

Hardman Structural Engineers

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107-109 Hampstead Road

Party Wall Document for 38 Netley Street

Sheet Number 1

Date MAY 2010

Engineer AA

Checked *AA*

Project 107 - 109 HAMPSTEAD RD

Project N^o 983

Revision

BASEMENT CONSTRUCTION METHODOLOGY

A SINGLE STOREY BASEMENT IS TO BE FORMED ON THE SITE OF 107 - 109 HAMPSTEAD RD. THE SITE IS BOUNDED: BY: HAMPSTEAD ROAD TO

- HAMPSTEAD ROAD TO THE EAST
- A 5 STOREY BUILDING TO THE NORTH
→ N^o 111 - 113 HAMPSTEAD ROAD.
- NETLEY STREET TO THE SOUTH
- A 4 STOREY BUILDING TO THE WEST
→ N^o 38 NETLEY STREET

THIS IS SHOWN ON THE LOCATION PLAN PAGE 2.

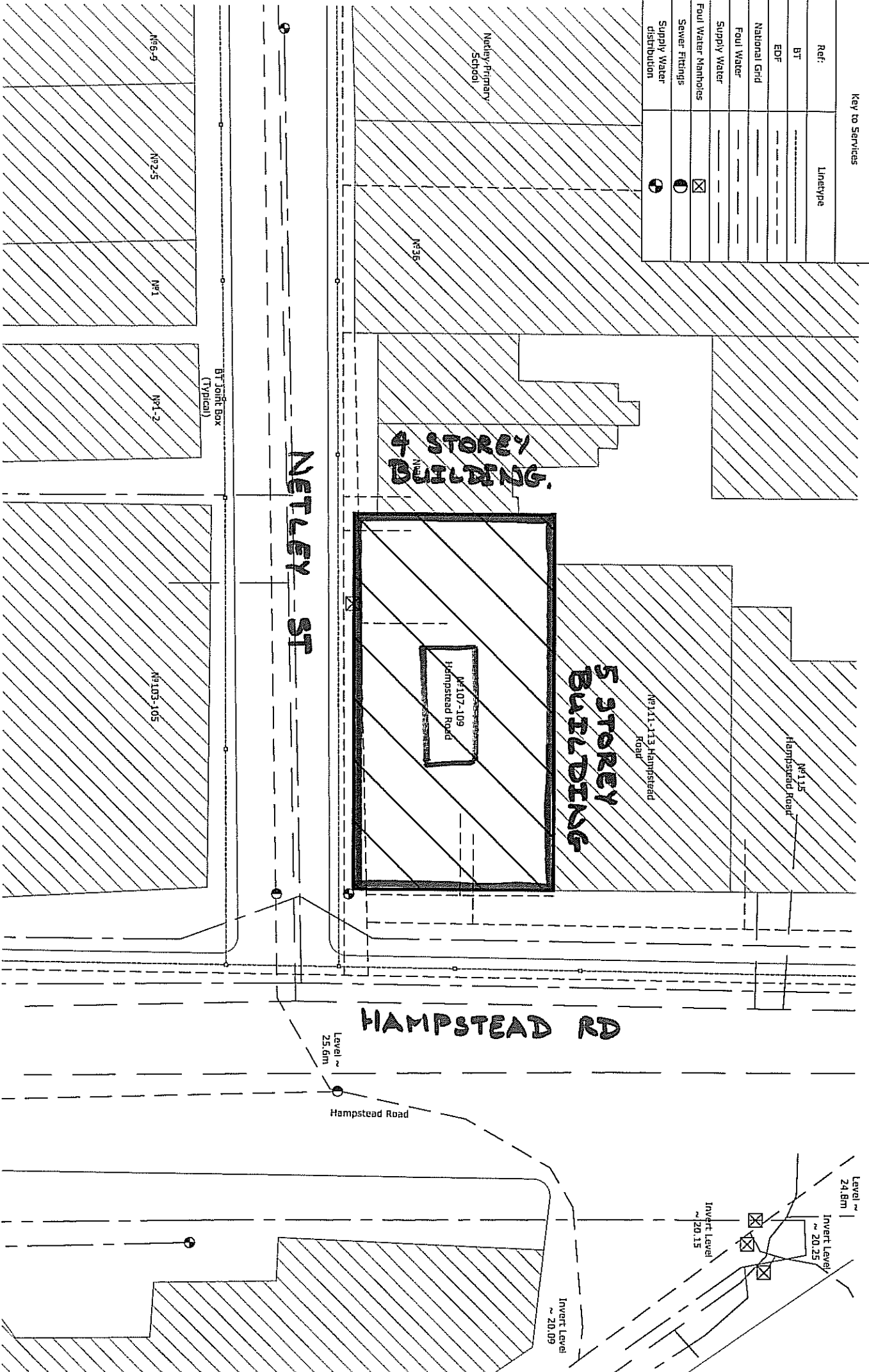
DURING THE EXCAVATION OF THE SITE AND THE CONSTRUCTION OF THE NEW BASEMENT, THE STABILITY OF THE ADJACENT STRUCTURES MUST BE ENSURED. IN ORDER ACHIEVE THIS, THE WORKS SHALL BE CARRIED OUT IN STAGES.

THE PRESENT DOCUMENT DESCRIBES THE WORKS TO BE CARRIED OUT DURING EACH STAGE AND THE KEY STRUCTURAL ELEMENTS WHICH WILL ENSURE THAT STABILITY OF THE ADJACENT STRUCTURES WILL BE MAINTAINED.

A 7 STOREY WILL BE CONSTRUCTED OVER THE NEW BASEMENT.

Key to Services

Ref:	Linetype
BT	-----
EDF	-----
National Grid	-----
Foul Water	-----
Supply Water	-----
Foul Water Manholes	⊗
Sewer Fittings	⊙
Supply Water distribution	⊕



Rev	Date	Changes	By

Note

1. Refer to DWG. 11 for general notes

Project	107-109 Hampstead Road	Date	1/200 @ A3	Sheet No.	003
Client	Morham Construction Ltd	Drawn By	SE	Checked By	01
Use	Site Plan	Date	April 2010	Scale	1:100
	Existing				

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Calculation Sheet

Sheet Number 3

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD RD.

Project Nº 983

Revision

STAGE 1

REFER TO STAGE 1 DRAWING PAGE 4

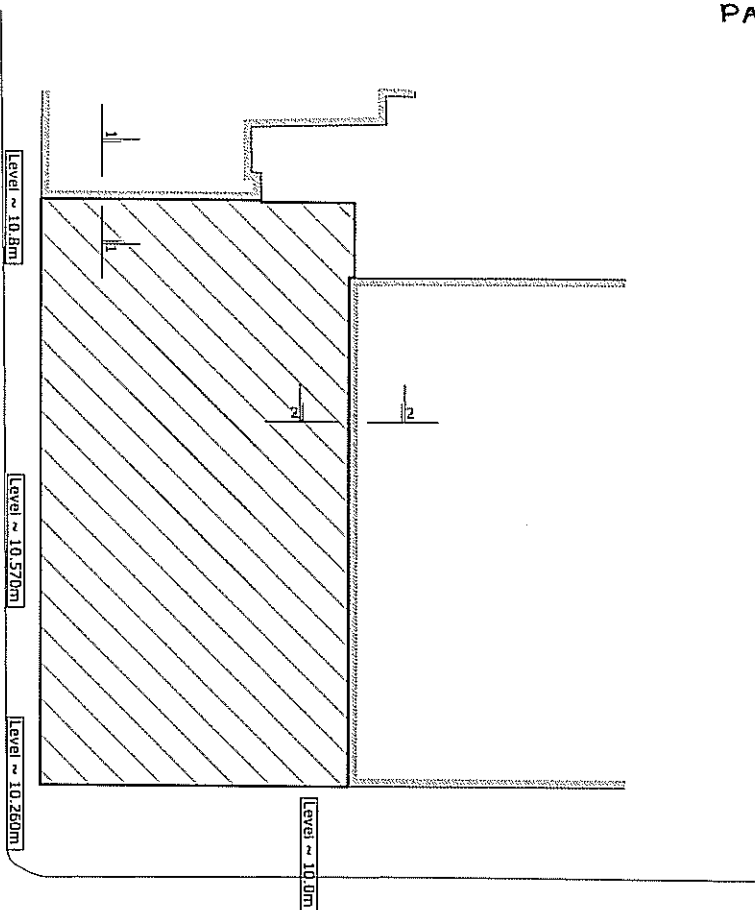
- THE STAGE 1 DRAWING ILLUSTRATES THE CURRENT LEVELS ON THE SITE INCLUDING THE FOOTINGS OF THE ADJACENT BUILDINGS
- THE FOUNDATION TO Nº 38 NETLEY STREET IS APPROXIMATELY 1.8m BELOW THE GROUND LEVEL ON THE SITE.
- THE FOUNDATION TO Nº 111-113 HAMPSTEAD RD IS APPROXIMATELY 4.12m BELOW THE GROUND LEVEL ON THE SITE. WE UNDERSTAND THAT THIS BUILDING HAS A BASEMENT.

STAGE 2

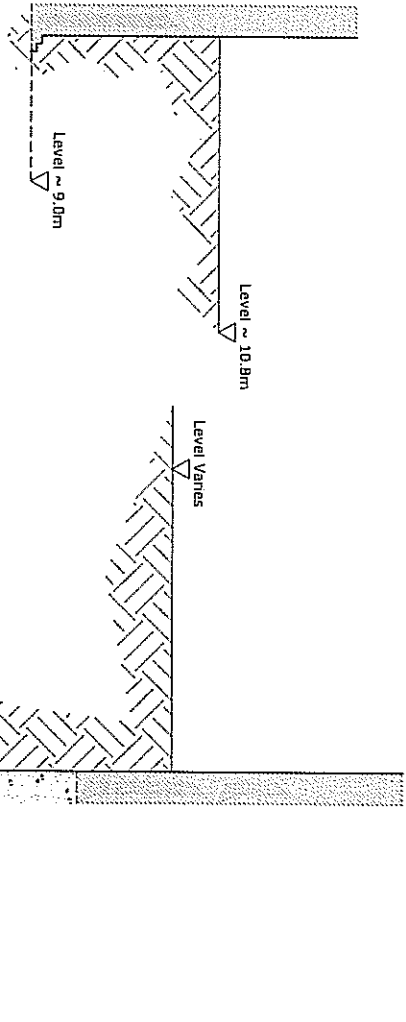
REFER TO STAGE 2 DRAWING PAGE 5

- DURING STAGE 2 STEEL SHEET PILING WILL BE DRIVEN AROUND THE SITE BOUNDARY TO NETLEY STREET.
- THIS WILL ENABLE THE EXCAVATION OF 1m OF EARTH ON THE SITE, USING THE STEEL SHEET PILE WALL TO TEMPORARILY RETAIN THE SOIL MASS BELOW STREET LEVEL.
- SINCE THE LEVEL OF THE SITE WILL REMAIN APPROXIMATELY 0.8m ABOVE THE FOOTING LEVEL OF Nº 38 NETLEY STREET WE WILL AVOID UNDERMINING THIS BUILDING.
- DUE TO THE PRESENCE OF THE BASEMENT OF Nº 111-113 HAMPSTEAD RD THERE WOULD BE NO RETAINING ISSUES ON THIS BOUNDARY.

STAGE 1. - EXISTING SITE CONDITIONS.



PLAN
SCALE 1/200



SECTION 1
SCALE 1/50

SECTION 2
SCALE 1/50

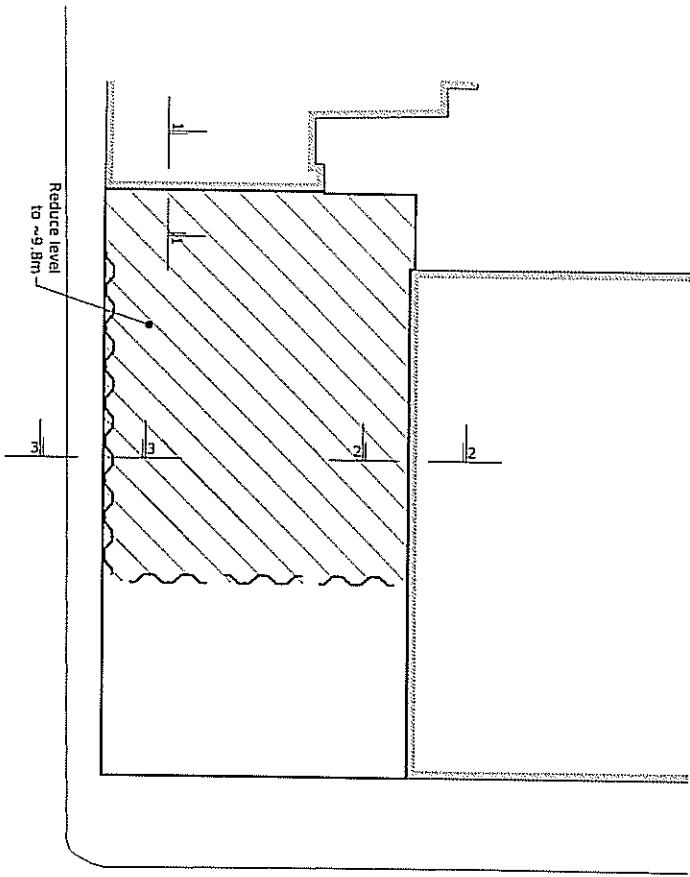
Rev	Date	Comments	By

Note

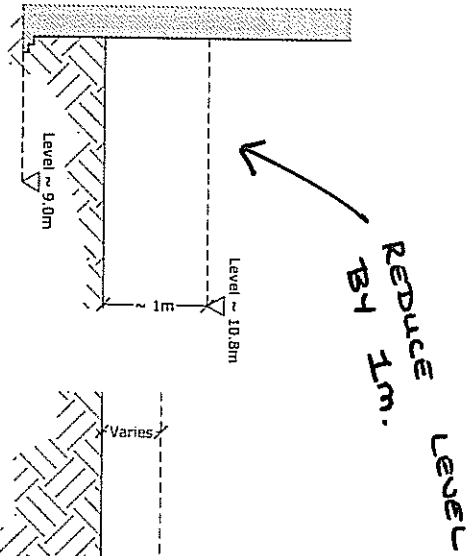
1. Refer to Dwg. 11 for general notes

Project: 107-109 Hamstead Road		Drawn: Vans	Proj. No: 913
Client: Monavon Construction Ltd		Scale: 55	Rev: 61
Title: Suggested Sequence of Construction Stage 1		Date: Aprn 2010	
		Scale: Preliminary	

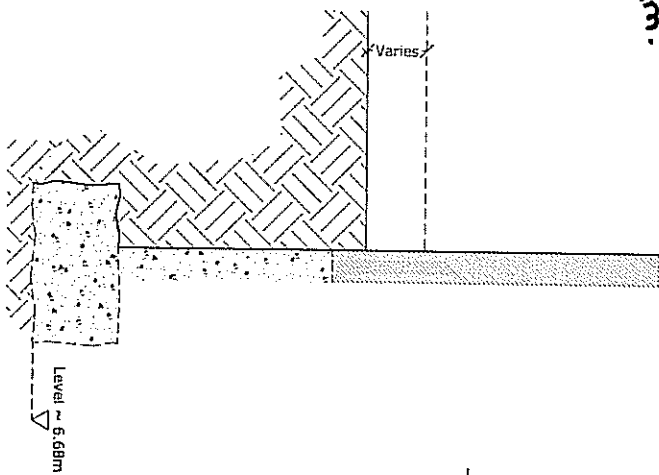
Hardman Structural Engineers
 10th Floor, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419, 421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451, 453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479, 481, 483, 485, 487, 489, 491, 493, 495, 497, 499, 501, 503, 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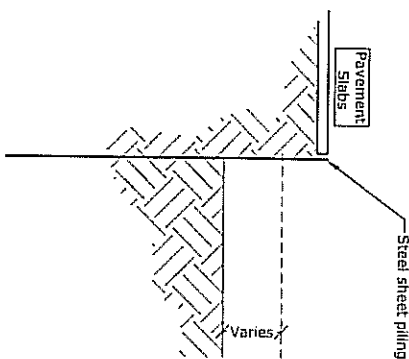
PLAN
SCALE 1/200



SECTION 1
SCALE 1/50



SECTION 2
SCALE 1/50



SECTION 3
SCALE 1/50

NO	DATE	REVISION

Note

1. Refer to DWG. 11 for general notes

Project	107-109 Hamstead Road	Scale	Varies	Sheet No.	62
Client	Monavon Construction Ltd	Drawn By	SB	Checked By	
Title	Suggested Sequence of Construction Stage 2	Date	April 2010		

Hardman Structural Engineers
 110-112, 114 & 116, Colindale Avenue, London NW9 1JH
 Tel: +44 (0)20 8996 9000
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 Registered Structural Engineers No. 52221
 Registered Engineers No. 20621

Sheet Number 6

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD RD

Project No 983

Revision

STAGE 3

REFER TO STAGE 3 DRAWING PAGE 7

○ AT STAGE 3 A 300mm REINFORCED CONCRETE CONTINUOUS AUGER PILE WALL WILL BE CONSTRUCTED ADJACENT TO NO 38 NETLEY STREET.

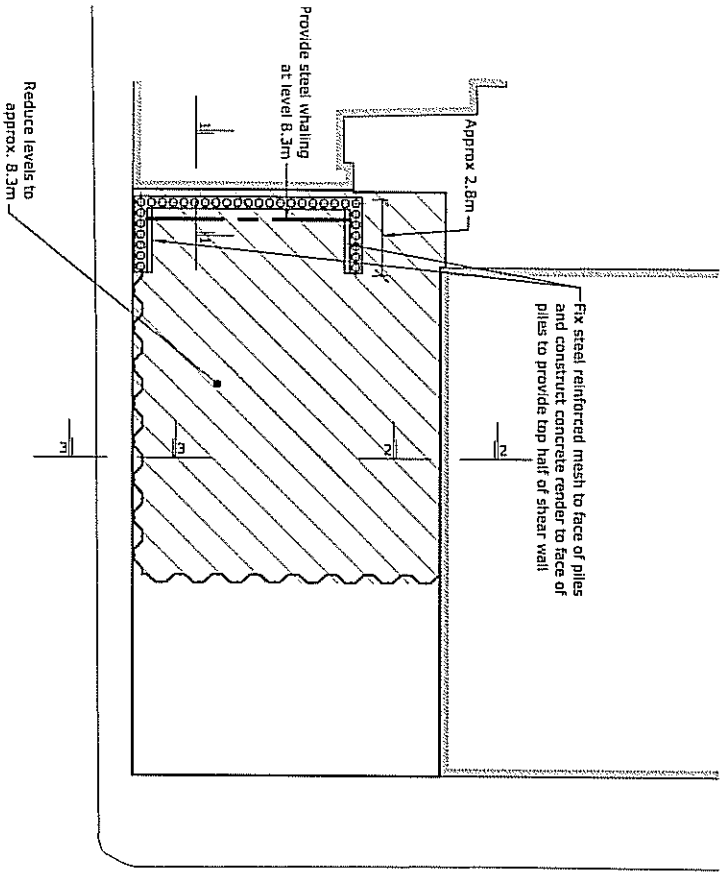
○ A REINFORCED CONCRETE CAPPING BEAM WILL BE PROVIDED AT THE TOP OF THE PILES TO TIE THE PILES TOGETHER.

STAGE 4

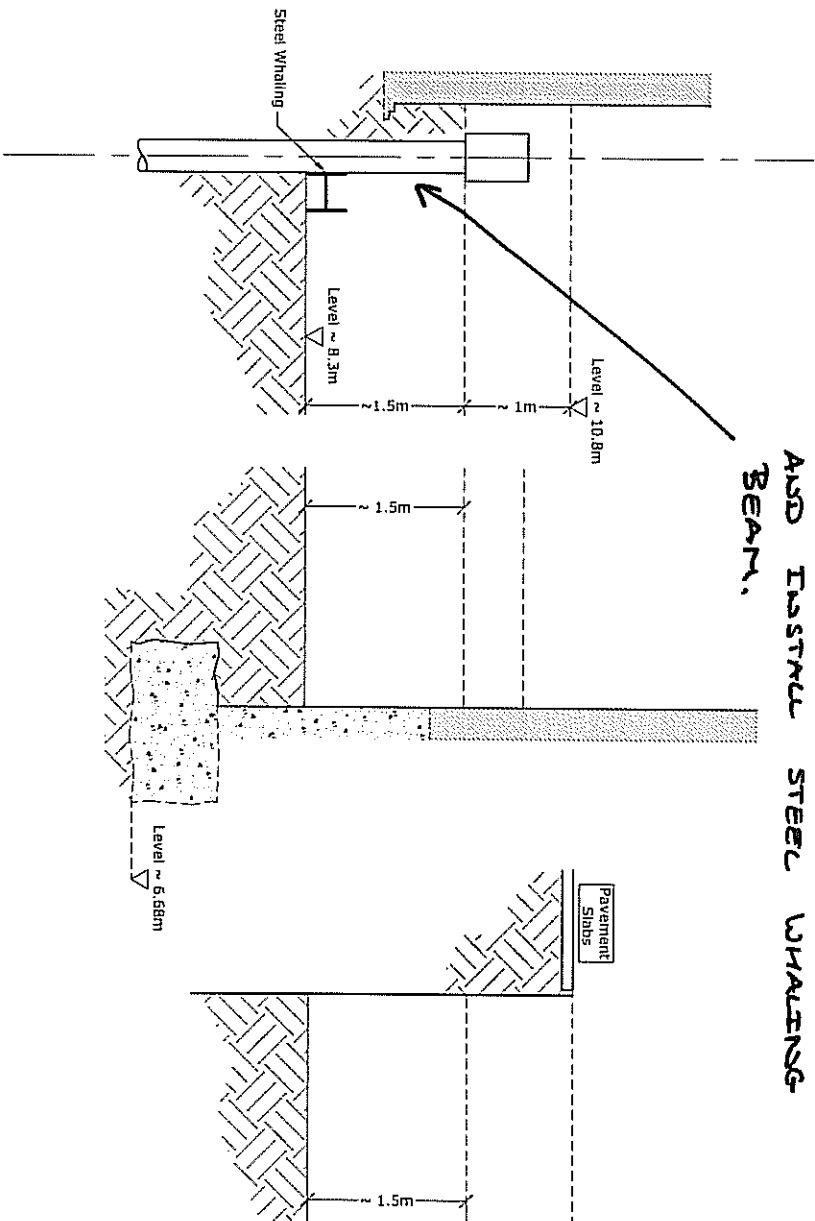
REFER TO STAGE 4 DRAWING PAGE 8

○ THE CONSTRUCTION OF THE RC PILE WALL ADJACENT TO NO 38 NETLEY STREET WILL ENABLE THE EXCAVATION OF AN ADDITIONAL 1.5m (APPROX) EARTH FROM THE SITE USING THE PILE WALL TO RESIST THE LATERAL LOADING FROM NO 38 NETLEY STREET

○ AT THIS LEVEL (APPROX = 2.5m BELOW EXISTING GROUND LEVEL) A STEEL WHALING BEAM WILL BE INSTALLED. THE STEEL BEAM WILL BE DESIGNED TO RESIST PART OF THE LATERAL LOADS ON THE PILE WALL AND WILL SPAN BETWEEN THE RETURN WALLS AT EITHER END.



PLAN
SCALE 1/200



SECTION 1
SCALE 1/50

SECTION 2
SCALE 1/50

SECTION 3
SCALE 1/50

Rev	Date	Comments	By

Note

1. Refer to DWG. 11 for general notes

Project	107-109 Hamstead Road	Date	Version	Drawn by	64
Client	Konswon Construction Ltd	Date	4 April 2010	Drawn by	64
114	Suggested Sequence of Construction	Issue	Preliminary	Scale	64
	Stage 4				

Hardman Structural Engineers	
Units 102, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	

Sheet Number 9

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD ROAD

Project No 983

Revision

STAGE 5

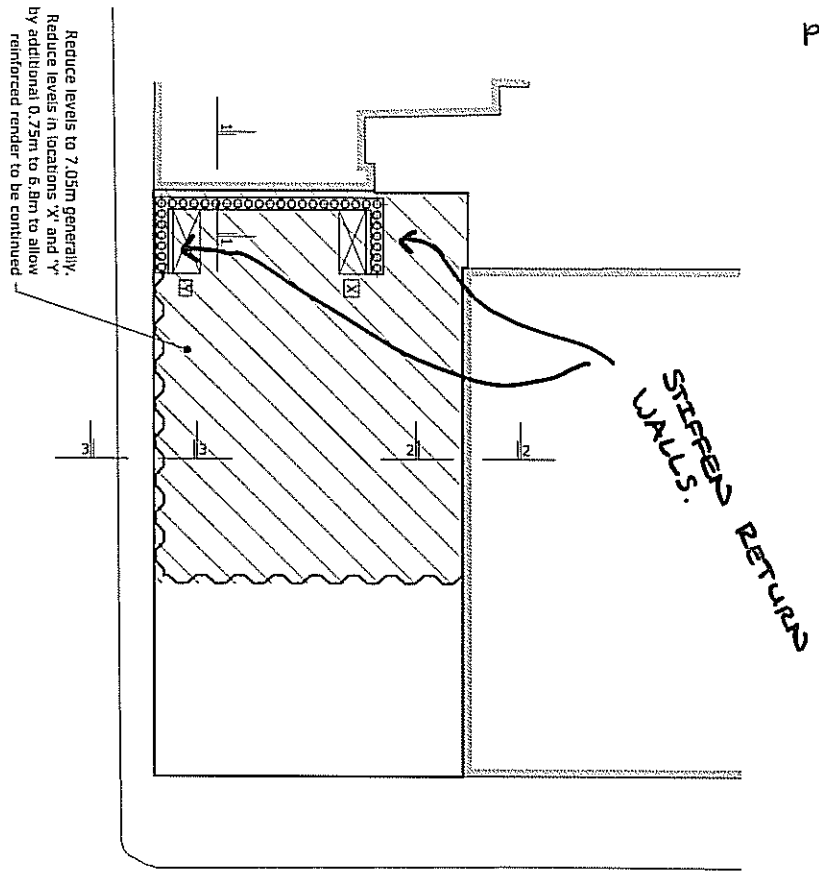
REFER TO STAGE 5 DRAWING PAGE 10

- D THE CONSTRUCTION OF THE STEEL WHALING BEAM TO SUPPORT LATERAL LOADING FROM THE NO 38 NETLEY STREET WILL ENABLE A FURTHER 0.75m OF EARTH TO BE EXCAVATED FROM THE SITE.
- D IN ADDITION FURTHER EXCAVATIONS WILL TAKE PLACE AT THE RETURN WALL LOCATIONS. THIS WILL ENABLE A REINFORCEMENT RENDER TO BE APPLIED TO THE FACE OF THE RETURN WALLS TO ADD IN PLANE STIFFNESS TO THESE SECTIONS OF WALL, TO RESIST THE LATERAL FORCES TAKEN BY BOTH THE RC CAPPING BEAM AND THE STEEL WHALING BEAM.

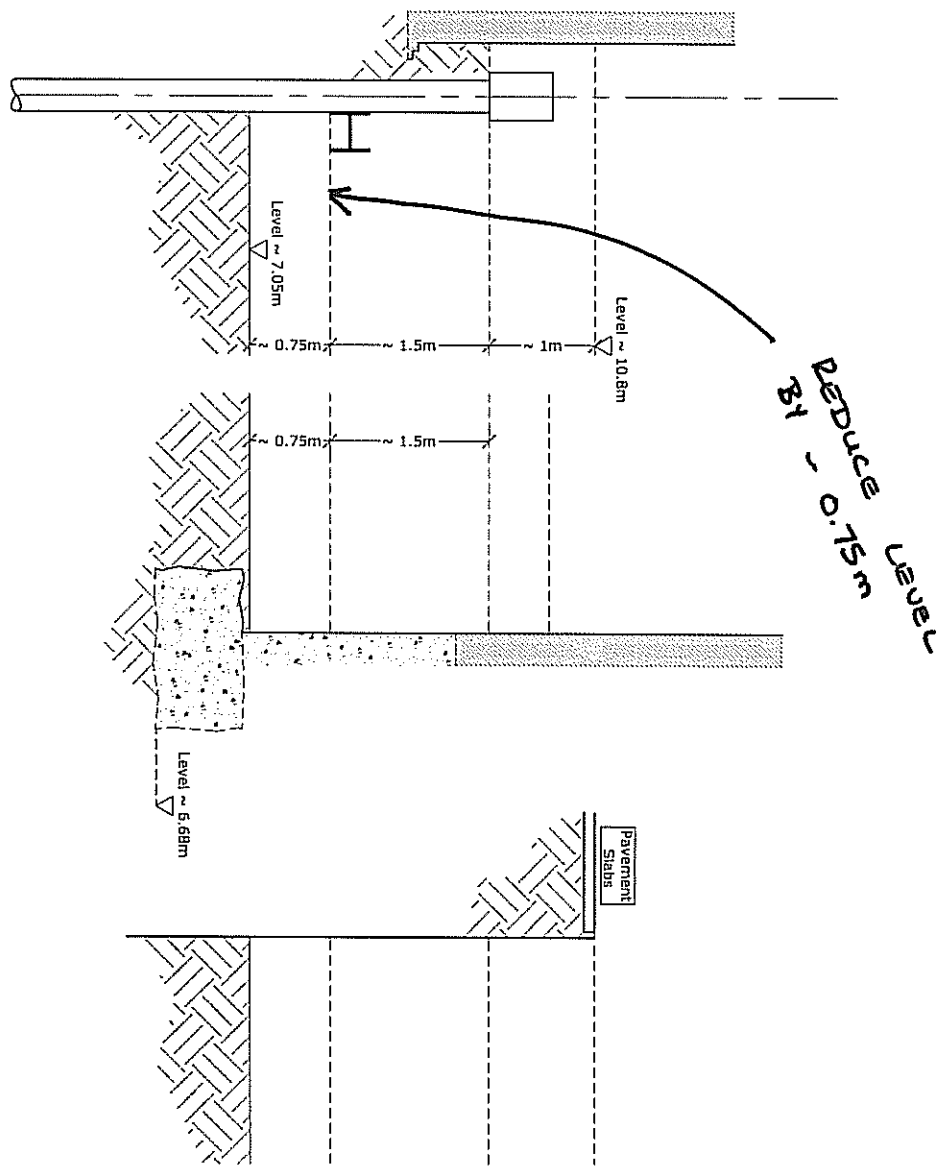
STAGE 6 & 7

REFER TO STAGE 6/7 DRAWINGS PAGES 11 + 12

- D STAGE 6 REPRESENTS THE FULL EXCAVATION OF THE SITE TO THE LEVEL OF THE NEW BASEMENT.
- D ONCE THE SITE HAS BEEN EXCAVATED THE BASEMENT SLAB WILL BE CAST TO PROVIDE A LATERAL SUPPORT TO THE RC PILE WALL.
- D THE GROUND FLOOR SLAB WILL THEN BE CAST TO PROVIDE A SECOND STIFF LATERAL SUPPORT POINT FOR THE RC PILE WALL.
- D THE PILE WILL BE DESIGNED TO SPAN VERTICALLY BETWEEN THE GROUND AND BASEMENT SLABS TO ENABLE THE STEEL WHALING BEAM TO BE REMOVED.



PLAN
SCALE 1/200



SECTION 1
SCALE 1/50

SECTION 2
SCALE 1/50

SECTION 3
SCALE 1/50

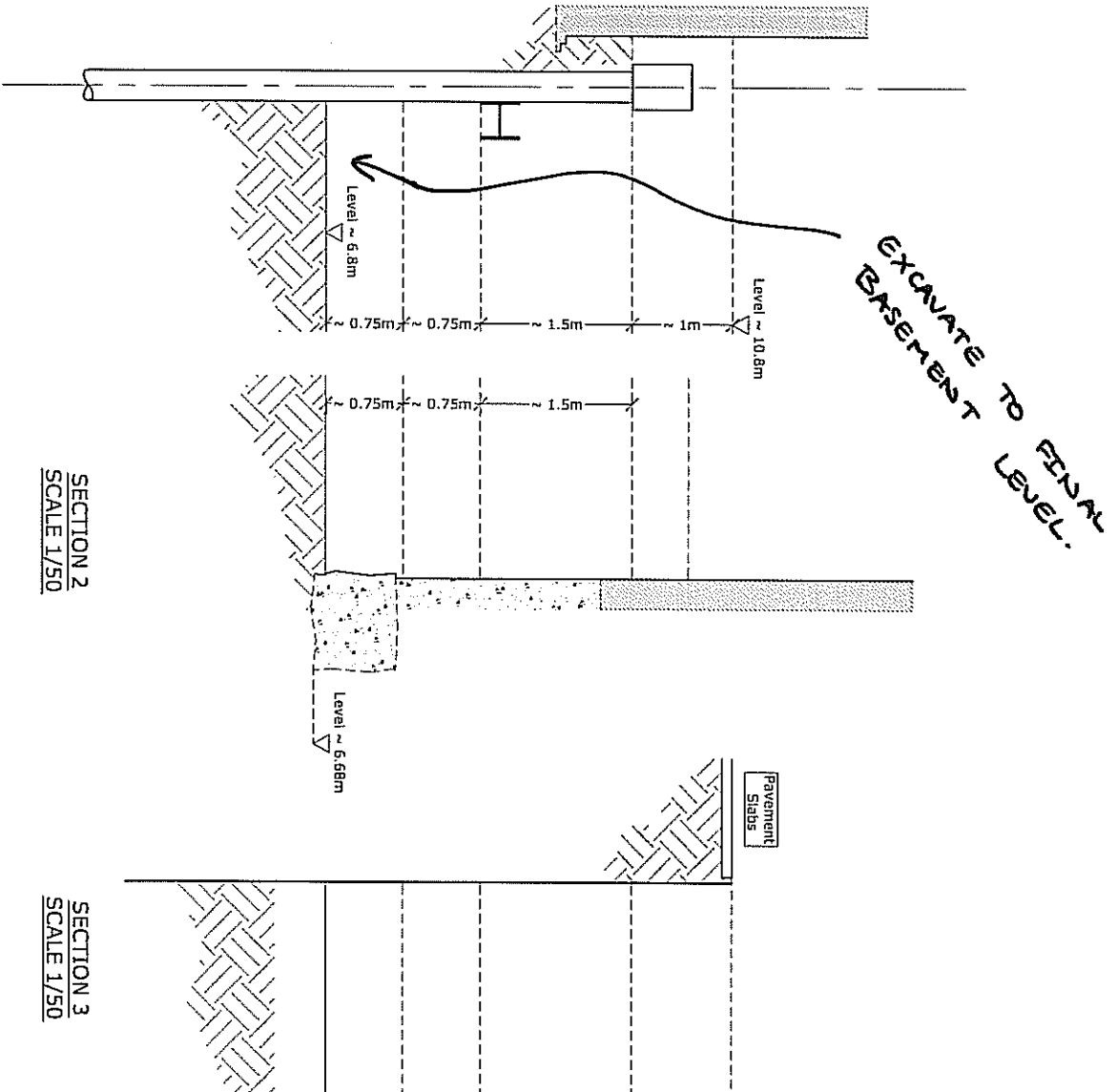
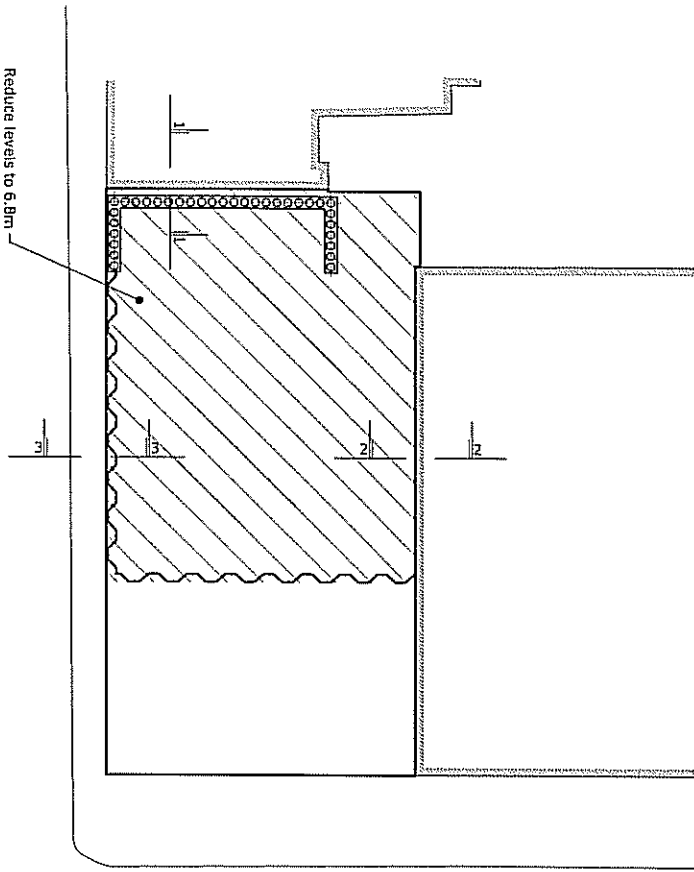
No.	Date	Comments	By

Note

1. Refer to Dwg. 11 for general notes

Project	107-109 Hampstead Road	Issue	Varied	Rev	003
Client	Monavon Construction Ltd	Drawing No.	55	Issue Date	65
Use	Suggested Sequence of Construction	Date	April 2010		
	Stage 5	Status	Preliminary		

Hardman Structural Engineers
 100A & 102, 101 & 103, 104 & 105, 106 & 107, 108 & 109, 110 & 111, 112 & 113, 114 & 115, 116 & 117, 118 & 119, 120 & 121, 122 & 123, 124 & 125, 126 & 127, 128 & 129, 130 & 131, 132 & 133, 134 & 135, 136 & 137, 138 & 139, 140 & 141, 142 & 143, 144 & 145, 146 & 147, 148 & 149, 150 & 151, 152 & 153, 154 & 155, 156 & 157, 158 & 159, 160 & 161, 162 & 163, 164 & 165, 166 & 167, 168 & 169, 170 & 171, 172 & 173, 174 & 175, 176 & 177, 178 & 179, 180 & 181, 182 & 183, 184 & 185, 186 & 187, 188 & 189, 190 & 191, 192 & 193, 194 & 195, 196 & 197, 198 & 199, 200 & 201, 202 & 203, 204 & 205, 206 & 207, 208 & 209, 210 & 211, 212 & 213, 214 & 215, 216 & 217, 218 & 219, 220 & 221, 222 & 223, 224 & 225, 226 & 227, 228 & 229, 230 & 231, 232 & 233, 234 & 235, 236 & 237, 238 & 239, 240 & 241, 242 & 243, 244 & 245, 246 & 247, 248 & 249, 250 & 251, 252 & 253, 254 & 255, 256 & 257, 258 & 259, 260 & 261, 262 & 263, 264 & 265, 266 & 267, 268 & 269, 270 & 271, 272 & 273, 274 & 275, 276 & 277, 278 & 279, 280 & 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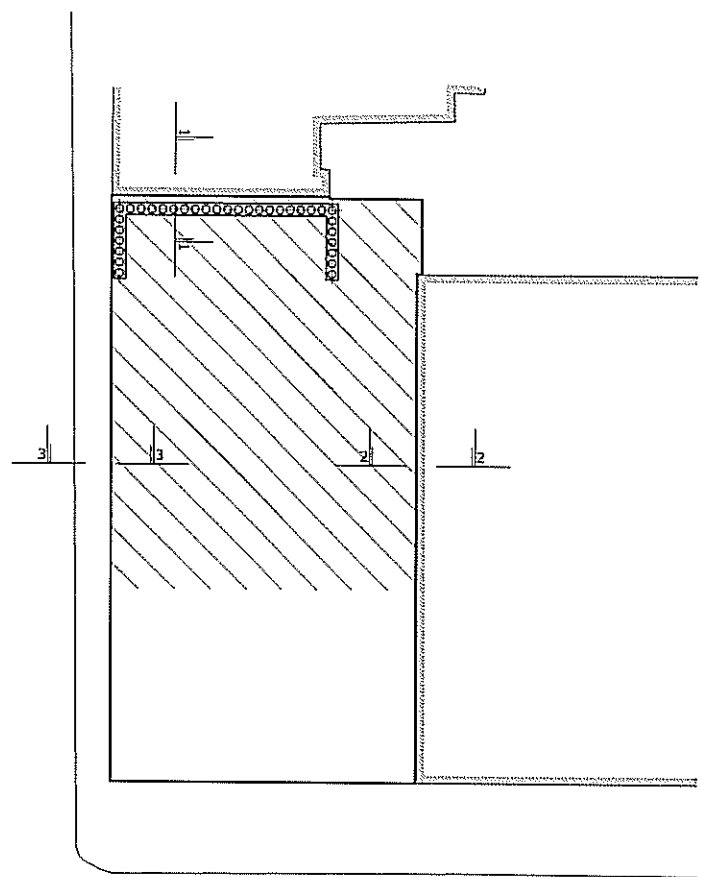
No.	Date	Comments	By

Note

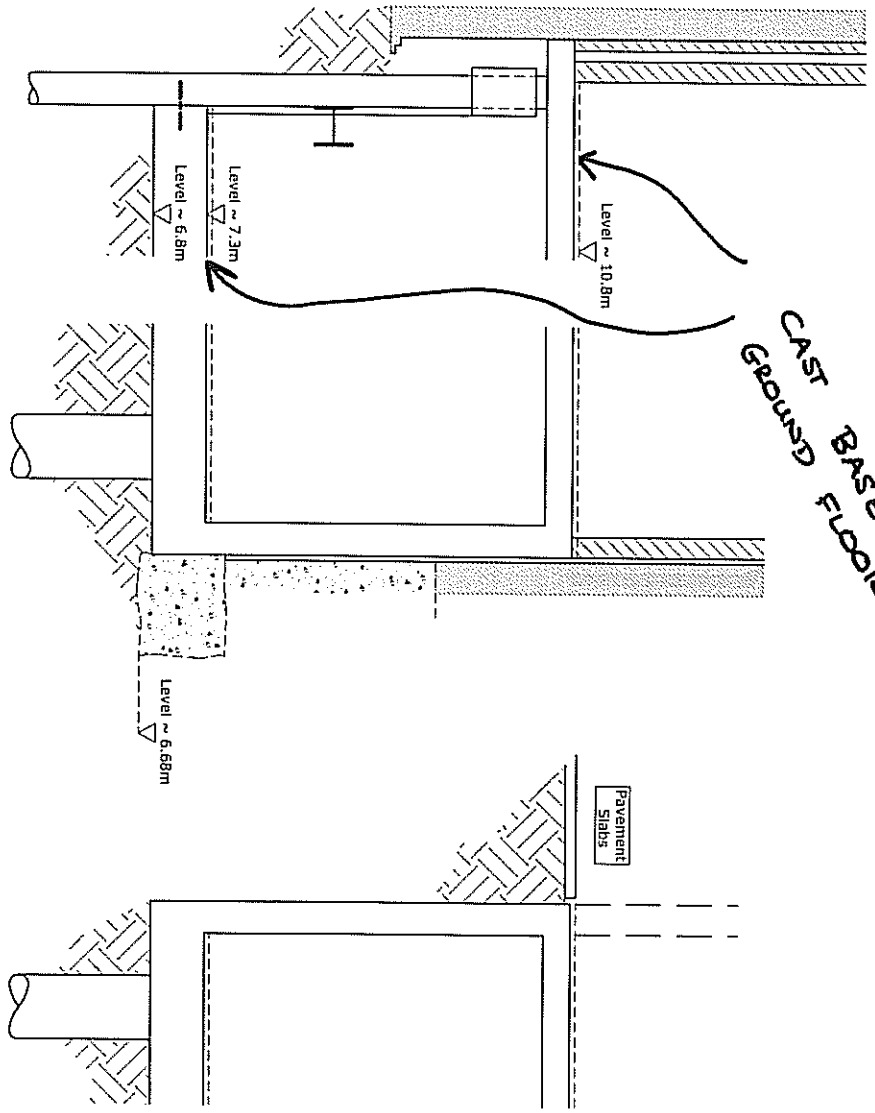
1. Refer to Dwg. 11 for general notes

Project	107-109 Hamstead Road	Issue Number	66
Client	Konvion Construction Ltd	Project No.	55
1st	Suggested Sequence of Construction	Date	April 2010
Stage	5	Status	Preliminary

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PLAN
SCALE 1/200



SECTION 1
SCALE 1/50

SECTION 2
SCALE 1/50

SECTION 3
SCALE 1/50

No.	Date	Comment	By

Note

1. Refer to Dwg. 11 for general notes

Project: 107-109 Hamstead Road		Date: 5/13
Client: Monaxon Construction Ltd		Sheet No: 55
Title: Suggested Sequence of Construction		Date: April 2010
Stage: 7		Scale: 67
Drawn: P. Williams	Checked: S. Jones	Approved: S. Jones

Hardman Structural Engineers
 111-113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419, 421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451, 453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479, 481, 483, 485, 487, 489, 491, 493, 495, 497, 499, 501, 503, 505, 507, 509, 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1259, 1261, 1263, 1265, 1267, 1269, 1271, 1273, 1275, 1277, 1279, 1281, 1283, 1285, 1287, 1289, 1291, 1293, 1295, 1297, 1299, 1301, 1303, 1305, 1307, 1309, 1311, 1313, 1315, 1317, 1319, 1321, 1323, 1325, 1327, 1329, 1331, 1333, 1335, 1337, 1339, 1341, 1343, 1345, 1347, 1349, 1351, 1353, 1355, 1357, 1359, 1361, 1363, 1365, 1367, 1369, 1371, 1373, 1375, 1377, 1379, 1381, 1383, 1385, 1387, 1389, 1391, 1393, 1395, 1397, 1399, 1401, 1403, 1405, 1407, 1409, 1411, 1413, 1415, 1417, 1419, 1421, 1423, 1425, 1427, 1429, 1431, 1433, 1435, 1437, 1439, 1441, 1443, 1445, 1447, 1449, 1451, 1453, 1455, 1457, 1459, 1461, 1463, 1465, 1467, 1469, 1471, 1473, 1475, 1477, 1479, 1481, 1483, 1485, 1487, 1489, 1491, 1493, 1495, 1497, 1499, 1501, 1503, 1505, 1507, 1509, 1511, 1513, 1515, 1517, 1519, 1521, 1523, 1525, 1527, 1529, 1531, 1533, 1535, 1537, 1539, 1541, 1543, 1545, 1547, 1549, 1551, 1553, 1555, 1557, 1559, 1561, 1563, 1565, 1567, 1569, 1571, 1573, 1575, 1577, 1579, 1581, 1583, 1585, 1587, 1589, 1591, 1593, 1595, 1597, 1599, 1601, 1603, 1605, 1607, 1609, 1611, 1613, 1615, 1617, 1619, 1621, 1623, 1625, 1627, 1629, 1631, 1633, 1635, 1637, 1639, 1641, 1643, 1645, 1647, 1649, 1651, 1653, 1655, 1657, 1659, 1661, 1663, 1665, 1667, 1669, 1671, 1673, 1675, 1677, 1679, 1681, 1683, 1685, 1687, 1689, 1691, 1693, 1695, 1697, 1699, 1701, 1703, 1705, 1707, 1709, 1711, 1713, 1715, 1717, 1719, 1721, 1723, 1725, 1727, 1729, 1731, 1733, 1735, 1737, 1739, 1741, 1743, 1745, 1747, 1749, 1751, 1753, 1755, 1757, 1759, 1761, 1763, 1765, 1767, 1769, 1771, 1773, 1775, 1777, 1779, 1781, 1783, 1785, 1787, 1789, 1791, 1793, 1795, 1797, 1799, 1801, 1803, 1805, 1807, 1809, 1811, 1813, 1815, 1817, 1819, 1821, 1823, 1825, 1827, 1829, 1831, 1833, 1835, 1837, 1839, 1841, 1843, 1845, 1847, 1849, 1851, 1853, 1855, 1857, 1859, 1861, 1863, 1865, 1867, 1869, 1871, 1873, 1875, 1877, 1879, 1881, 1883, 1885, 1887, 1889, 1891, 1893, 1895, 1897, 1899, 1901, 1903, 1905, 1907, 1909, 1911, 1913, 1915, 1917, 1919, 1921, 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3583, 3585, 3587, 3589, 3591, 3593, 3595, 3597, 3599, 3601, 3603, 3605, 3607, 3609, 3611, 3613, 3615, 3617, 3619, 3621, 3623, 3625, 3627, 3629, 3631, 3633, 3635, 3637, 3639, 3641, 3643, 3645, 3647, 3649, 3651, 3653, 3655, 3657, 3659, 3661, 3663, 3665, 3667, 3669, 3671, 3673, 3675, 3677, 3679, 3681, 3683, 3685, 3687, 3689, 3691, 3693, 3695, 3697, 3699, 3701, 3703, 3705, 3707, 3709, 3711, 3713, 3715, 3717, 3719, 3721, 3723, 3725, 3727, 3729, 3731, 3733, 3735, 3737, 3739, 3741, 3743, 3745, 3747, 3749, 3751, 3753, 3755, 3757, 3759, 3761, 3763, 3765, 3767, 3769, 3771, 3773, 3775, 3777, 3779, 3781, 3783, 3785, 3787, 3789, 3791, 3793, 3795, 3797, 3799, 3801, 3803, 3805, 3807, 3809, 3811, 3813, 3815, 3817, 3819, 3821, 3823, 3825, 3827, 3829, 3831, 3833, 3835, 3837, 3839, 3841, 3843, 3845, 3847, 3849, 3851, 3853, 3855, 3857, 3859, 3861, 3863, 3865, 3867, 3869, 3871, 3873, 3875, 3877, 3879, 3881, 3883, 3885, 3887, 3889, 3891, 3893, 3895, 3897, 3899, 3901, 3903, 3905, 3907, 3909, 3911, 3913, 3915, 3917, 3919, 3921, 3923, 3925, 3927, 3929, 3931, 3933, 3935, 3937, 3939, 3941, 3943, 3945, 3947, 3949, 3951, 3953, 3955, 3957, 3959, 3961, 3963, 3965, 3967, 3969, 3971, 3973, 3975, 3977, 3979, 3981, 3983, 3985, 3987, 3989, 3991, 3993, 3995, 3997, 3999, 4001, 4003, 4005, 4007, 4009, 4011, 4013, 4015,

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Calculation Sheet

Sheet Number 13

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD RD.

Project No 983

Revision

300mm REINFORCED CONCRETE CONTINUOUS PILE WALL

THE REINFORCED CONCRETE PILE WALL WILL
BE DESIGNED TO RESIST THE LATERAL
LOADS ASSOCIATED WITH THE BOUNDARY TO
NO 38 NETLEY STREET.

STABILITY OF NO 38 NETLEY STREET MUST
BE ENSURED DURING BOTH THE TEMPORARY
CONSTRUCTION PHASE AND THE FINAL
PERMANENT CASE.

DETAILS OF THESE LOAD CASES ARE
AS FOLLOWS.

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Calculation Sheet

Sheet Number 14

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD RD

Project No 983

Revision

TEMPORARY CONSTRUCTION CASE

IN THE TEMPORARY CASE THE RETAINING WALL WILL BE DESIGNED TO RESIST BOTH THE SURCHARGE LOAD FROM NO 38 NETLEY STREET AND THE RETAINED SOIL PRESSURE.

THE WALL WILL BE DESIGNED TO SPAN HORIZONTALLY BETWEEN THE STIFF RETURN WALLS USING THE RC CAPPING BEAM TO TRANSFER THE LOADS.

SOIL PRESSURE

$$P_1 = 0 \text{ kN/m}^2$$

$$\text{SOIL PRESSURE } P_2 = K_a \gamma z.$$

$$K_a = 0.3 \text{ FOR LONDON CLAY.}$$

$$\gamma = 18 \text{ kN/m}^3$$

FOR LONDON CLAY.

$$z = 3.53 \text{ m}$$

$$P_2 = 0.3 \times 18 \times 3.53 \text{ m} = 19.1 \text{ kN/m}^2$$

SURCHARGE LOAD

$$P_3 = K_a \times \text{LOAD / AREA.}$$

$$K_a = 0.3 \text{ FOR LONDON CLAY.}$$

AREA OF FOOTING TO NO 38 NETLEY STREET
ASSUME 330mm THICK WALL + 140mm
CORBLE ON BOTH SIDES OF WALL

$$\text{TOTAL THICKNESS} = 330 + 140 + 140 \\ = 610 \text{ mm.}$$

LOAD ON FOOTING TO NO 38 NETLEY STREET.

№ 38 NETLEY STREET :

4 STOREY BUILDING : 3 STOREYS OF MASONRY
 WITH LIGHTWEIGHT ROOF TOP EXTENSION ABOVE.

□ ASSUMED TIMBER FLOORS TYPICALLY SPAN FRONT
 TO BACK OF PROPERTY SO THEREFORE
 CONTRIBUTE NO LOAD ONTO THE BOUNDARY
 WALL

□ ROOFTOP EXTENSION IS SET BACK FROM THE
 BOUNDARY WALL LINE, THEREFORE ASSUME THIS
 STRUCTURE IS NOT SUPPORTED ON THE BOUNDARY
 WALL.

□ LOAD ON BOUNDARY WALL FOOTING IS EQUAL
 TO THE SELF WEIGHT OF THE MASONRY.

$$\begin{aligned} \text{TOTAL HEIGHT OF WALL} &= 3\text{m} \times 3 + 1\text{m PARAPET.} \\ &= \underline{10\text{m.}} \end{aligned}$$

ASSUME WALL IS 330mm THICK.

$$\begin{aligned} \text{TOTAL LOAD} &= 19 \text{ kN/m}^3 \times 0.33\text{m} \times 10\text{m.} \\ &= \underline{62.7 \text{ kN/m LENGTH.}} \end{aligned}$$

$$\begin{aligned} \text{TOTAL SURCHARGE PRESSURE} &= \frac{62.7 \text{ kN/m}}{0.61 \text{ m.}} \\ &= \underline{103 \text{ kN/m}^2.} \end{aligned}$$

$$\begin{aligned} \text{LATERAL SURCHARGE PRESSURE } P_3 &= 0.3 \times 103 \\ &= \underline{\underline{31 \text{ kN/m}^2.}} \end{aligned}$$

Sheet Number 16

Date MAY 2010

Engineer AA

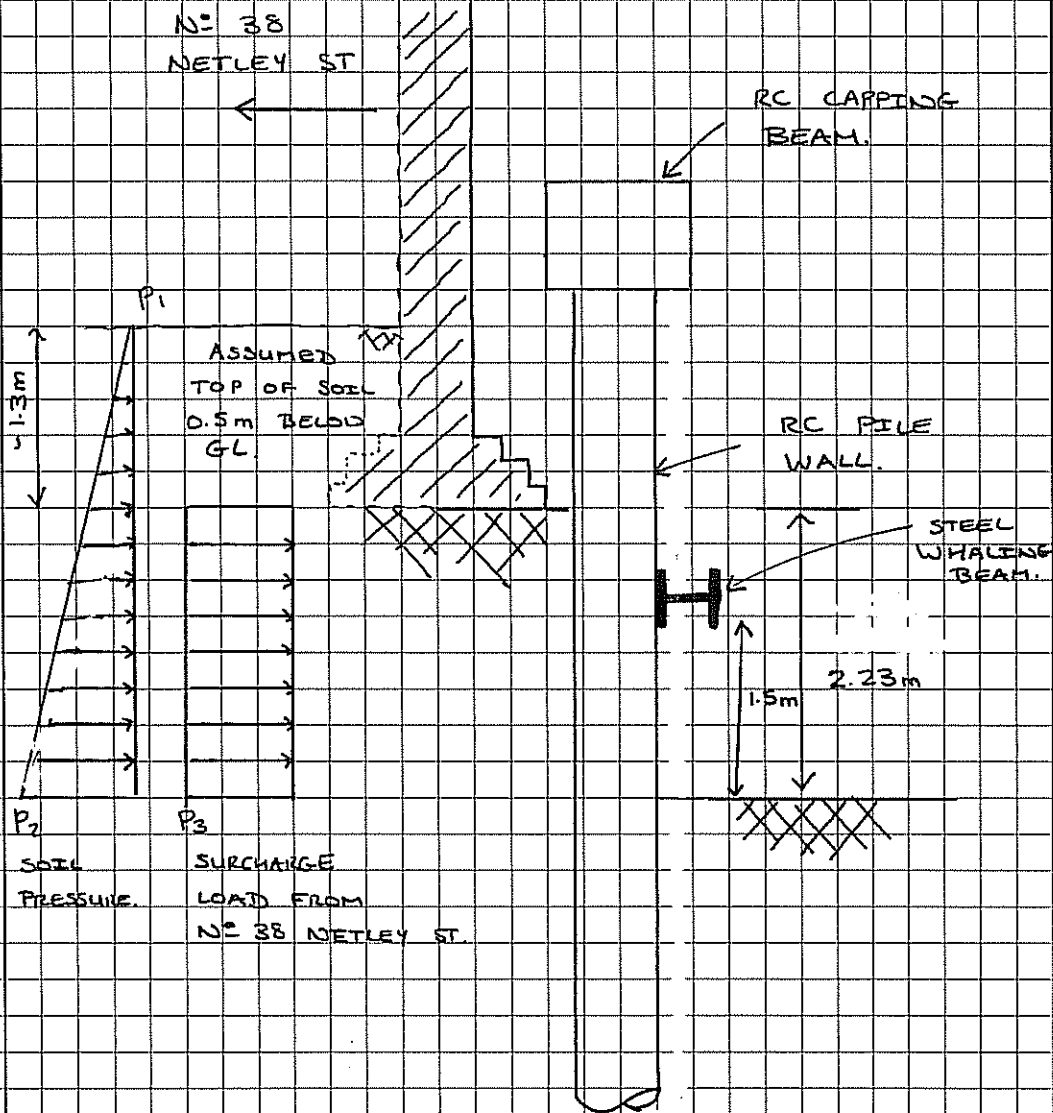
Checked

Project 107 - 109 HAMPSTEAD RD

Project No 983

Revision

TEMPORARY CONSTRUCTION CASE



PILING CONTRACTOR TO ADVISE ENGINEER
 ON EXACT REQUIREMENT FOR LOADING ON
 STEEL WHALING BEAM.

PERMANENT FINAL CASE

IN THE FINAL CASE, THE RETAINING WALLS WILL BE DESIGNED TO SPAN VERTICALLY BETWEEN THE BASEMENT AND GROUND FLOOR SLABS.

THE WALL WILL BE DESIGNED TO RESIST BOTH THE SURCHARGE LOAD FROM NO 38 NETLEY ST AND THE RETAINED SOIL MASS THERE WILL ALSO BE A VERTICAL LOAD ON THE PILES FROM THE SUPER-STRUCTURE ABOVE - THIS WILL HELP TO RESIST THE LATERAL LOADING ON THE WALL.

SOIL PRESSURE

$$P_1 = 0 \text{ kN/m}^2$$

$$P_2 = k_a \gamma z$$

$$k_a = 0.3 \text{ LONDON CLAY}$$

$$\gamma = \text{TAKE } 18 \text{ kN/m}^3 \text{ FOR LONDON CLAY}$$

$$z = 3.03 \text{ m}$$

$$P_2 = 0.3 \times 18 \times 3.03 \text{ m}$$
$$= 16.4 \text{ kN/m}^2$$

SURCHARGE LOAD

$$P_3 = 31 \text{ kN/m}^2 \text{ AS FOR TEMPORARY CASE}$$

VERTICAL LOAD ON PILE WALL

$$F_1 =$$

Sheet Number 19

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD ROAD.

Project No 983

Revision

LOADINGS

ROOF LOAD

TIMBER ROOF DECK ON STEEL BEAMS

ASPHALT WATERPROOFING	0.45
TIMBER JOISTS + INSULATION	0.2
STEELWORK	0.4
PLYWOOD	0.15
CEILING + SERVICES	0.25

TOTAL DEAD LOAD 1.45 kN/m²

LIVE LOAD

SNOW AND ACCESS 0.75 kN/m²

TYPICAL FLOOR

250 mm THICK SLAB	6.0
50 mm SKEED	1.1
PARTITIONS	1.5
FINISHES	1.0
CEILING + SERVICES	0.25

TOTAL DEAD LOAD 9.85 kN/m²

LIVE LOAD

RESIDENTIAL 1.5 kN/m²

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Sheet Number 20

Date MAY 2010

Engineer AA

Checked

Project 107 - 109 HAMPSTEAD ROAD.

Project No 983

Revision

LOAD TAKE-DOWN ADJACENT TO NO 38 NETLEY ST

MIN LOAD

$$\begin{aligned} \text{ROOF LEVEL} &= (1.45 \text{ kN/m}^2 \text{ DL} + 0.75 \text{ kN/m}^2 \text{ LL}) \times 1.5 \text{ m} \\ &= \underline{2.2 \text{ kN/m DL} + 1.2 \text{ kN/m LL}} \end{aligned}$$

$$\begin{aligned} \text{5TH FLOOR LEVEL} &= (9.85 \text{ kN/m}^2 \text{ DL} + 1.5 \text{ kN/m}^2 \text{ LL}) \times 1.5 \text{ m} \\ &= \underline{14.8 \text{ kN/m DL} + 2.3 \text{ kN/m LL}} \end{aligned}$$

$$\text{4TH FLOOR LEVEL} = \underline{14.8 \text{ kN/m DL} + 2.3 \text{ kN/m LL}}$$

$$\text{3RD FLOOR LEVEL} = \underline{14.8 \text{ kN/m DL} + 2.3 \text{ kN/m LL}}$$

$$\text{2ND FLOOR LEVEL} = \underline{14.8 \text{ kN/m DL} + 2.3 \text{ kN/m LL}}$$

$$\text{1ST FLOOR LEVEL} = \underline{14.8 \text{ kN/m DL} + 2.3 \text{ kN/m LL}}$$

$$\text{GROUND FLOOR} = \underline{14.8 \text{ kN/m DL} + 2.3 \text{ kN/m LL}}$$

BASEMENT = SUPPORTED ON SEPERATE FOUNDATIONS.

$$\begin{aligned} \text{FACADE} &= 5 \text{ kN/m}^2 \text{ ON ELEVATION} \times 17.8 \text{ m} \\ &= \underline{89 \text{ kN/m}} \end{aligned}$$

$$\text{TOTAL LOAD} = 180 \text{ kN/m DL} + 15 \text{ kN/m LL}$$

APPLY 40% LIVE LOAD REDUCTION

$$\text{TOTAL LOAD} = \underline{180 \text{ kN/m DL} + 9 \text{ kN/m LL}}$$

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LOAD TAKEDOWN ADJACENT TO NO 38 NETLEY ST

MAX LOAD

$$\begin{aligned} \text{ROOF LEVEL} &= (1.45 \text{ kN/m}^2 \text{ DL} + 0.75 \text{ kN/m}^2 \text{ LL}) \times 3.12 \text{ m} \\ &= \underline{4.5 \text{ kN/m DL} + 2.4 \text{ kN/m LL}} \end{aligned}$$

$$\begin{aligned} \text{5TH FLOOR LEVEL} &= (9.85 \text{ kN/m}^2 \text{ DL} + 1.5 \text{ kN/m}^2 \text{ LL}) \times 3.12 \text{ m} \\ &= \underline{31 \text{ kN/m DL} + 4.7 \text{ kN/m LL}} \end{aligned}$$

$$\text{4TH FLOOR LEVEL} = \underline{31 \text{ kN/m DL} + 4.7 \text{ kN/m LL}}$$

$$\text{3RD FLOOR LEVEL} = \underline{31 \text{ kN/m DL} + 4.7 \text{ kN/m LL}}$$

$$\text{2ND FLOOR LEVEL} = \underline{31 \text{ kN/m DL} + 4.7 \text{ kN/m LL}}$$

$$\text{1ST FLOOR LEVEL} = \underline{31 \text{ kN/m DL} + 4.7 \text{ kN/m LL}}$$

$$\text{GROUND FLOOR} = \underline{31 \text{ kN/m DL} + 4.7 \text{ kN/m LL}}$$

BASEMENT → SUPPORTED ON SEPERATE FOUNDATION.

$$\begin{aligned} \text{FACADE LOAD} &= 5 \text{ kN/m}^2 \text{ ON ELEVATION} \times 17.8 \text{ m} \\ &= \underline{89 \text{ kN/m DL}} \end{aligned}$$

$$\text{TOTAL LOAD} = 279 \text{ kN/m DL} + 31 \text{ kN/m LL}$$

APPLY 40% LIVE LOAD REDUCTIONS.

$$\text{TOTAL LOAD} = \underline{279 \text{ kN/m DL} + 19 \text{ kN/m LL}}$$

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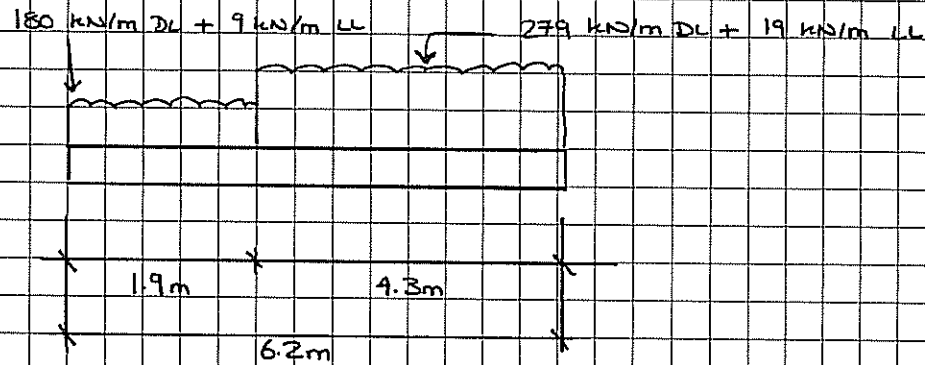
Checked

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LOAD ON CAPPING BEAM.



$$\begin{aligned} \text{TOTAL LOAD ON CAPPING BEAM.} &= (180 \text{ kN/m DL} + 9 \text{ kN/m LL}) \times 1.9\text{m} \\ &+ (279 \text{ kN/m DL} + 19 \text{ kN/m LL}) \times 4.3\text{m} \\ &= 1542 \text{ kN DL} + 99 \text{ kN LL} \end{aligned}$$

$$\begin{aligned} \text{AS UDL ON PILE WALL} &= \frac{1542 \text{ kN DL} + 99 \text{ kN LL}}{6.2\text{m}} \\ &= \underline{249 \text{ kN/m DL} + 16 \text{ kN/m LL}} \end{aligned}$$

PILES @ 400mm CTS \therefore 2.5 PILES PER METER.

$$\text{LOAD ON EACH PILE} = \frac{249 \text{ kN/m DL} + 16 \text{ kN/m LL}}{2.5}$$

$$F_1 = \underline{100 \text{ kN DL} + 7 \text{ kN LL}}$$

To BE CONSERVATIVE SAY $F_1 = \underline{125 \text{ kN.}}$

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Calculation Sheet

Sheet Number 18

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PERMANENT FINAL CASE

