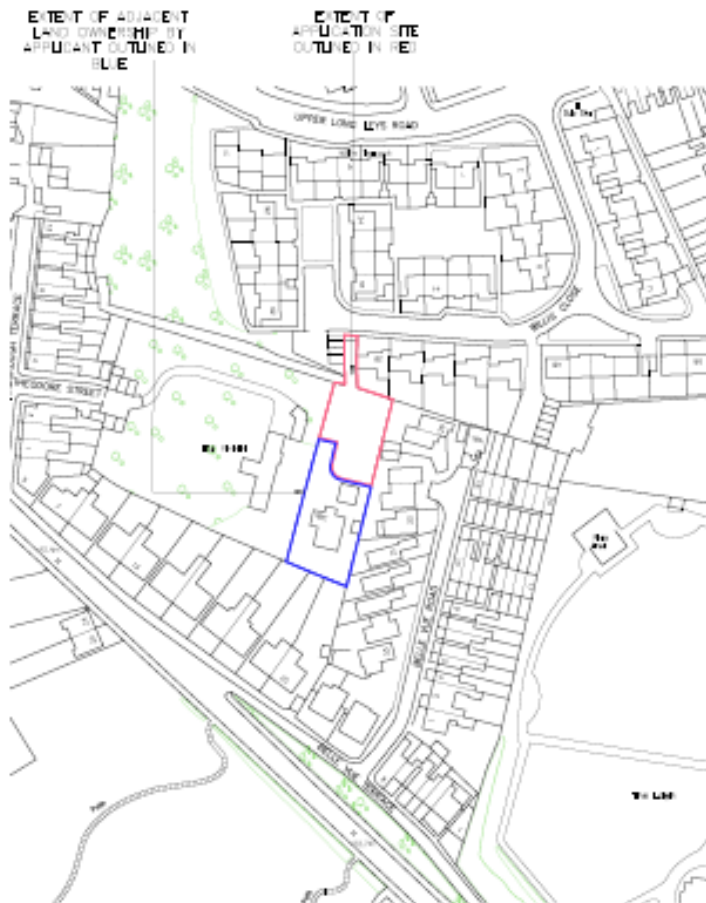




Site
Proposed Block Plan
- 1:200



Site
Proposed Site Section A-A - 1:200



Site
Proposed Location Plan
- 1:1250

SHEPPARD CONSULTING ENGINEERS LTD

STRUCTURAL SURVEY
OF
EXISTING BOUNDARY RETAINING WALL
AND TRIAL PIT INVESTIGATION
AT
38B WILLIS CLOSE, LINCOLN LN1 3LG

Client: Mrs J Clark
38B Willis Close
LINCOLN
LN1 3LG

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Project Ref: 23434

Date: September 2019

SHEPPARD CONSULTING ENGINEERS LTD

1.0 Introduction and Brief

We understand this report, which has been requested by Heronswood Architectural Design, is required to support an outline planning application for a new detached dwelling and garage in the grounds of 38B Willis Close, Lincoln.

Objections have been raised regarding the existing retaining wall to the Eastern boundary of the site and to the ground stability of the site.

The purpose of the inspection was to check the condition of the existing retaining wall and to undertake trial pits where the dwelling is proposed to be constructed, to evaluate any slope stability issues and to recommend an appropriate foundation solution taking into consideration the proximity of the retaining wall.

The inspection was undertaken on Friday 30 August 2019 during fine weather conditions.

2.0 Wall Inspection

Refer to photographs 4 and 5, and sketch sections 23434/W01.

The retaining wall is of considerable age and pre-dates the adjacent dwellings. It is likely to be in the order of 60 plus years old.

The wall is typically 2.4m high on the side of 38B Willis Close and 1.6m high on the retained side of Bellevue Road. The wall comprises solid brick masonry construction nominally 225mm in thickness with brick piers at regular intervals on the retained side – access was not available to measure these.

The wall is generally in good condition with no major cracks being noted.

Section 1-1 had a lean towards 38B Willis Close of 40mm in 1m to the lower retained section. Section 2-2 had a lean towards 38B Willis Close of 100mm in 1m to the lower retained section. This movement is clearly historic and there was no evidence of recent movement. Several fairly mature trees are in close proximity and several cut down trunks were noted close to the wall. These do not appear to be affecting the wall, indicating that the ground conditions are not susceptible to drying shrinkage.

An attempt was made to hand dig adjacent to the wall, however the digging was extremely difficult due to the stoney and compact nature of the ground. Therefore the depth of the wall foundation is unknown, however we suspect it is founded on the rock located at a relatively shallow depth.

3.0 Trial Pit Investigations

See location plan 23434/P1, photographs 1 and 6-11 and sketches 23434/TP/01.

Two trial pits were excavated in the vicinity of the proposed dwelling. Both trial pits revealed similar findings, topsoil to approximately 300mm, with light brown stone, cobbles, mudstone and limestone below. The mudstone became more prominent with depth and the digging was difficult; refusal was reached at 1m depth in trial pit 1 and 1.3m depth in trial pit 2. No water ingress was noted. Tree roots were confirmed to the upper topsoil layer.

4.0 Conclusion and Recommendations

The retaining wall is in reasonable condition for its age. Historic leaning was noted but this is expected due to the nature of the retaining wall. There was no evidence of recent movement.

The lack of cracking and close proximity of the trees indicates that clay is not present and the wall is on stable ground.

The trial pits revealed a hard weathered stone matrix before encountering more solid rock. The digging was extremely difficult and anticipated allowable bearing pressures in the rock are well in excess of 200kN/m².

Due to the nature of the ground encountered, land slip is not considered to be an issue where the dwelling is proposed, provided the foundations are located on the rock.

We have sketched a section through the site (23434/F1) indicating the relationship between the existing retaining wall and the proposed dwelling. Slopes to the retaining wall are in the order of 15-16° to the suggested foundation depth. We do not believe the excavation of the foundations will have any detrimental impact on the Boundary retaining wall.

We would recommend the bank adjacent to the path is sloped up towards the boundary wall at an angle of 30 degrees.

We would recommend that concrete strip footings are utilised, founded 600mm below proposed ground level adjacent to the boundary wall and stepping down to an approximate level of 9.6m to the front of the property – see sketch. As an additional precaution the strip footings should be reinforced with 2 layers of A393 mesh top and bottom to deal with any potential movement within the retained material within the dwelling.

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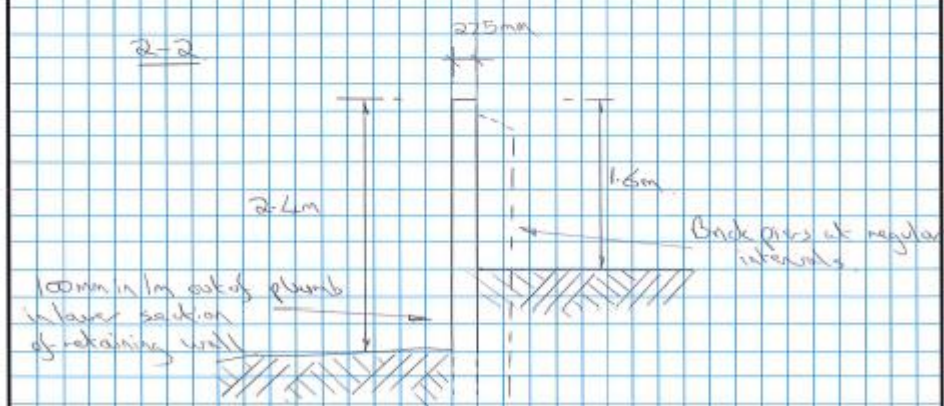
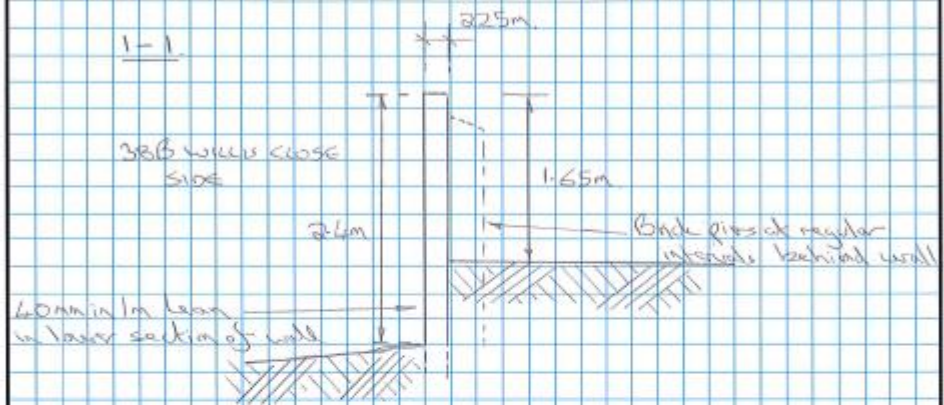
We trust the above is sufficient for your current requirements, however should you require any further assistance please do not hesitate to contact the undersigned.



A D Sheppard BSc (Hons) CEng MStructE
Managing Director

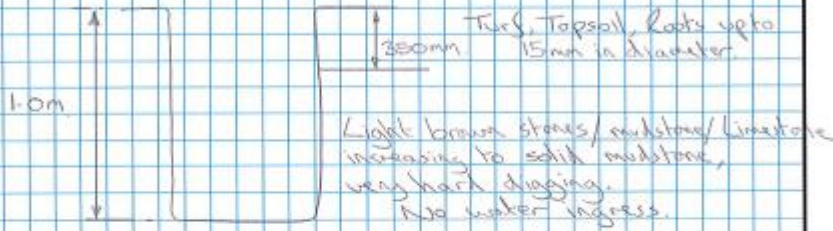
Project		Client	
Proposed New Dwelling - 38B Willis Close, Lincoln.		Mrs J. Clark	
Made by	Date	Checked by	Date
TS	SEPT'19		
Job Number / Sheet Number			
23434/W01			

Retaining Wall Sections



Project		PROPOSED NEW DWELLING - 32B WILLIS CLOSE, LINCOLN		Client		MRS J. CLARK	
Made by	Date	Checked by	Date	Job Number / Sheet Number			
TS	SEPT'19			23434/TP/01			

Trial Pit No 1



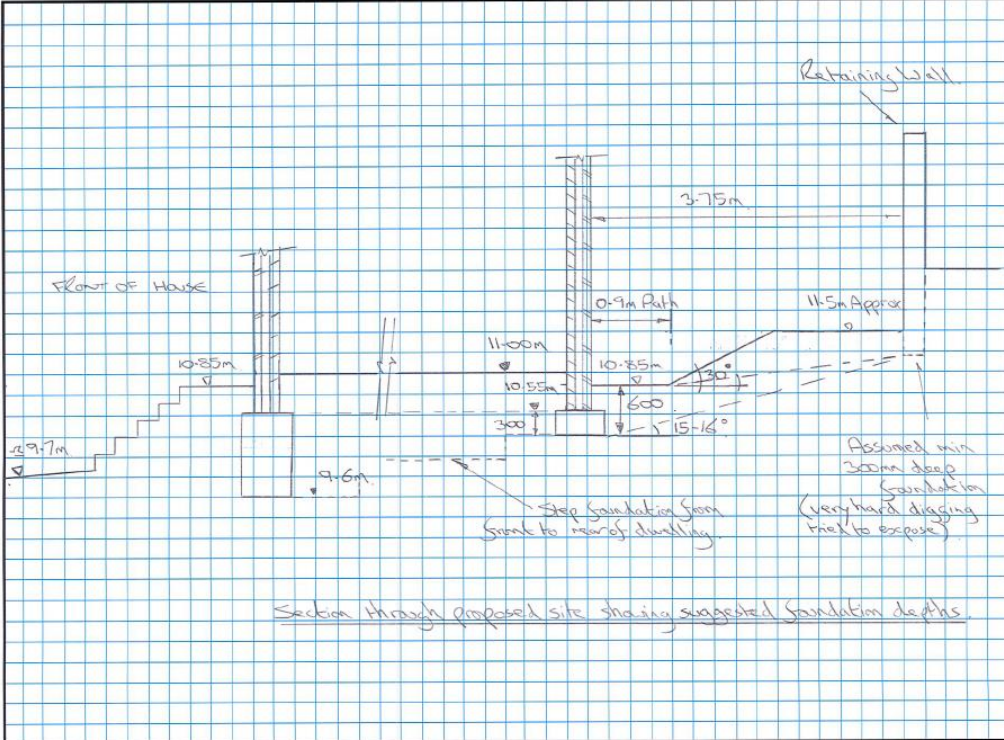
Trial Pit No 2



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Project	Proposed New Dwellings, 38 & 40, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000		
Made by	TS	Date	5/2/19
Checked by		Date	
Client	M&J Clark		
Job Number / Sheet Number	234/204 / E1		



Officers Site Photos



View looking back towards Willis Close



View across the site towards 38B Willis Close



View across the site towards Willis Close



View across the site towards Belle Vue Road and Willis Close



No 38B Willis Close double garage, view towards Belle Vue Road



Section of the existing retaining wall
between the site and properties on
Belle Vue Road

View from the site west towards High Orchard on Theodore Street

