



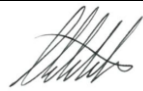
Temporary works. Trusted solutions.

Installation Report

325 Deansgate

Prepared For
Assured-CMS

21 August 2023

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Revision Table

Revision	Details	Date
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1 Site Plan

1.1 Structural Locations

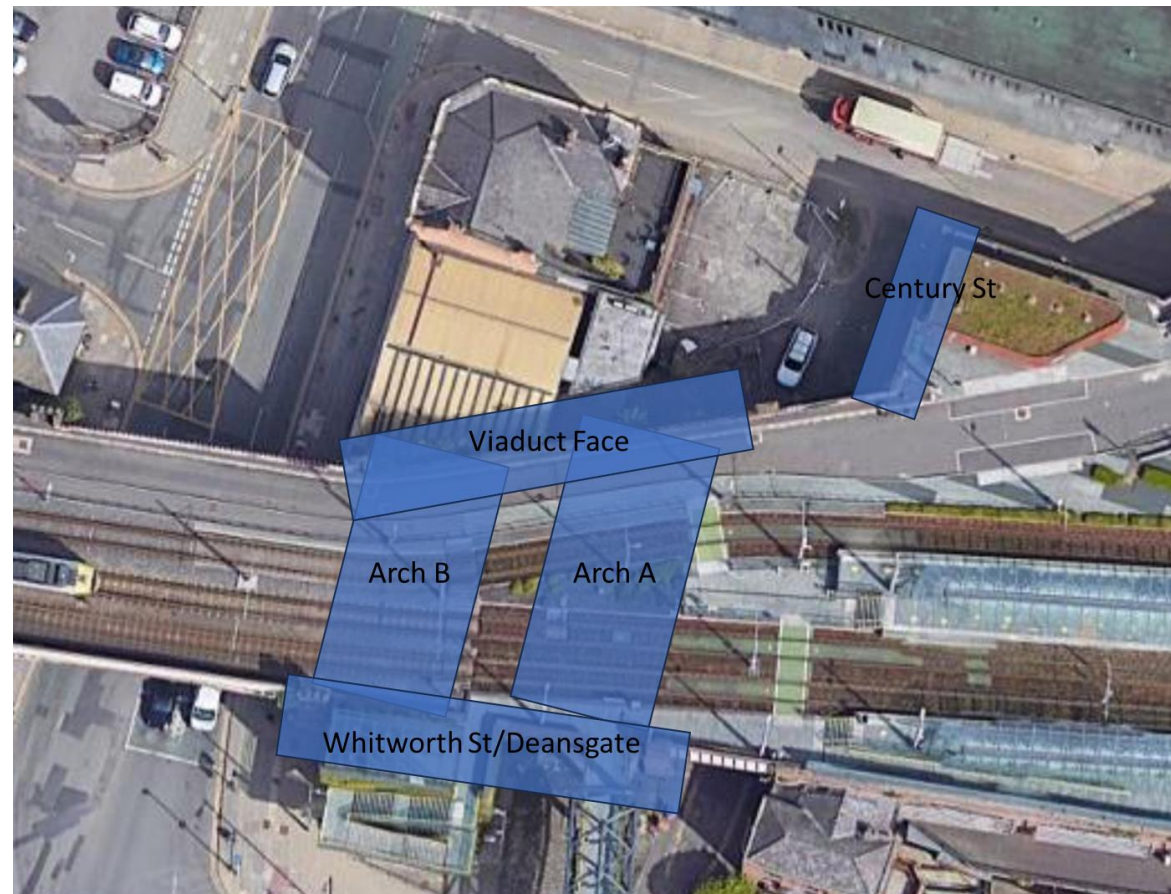


Figure 1 - Site Plan Structural

1.2 Track Locations

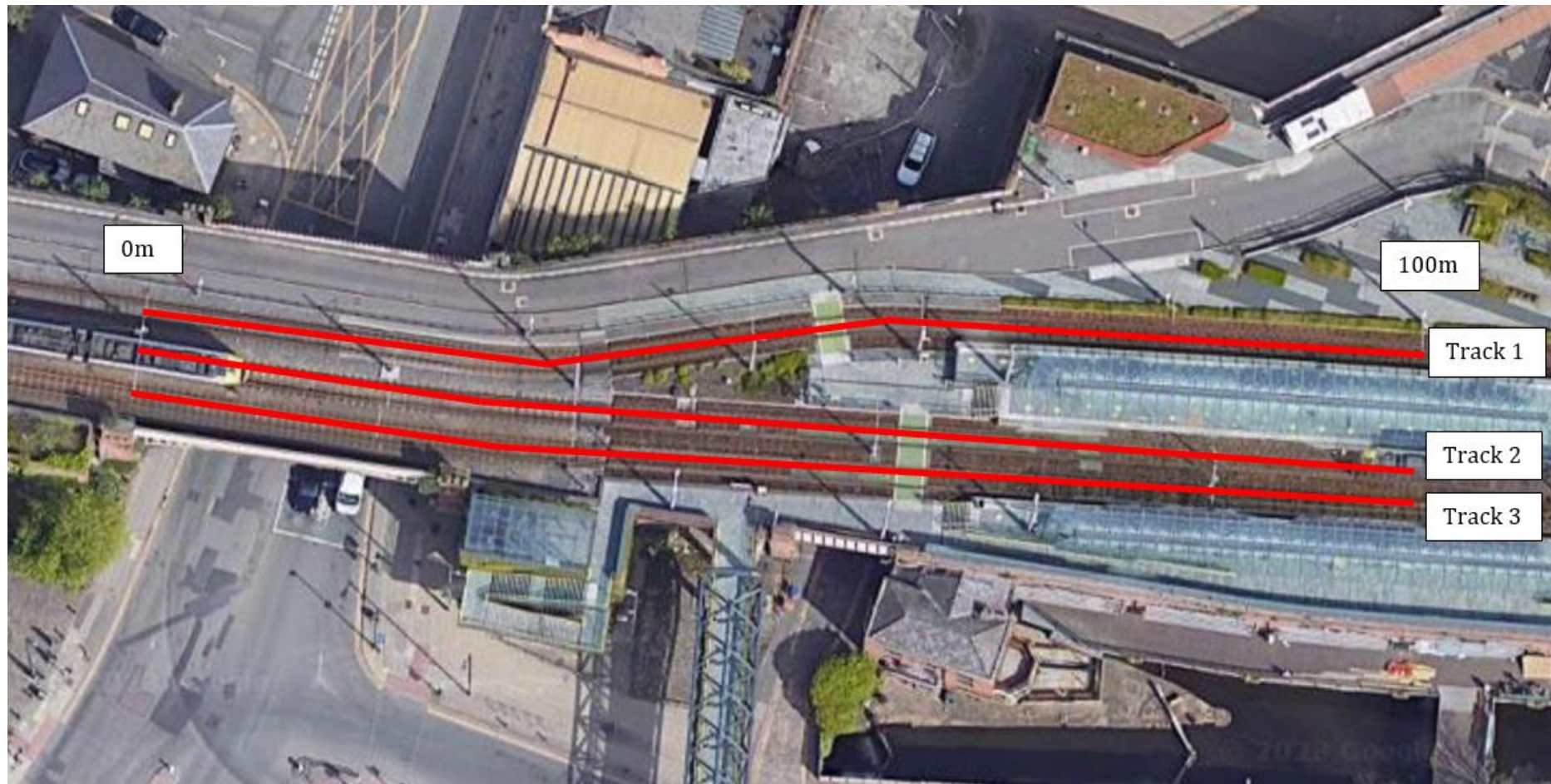


Figure 2 - Site Plan Track

1.3 Arch A Sensor Locations Overview

Due to the nature of the installation in Arch A and lack of line of sight to each sensor, below is an overview of the layout of said sensors to detail their general location. Please note that these locations are simply representative to show the order. Detailed installed photos will be shown in Section 2.

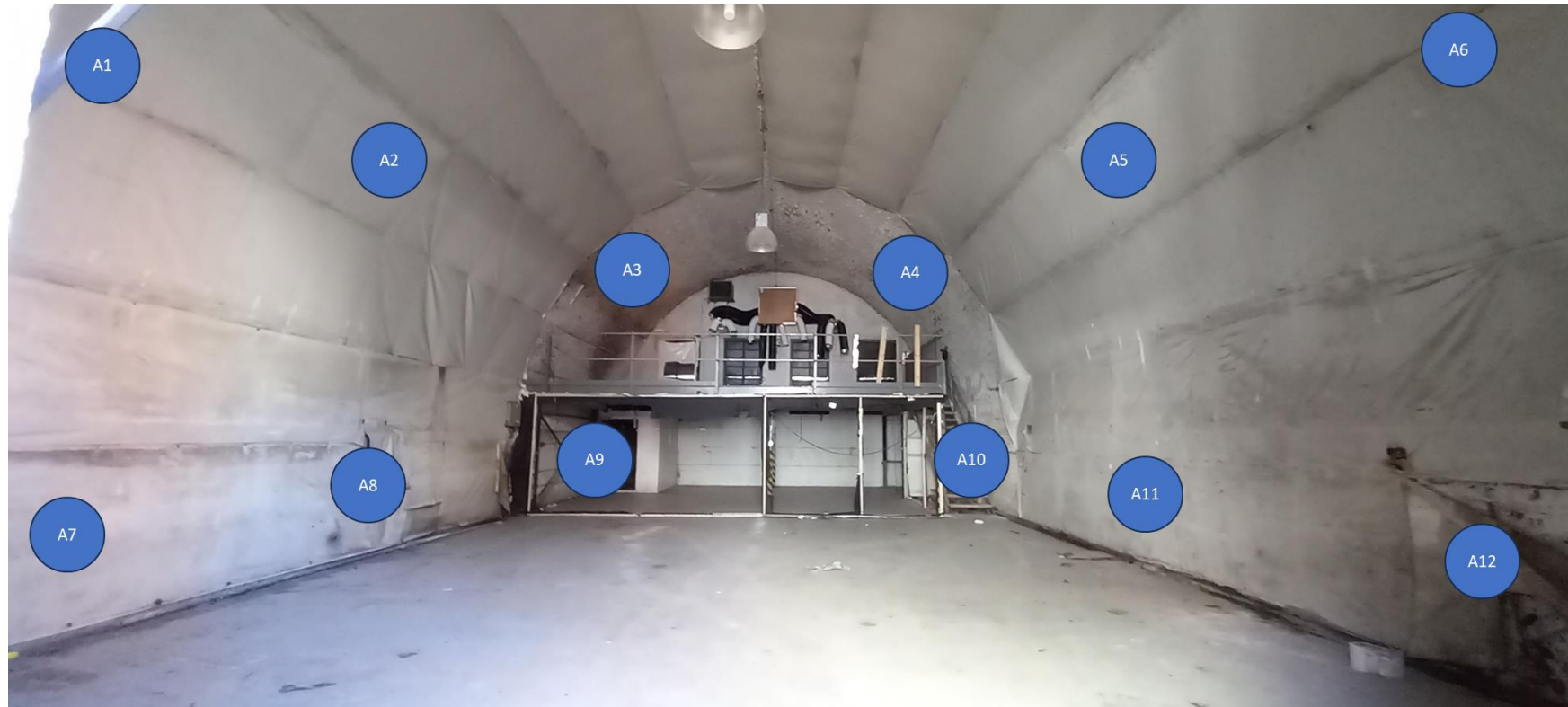


Figure 3 - Arch A Sensor Locations Overview

2 Installation Photos

2.1 Arch A – Site Office



Figure 4 – Arch A - A1, A6, A7



Figure 5 - Arch A, A2



Figure 6 - Arch A, A3



Figure 7 - Arch A, A4



Figure 8 - Arch A, A5



Figure 9 - Arch A, A8



Figure 10 - Arch A, A9



Figure 11 - Arch A, A10



Figure 12 - Arch A, A11

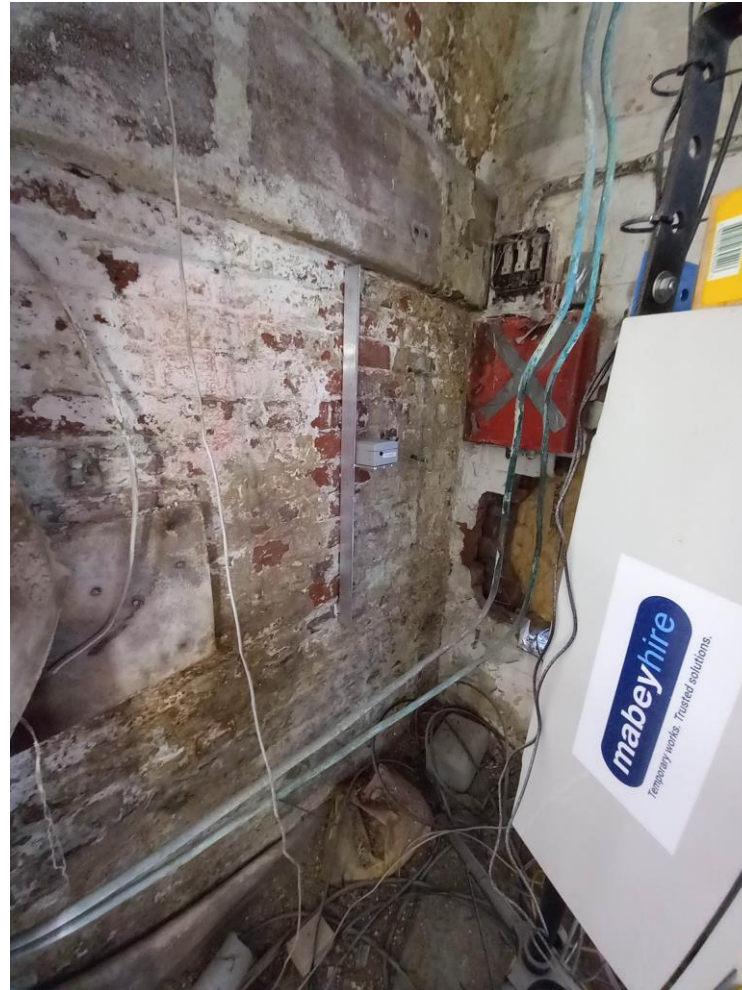


Figure 13 - Arch A, A12

2.2 Arch B

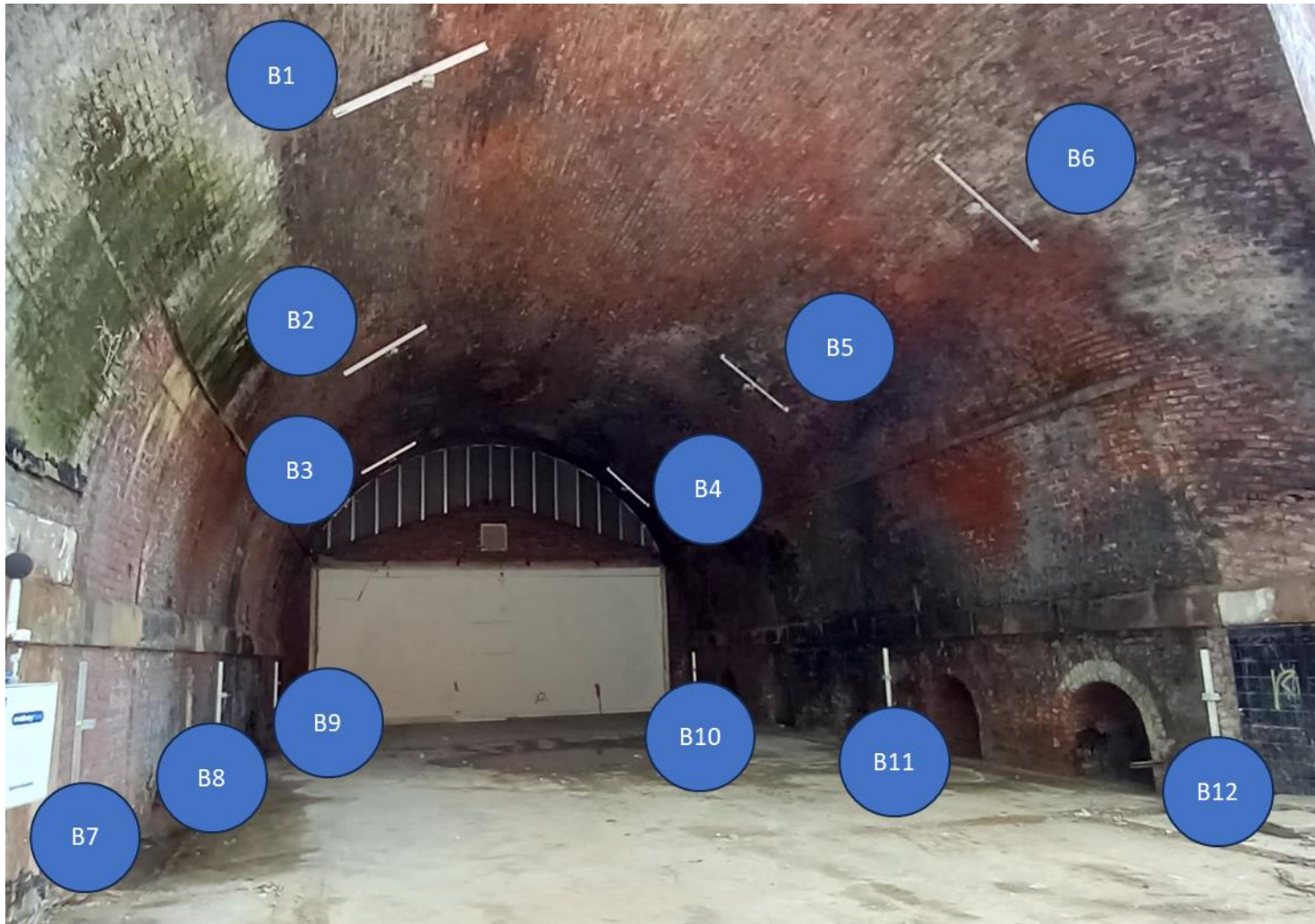


Figure 14 - Arch B, B1-12

2.3 Century St

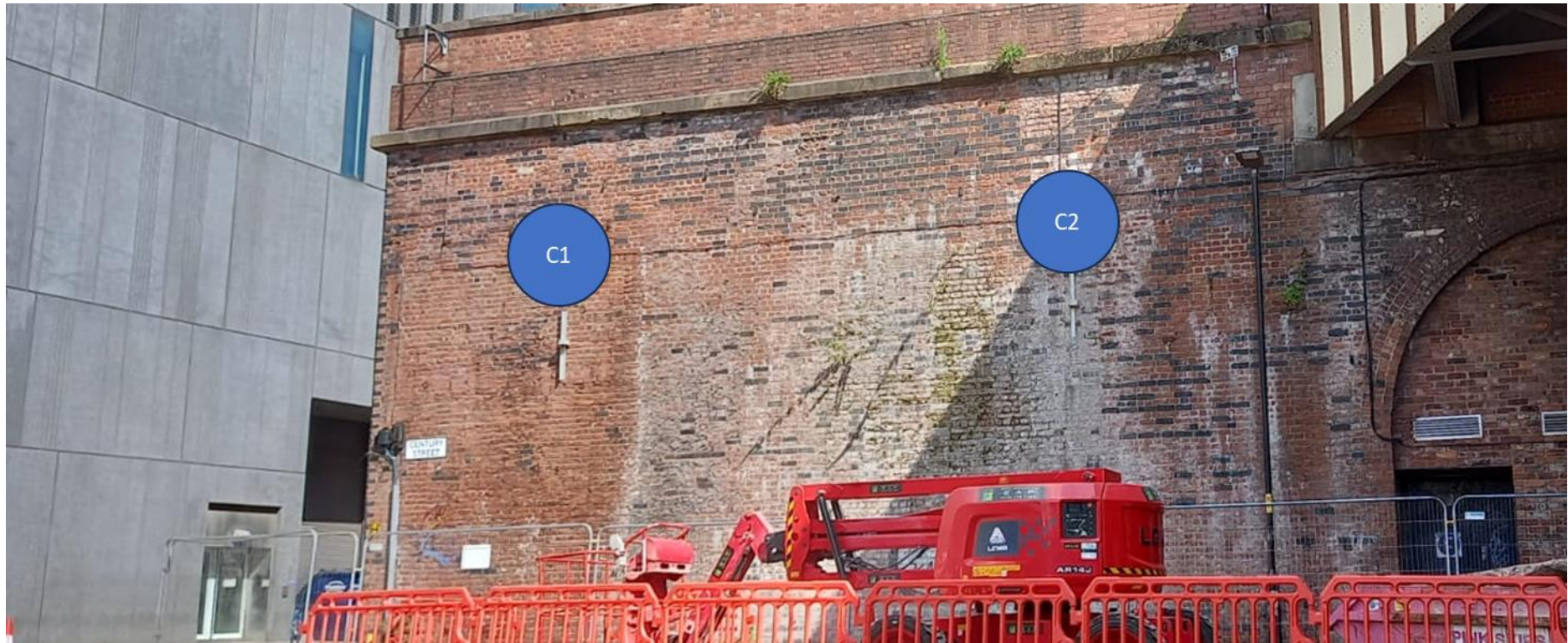


Figure 15 - Century St, C1-2

2.4 Whitworth St



Figure 16 - Whitworth St, 2-3



Figure 17 – Whitworth St, 1

2.5 Viaduct Face



Figure 18 - Viaduct Face, D1-8

2.6 Vibration Monitor Locations

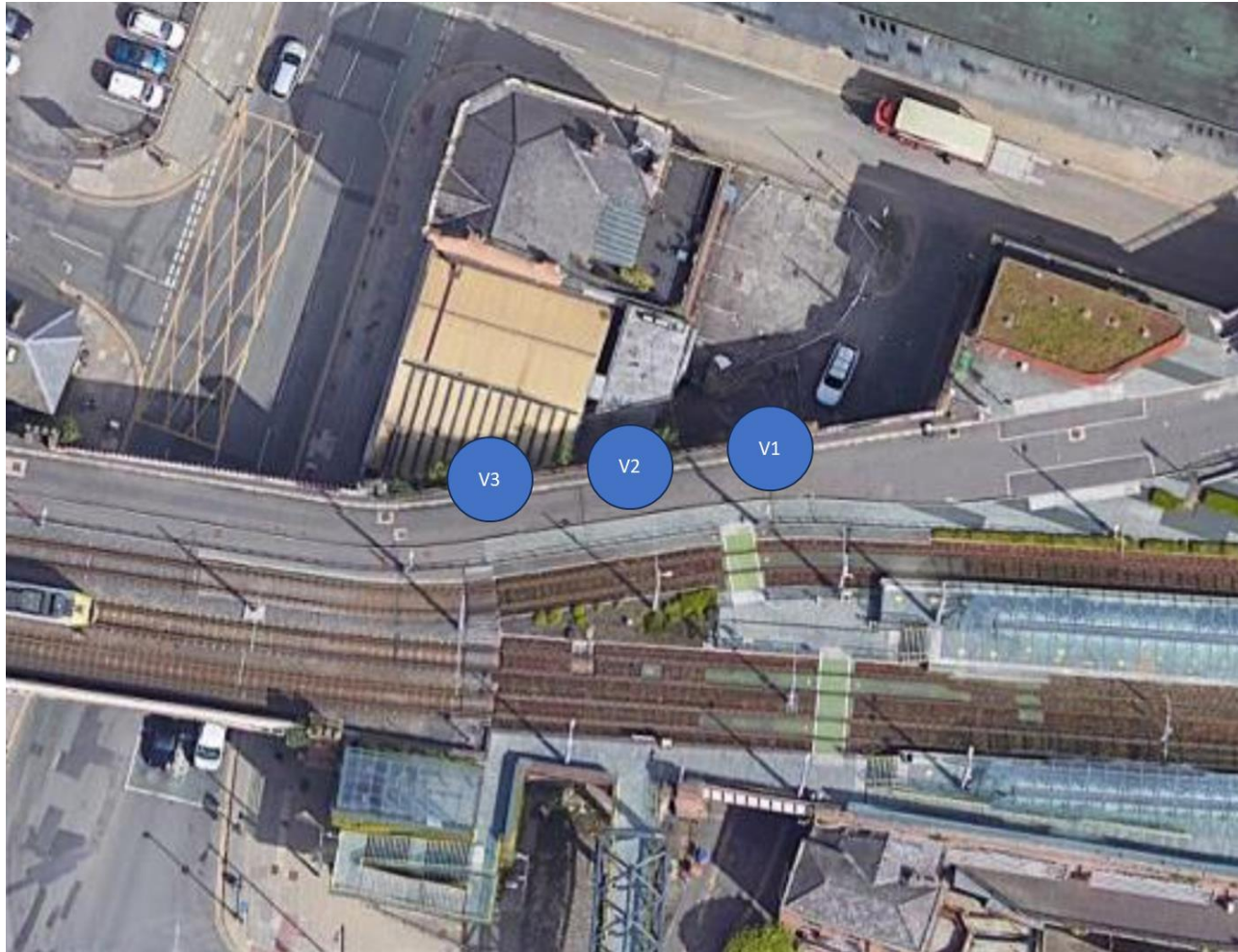


Figure 19 - Vibration Sensor Locations

3 Viaduct Survey Data

Where line of sight permitted, survey targets have been installed alongside each tilt sensor. Specifically, these are as follows:

Arch A – A1, A6, A7

Arch B – B1-12

Century St – C1-2

Viaduct Face (targets only) – D1-8

The baseline data for these targets was recorded on the 14th August 2023, and is below.

	E	N	H
A1	986.0973	994.9883	105.7355
A6	993.0433	996.6703	105.8171
A7	984.3368	994.2994	101.0336
B1	999.2561	1004.498	106.2576
B2	999.0333	1011.089	106.1497
B3	999.1711	1019.235	106.2784
B4	1005.341	1019.829	105.8166
B5	1005.273	1011.293	105.9593
B6	1005.196	1005.198	106.0787
B7	996.8919	1005.004	101.0352
B8	996.8403	1011.275	101.008
B9	996.7778	1018.864	100.9857
B10	1007.198	1020.499	101.064
B11	1007.26	1011.21	101.0789
B12	1007.31	1005.339	100.9897
C1	973.7415	975.1227	105.0445
C2	973.6235	982.7171	105.0771
D1	983.8723	991.058	107.0087
D2	989.8018	994.1485	107.6067
D3	995.671	997.1801	106.8482
D4	1002.58	1000.75	107.5356
D5	1009.157	1004.166	107.0357
D6	983.6014	990.94	103.4522
D7	993.522	997.4237	101.7877
D8	1009.926	1004.122	101.6017

No further survey targets could be installed for the remaining installation completed on the 16th August 2023 due to access and line of sight restrictions within Arch A pertaining to the erection of the site offices.

4 Track Survey Data

4.1 Track 1

X	Y	Z	Gauge (mm)	Cant (mm)	Dist (m)
9.872	26.9756	-0.5791	0.0013	0.0311307	0.00
9.8937	24.981	-0.595	0.00097	0.0260377	2.00
9.9161	22.9797	-0.6052	0.00232	-0.0166158	4.01
9.9399	20.984	-0.6106	0.00234	-0.0529031	6.01
9.9629	18.9854	-0.6196	0.0014	0.0082124	8.01
9.9851	16.9864	-0.627	0.00242	0.0470462	10.01
10.0077	14.9853	-0.6335	0.00013	0.0387701	12.02
10.0283	12.989	-0.6405	-0.00096	-0.0000637	14.02
10.0474	10.9938	-0.6464	0.00024	-0.0369876	16.02
10.0722	8.9904	-0.6531	0.00168	-0.0115228	18.02
10.0974	6.9949	-0.6612	0.0008	0.0234913	20.02
10.1204	4.9997	-0.6694	0.00049	0.0037561	22.02
10.1407	3.0042	-0.6768	0.00161	-0.0930101	24.02
10.1682	0.9996	-0.6871	0.00115	-0.0503566	26.02
10.2243	-1.0151	-0.696	0.00326	0.072511	28.02
10.3467	-3.0344	-0.7017	0.00679	0.1196209	30.02
10.5015	-4.5973	-0.7057	0.01029	0.0954293	31.57
10.8643	-7.1081	-0.7129	0.01131	0.1298068	34.08
11.249	-9.0999	-0.7184	0.00999	0.1240772	36.08
11.7164	-11.077	-0.7242	0.00684	0.1017955	38.08
12.2574	-13.0176	-0.7307	0.00344	0.0744209	40.08
12.8496	-14.9409	-0.7347	0.004	0.0756941	42.08
13.4546	-16.8446	-0.7394	0.00402	0.0438631	44.08
14.0634	-18.7476	-0.7434	0.00148	0.0604152	46.08
14.6713	-20.6571	-0.746	0.00008	0.0438631	48.09
15.2736	-22.5533	-0.7497	-0.00045	0.0521392	50.08
15.8765	-24.4577	-0.754	-0.00073	0.0534124	52.09
16.4757	-26.3655	-0.7577	0.00059	-0.0223454	54.09
17.0479	-28.2674	-0.7614	0.00344	-0.0726383	56.09
17.5574	-30.1816	-0.7634	0.00971	-0.0070665	58.10
17.9831	-32.103	-0.766	0.00679	0.0031194	60.09
18.3304	-34.0431	-0.7678	0.00648	-0.0649989	62.10
18.6045	-36.002	-0.7689	0.00679	-0.1095623	64.09
18.8242	-37.9689	-0.7692	0.00486	-0.0987397	66.09
19.0272	-39.9578	-0.77	0.00364	-0.0465369	68.09
19.2307	-41.9403	-0.7719	0.00191	-0.00452	70.09
19.4313	-43.9274	-0.7726	0.00102	0.0183983	72.09
19.626	-45.9122	-0.7727	0.00057	-0.0108862	74.09
19.8164	-47.9008	-0.7724	0.00031	-0.1095623	76.09
20.0094	-49.892	-0.7775	-0.00068	-0.0032468	78.09
20.1995	-51.8837	-0.7806	-0.0003	0.013942	80.09
20.3873	-53.8742	-0.782	0.00021	0.0642349	82.10
20.573	-55.8608	-0.7821	-0.00007	0.099249	84.10
20.7569	-57.8519	-0.7834	-0.00002	0.0470462	86.10
20.9389	-59.8447	-0.7863	-0.00063	0.0050293	88.10
21.1192	-61.8385	-0.7886	-0.00063	0.0298575	90.11
21.2992	-63.8328	-0.79	-0.00063	0.0604152	92.11
21.4752	-65.8259	-0.7897	-0.00042	0.0215814	94.12
21.6513	-67.8236	-0.7929	-0.00014	-0.0000637	96.12
21.8214	-69.8121	-0.7953	0.0008	-0.0541763	98.12
21.9901	-71.8	-0.7972	0.00082	-0.0891904	100.12

4.2 Track 2

X	Y	Z	Gauge (mm)	Cant (mm)	Dist (m)
6.1035	27.1271	-0.5843	-0.00588	0.1124589	0.00
6.0946	25.1262	-0.5947	-0.00583	0.1194617	2.01
6.0844	23.1222	-0.6009	-0.00698	0.0074166	4.01
6.077	21.1191	-0.6076	-0.00672	-0.0053158	6.02
6.0701	19.1132	-0.6132	-0.00555	-0.1224538	8.02
6.0666	17.1109	-0.6201	-0.00439	-0.1530116	10.02
6.0716	15.1049	-0.6291	-0.00383	0.0010504	12.03
6.0831	13.1068	-0.6393	-0.00373	0.0538899	14.02
6.1065	11.1029	-0.6503	-0.00324	0.0239687	16.03
6.1424	9.0999	-0.6565	-0.00395	0.0176025	18.03
6.1867	7.0989	-0.661	-0.00543	0.0545265	20.03
6.2418	5.0934	-0.6689	-0.00464	0.1391969	22.04
6.3089	3.0887	-0.677	-0.0023	0.1614786	24.04
6.3909	1.0912	-0.6858	-0.00058	0.2308702	26.04
6.4867	-0.916	-0.692	-0.00068	0.2493321	28.04
6.5909	-2.9157	-0.694	-0.00185	0.1487462	30.04
6.7111	-4.9274	-0.7043	-0.00022	0.2225941	32.05
6.8518	-6.9183	-0.7121	0.00102	0.1990392	34.04
7.0028	-8.9188	-0.7186	-0.00182	0.2276871	36.05
7.1575	-10.9134	-0.726	-0.00337	0.2028589	38.06
7.3162	-12.9127	-0.7353	-0.0036	0.1455631	40.06
7.7168	-17.6835	-0.7552	-0.00505	0.0908138	42.06
7.8908	-19.7082	-0.7636	-0.00677	0.1799406	44.07
8.0333	-21.4043	-0.7702	-0.00682	0.1837603	46.07
8.1975	-23.3922	-0.7834	-0.007	0.1258279	48.07
8.3634	-25.3829	-0.7928	-0.00741	0.1379237	50.08
8.5279	-27.3714	-0.7914	-0.00685	0.0698054	52.08
8.6959	-29.3738	-0.7897	-0.00583	0.0449772	54.08
8.8644	-31.3619	-0.7895	-0.00583	0.0449772	56.09
9.0331	-33.3558	-0.7881	-0.00761	0.078718	58.09
9.2001	-35.347	-0.7853	-0.00576	0.1073659	60.09
9.3665	-37.3407	-0.7845	-0.00555	0.1035462	62.09
9.5308	-39.3252	-0.7831	-0.00111	0.1194617	64.09
9.6977	-41.3281	-0.7823	0.00107	0.1767575	66.09
9.8636	-43.318	-0.782	-0.00164	0.200949	68.09
10.0295	-45.3098	-0.7853	0.00148	0.2576082	70.09
10.1958	-47.2997	-0.7869	0.00397	0.341642	72.09
10.3594	-49.2963	-0.7886	0.00471	0.3664702	74.09
10.5202	-51.2795	-0.7901	0.00511	0.3448251	76.08
10.6797	-53.272	-0.7886	0.0041	0.2703406	78.08
10.8386	-55.2662	-0.7855	0.00303	0.1996758	80.09
10.9981	-57.2573	-0.7847	0.00407	0.2079518	82.08
11.1607	-59.2533	-0.7847	0.00379	0.1863068	84.08
11.3256	-61.2537	-0.7845	0.00001	0.123918	86.09
11.4911	-63.2422	-0.7868	-0.00147	0.1888533	88.09
11.6556	-65.2413	-0.7904	0.00034	0.2875293	90.09
11.8178	-67.2251	-0.7946	0.00156	0.3422786	92.08
12.1268	-71.0944	-0.7995	0.00128	0.3129941	94.08
12.2895	-73.126	-0.8002	0.0046	0.2665209	96.08
12.4513	-75.1245	-0.8005	0.00384	0.2792533	98.08
12.6148	-77.1139	-0.8033	0.00242	0.3651969	100.08

4.3 Track 3

X	Y	Z	Gauge (mm)	Cant (mm)	Dist (m)
2.6946	27.1056	-0.5825	-0.00675	0.0376242	0.00
2.6875	25.107	-0.5862	-0.00477	0.1159285	2.01
2.6797	23.1053	-0.5899	-0.00096	0.2317933	4.01
2.6755	21.103	-0.5985	-0.00009	0.3998609	6.01
2.6743	19.1079	-0.6029	-0.00073	0.5551961	8.00
2.6757	17.1145	-0.605	0.00118	0.7315398	10.00
2.6819	15.1075	-0.6085	0.00529	0.9378046	12.00
2.6994	13.1035	-0.6116	0.00438	1.2465652	14.01
2.7264	11.1086	-0.6136	0.00504	1.4636525	16.00
2.7637	9.1085	-0.6164	0.00265	1.6037089	18.00
2.8136	7.1071	-0.6179	0.00087	1.7896018	20.00
2.8738	5.1079	-0.6195	0.00135	2.0035061	22.00
2.9436	3.1021	-0.6231	0.00196	2.1970385	24.00
3.0241	1.101	-0.6283	0.00029	2.0786272	26.00
3.1172	-0.9076	-0.6369	-0.00078	1.8634497	28.00
3.2227	-2.9017	-0.6438	0.00011	1.6871061	30.00
3.3416	-4.9031	-0.6535	-0.00055	1.5655117	32.00
3.4721	-6.8994	-0.6648	-0.00464	1.3465145	34.00
3.6111	-8.8997	-0.6805	-0.00606	1.0899567	36.00
3.756	-10.8911	-0.6965	-0.00484	0.7531849	38.00
3.9081	-12.8884	-0.7103	-0.00342	0.4692524	40.00
4.0656	-14.876	-0.7258	-0.00307	0.2744468	42.00
4.2326	-16.8912	-0.741	-0.00555	0.2375228	44.00
4.399	-18.8734	-0.7519	-0.00601	0.1738609	45.99
4.5683	-20.8729	-0.7611	-0.0053	0.0745482	48.00
4.7358	-22.8608	-0.7696	-0.00507	0.0560862	50.00
4.9	-24.8463	-0.7715	-0.00576	0.0159792	52.00
5.065	-26.847	-0.7727	-0.00601	-0.0304941	54.00
5.2312	-28.8398	-0.7765	-0.00693	-0.0133054	56.00
5.3951	-30.8276	-0.7772	-0.00695	0.0051566	58.00
5.5586	-32.8182	-0.7741	-0.00576	0.036351	60.00
5.7207	-34.8133	-0.7745	-0.00616	0.0605425	62.00
5.8813	-36.8084	-0.7782	-0.00629	-0.0947927	64.00
6.0419	-38.8054	-0.7808	-0.00172	-0.0896997	66.01
6.1991	-40.7989	-0.7806	0.00199	-0.1673673	68.02
6.3567	-42.7983	-0.7826	0.00382	-0.2660434	70.02
6.5199	-44.7929	-0.7855	-0.00098	-0.3048772	72.02
6.6831	-46.7858	-0.7852	-0.00182	-0.2832321	74.03
6.847	-48.7766	-0.7833	-0.00276	-0.2157504	76.02
7.0091	-50.7629	-0.7828	-0.00121	-0.0884265	78.02
7.1711	-52.7599	-0.7814	-0.00147	-0.0521392	80.02
7.3338	-54.7486	-0.7795	-0.00261	-0.0801504	82.02
7.4955	-56.7413	-0.7799	-0.00197	-0.1100716	84.02
7.6571	-58.7379	-0.782	-0.00126	-0.1049786	86.03
7.819	-60.7353	-0.7853	-0.00134	-0.1024321	88.03
7.9814	-62.7222	-0.7909	0.0008	-0.045773	90.03
8.1444	-64.714	-0.795	-0.00047	-0.0489561	92.03
8.3125	-66.7976	-0.7997	-0.0008	-0.0795138	94.03
8.4727	-68.7855	-0.8059	-0.00068	-0.1138913	96.03
8.6353	-70.7748	-0.8102	-0.00075	-0.1724603	98.03
8.7998	-72.7714	-0.8157	-0.00055	-0.2418519	100.03