

A12.4

**MetroLink DC Field Intensities
at Dublin Airport**

Horizontal Modelling

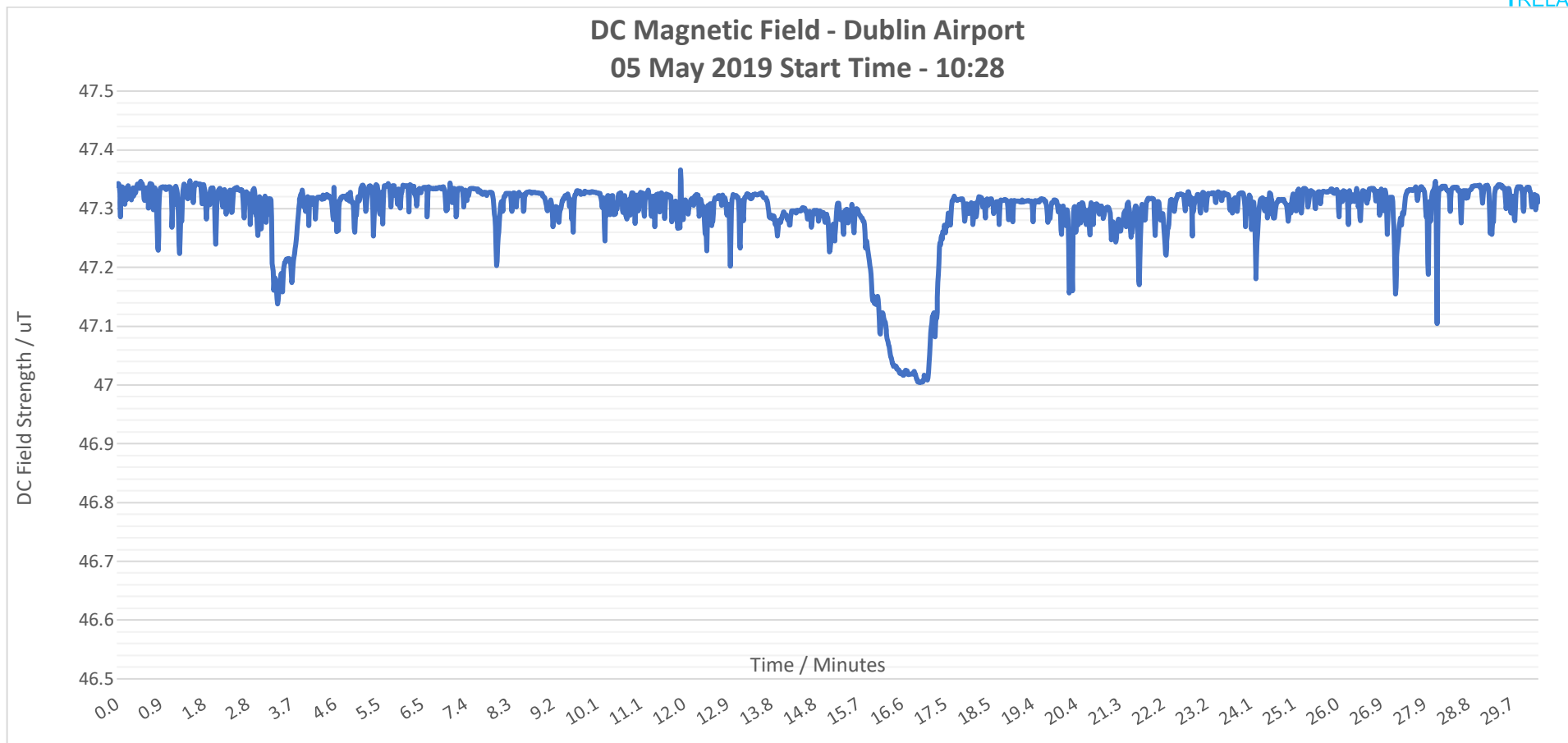
Modelled levels are based on two trains accelerating at the same time on both lines and with the power only coming from one substation

For illustration purposes a DC mag field that is perpendicular to the Earth's Magnetic field (who's strength is approximately 47 μT) will theoretically cause the following deflections on a magnetic compass needle

DC Field Level / μT	Compass Deflection / Degrees
0.25	0.30°
0.5	0.60°
1	1.19°
1.5	1.79°
2	2.39°
2.5	2.98°
4	4.76°
8	9.46°

For reference the plot below illustrates the previous background levels measured for DC magnetic fields at Dublin Airport (location in the surface carpark). Deviations of 0.3 μT were measured during this half hour window.

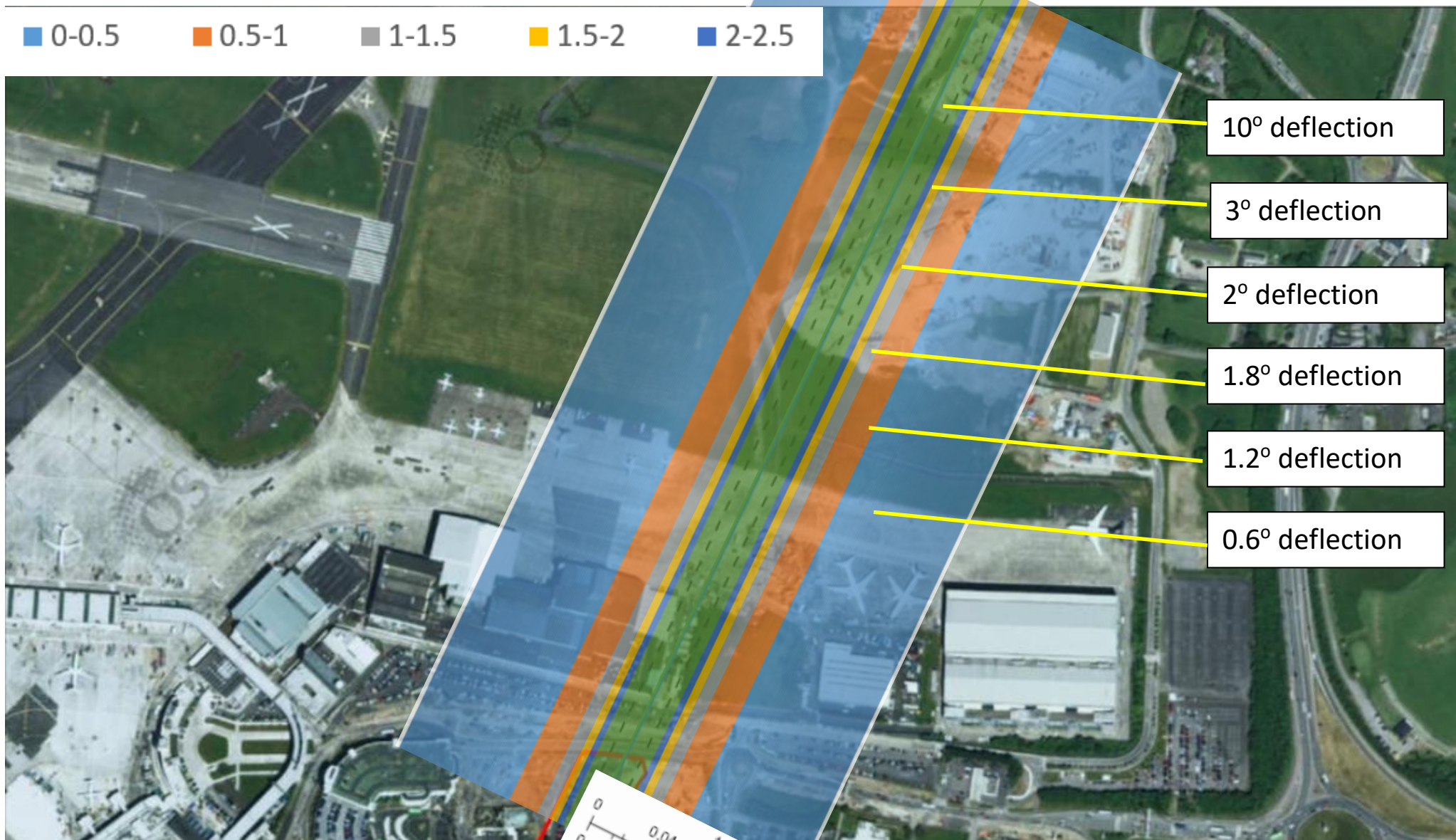
Note: Deviations are location specific and dependent traffic conditions at the time but temporary fluctuations of up to 1 μT would not be unusual.



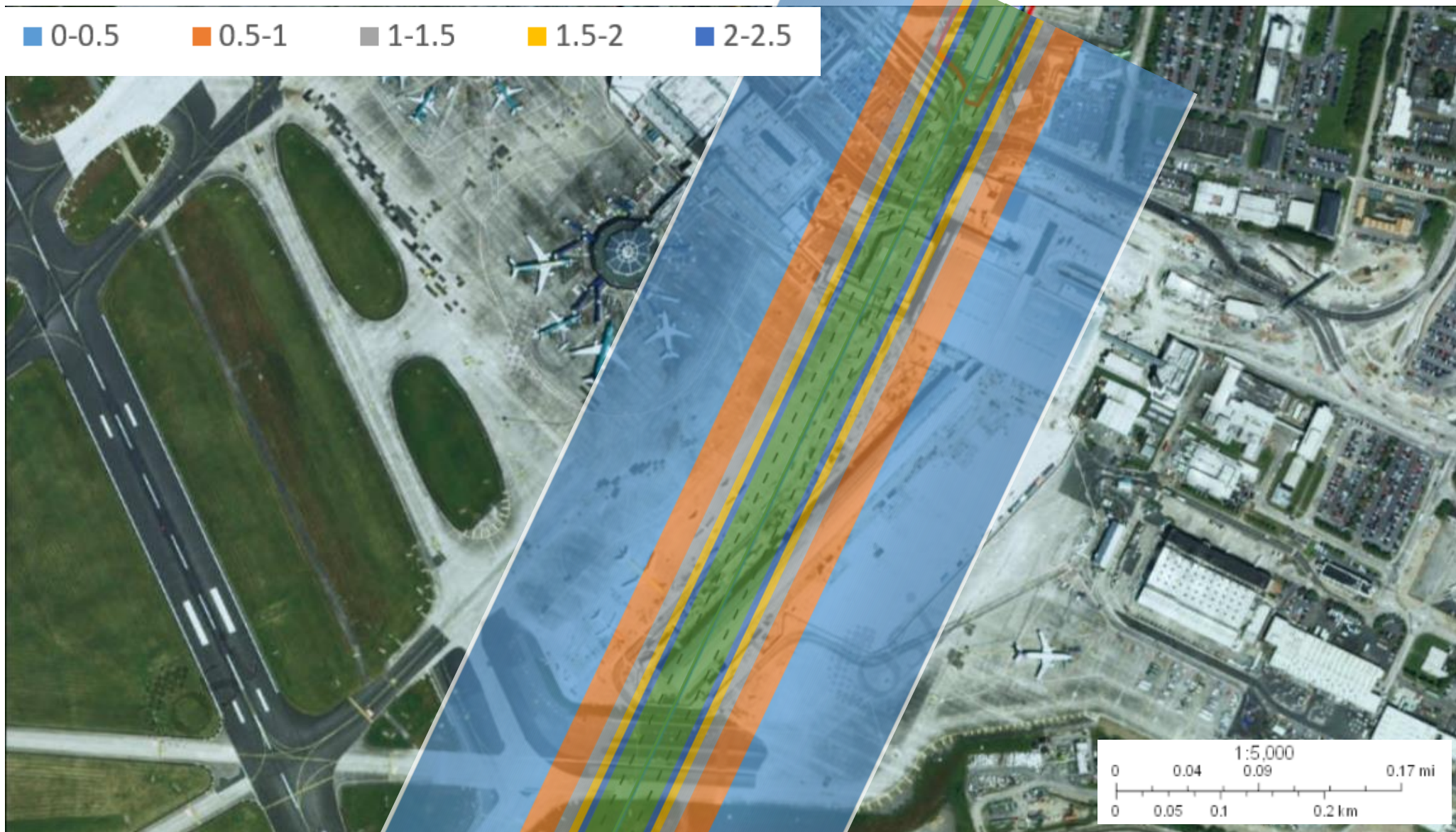
Proposed route through airport section 1



Airport section 1 – modelled surface levels

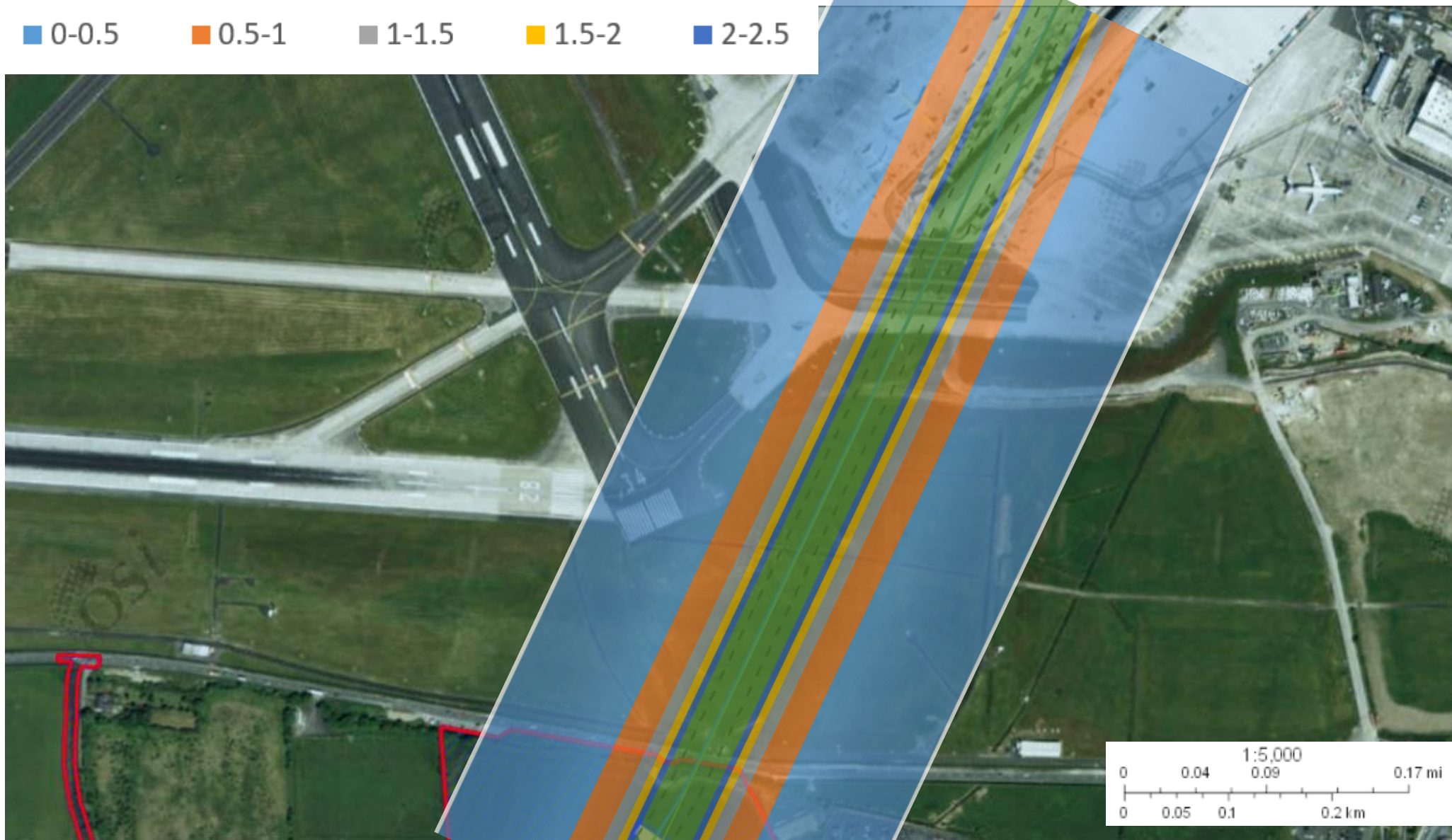


Airport section 2 – modelled surface levels



Airport section 3 – modelled surface levels

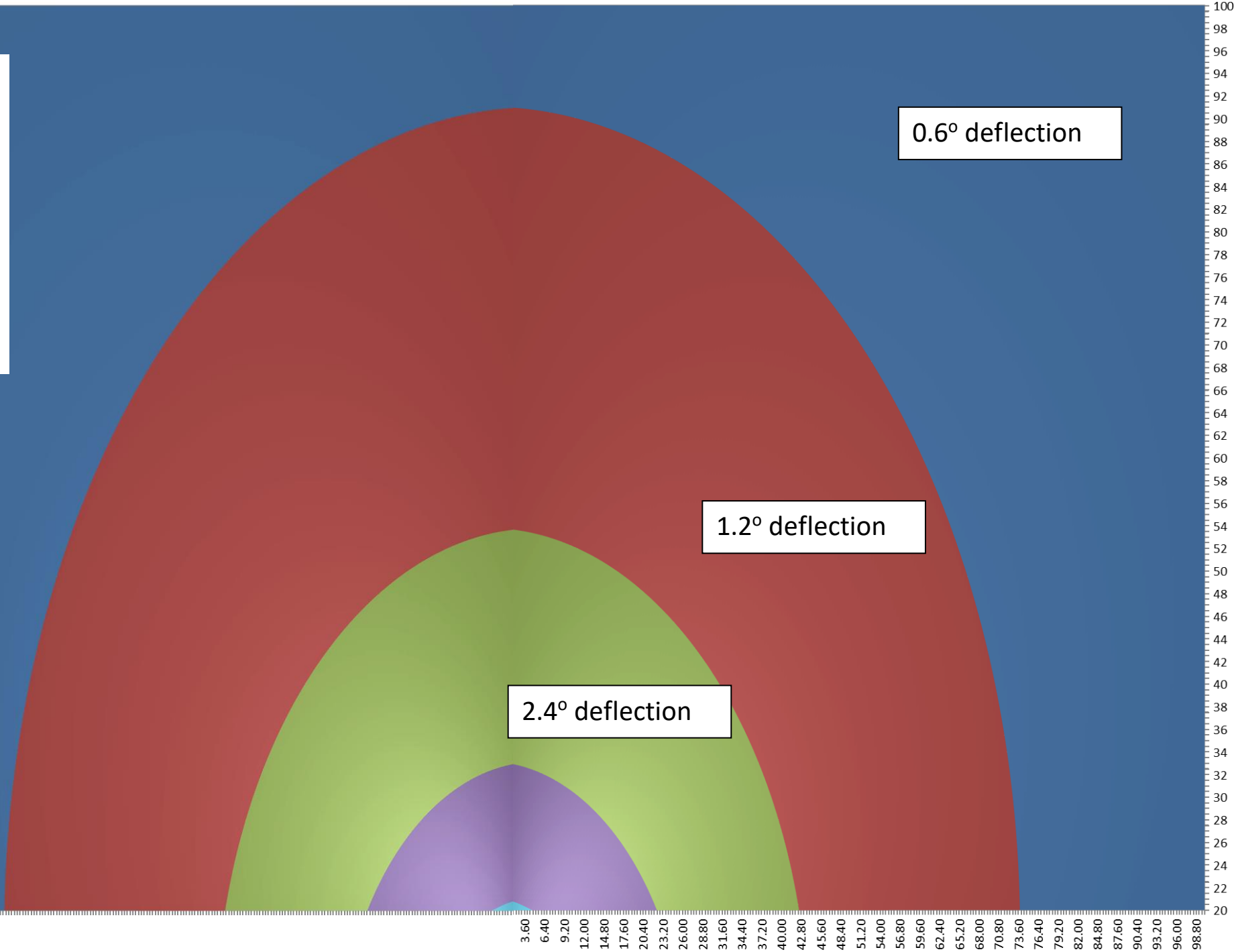
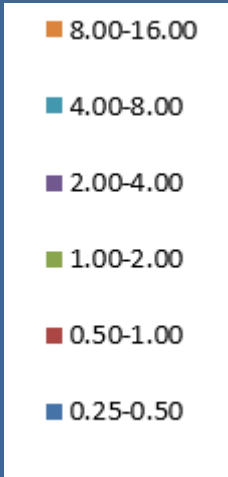
■ 0-0.5 ■ 0.5-1 ■ 1-1.5 ■ 1.5-2 ■ 2-2.5



Vertical Modelling

Note: An aircraft in flight will be passing through the earth's lines of magnetic flux which are not uniform and subject to localised variations in intensity as well as other compass errors such as acceleration/deceleration error when on an east/west bearing.

Ground level in the model illustrated below is 20 m above the tunnel. Therefore 80 m AGL appears as 100 m on the vertical axis



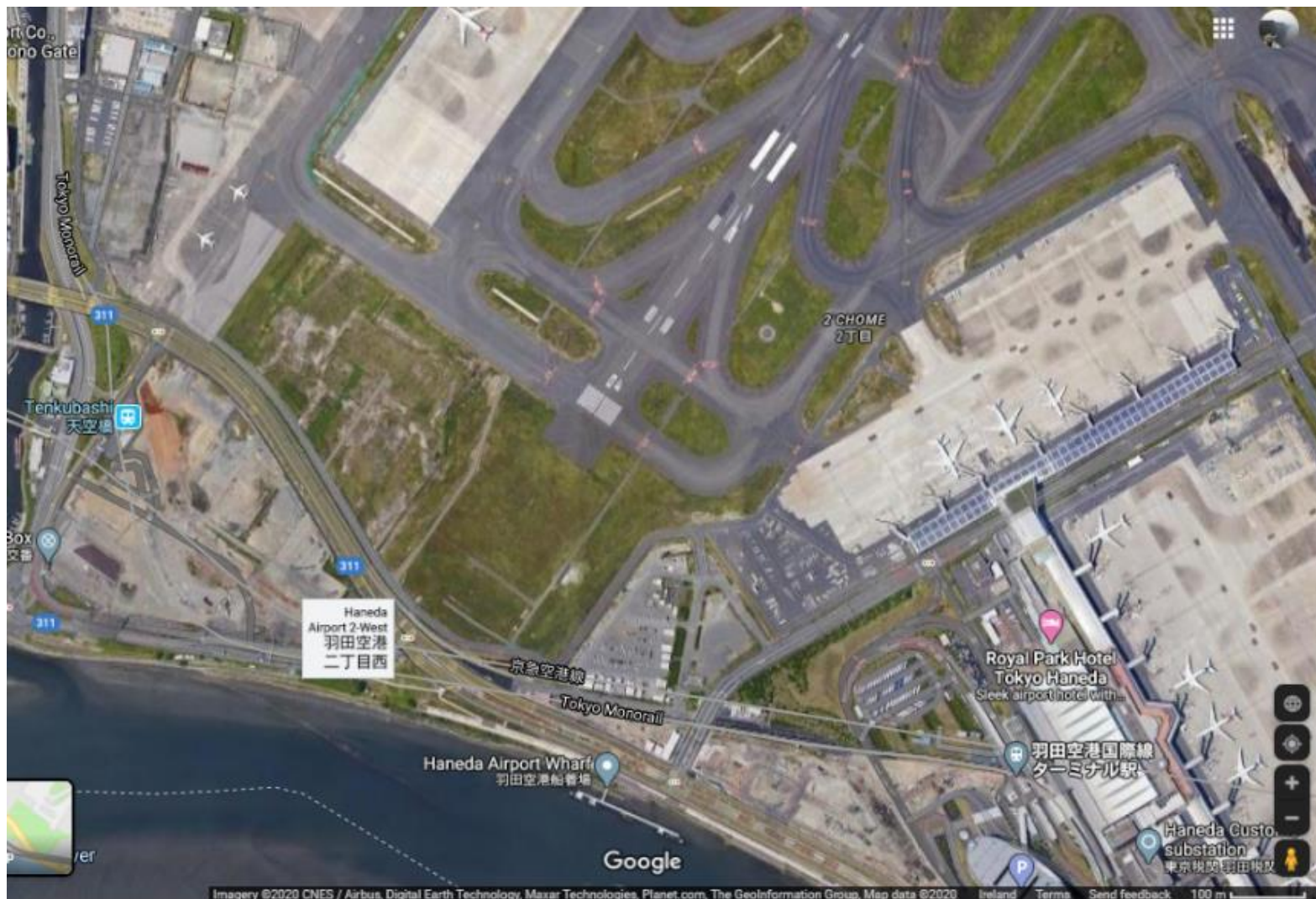
Examples of airports serviced by electrified rail lines with no ill effects.

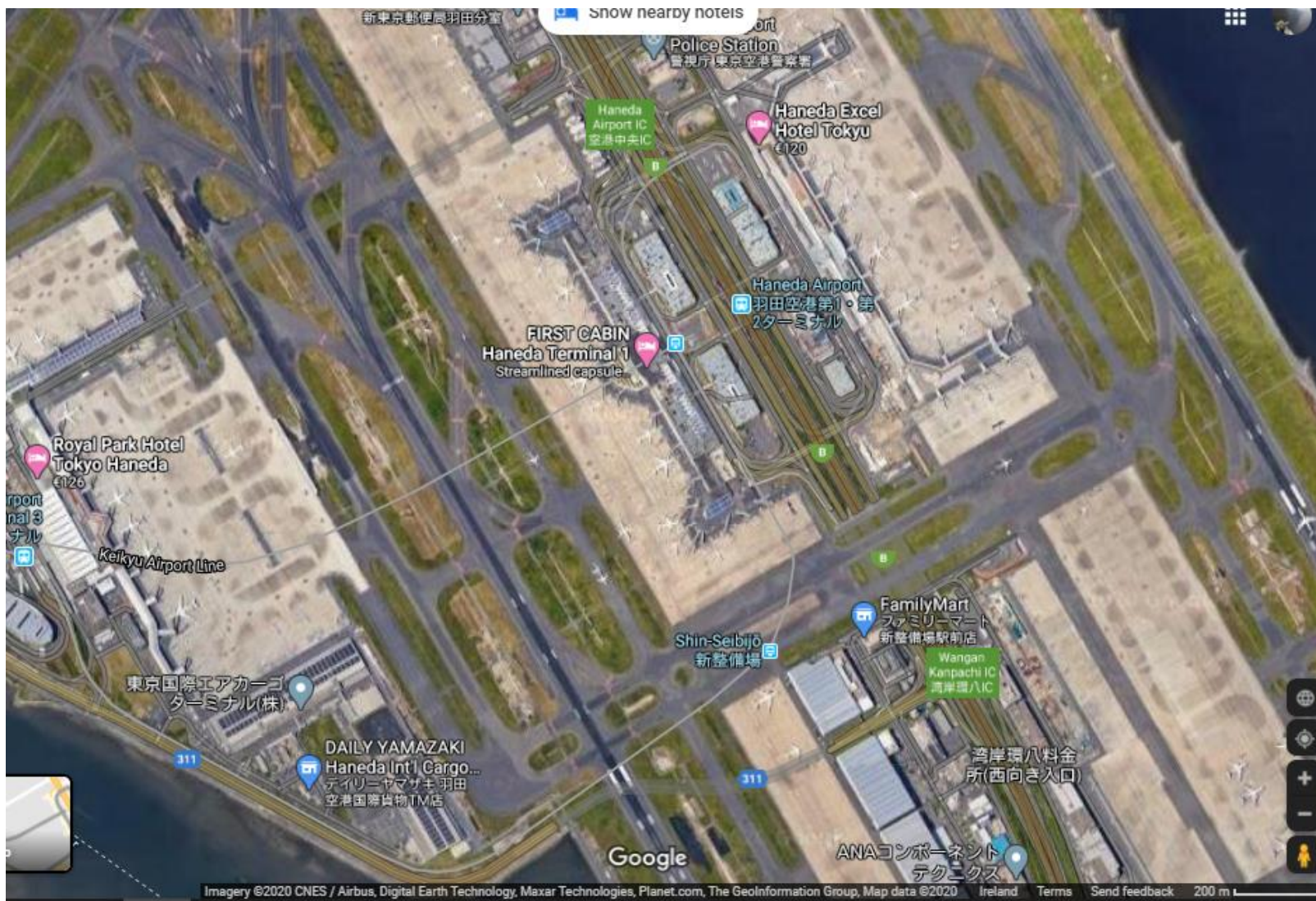
Birmingham airport – Metro Tram 750 V



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Tokyo Monorail – 750 Vdc And Keikyu Airport Line – 1,500Vdc





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