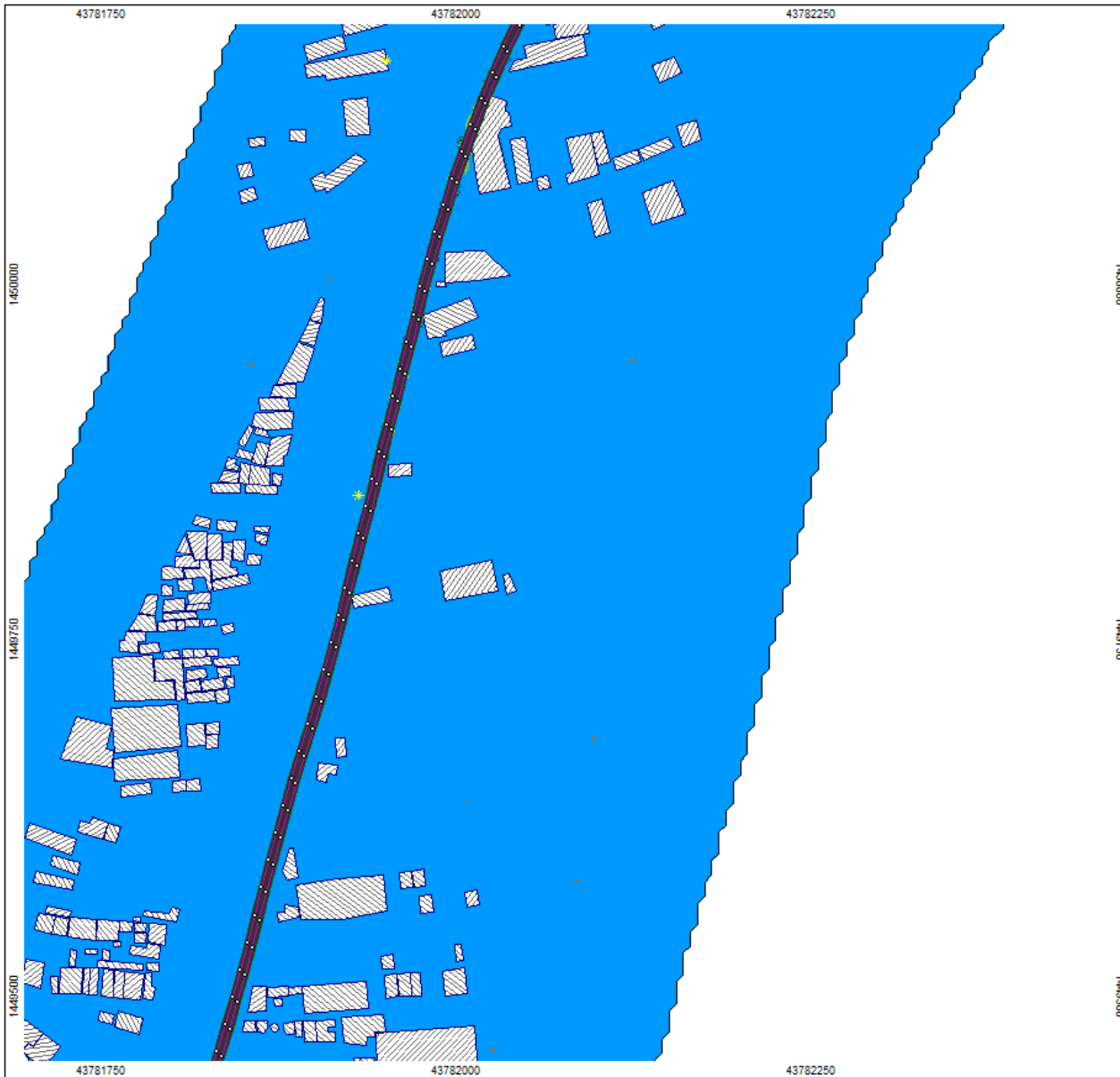
Levels Leq,d in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Dark Green	55 - 60
Brown	60 - 65
Orange	≥ 65

Signs and symbols

- Wall
- Construction Equip
- ▨ Main building
- ★ Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

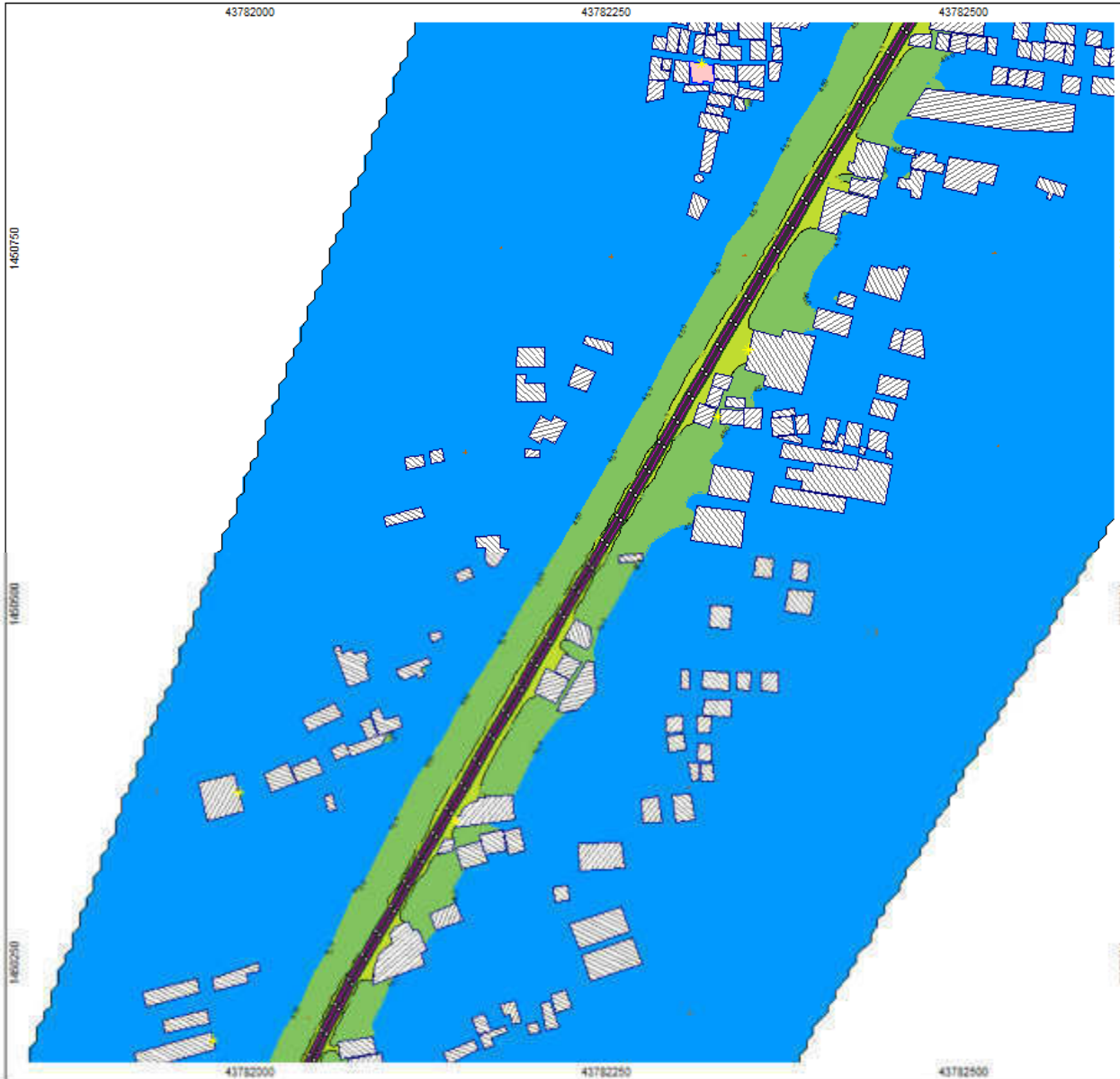
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
≥ 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2727

0 25 50 100 150 200

North arrow pointing up.



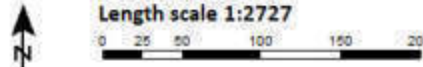
KR Puram to Kempegowda International Airport

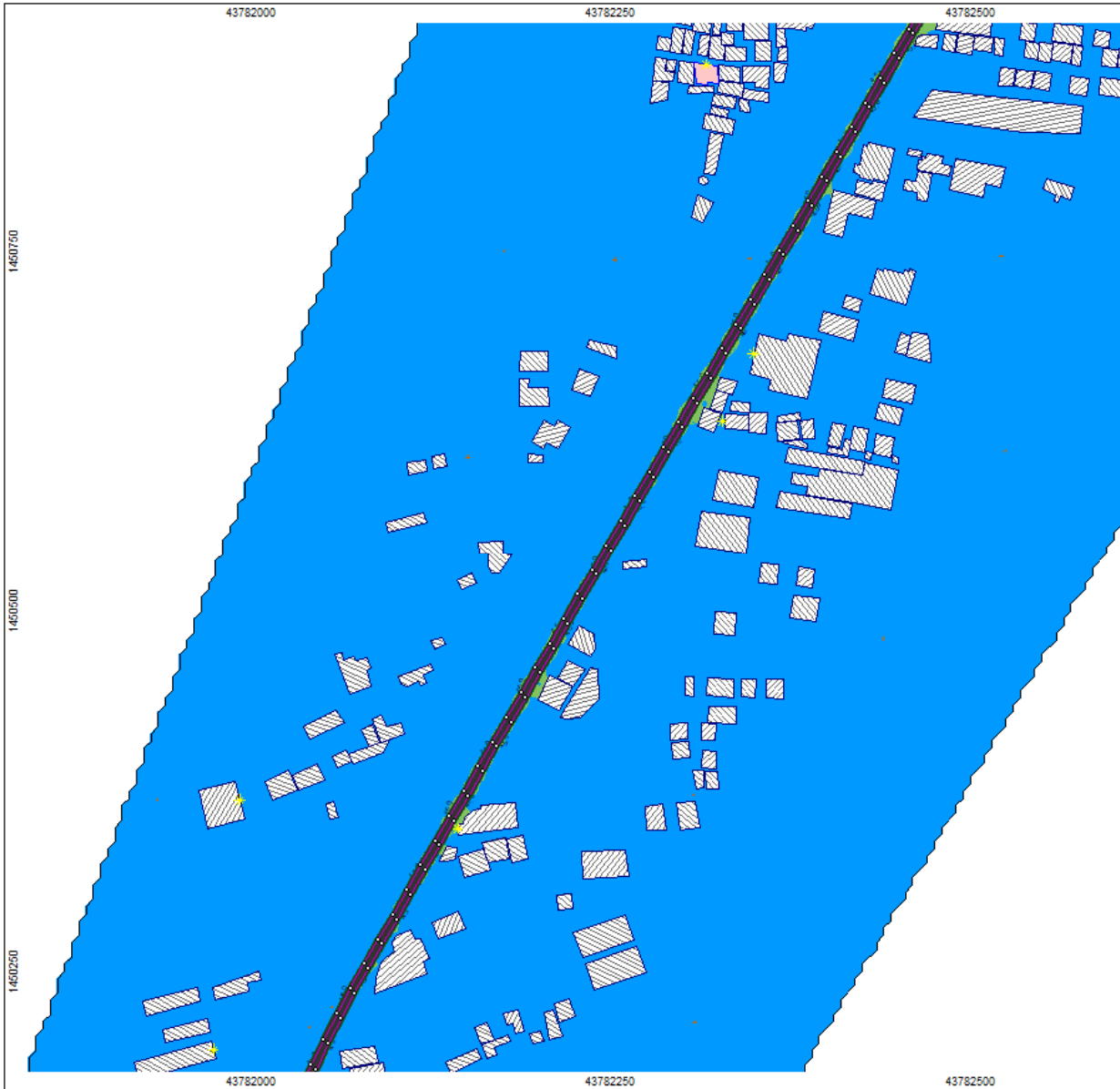
Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 >= 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Elevation point Bodenplatte Noise reduction area
---	--





KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map**

Leq,n
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,n
 in dB(A)**

Blue	< 45
Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Grey	60 - 65
Orange	>= 65

Signs and symbols

- Wall
- Construction Equip
- ▨ Main building
- ★ Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- + Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise:
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d
in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Orange	60 - 65
Dark Orange	>= 65

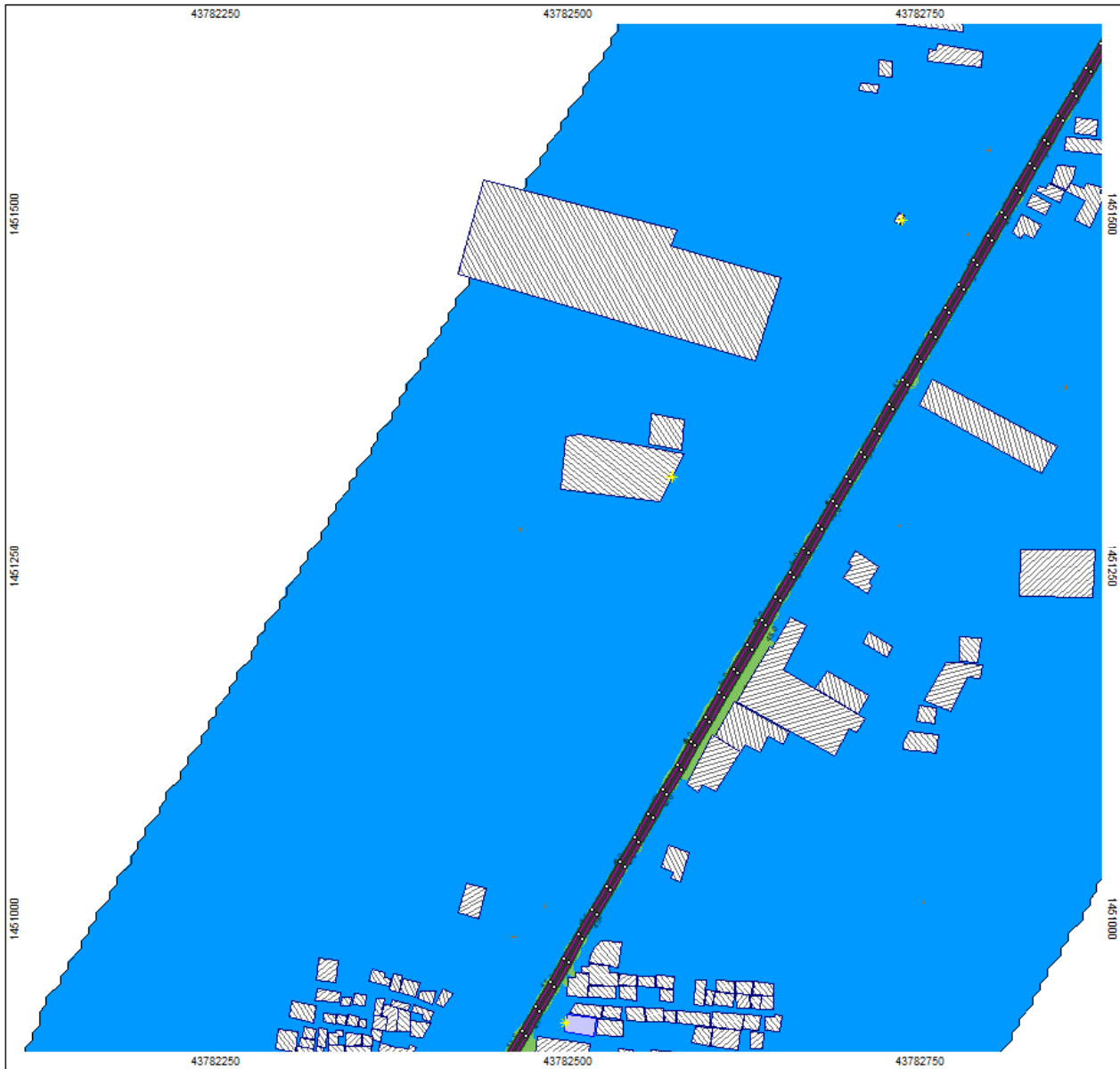
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +30(A) increase from
- Point Source
- Line source
- Geometry library
- Wall
- Wall
- Elevation point
- Subarea/Block
- Master sub-area/Block



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,n
in dB(A)**

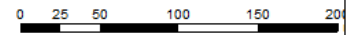
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d**
Calculation in 1.5 m above ground

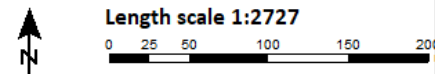
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

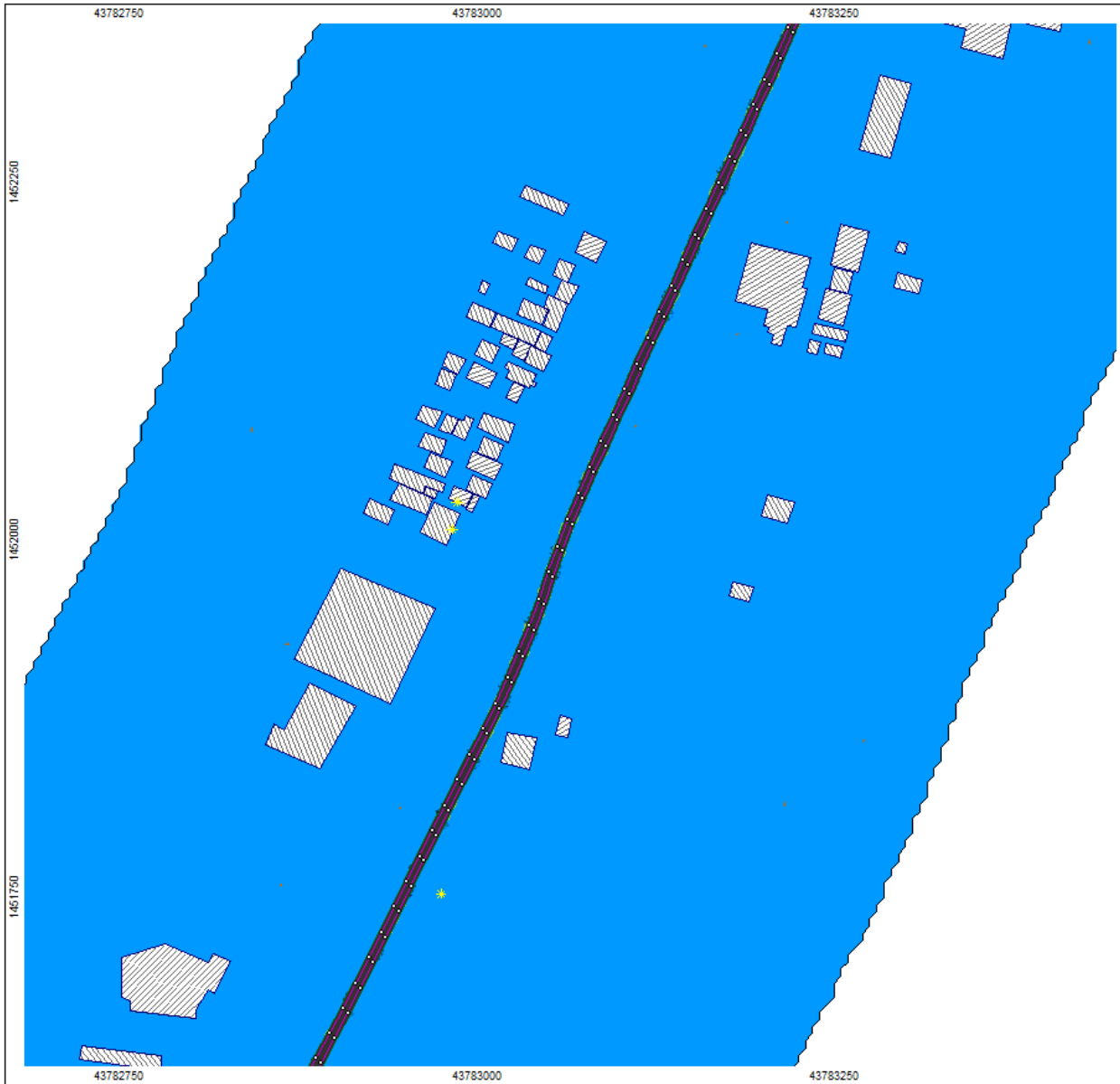
Levels Leq,d
in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Grey	60 - 65
Orange	>= 65

Signs and symbols

Green line	Wall
Red dot	Construction Equip
Hatched polygon	Main building
Yellow star	Point receiver
Black line	+3dB(A) increase from
Red dot	Point Sources
Pink line	Line source
Green polygon	Geometry bitmap
Green line	Wall
Red dot	Elevation point
White rectangle	Bodeneffekte
White rectangle	Noise calculation area





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification, Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2727





KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

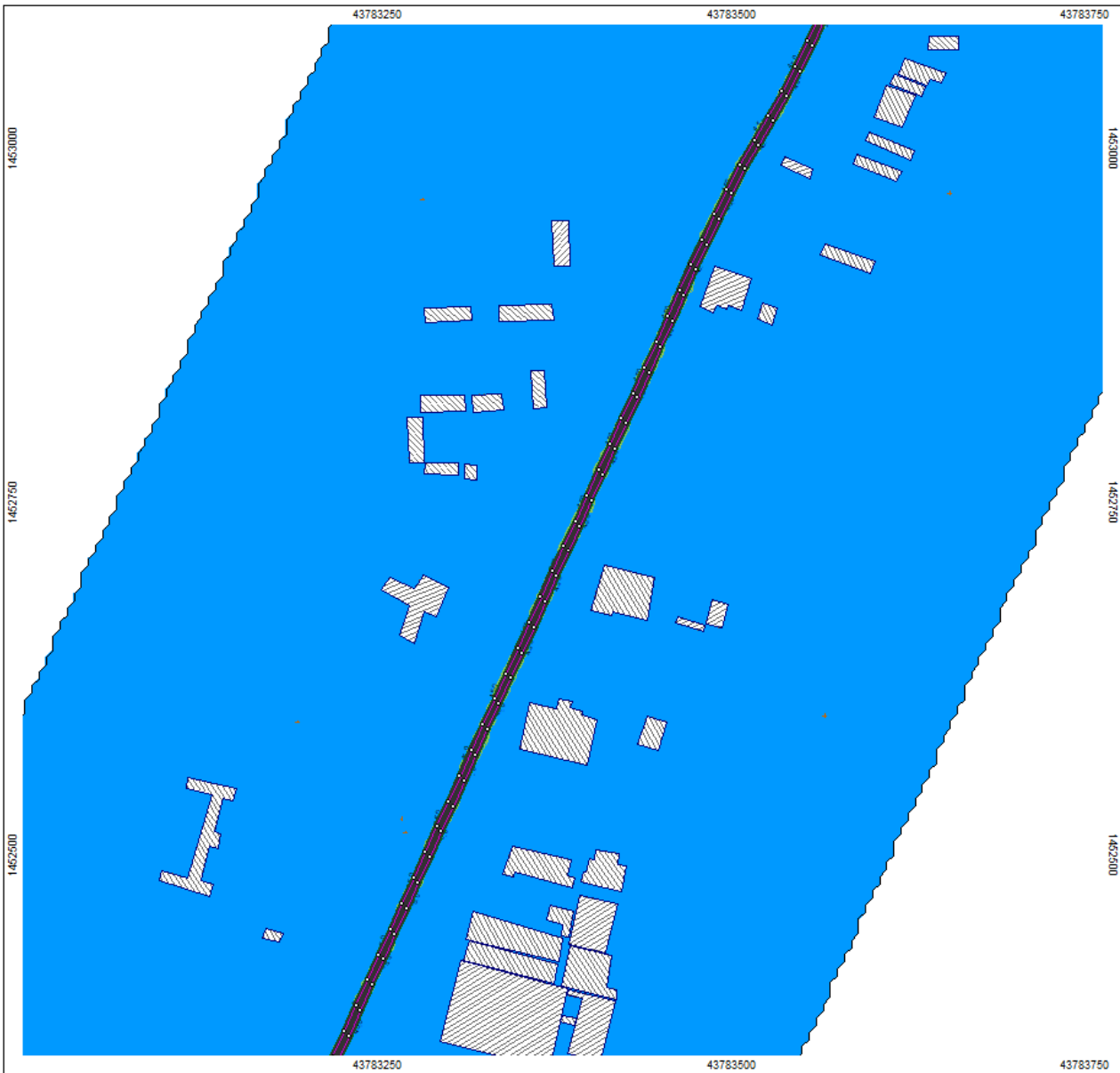
Levels Leq,d
 in dB(A)

Blue	< 45
Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Orange	60 - 65
Light Orange	≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Source
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Reflection
- Noise distribution area





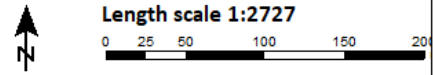
KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,n in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area
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KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth
 Train noise power levels taken from IEMU Soundmap 8.1 Library and
 BMCL Rolling Stock Specification, Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

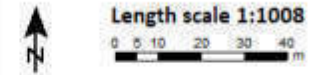
Project engineer: CMR
 Created: 9/10/2020
 Projected with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,d
 in dB(A)**

Blue	≤ 45
Light Green	45 - 50
Yellow	50 - 55
Orange	55 - 60
Red	60 - 65
Dark Red	≥ 65

Signs and symbols

Green line	Wall
Red circle	Construction Equip
Blue rectangle	Main building
Yellow star	Point receiver
Black line	+3dB(A) increase from
Red circle	Point Sources
Pink line	Line source
Green rectangle	Geometry bitmap
Green line	Wall
Green line	Wall
Red cross	Elevation point
White rectangle	Building/Block
Hatched rectangle	Building/Block





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map**

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/11/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,n
in dB(A)**

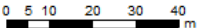
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- + Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:1008





KR Puram to Kempegowda International Airport

Operational Noise
 Buildings from Street Map and Google Earth
 Train noise power levels taken from EMU Soundmap 8.1 Library and
 SNRC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

120 2024 2B with Parapat Wall
Noise Contour Map
Leq,d
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2024
 Prepared with SoundPLAN 8.1, Update 10.03.2018

Levels Leq,d in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Man building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Direction point
	Bottomoflake
	Noise calculation area

Length scale 1:2109
 0 20 40 80 120 1



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)

Signs and symbols

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from DMU Soundmap 8.1 Library and
 BMRD, Rolling Stock Specification, Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in: 1.5 m above ground.

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Grey	60 - 65
Orange	> 65

Signs and symbols

- Wall
- Construction Equip.
- ▨ Main building
- ★ Point receiver
- +3dB(A) increase from
- Point Source
- Line source
- Geometry blimp
- Wall
- Wall
- Deviation point
- ▭ Building block
- ▭ Main road/corridor area





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n
in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Orange	55 - 60
Red	60 - 65
Dark Red	≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

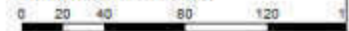
120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

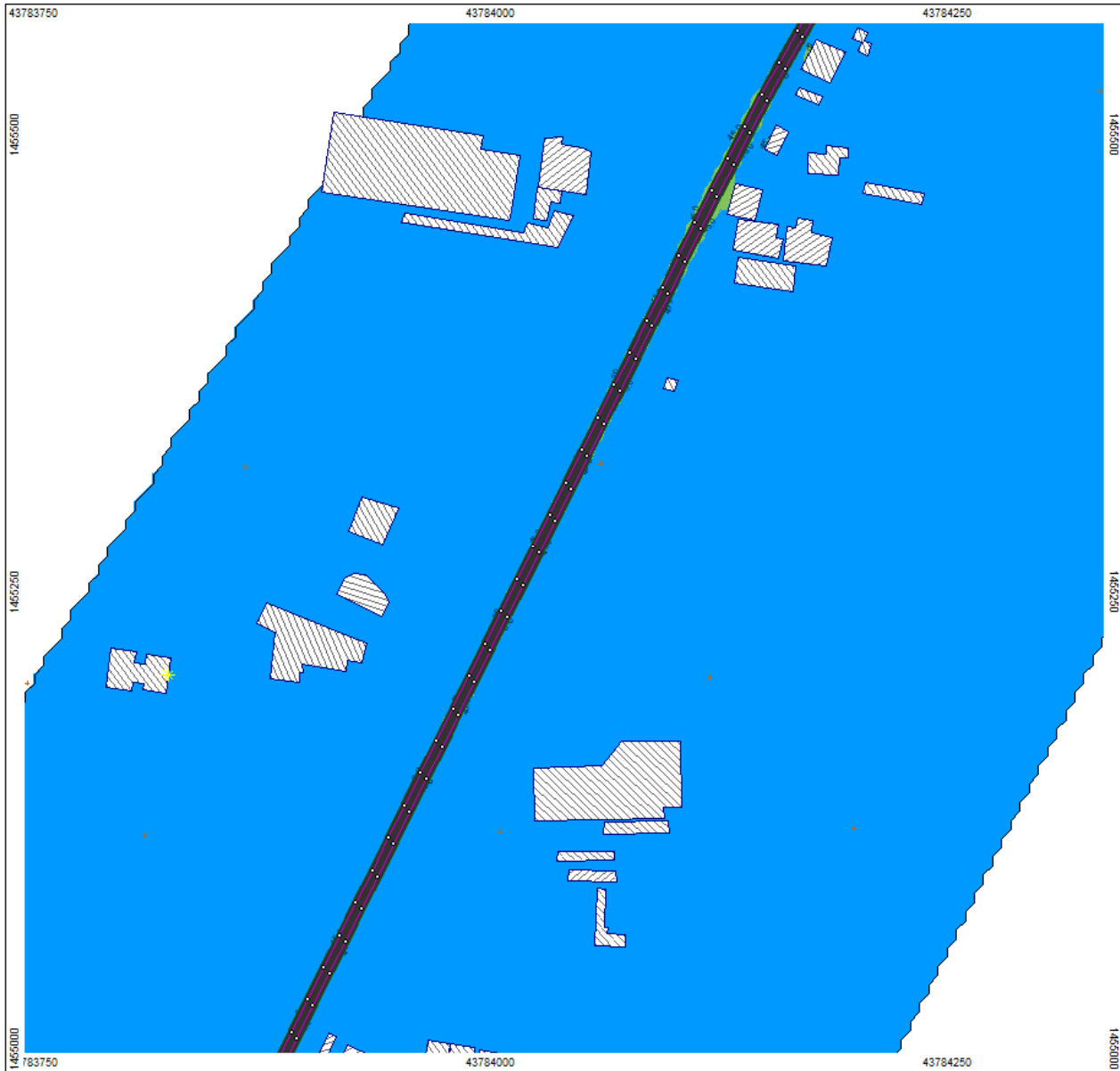
Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line points
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Buffer effect
	Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map**

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,n
in dB(A)**

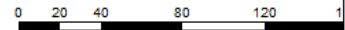
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

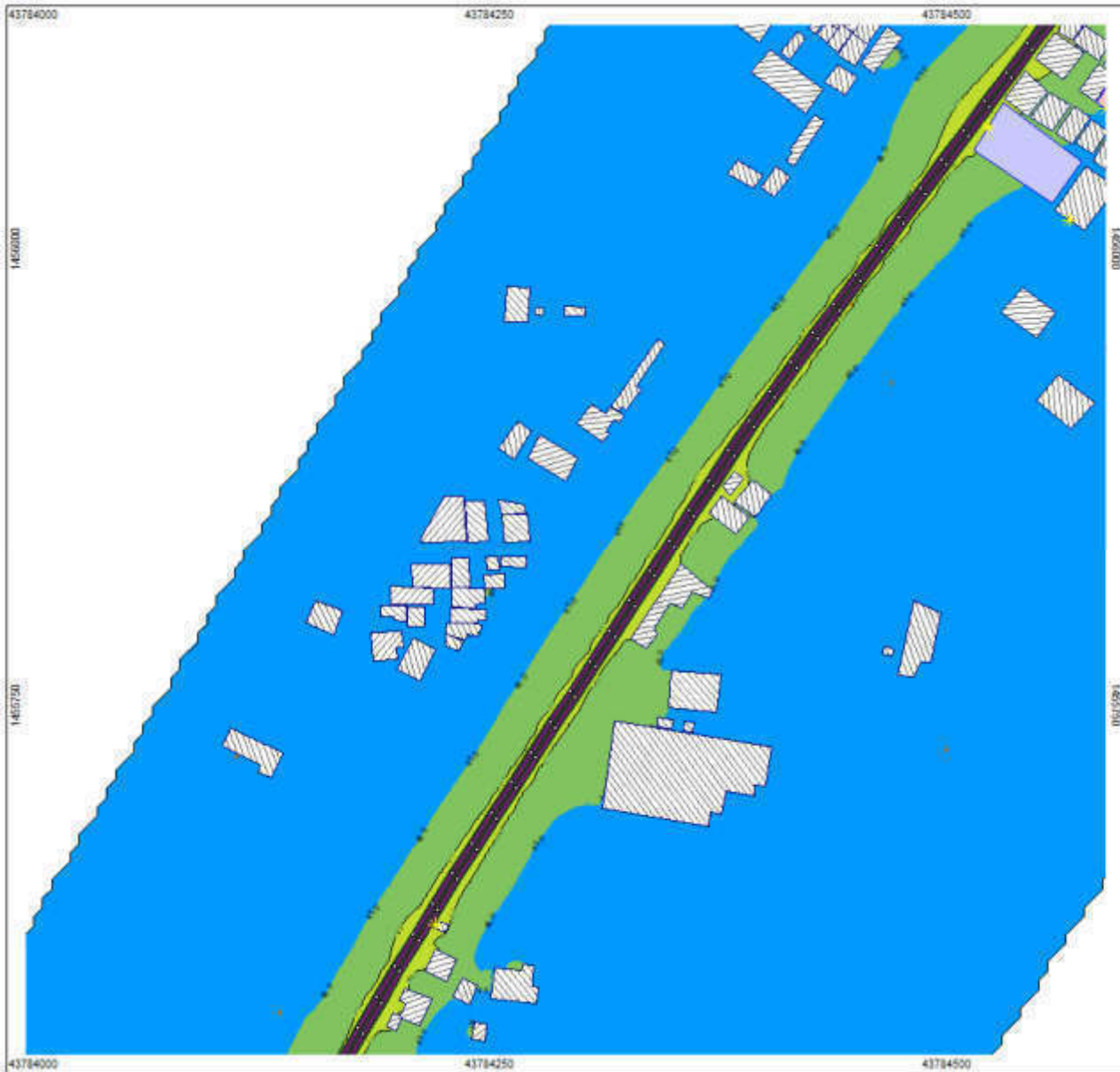
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise
 Buildings from Street Map and Google Earth
 Train noise power levels taken from EMU Specification 8.1 Library and
 BMRCL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with: SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,d
 in dB(A)**

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

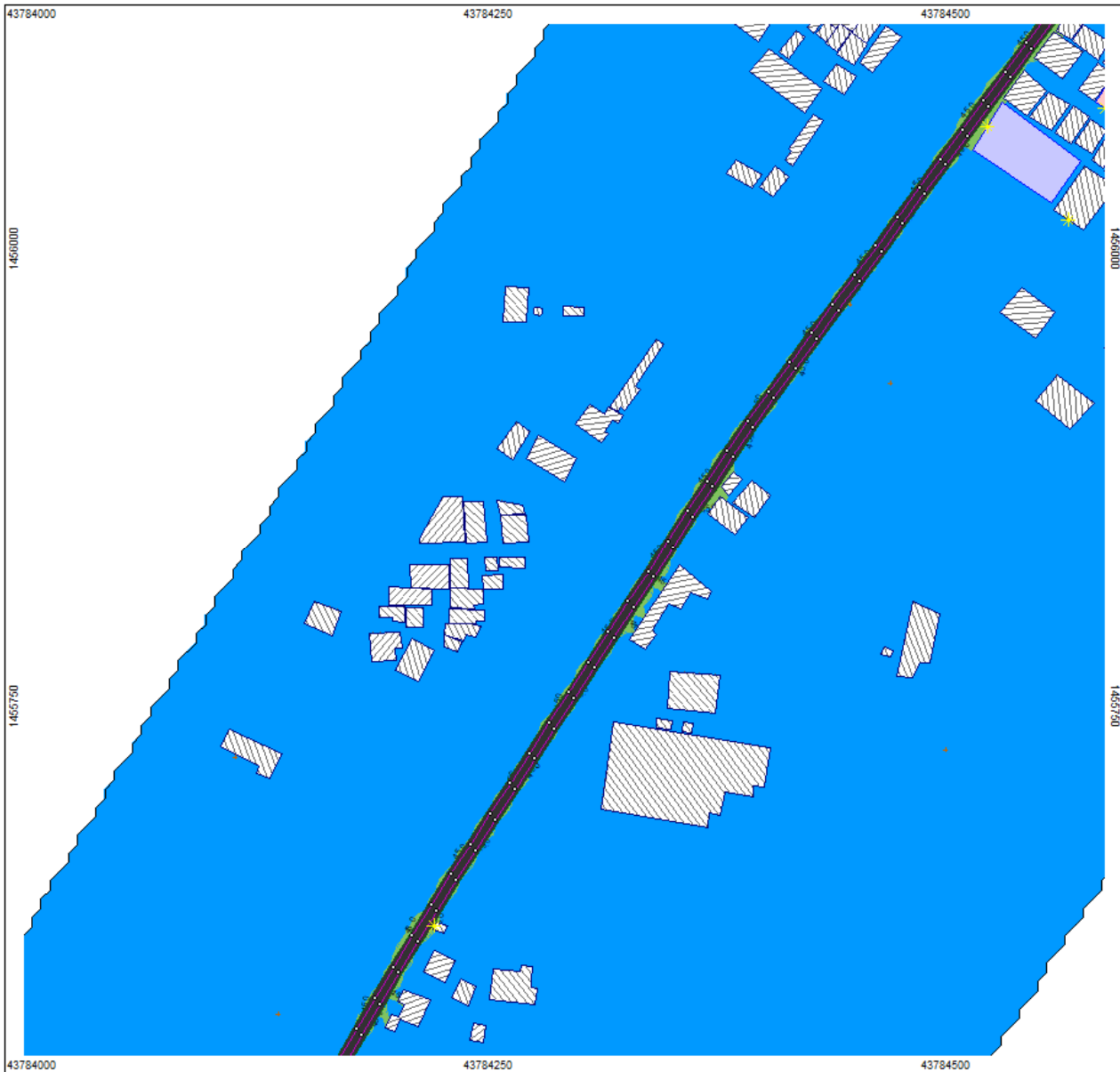
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Source
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Badreflekte
- Noise reduction barrier



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

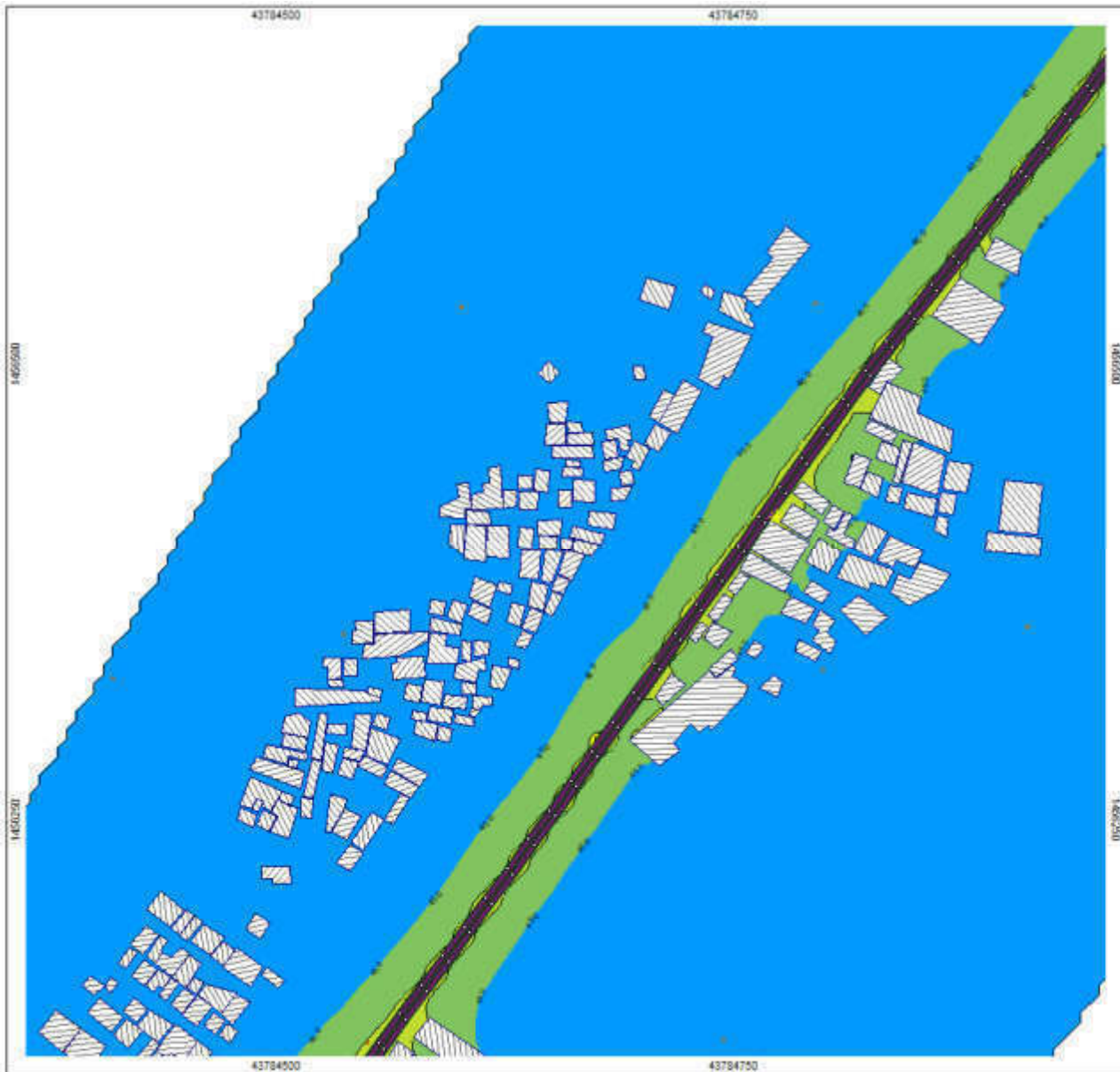
**120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

Operational Noise
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from DMU Soundplan 8.1 Library and
 BMRC Rolling Stock Specifications. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMI
 Created: 31/03/2025
 Processed with SoundPLAN 8.1, Update 10/21/2018

**Levels Leq,d
 in dB(A)**

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

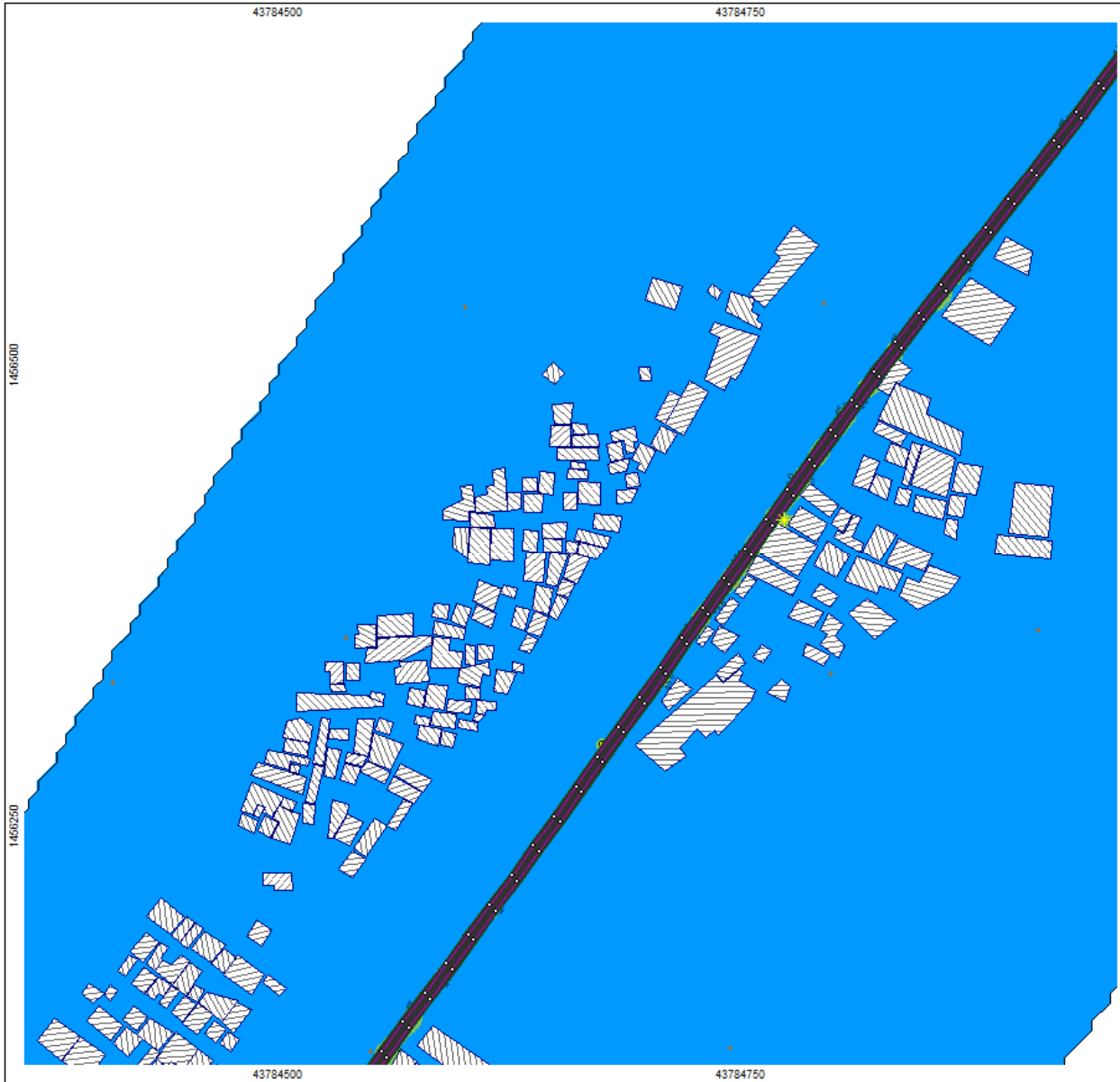
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Source
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bufferofftake
- Noise sensitive area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRCL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,n Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)

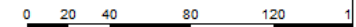
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from DMU Soundplan 8.1 Library and
 BMRCL Rolling Stock Specification, Train schedule and
 speeds from Feasibility Study.

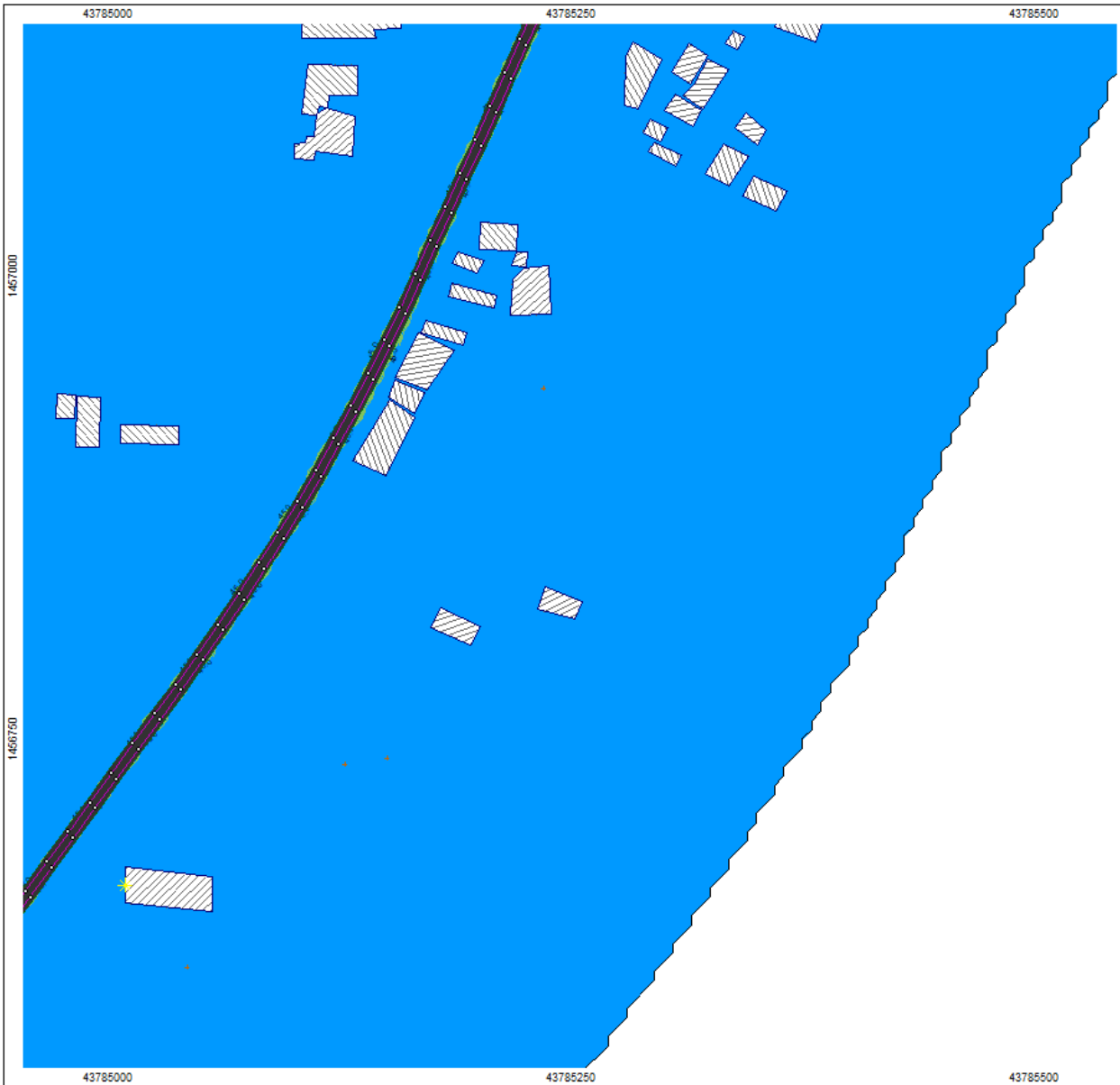
120 2024 2B with Parapet Wall
Noise Contour Map
Leq,d
 Calculation in 1.5 m above ground.

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Source
	Line source
	Geometry blowup
	Wall
	Wall
	Elevation point
	Buildings
	Other infrastructure

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

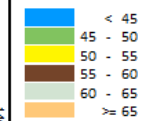
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and
BMRL Rolling Stock Specification. Train schedule and
speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)



Signs and symbols

- Wall
- Construction Equip
- Main building
- ★ Point receiver
- +3dB(A) increase from
- ♦ Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- + Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from DMU SoundPLAN 8.1 library and
 BANGC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 8/10/2020
 Processed with: SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

	< 45
	45 - 50
	50 - 55
	55 - 60
	60 - 65
	≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





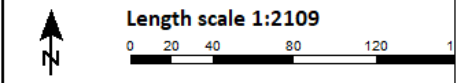
KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,n**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,n in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area
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KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU SoundPLAN 8.1 Library and
 BMRC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/18/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Dark Green	55 - 60
Brown	60 - 65
Orange	>= 65

Signs and symbols

- Green line: Wall
- Red dot: Construction Equip
- Hatched box: Main building
- Yellow star: Point receiver
- Black line: +3dB(A) increase from
- Red dot: Point Source
- Purple line: Line source
- Green line: Geometry bitmap
- Green line: Wall
- Orange dot: Elevation point
- White box: Bodenreflex
- Hatched box: Noise reduction zone





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n
in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Brown	55 - 60
Orange	60 - 65
Dark Orange	≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

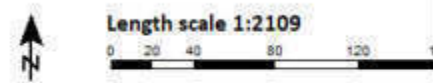
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

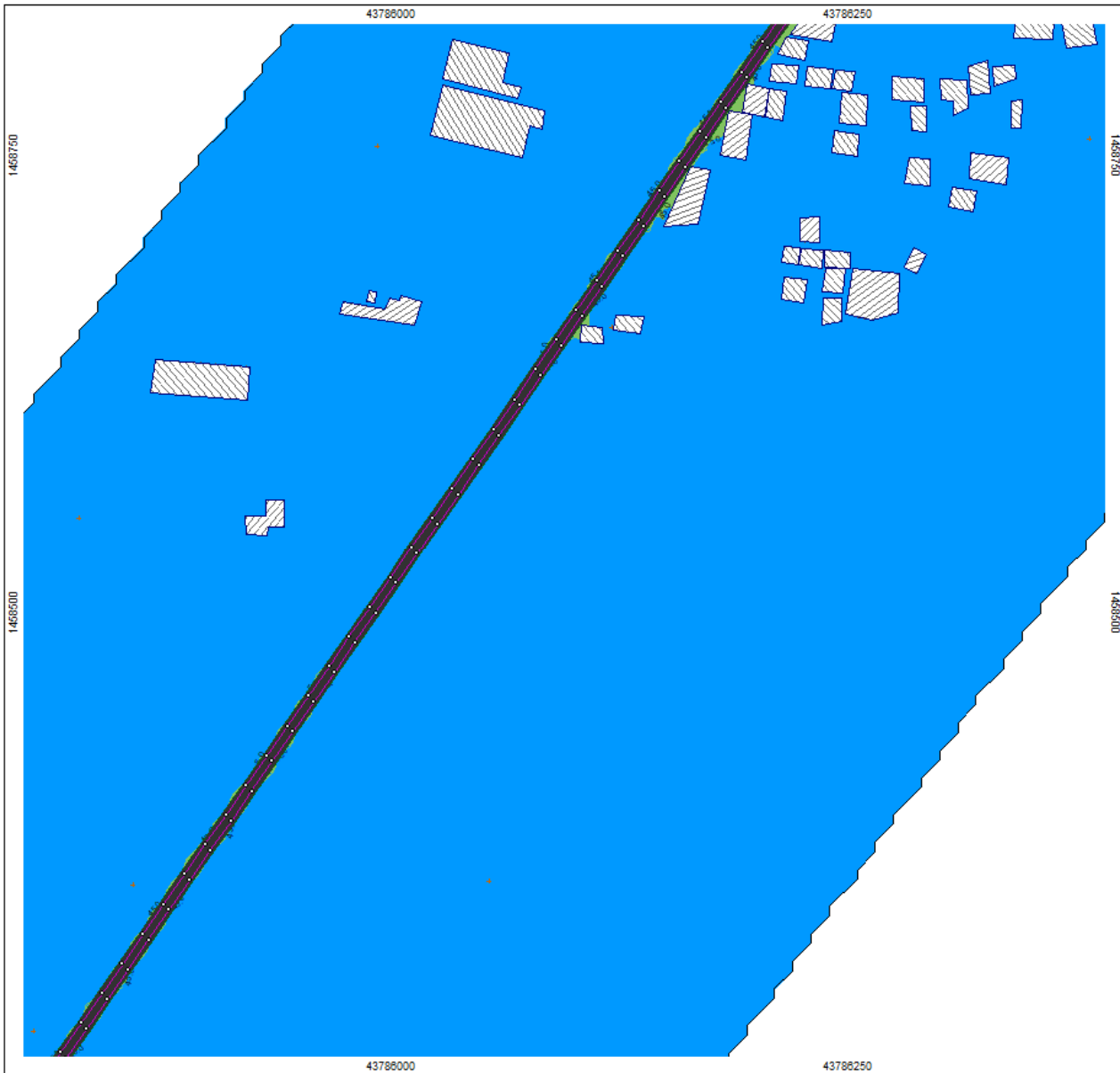
120 2024 2B with Parapet Wall Noise Contour Map Leq,d

Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 >= 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry Sitemap Wall Wall Elevation point Buffer offset Receiver identification zone
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KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification, Train schedule and speeds from Feasibility Study.

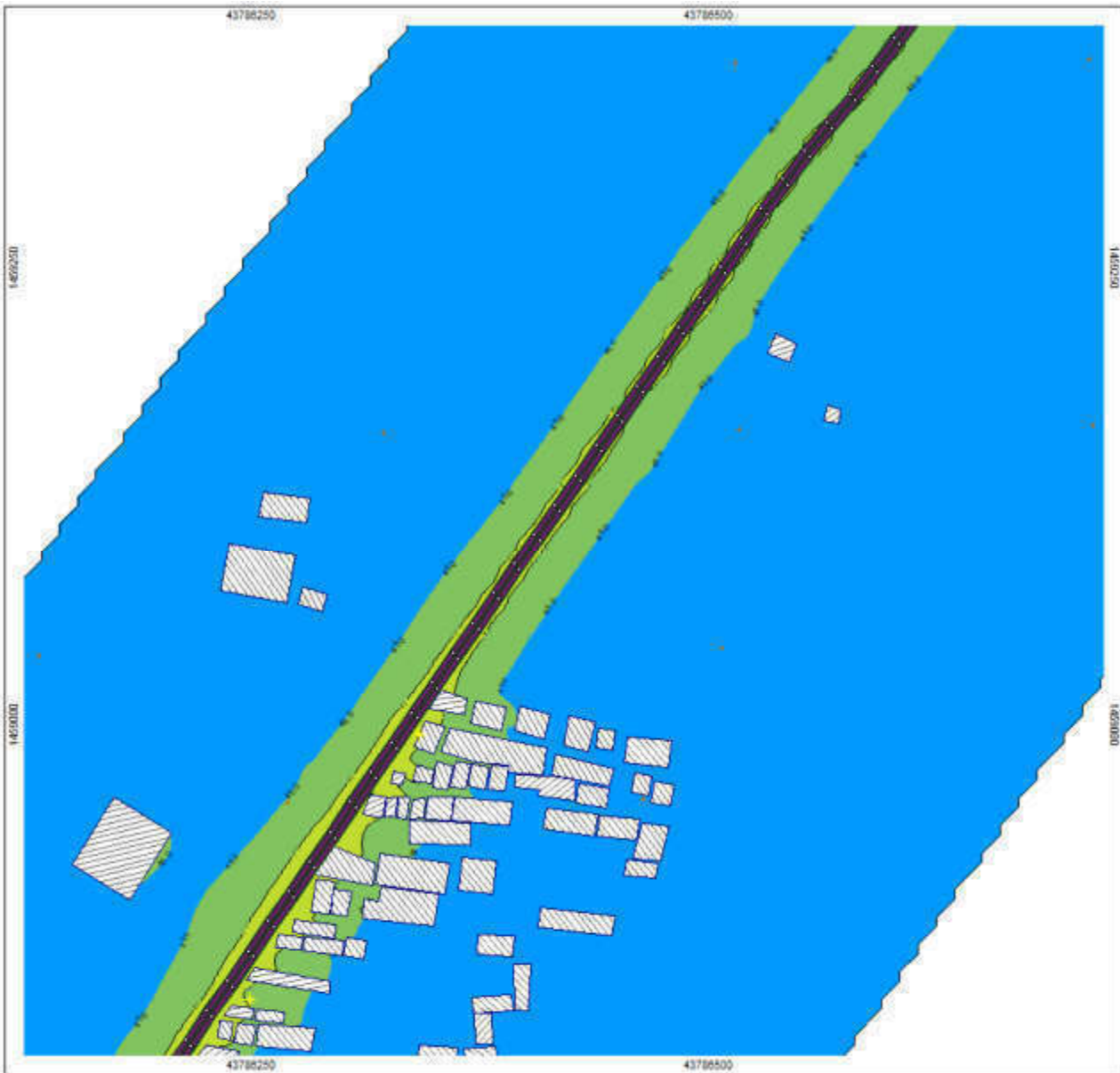
120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
<ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/15/2020
 Processed with SoundPLAN 8.1, Update 10/21/2018

Levels Leq,d
 in dB(A)

Blue	< 45
Light Green	45 - 50
Yellow	50 - 55
Orange	55 - 60
Dark Orange	60 - 65
Red	>= 65

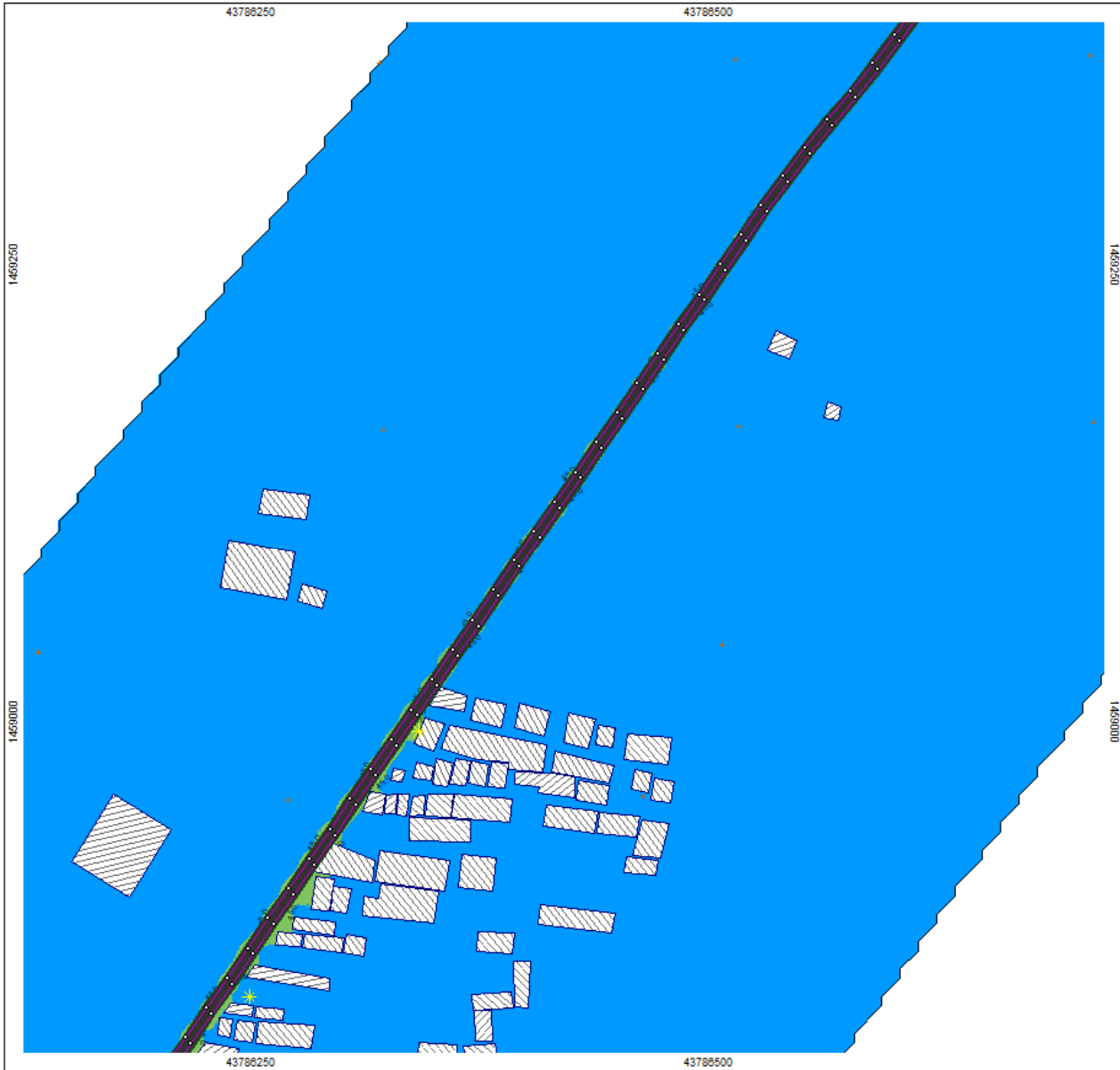
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Deviation point
- Station/office
- Noise reduction zone



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRCL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map**

Leq,n
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,n
 in dB(A)**

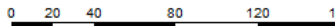
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise
 Buildings from Street Map and Google Earth
 Train noise power levels taken from IMAI Soundplan 8.1 Library and
 BMRC Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map**

Leq,d
 Calculation in: 1.5 m above ground

Project engineer: DM8
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,d
 in dB(A)**

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

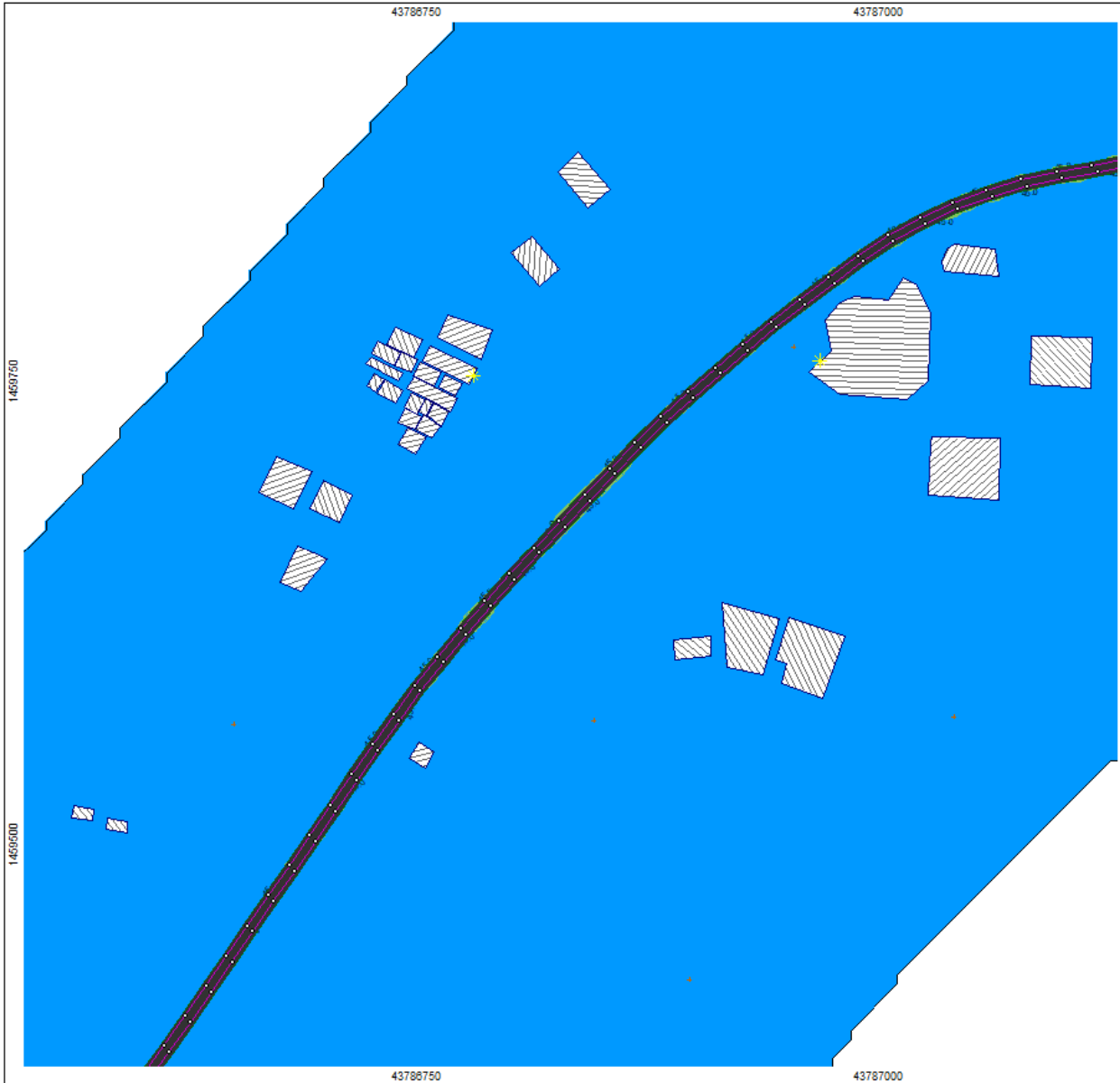
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- 10dB(A) increase from
- Point Source
- Line source
- Geometry bitmap
- Wall
- Wall
- Deviation point
- Subnoise
- Noise contribution area



Length scale 1:2109





KR Puram to Kempegowda International Airport

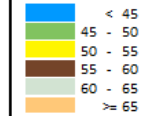
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)



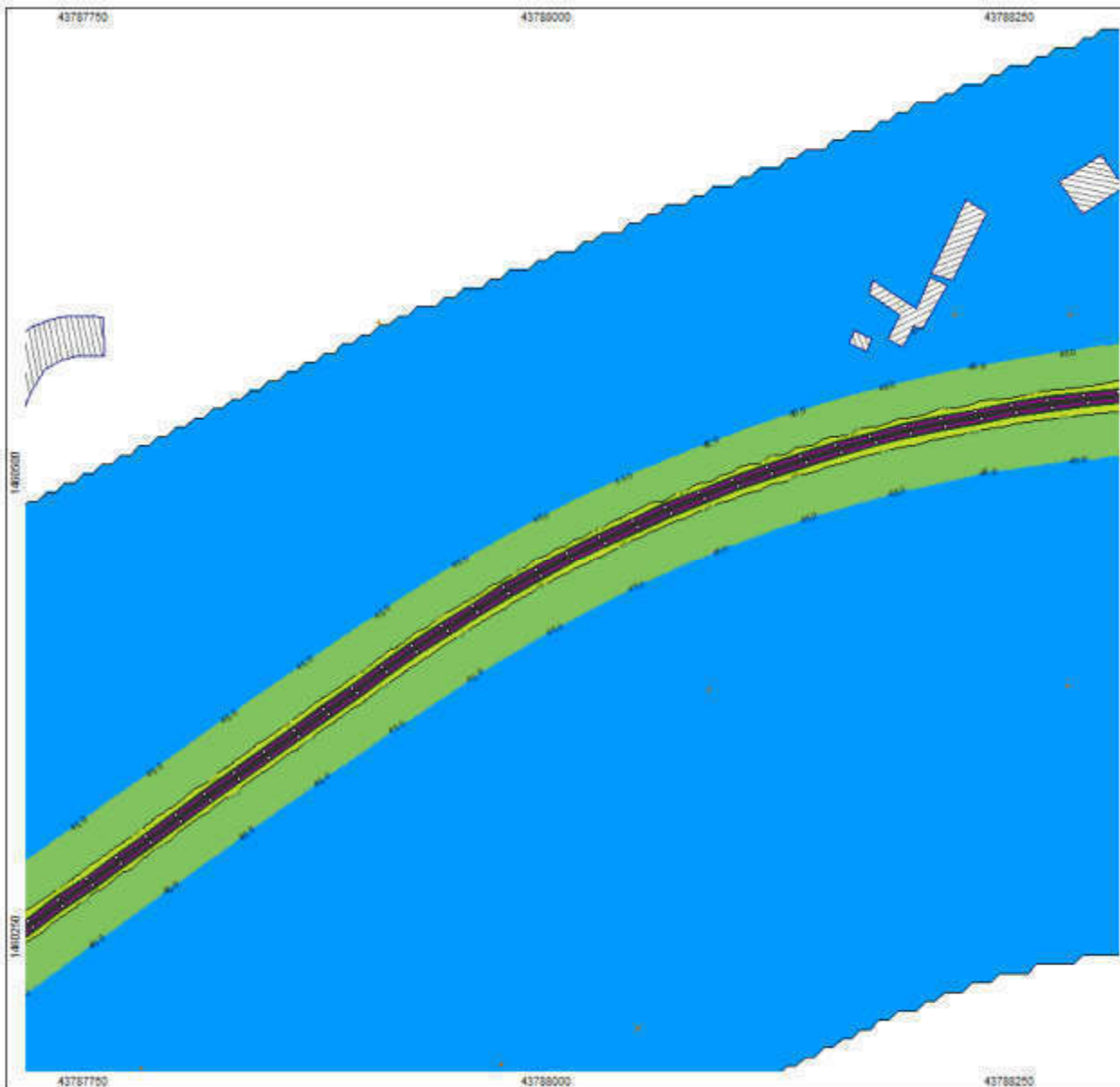
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Route:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from BMU Soundplan 8.1 Library and
 BMRC Rolling Stock Specification, Train schedule and
 speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d

Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with: SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- > 65

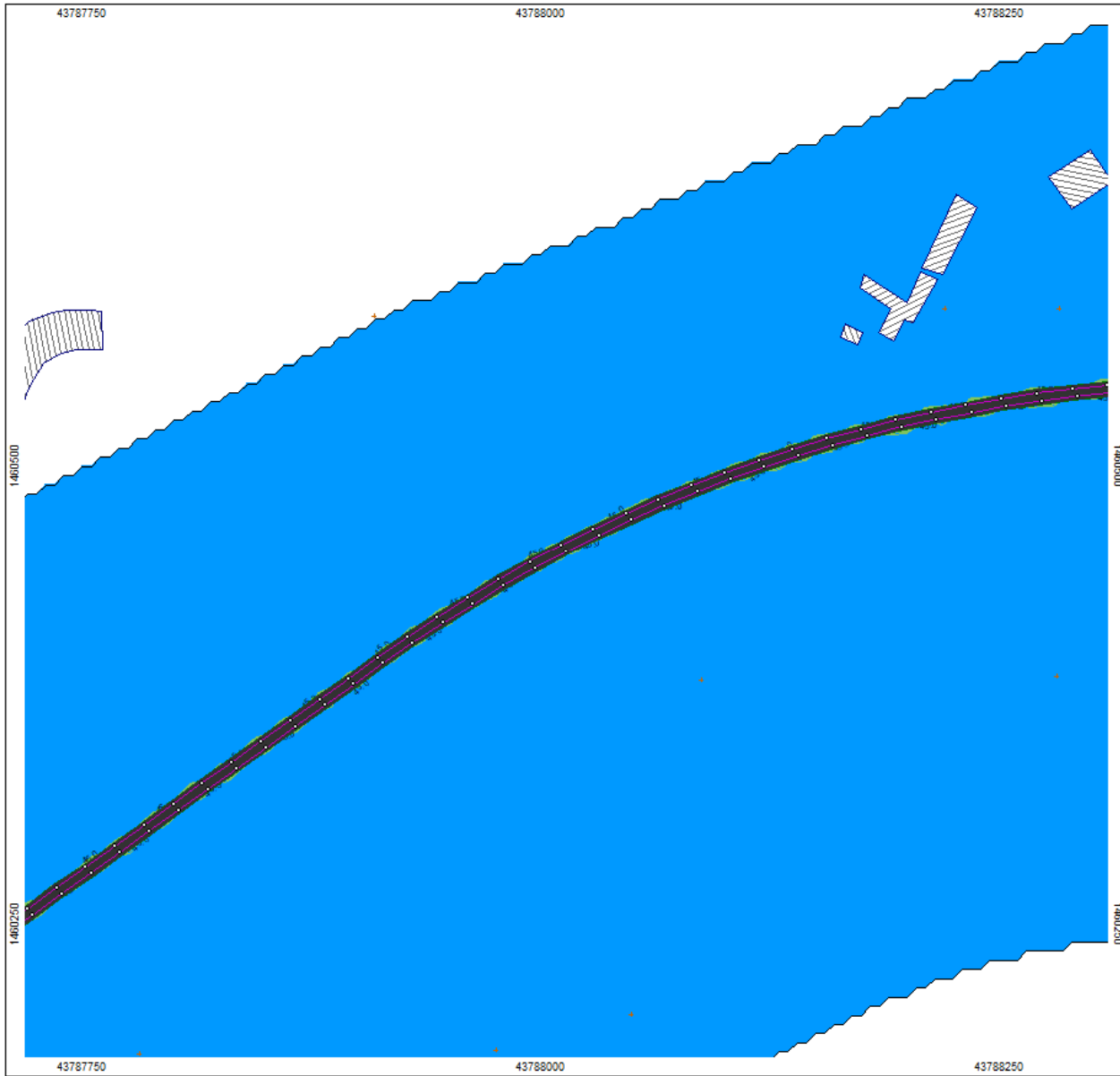
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +dB(A) increase from
- Point Source
- Line source
- Geometry blockup
- Wall
- Wall
- Elevation point
- Boundary factor
- Station calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

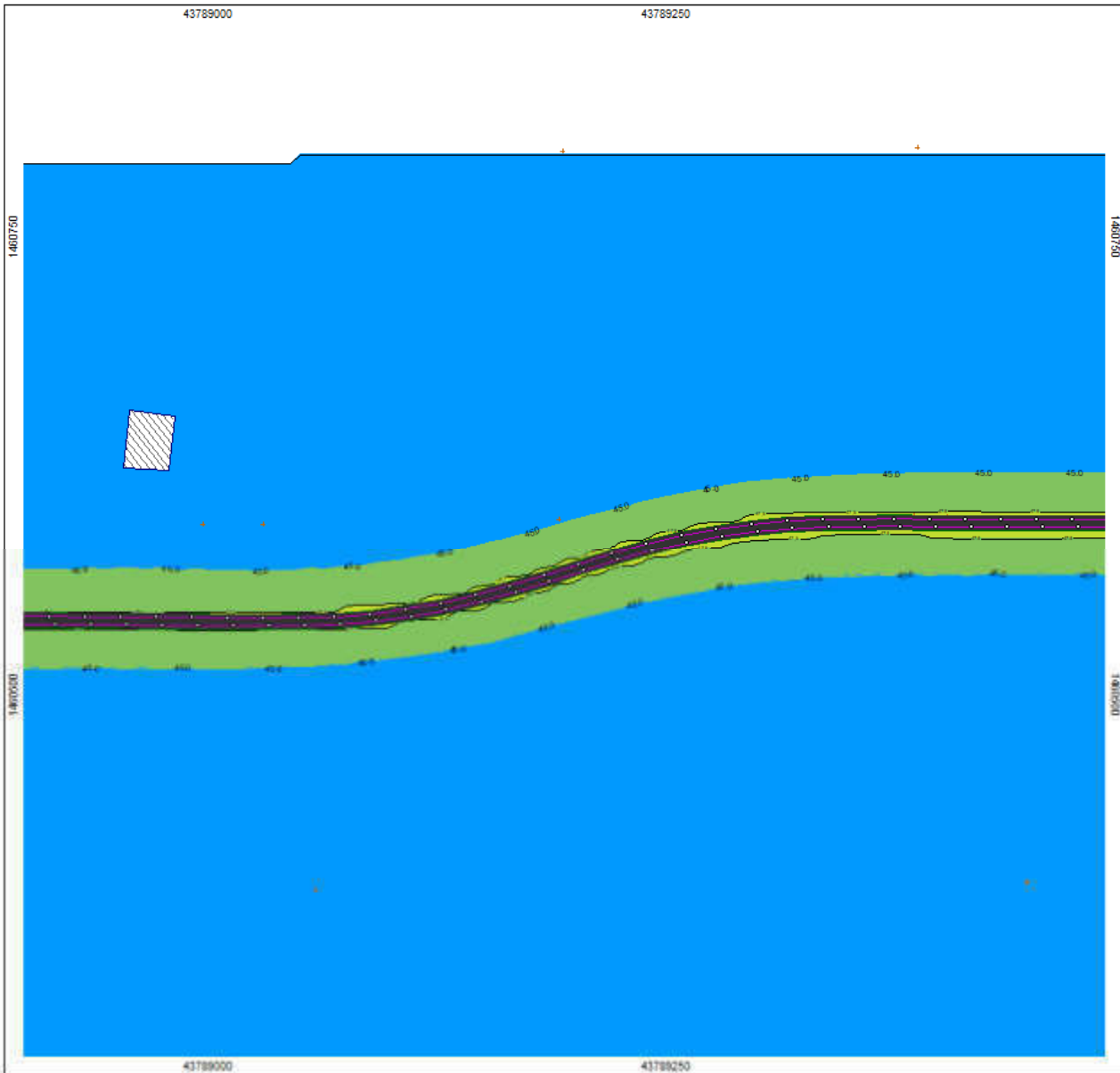
120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2109

0 20 40 80 120 1 1



KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

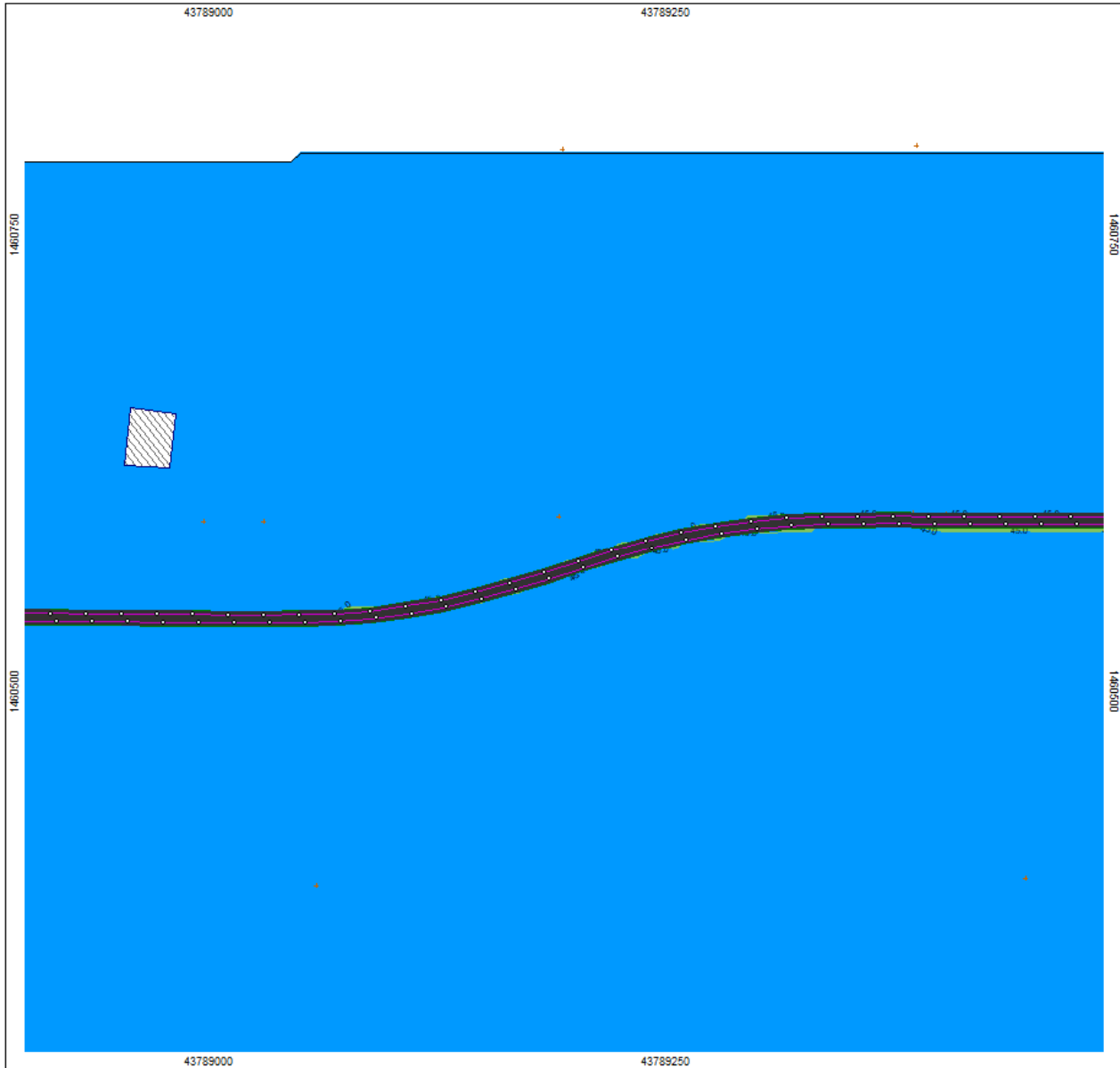
**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**

Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 >= 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +dB(A) increase from Point source Line source Geometry barrier Wall Wall Elevation point Buffer offset Reference station point
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KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)		Signs and symbols	
	< 45		Wall
	45 - 50		Construction Equip
	50 - 55		Main building
	55 - 60		Point receiver
	60 - 65		+3dB(A) increase from
	>= 65		Point Sources
			Line source
			Geometry bitmap
			Wall
			Wall
			Elevation point
			Bodeneffekte
			Noise calculation area

Length scale 1:2109

0 20 40 80 120 1



KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2024 2B with Parapet Wall Noise Contour Map Leq,d

Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

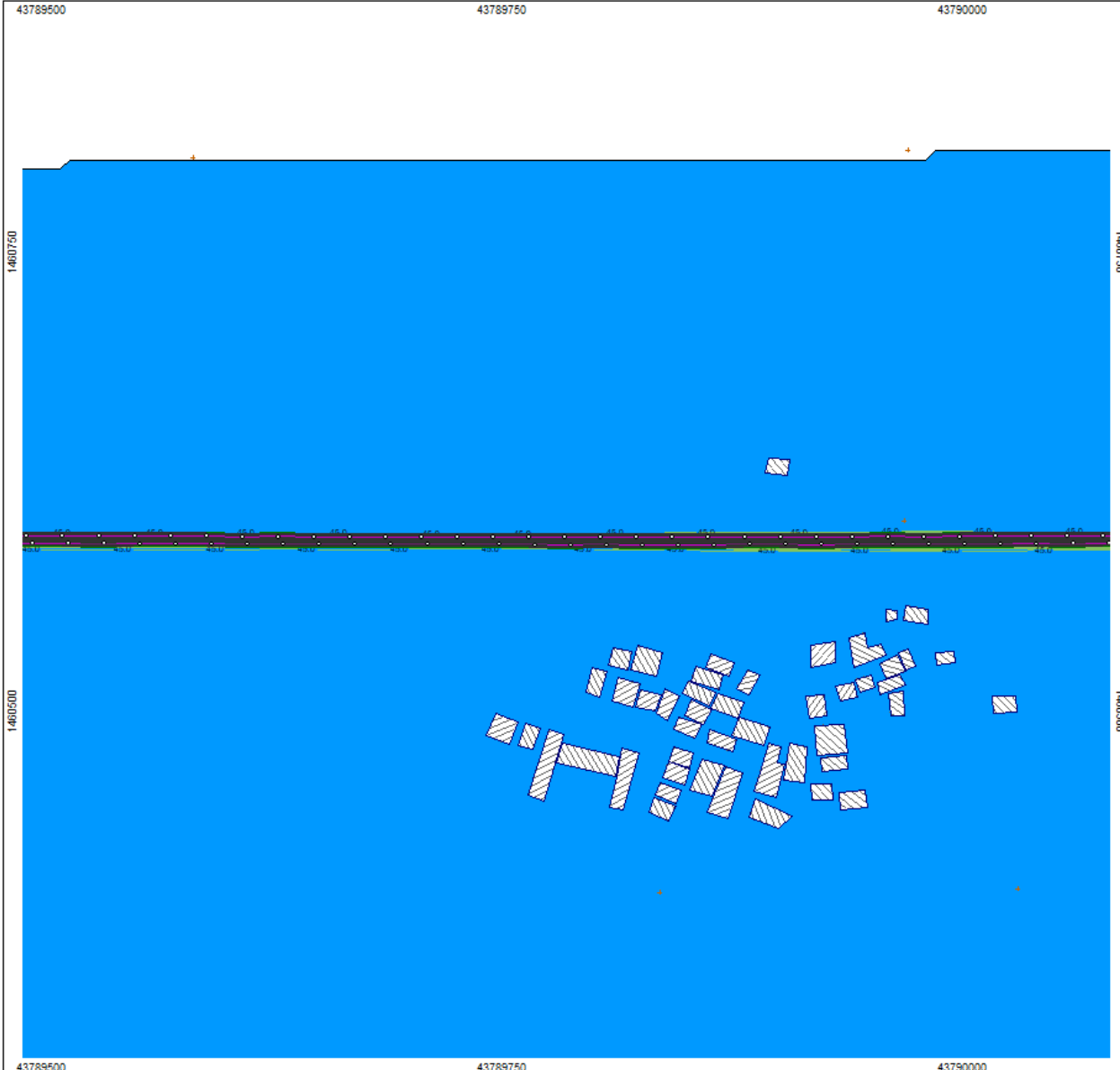
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
Noise Contour Map**

Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,n
in dB(A)**

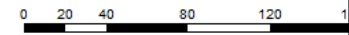
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- ≥ 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- + Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:2109





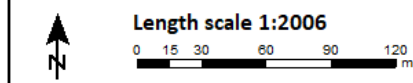
KR Puram to Kempegowda International Airport

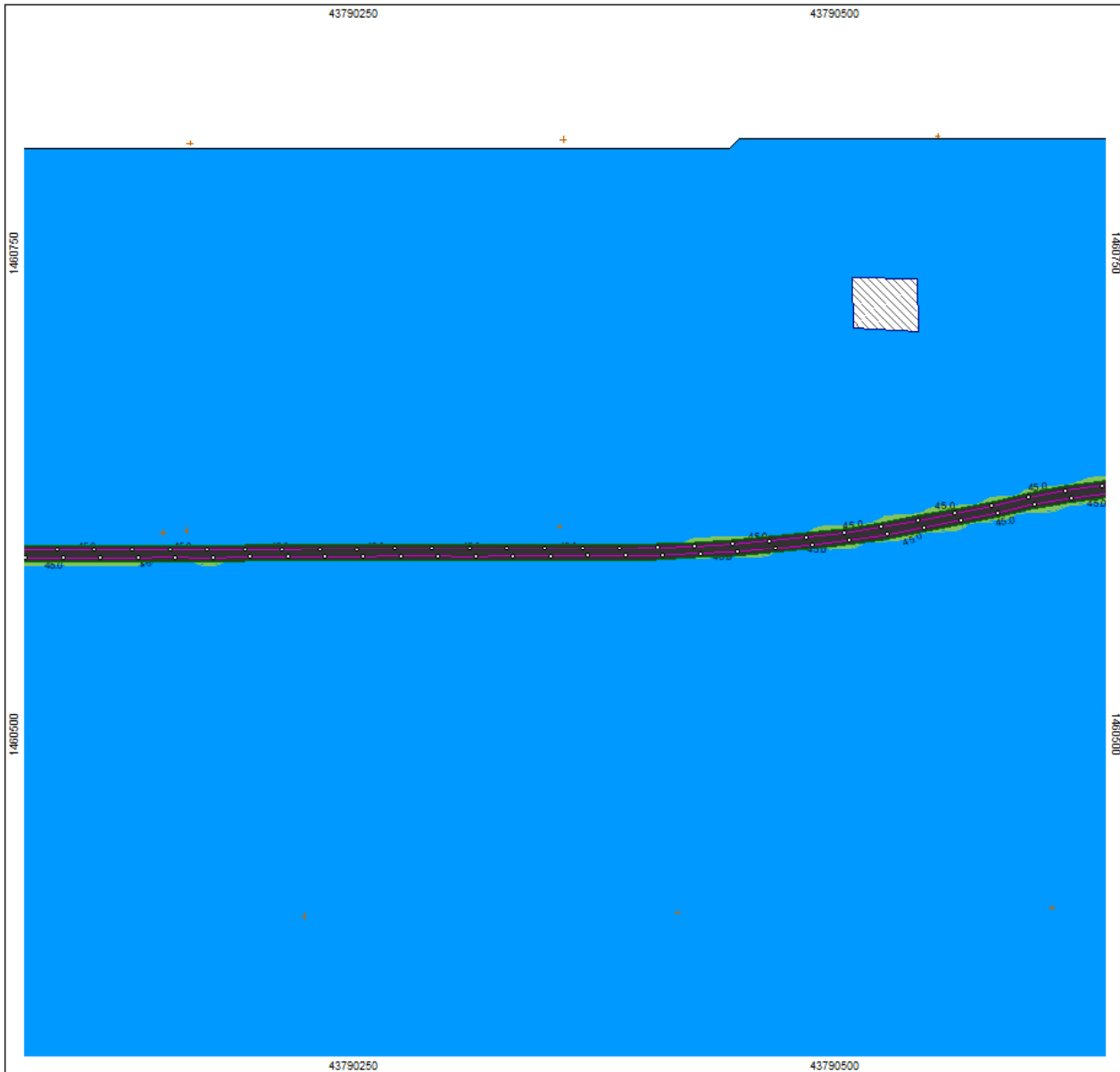
Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan B.1 Library and
 BMRL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2024 2B with Parapet Wall
 Noise Contour Map
 Leq,d**
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN B.1, Update 10/21/2018

Levels Leq,d in dB(A)	Signs and symbols
<ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 >= 65 	<ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area





KR Puram to Kempegowda International Airport

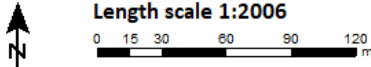
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

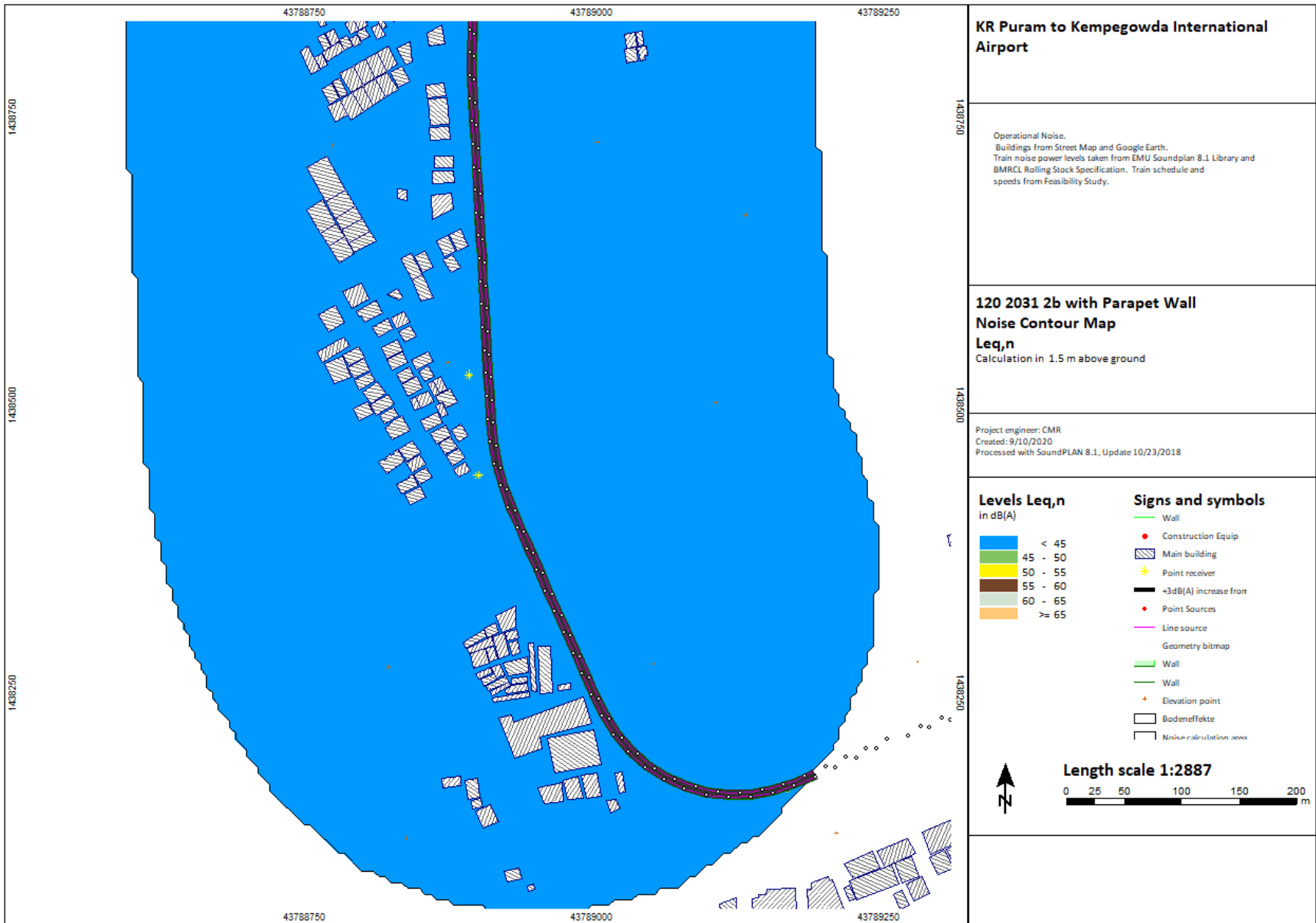
**120 2024 2B with Parapet Wall
Noise Contour Map**

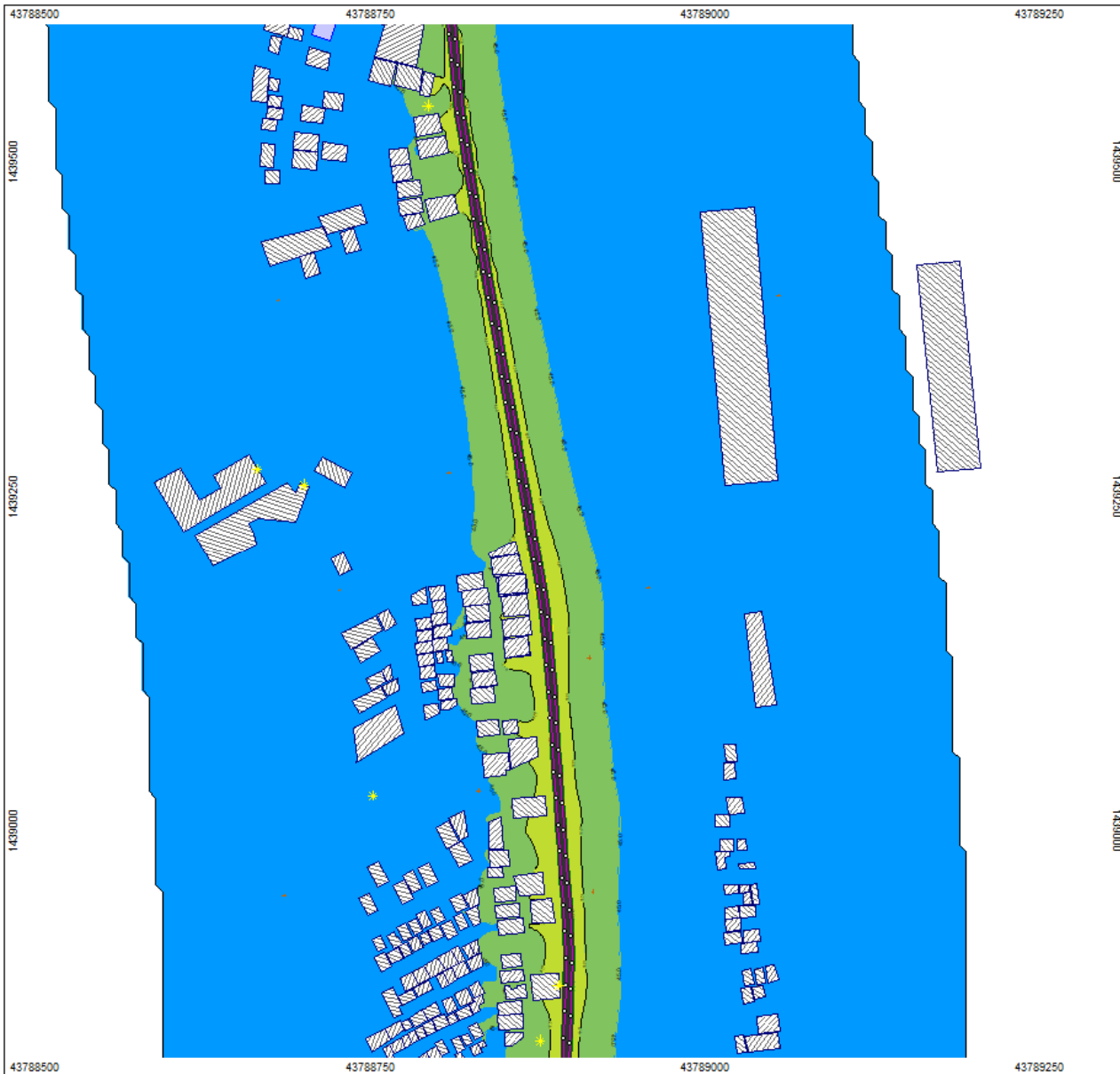
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

- | | |
|---------------------------------|--------------------------|
| Levels Leq,n
in dB(A) | Signs and symbols |
| < 45 | Wall |
| 45 - 50 | Construction Equip |
| 50 - 55 | Main building |
| 55 - 60 | Point receiver |
| 60 - 65 | +3dB(A) increase from |
| >= 65 | Point Sources |
| | Line source |
| | Geometry bitmap |
| | Wall |
| | Wall |
| | Elevation point |
| | Bodeneffekte |
| | Noise calculation area |







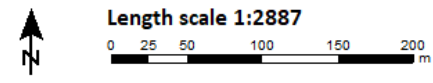
KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRC Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2031 2b with Parapet Wall
Noise Contour Map
Leq,d**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area
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KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

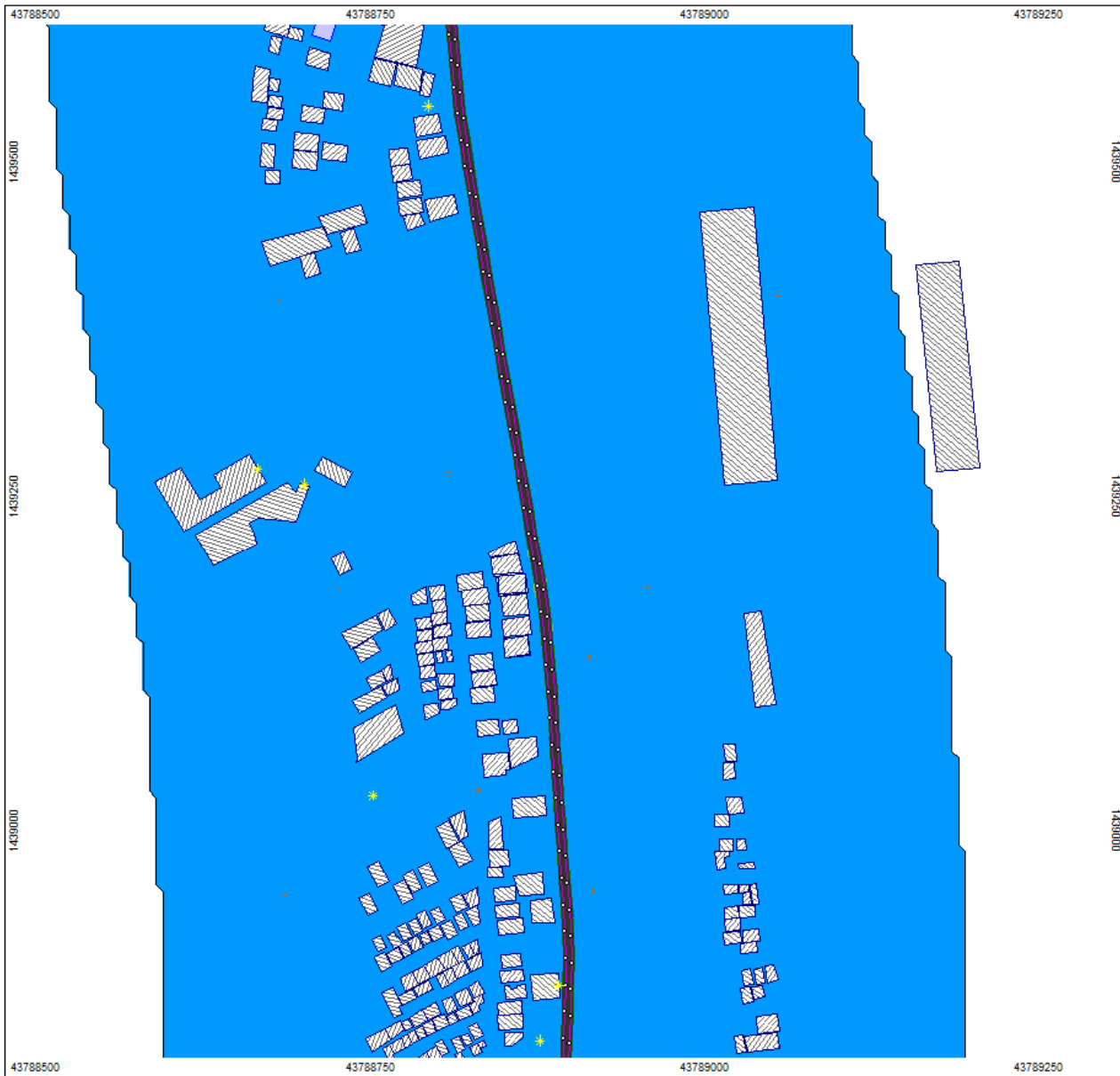
120 2031 2b with Parapet Wall
Noise Contour Map
Leq,d
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/11/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,d in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 >= 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip. Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Buffer/reflector Buffer/reflector
---	--

Length scale 1:2887

0 25 50 100 150 200 m



KR Puram to Kempegowda International Airport

Operational Noise.
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

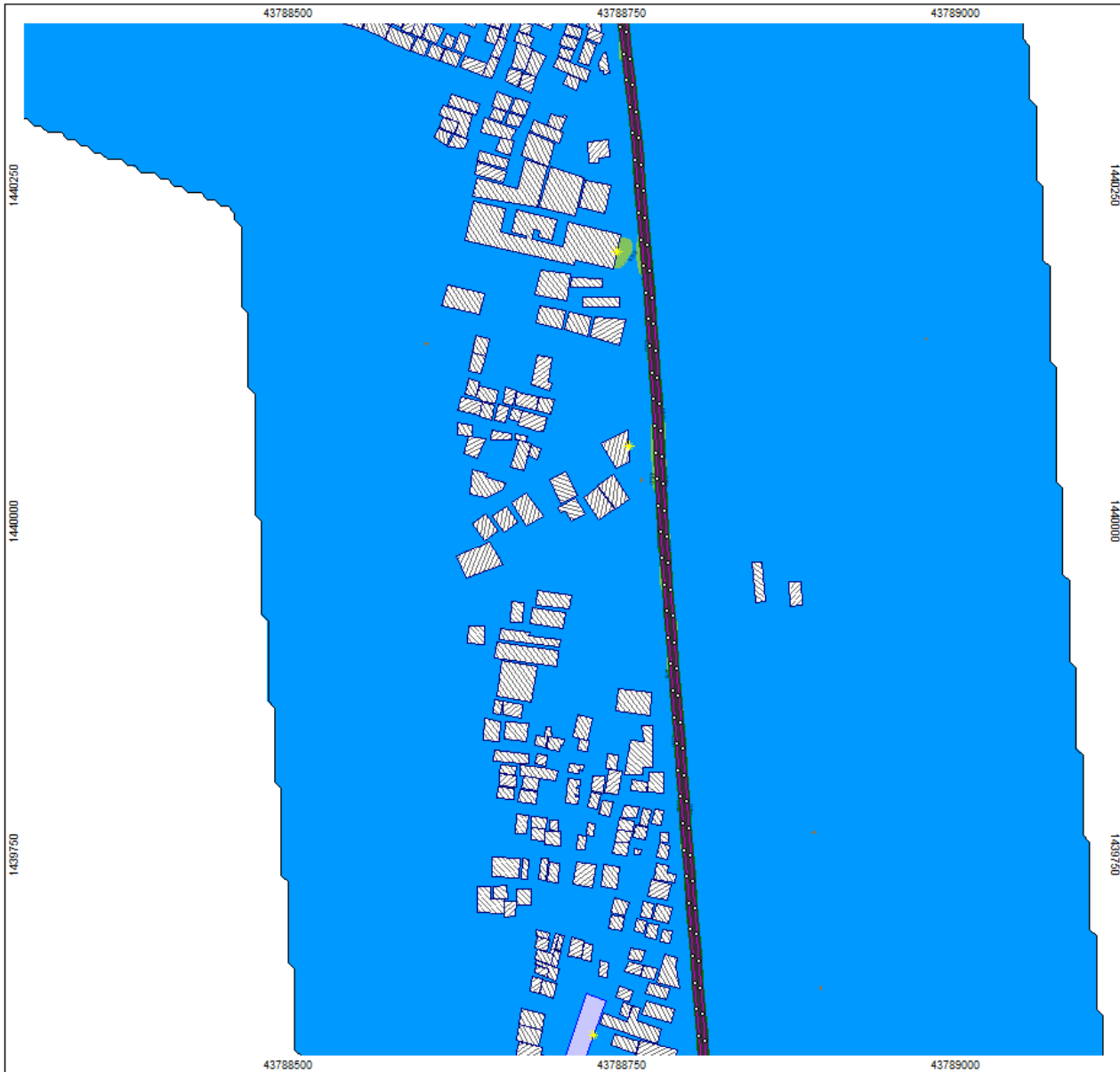
120 2031 2b with Parapet Wall
Noise Contour Map
Leq,n
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

<p>Levels Leq,n in dB(A)</p> <ul style="list-style-type: none"> < 45 45 - 50 50 - 55 55 - 60 60 - 65 ≥ 65 	<p>Signs and symbols</p> <ul style="list-style-type: none"> Wall Construction Equip Main building Point receiver +3dB(A) increase from Point Sources Line source Geometry bitmap Wall Wall Elevation point Bodeneffekte Noise calculation area
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Length scale 1:2887





KR Puram to Kempegowda International Airport

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

120 2031 2b with Parapet Wall
Noise Contour Map
Leq,n
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:2887

0 25 50 100 150 200 m

North arrow pointing up.



KR Puram to Kempegowda International Airport

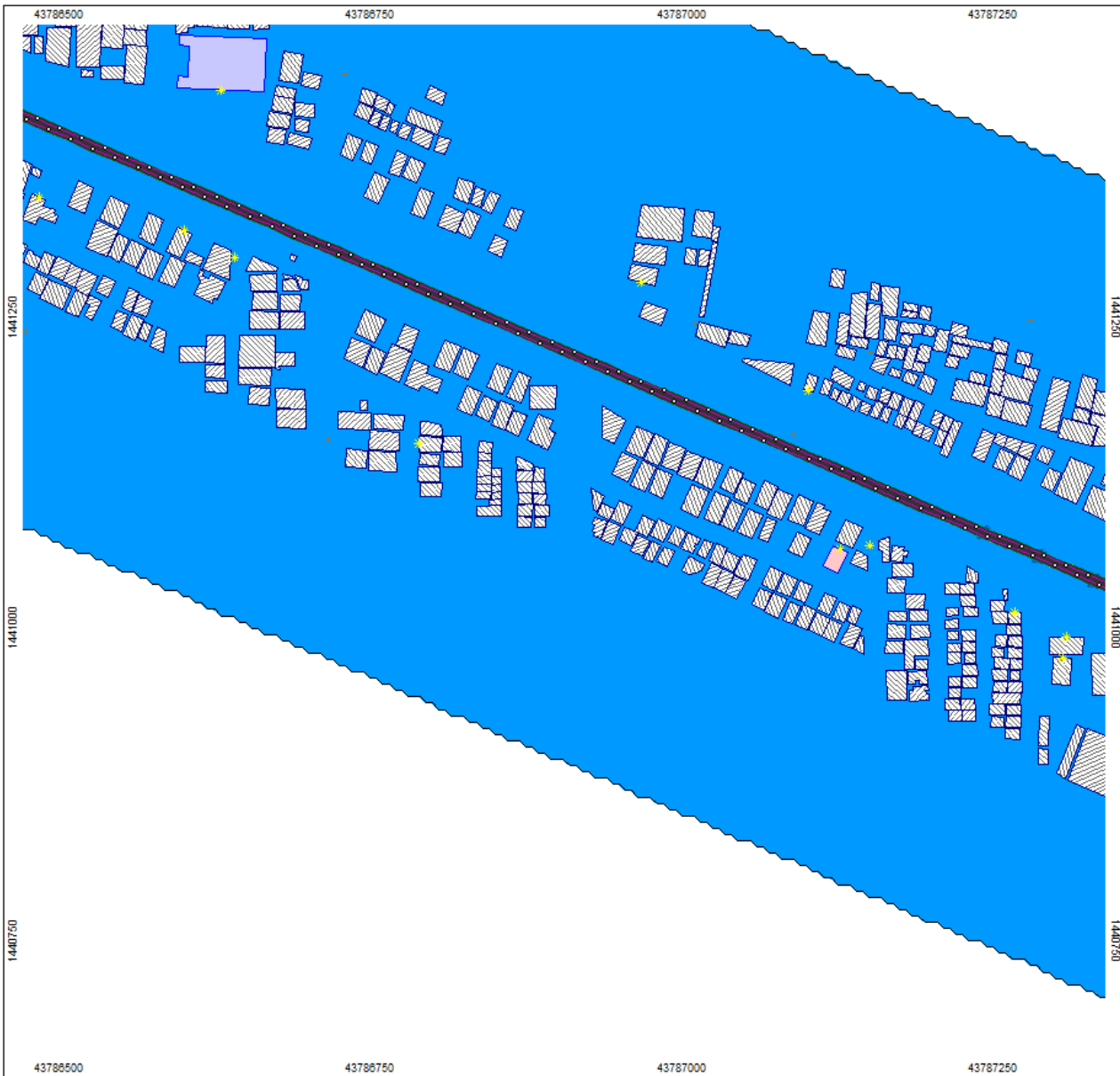
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2031 2b with Parapet Wall
Noise Contour Map
Leq,d**
Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,d in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
≥ 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area

Length scale 1:3101
0 25 50 100 150 200 m



KR Puram to Kempegowda International Airport

Operational Noise:
 Buildings from Street Map and Google Earth.
 Train noise power levels taken from EMU Soundplan 8.1 Library and
 BMRCL Rolling Stock Specification. Train schedule and
 speeds from Feasibility Study.

**120 2031 2b with Parapet Wall
 Noise Contour Map**

Leq,n
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n
 in dB(A)

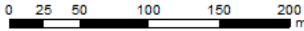
- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- > 65

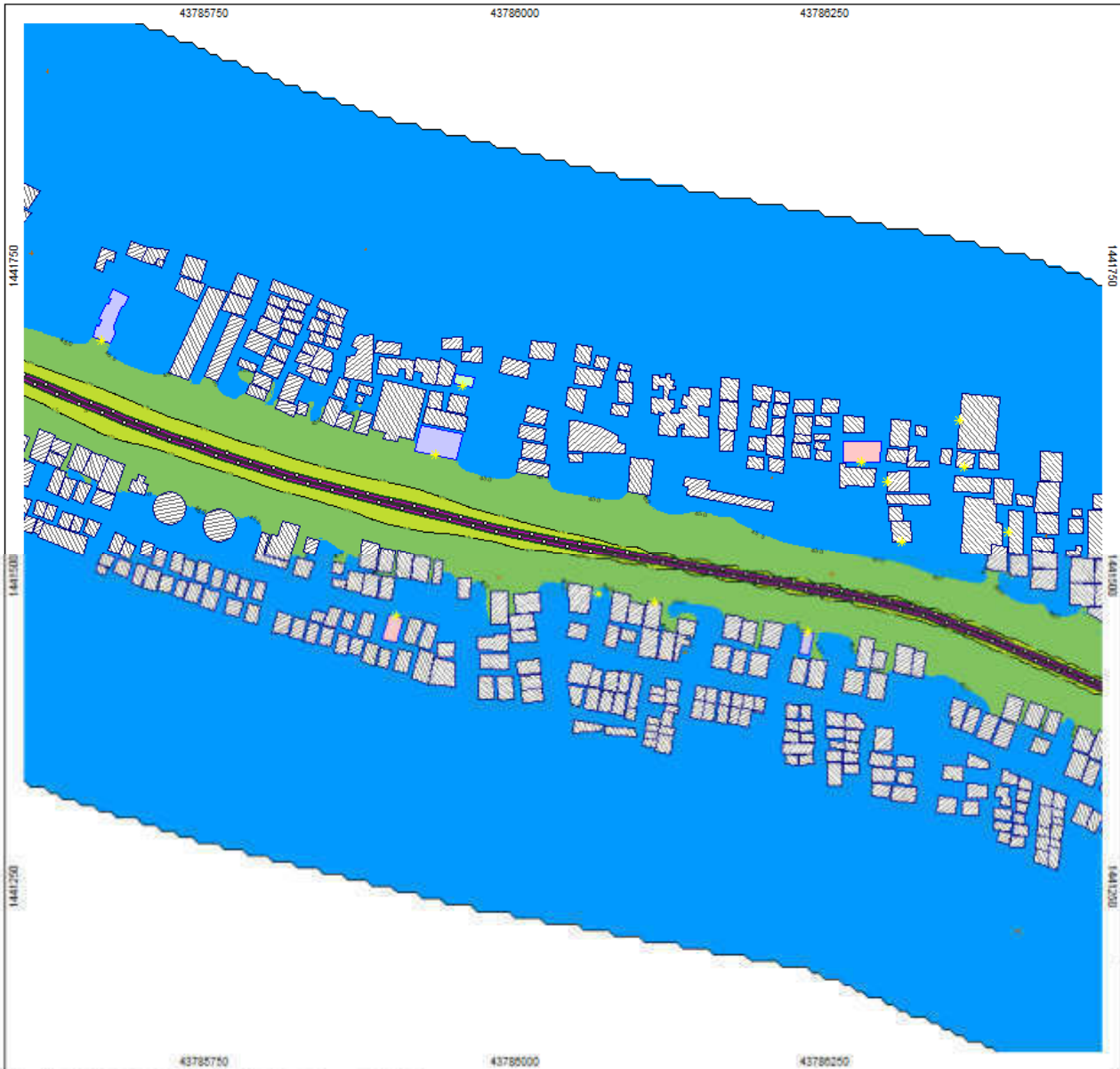
Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area



Length scale 1:3101





KR Puram to Kempegowda International Airport

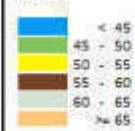
Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2031 2b with Parapet Wall
Noise Contour Map
Leq,d**

Calculation in 1.5 m above ground

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

**Levels Leq,d
in dB(A)**

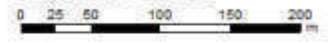


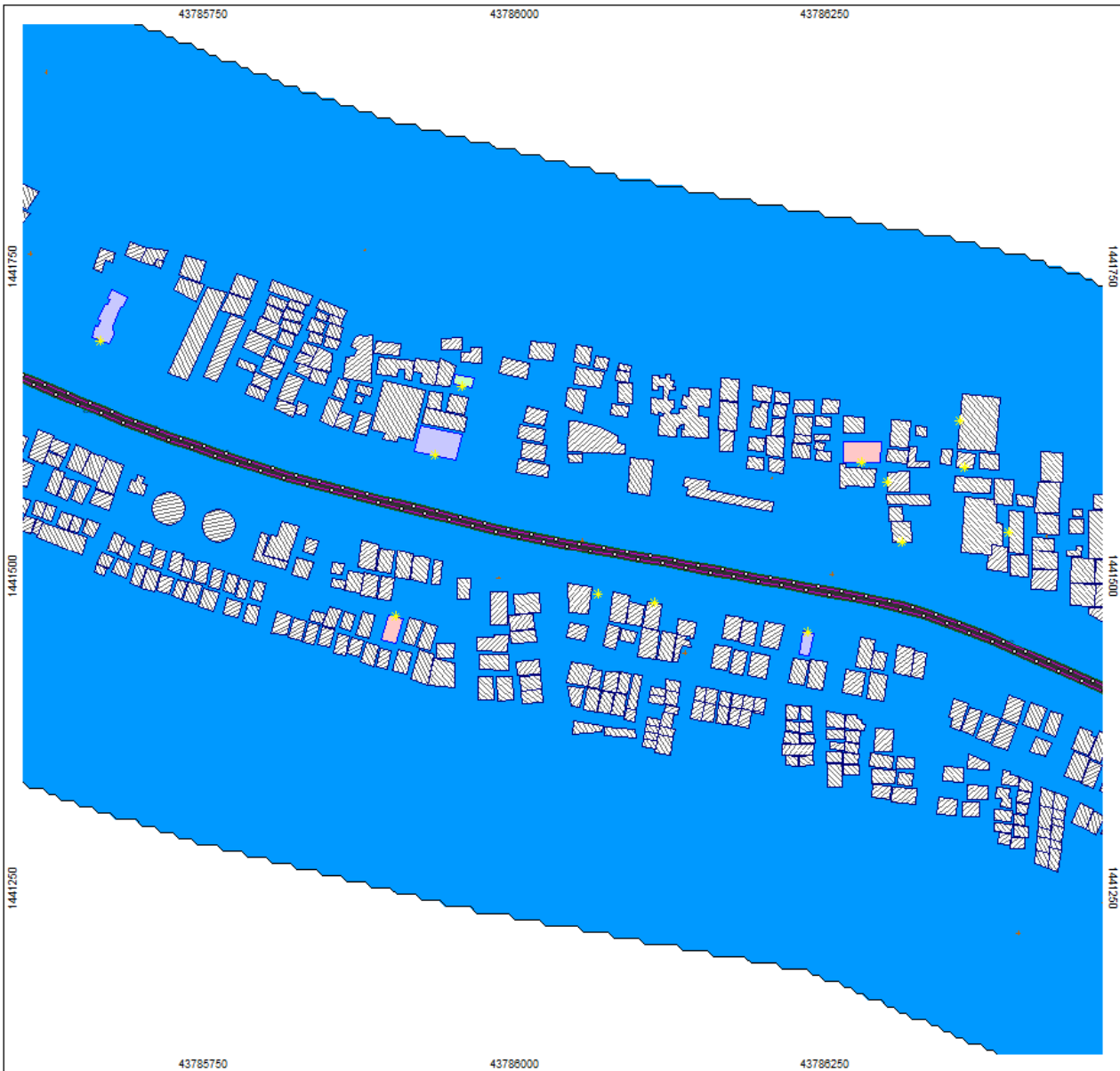
Signs and symbols

- Wall
- Construction Spike
- ▭ Main building
- Point receiver
- ΔdB(A) increase from
- Point Source
- Line source
- ▭ Geometry block
- Wall
- Wall
- Elevation point
- ▭ Boundary
- ▭ Noise contribution area



Length scale 1:3101





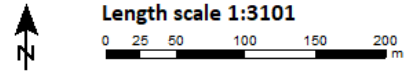
KR Puram to Kempegowda International Airport

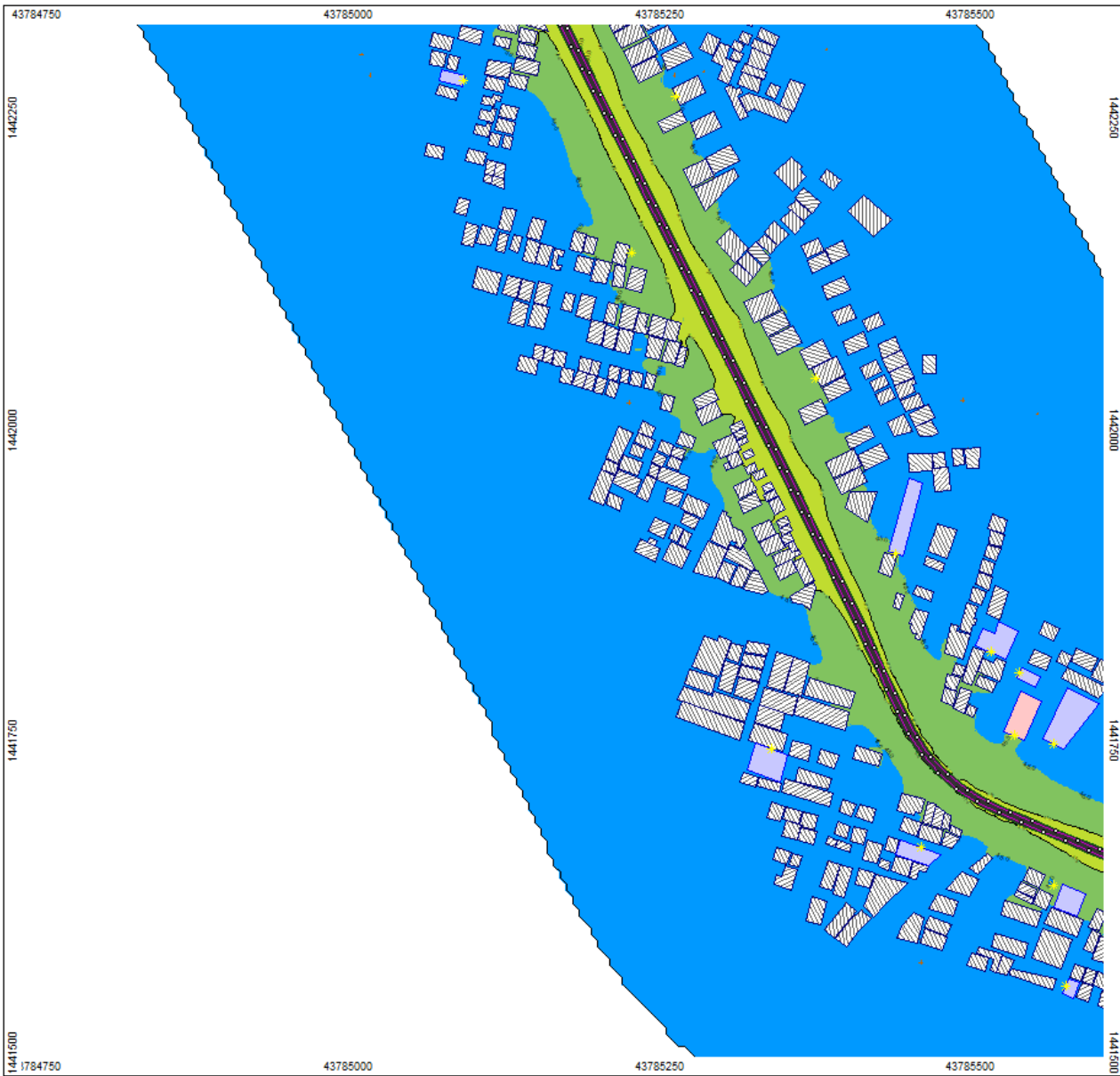
Operational Noise.
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120 2031 2b with Parapet Wall
Noise Contour Map
Leq,n
 Calculation in 1.5 m above ground

Project engineer: CMR
 Created: 9/10/2020
 Processed with SoundPLAN 8.1, Update 10/23/2018

Levels Leq,n in dB(A)	Signs and symbols
< 45	Wall
45 - 50	Construction Equip
50 - 55	Main building
55 - 60	Point receiver
60 - 65	+3dB(A) increase from
>= 65	Point Sources
	Line source
	Geometry bitmap
	Wall
	Elevation point
	Bodeneffekte
	Noise calculation area





KR Puram to Kempegowda International Airport

1442500

Operational Noise.
Buildings from Street Map and Google Earth.
Train noise power levels taken from EMU Soundplan 8.1 Library and BMRCL Rolling Stock Specification. Train schedule and speeds from Feasibility Study.

**120 2031 2b with Parapet Wall
Noise Contour Map
Leq,d**
Calculation in 1.5 m above ground

1440000

Project engineer: CMR
Created: 9/10/2020
Processed with SoundPLAN 8.1, Update 10/23/2018

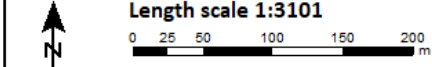
**Levels Leq,d
in dB(A)**

- < 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- >= 65

Signs and symbols

- Wall
- Construction Equip
- Main building
- Point receiver
- +3dB(A) increase from
- Point Sources
- Line source
- Geometry bitmap
- Wall
- Wall
- Elevation point
- Bodeneffekte
- Noise calculation area

1441750



1441500

43784750

43785000

43785250

43785500

1441500