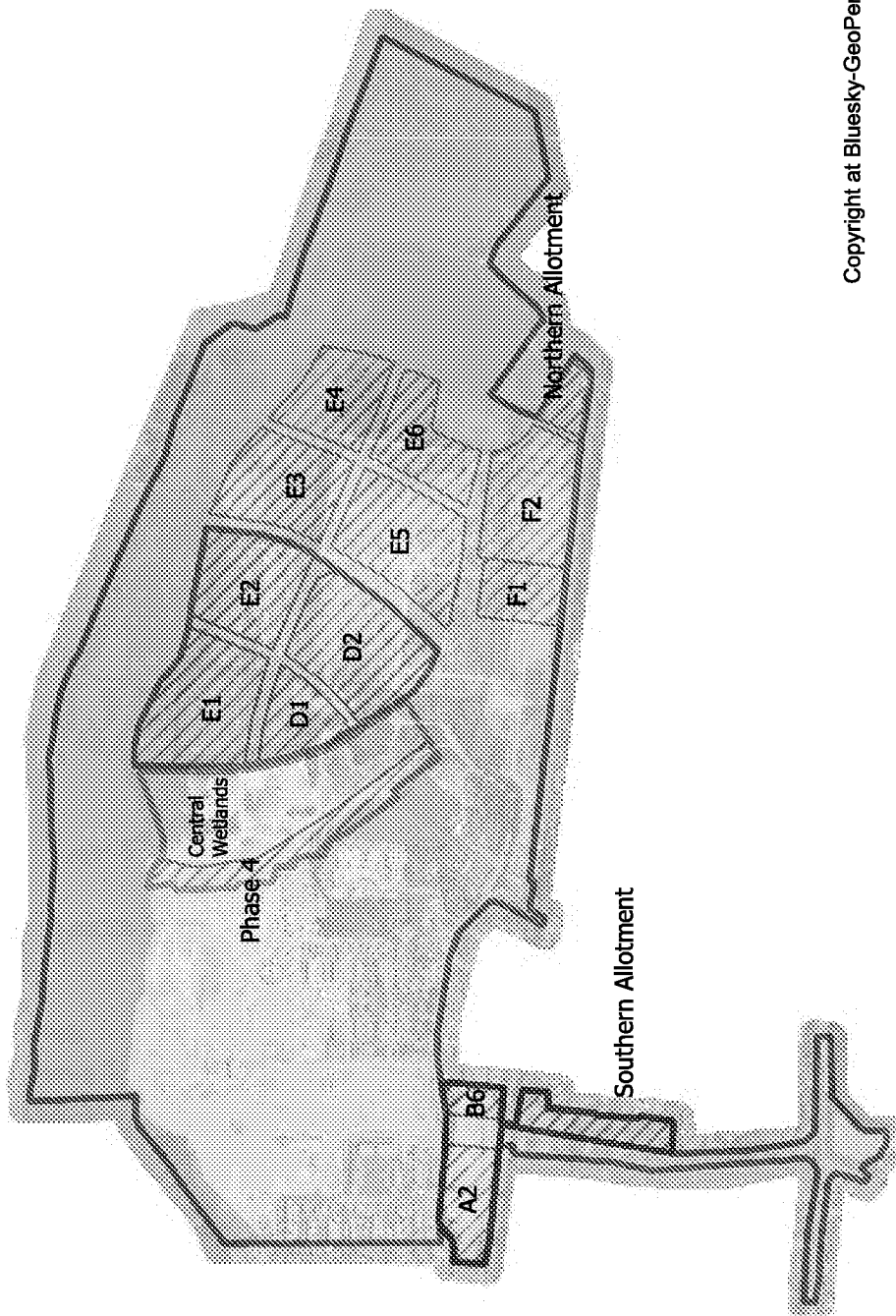
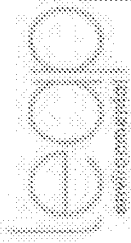


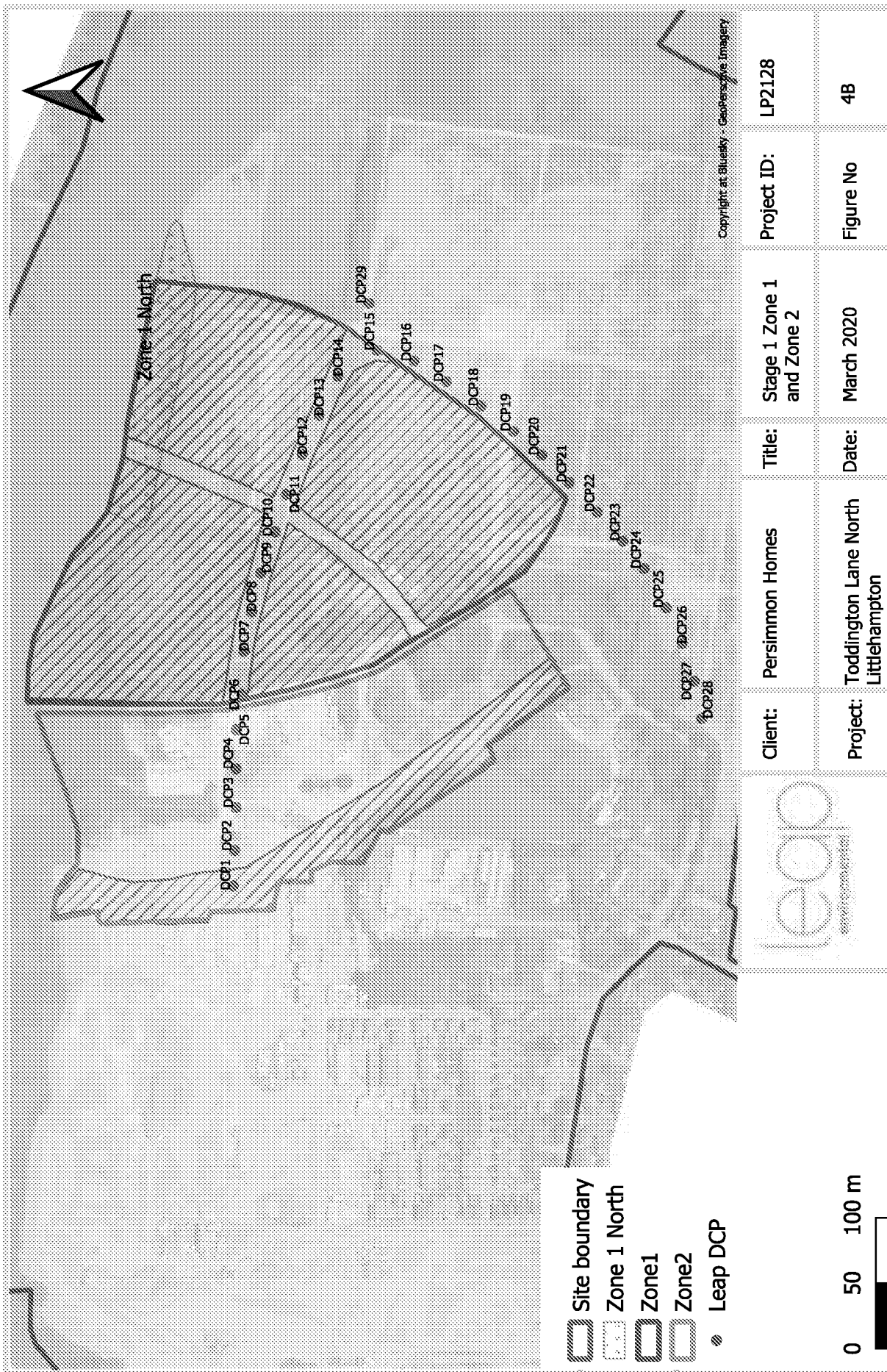


Key

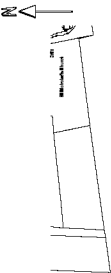
-  Site boundary
-  Stage 1 SI
-  Zone1
-  Zone2
-  Zone3
-  Stage 2 SI

Copyright at Bluesky-GeoPerspective Imagery

		Client:	Persimmon Homes	Title:	Land Parcels and SI Stages	Project ID:	LP2128
Project:		Toddington Lane North Littlehampton	Date:	March 2020	Figure No	3	



Client:	Persimmon Homes	Title:	Stage 1 Zone 1 and Zone 2	Project ID:	LP2128
Project:	Toddington Lane North Littlehampton	Date:	March 2020	Figure No	4B



- Key:
- Red line boundary
 - Land with 'Government ownership' - outside of red line boundary
 - Area excluded from red line boundary

PERSIMMON
SPECIALIST PLANNING CONSULTANTS
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

Toddington Lane
Uddingham

Masterplan
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SPT N Value - Zone 1

Borehole No.

Project ID: LP2128

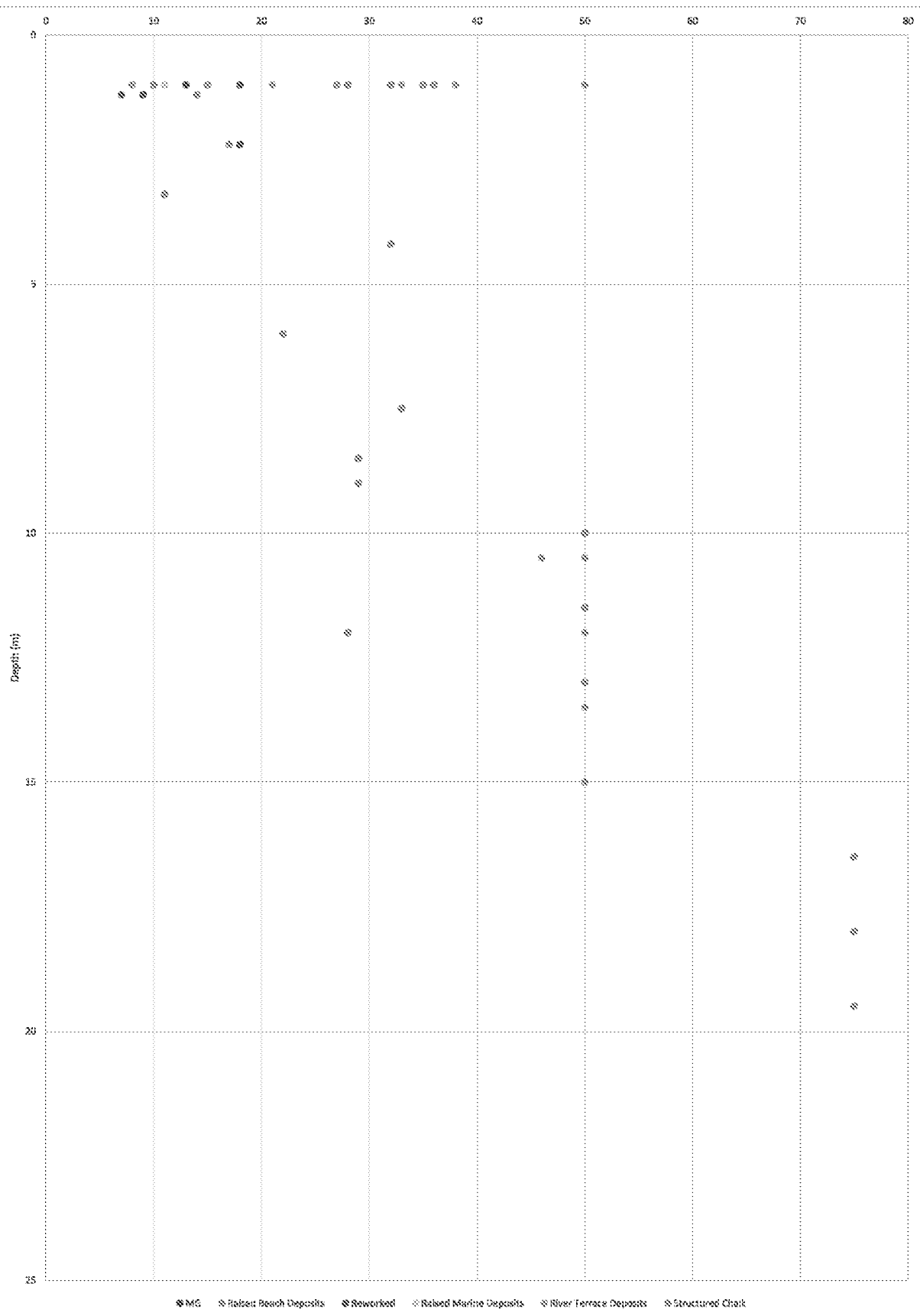
Project Title: North Littlehampton

Final Depth:

Client: Persimmon Homes Thames Valley

Location: North Littlehampton, West Sussex, BN17 7PP

Date Drilled:



Date Reported: 16/04/2020



SPT N Value - Zone 2

Borehole No.

Project ID: LP2128

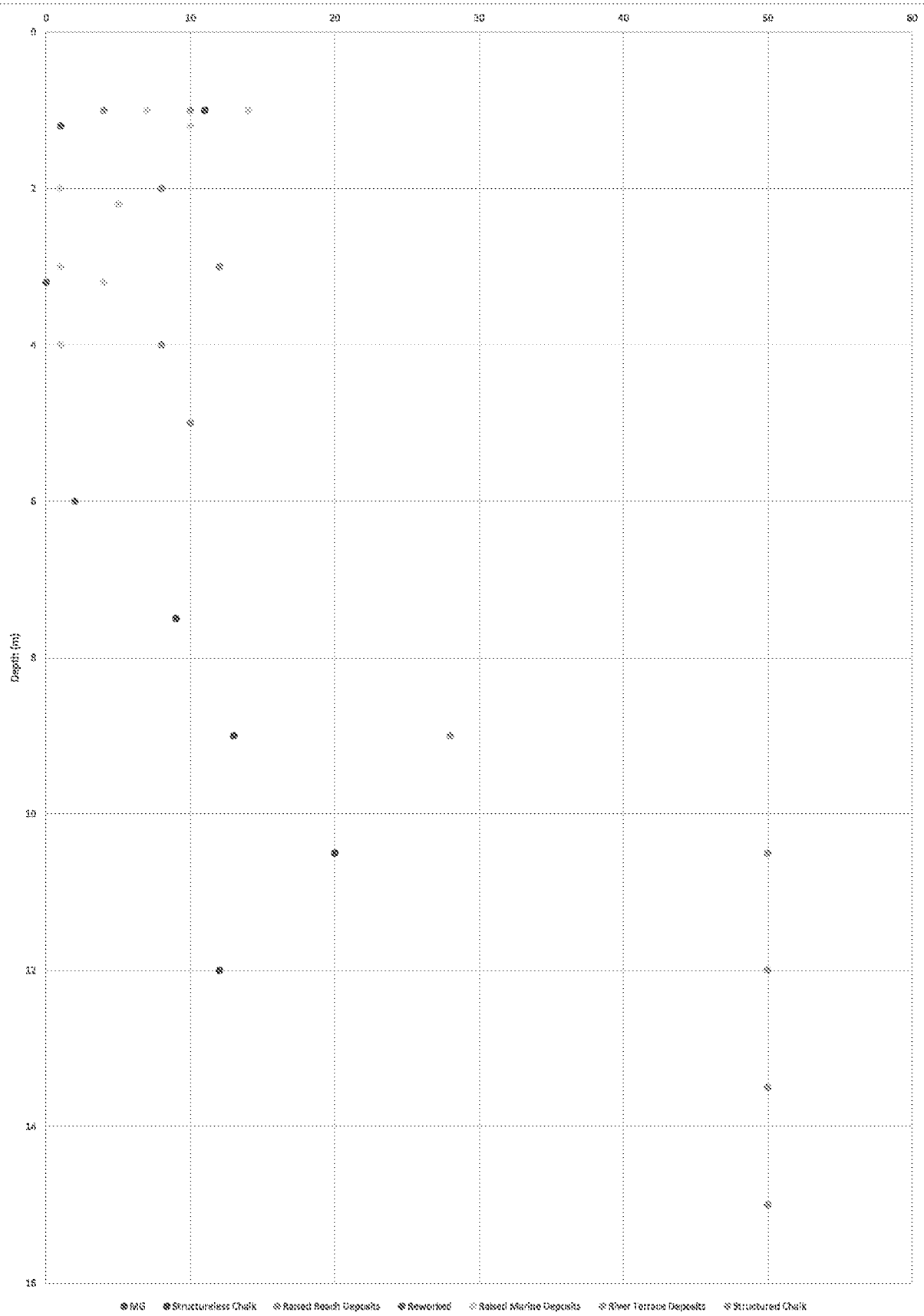
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Final Depth:

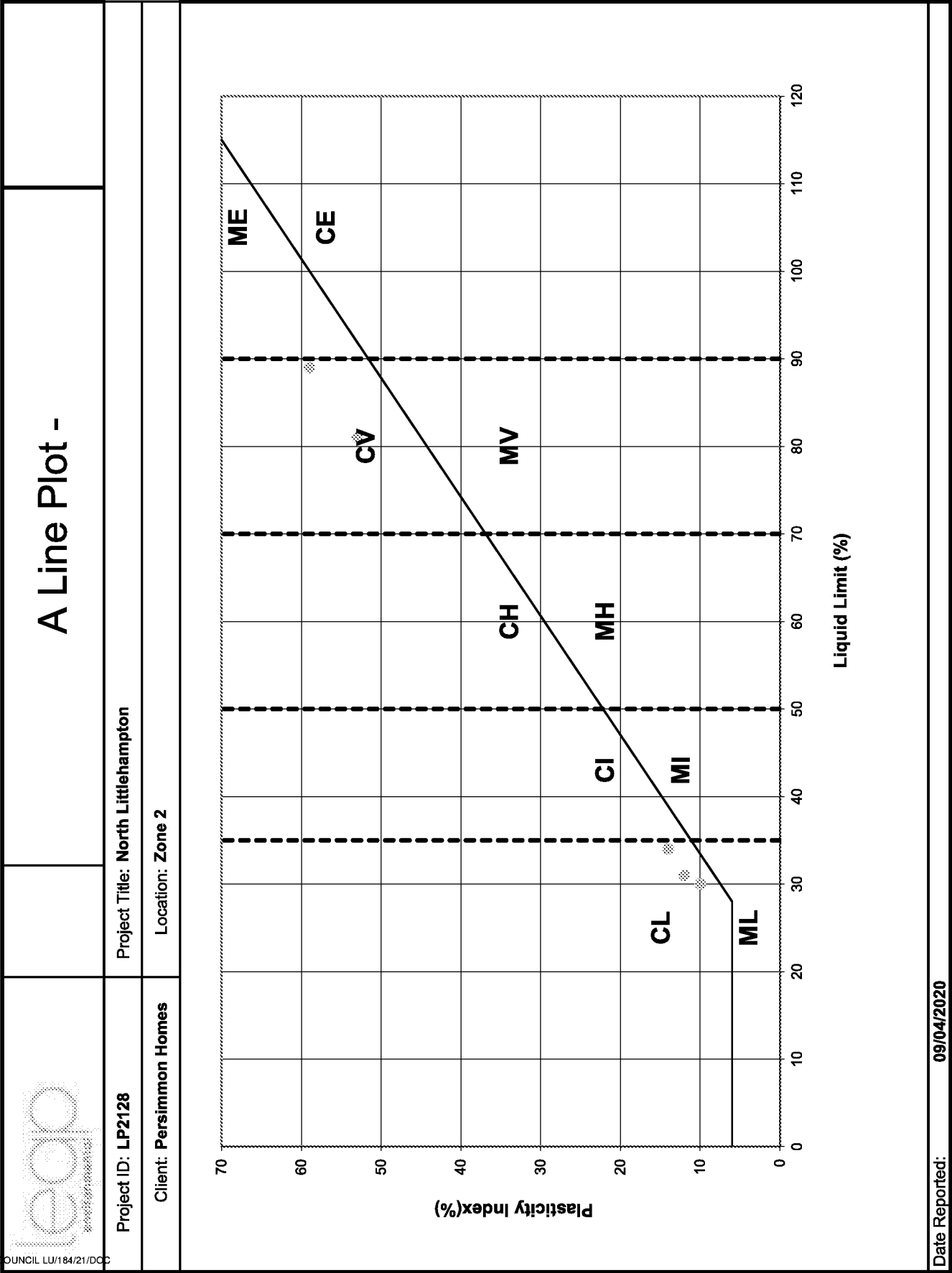
Client: Persimmon Homes Thames Valley

Location: North Littlehampton, West Sussex, BN17 7PP

Date Drilled:



Date Reported: 16/04/2020



APPENDIX C – Qualitative Risk Assessment Model Geoenvironmental

**Qualitative Risk
Assessment Model
Geoenvironmental**

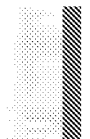


Qualitative Risk Assessment of Pollutant Linkages

LP2128 - Zone 1 and 2 North Littlehampton

Contaminant	Receptor	Route ¹	Pathway ⁴	Likelihood of Occurrence ²	Severity of Consequence ²	Risk Classification ³	Notes
Polycyclic Aromatic Hydrocarbons and Petroleum Hydrocarbons	Future Residents	1	Ingestion of soil	Low likelihood	Medium	Moderate/low risk	Previous investigations in Zone 1 area did not identify PCH/PAHs at concentrations above GAC. Unlikely to be present at significant concentrations in Zone 1. Zone 2 area identified hydrocarbons in one location. Zone 2 will not be developed for residential land use only as a public open space area. Direct contact / ingestion / inhalation pathways in Zone 2 are limited
		2	Ingestion of household dust	Low likelihood	Mild	Low risk	
		3	Ingestion of contaminated vegetables	Low likelihood	Medium	Moderate/low risk	
		4	Ingestion of soil attached to vegetables	Low likelihood	Medium	Moderate/low risk	
		5	Dermal contact with soil	Low likelihood	Medium	Moderate/low risk	
		6	Dermal contact with household dust	Low likelihood	Mild	Low risk	
Construction workers		7	Inhalation of fugitive soil dust	Low likelihood	Mild	Low risk	Previous investigations in Zone 1 area did not identify PCH/PAHs at concentrations above GAC. Limited construction works in Zone 2. Appropriate PPE prevents majority of dermal contact. Short exposure times in outside space will limit inhalation pathways in Zone 2
		8	Inhalation of fugitive household dust	Low likelihood	Mild	Low risk	
		9	Inhalation of vapours outside	Low likelihood	Minor	Very low risk	
		10	Inhalation of vapours inside	Low likelihood	Mild	Low risk	
		1	Ingestion of soil	Low likelihood	Medium	Moderate/low risk	
		5	Dermal contact with soil	Low likelihood	Medium	Moderate/low risk	
Groundwater		7	Inhalation of fugitive soil dust	Low likelihood	Medium	Moderate/low risk	No free product identified. Vertical and horizontal migration through soils limited by generally low permeability of shallow clays. Previous investigations did not record significant elevated concentrations of PCoC in chalk aquifer in Zone 1 / 2 areas
		9	Inhalation of vapours outside	Unlikely	Medium	Low risk	
			Intergranular flow of free product	Low likelihood	Minor	Very low risk	
Surface water			Rainwater infiltration and leaching of contaminated soils	Low likelihood	Minor	Very low risk	No free product identified. Surface water migration considered unlikely to pose an impact due to low concentrations of PCoC previously identified and distance to receptors
			Rainwater infiltration and leaching, intergranular flow via groundwater to controlled waters	Unlikely	Minor	Very low risk	

Contaminant	Receptor	Route ¹	Pathway ⁴	Likelihood of Occurrence ²	Severity of Consequence ²	Risk Classification ³	Notes
Heavy metals	Material construction of buildings and infrastructure		Surface water run-off	Low likelihood	Mild	Low risk	unlikely as P-CoC previously examined at low concentrations in surface soils in Zone 1. Some hydrocarbon contamination identified in one location in the central wetlands area (MWS12), which will eventually be under a road
			Contact of building materials, including water supply pipes with contaminated soils and/or contaminated groundwater	Unlikely	Mild	Very low risk	
		1	Ingestion of soil	Low likelihood	Medium	Moderate/low risk	
		2	Ingestion of household dust	Low likelihood	Mild	Low risk	
	Future Residents	3	Ingestion of contaminated vegetables	Unlikely	Medium	Low risk	Low concentrations previously identified across Zone1 and Zone 2 areas
		4	Ingestion of soil attached to vegetables	Unlikely	Medium	Low risk	
		5	Dermal contact with soil	Low likelihood	Medium	Moderate/low risk	
		6	Dermal contact with household dust	Low likelihood	Mild	Low risk	
Construction workers		7	Inhalation of fugitive soil dust	Low likelihood	Mild	Low risk	Low concentrations previously identified across Zone 1 and 2
			Inhalation of fugitive household dust	Low likelihood	Mild	Low risk	
	Groundwater	1	Ingestion of soil	Low likelihood	Medium	Moderate/low risk	Low concentrations of metal P-CoC previously identified in Zone 3 area.. Vertical and horizontal migration through soils limited by generally low permeability of shallow clays. Previous
		5	Dermal contact with soil	Likely	Mild	Moderate/low risk	
		7	Inhalation of fugitive soil dust	Low likelihood	Medium	Moderate/low risk	
			Rainwater infiltration and leaching of contaminated soils	Low likelihood	Minor	Very low risk	



Contaminant	Receptor	Route ¹	Pathway ⁵	Likelihood of Occurrence ²	Severity of Consequence ²	Risk Classification ³	Notes
Herbicides and Pesticides	Surface water		Rainwater infiltration and leaching, intergranular flow via groundwater to controlled waters	Unlikely	Minor	Very low risk	Not detected during previous site investigations however cannot be fully discounted due to historical agricultural use and low sampling density relative to the large extent of site area..
			Surface water run-off	Unlikely	Minor	Very low risk	
	Material construction of buildings and infrastructure		Contact of building materials, including water supply pipes with contaminated soils and/or contaminated groundwater	Unlikely	Minor	Very low risk	
		1	Ingestion of soil	Unlikely	Minor	Very low risk	
	Future Residents	2	Ingestion of household dust	Unlikely	Minor	Very low risk	
		3	Ingestion of contaminated vegetables	Unlikely	Mild	Very low risk	
		4	Ingestion of soil attached to vegetables	Unlikely	Mild	Very low risk	
		5	Dermal contact with soil	Unlikely	Minor	Very low risk	
		6	Dermal contact with household dust	Unlikely	Minor	Very low risk	
		7	Inhalation of fugitive soil dust	Unlikely	Minor	Very low risk	
Construction workers		8	Inhalation of fugitive household dust	Unlikely	Minor	Very low risk	
		1	Ingestion of soil	Unlikely	Minor	Very low risk	
		6	Dermal contact with soil	Unlikely	Minor	Very low risk	
		7	Inhalation of fugitive soil dust	Unlikely	Minor	Very low risk	
Groundwater			Intergranular flow of free product	Unlikely	Minor	Very low risk	
			Rainwater infiltration and leaching of contaminated soils	Unlikely	Minor	Very low risk	

Contaminant	Receptor	Route ¹	Pathway ⁴	Likelihood of Occurrence ²	Severity of Consequence ²	Risk Classification ³	Notes
	Surface water		Rainwater infiltration and leaching, intergranular flow via groundwater to controlled waters	Unlikely	Minor	Very low risk	
	Material construction of buildings and infrastructure		Surface water run-off	Unlikely	Minor	Very low risk	
			Contact of building materials, including water supply pipes with contaminated soils and/or contaminated groundwater	Unlikely	Minor	Very low risk	
Asbestos	Future Residents	7	Inhalation of fugative soil dust	Low likelihood	Severe	Minor risk	No ACMs previously identified in Zone 1 area. However can not be discounted, post demolition of nursery buildings. Asbestos was identified at depth in one location in Zone 2
		8	Inhalation of fugative household dust	Low likelihood	Severe	Minor risk	
Hazardous Gas/Vapours in soil	Future residents						
		7	Inhalation of fugative soil dust	Low likelihood	Severe	Minor risk	
	Current users	9	Inhalation of vapours outside	Low likelihood	Minor	Very low risk	Previous site investigation identified limited potential for land gases in one area in Zone 2, which was assigned to PHC contamination. Zone 2 will not be developed for residential land uses, the risk is from outdoor inhalation pathways in Zone 2. There is potential for deeper made ground in Zone 1, which has not been previously identified and may be a source of land gases
		9	Inhalation of vapours outside	Low likelihood	Minor	Very low risk	
	Construction workers	9	Inhalation of vapours outside	Low likelihood	Minor	Very low risk	
	Future residents	10	Inhalation of land gases inside	Low likelihood	Medium	Low risk	
	Current users	10	Inhalation of land gases outside	Unlikely	Minor	Very low risk	
	Construction workers	10	Inhalation of land gases outside	Unlikely	Minor	Very low risk	
		10	Inhalation of land gases outside	Unlikely	Minor	Low risk	

Notes to table:

1. Classification of human exposure pathways (routes) from The CLEA model, Research and Development Publication CLR10.
2. Classification of Probability and Consequence from CIRIA C552 Contaminated land risk assessment, a guide to good practice 2001
3. Risk Classification from DETR Guidelines for Environmental Risk Assessment and Management, 2000

APPENDIX D -- Qualitative Risk Assessment Model Geotechnical

**Qualitative Risk
Assessment Model
Geotechnical**



Geotechnical risk is the risk to building and construction work created by the site ground conditions. The Preliminary Geotechnical Risk Register has been compiled to provide an assessment of the likely risks that may impact on the proposed development based on the results of the desk study, and should be used to specify the type and extent of the intrusive investigation and testing undertaken, and to identify potential mitigation measures to control the risk to an acceptable level.

The inclusion of a risk in the register does not indicate that the risk is present, rather the likelihood of mitigation measures being required due to that risk, based on the available data. Equally, a risk classified as low indicates that mitigation measures are unlikely to be required for the hazard identified based on the available data.

The risk register should be developed and refined throughout the design process such that it will enable the management of geotechnical risk.

The Geotechnical Risk Register has been developed in accordance with the guidance presented in ICE/DETR Document "Managing Geotechnical Risk" (2002). The degree of risk (R) is determined by assessing the likelihood of a hazard (L) occurring and the effect of the hazard (E) on the project (R=LxE). The effect may be measured in one or more aspect e.g. increased cost, delays in the program, health and safety etc. The scale of the likelihood, effect and risk are determined as follows:-

Likelihood of Occurrence		Effect of Hazard		Degree of Risk		
Scale	Likelihood Chance	Scale	Effect	Degree of Risk	Risk Level	Action required
4	Probable >1 in 2	4	Very High >10%	1-4	Trivial	None
3	Likely 1 in 10 to 1 in 2	3	High 4-10%	5-8	Significant	Consider cost effective solutions or improvements at no extra cost
2	Unlikely 1 in 100 to 1 in 10	2	Low 1-4%	9-12	Substantial	Work must not start until risk has been reduced. Additional resources required
1	Negligible <1 in 100	1	Very Low <1%	13-16	Intolerable	Work must not start until risk has been reduced. If risk can not be reduced, project should not proceed.

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X

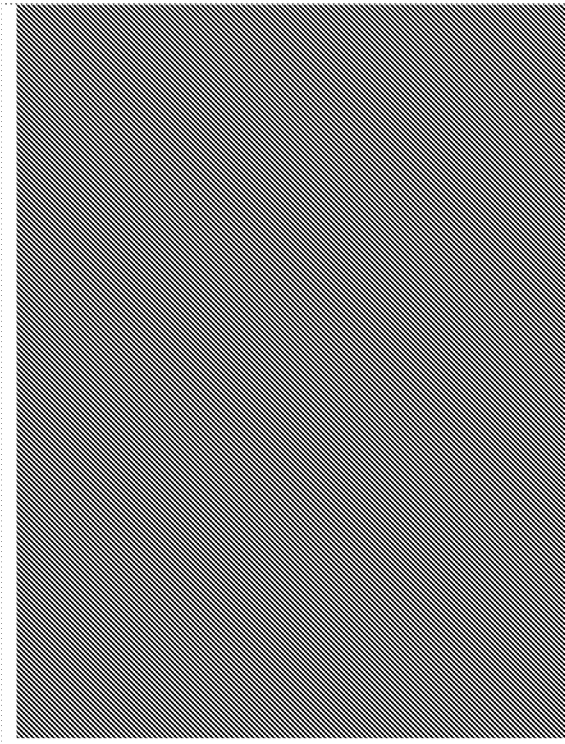
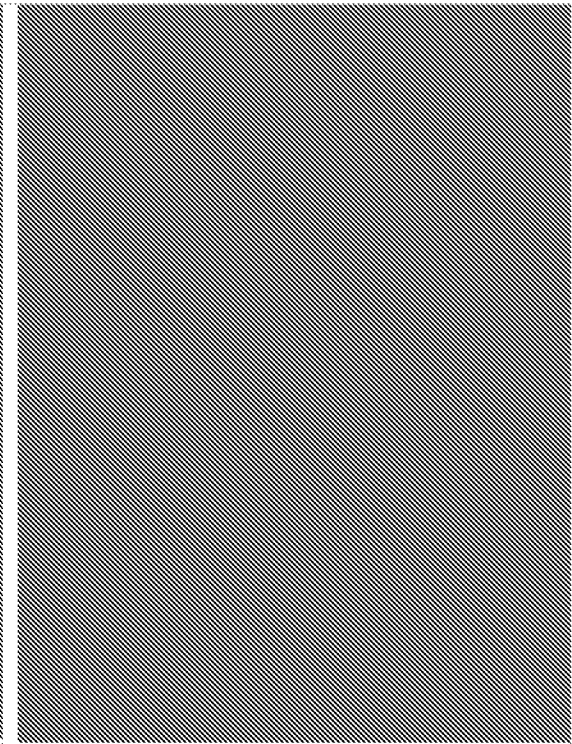
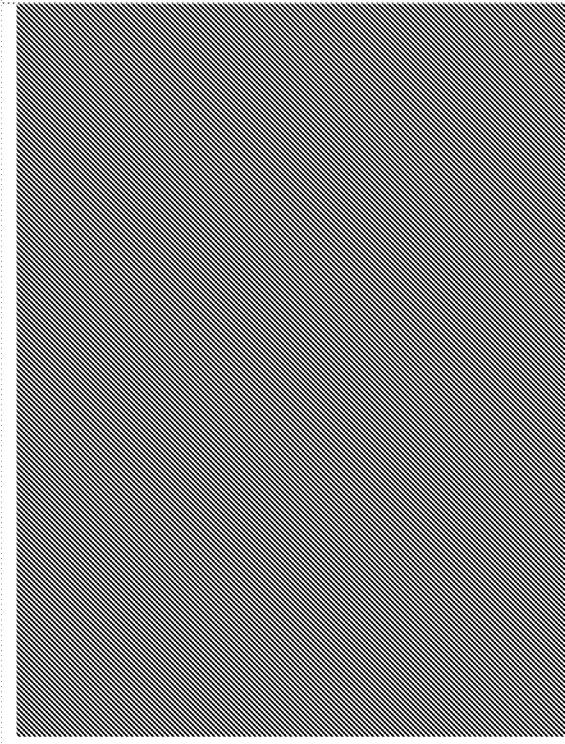
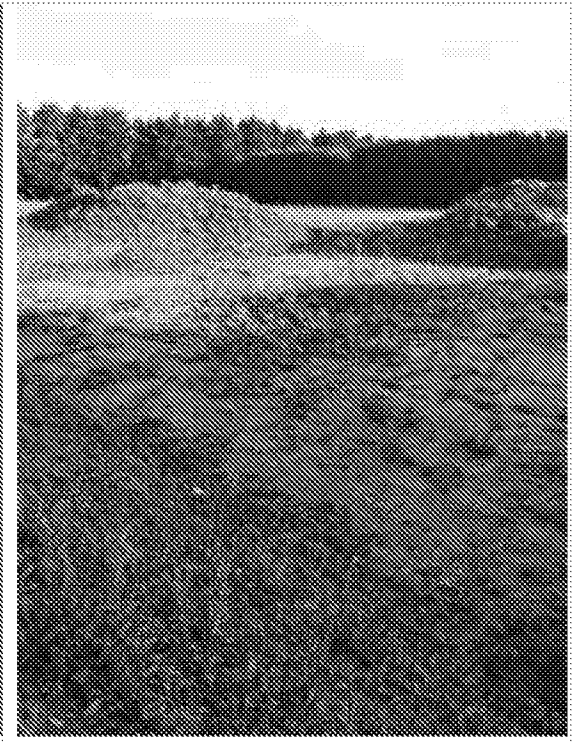


Material	Effect	Stability of Foundation	Stability of Material	Notes
Moist Ground	Uncompacted foundations	At risk	High	Moist Ground shown to be present on 1958 maps in Zone 1. Investigations likely to require deepening in foundations. Site was previously been developed and roads served underneath with this likely to be present.
Compacted Ground	Unstable foundations	At risk	High	Compacted in Moist Ground in a likely to be unstable.
	Building capacity failure	At risk	High	Deep Moist Ground: removed and likely to be present. Not one also especially where land falling and settlement are proposed.
	Excessive settlement	At risk	High	High of water table: taken into account during pre-works investigations and in future: however, some potential for ground capacity likely to be present. Not one also especially during existing development in foundations, especially during heavy construction.
	Unstable foundations: running water	At risk	High	Compacted foundations for foundations in likely to be required due to presence of Moist Ground with some areas Zoned 1 and where land falling has occurred or is proposed.
Deep Foundations	Compacted foundations	At risk	High	At risk: investigations encountered M100 Low to High volume change potential 15-40% in shallow areas. It is understood that the current trend will be removed and no future is likely.
	Unstable foundations	At risk	High	Site is within the 100m water and clay and there is a potential that they may be subject to high water.
	Unstable foundations	At risk	High	Site is not within the 100m water and there is a potential for excessive drainage of water: including water table. Testing will be required to confirm.
	Unstable foundations	At risk	High	Site is generally low lying and level.
Ground Stability	Ground Stability	At risk	High	No history of mining activity in area.
	Ground Stability	At risk	High	A review of Police Report shows site is located in an area which does not have any reported subsidence features within 100m and no risk is deemed to be low.
	Ground Stability	At risk	High	Zone 1: underlain by and Zone 2: adjacent to an area of Moist Ground. Moist Ground may contain organic material capable of producing land gases.
	Ground Stability	At risk	High	Site is likely to be used as a water, and horticultural wholesaler's. Areas of deep made ground, historical and drainage and possible use of foundations are noted across the site.
Contaminated Land	Contaminated land	At risk	High	It is a designated foundation can project.
	Contaminated land	At risk	High	UxO: Moth likely investigations a number of risk of unexploded ordnance in the north-western of the site, located in vicinity of land parcels 21-23 with a low risk for Zone 3.
	Contaminated land	At risk	High	
	Contaminated land	At risk	High	
Agricultural Land	Agricultural land	At risk	High	
	Agricultural land	At risk	High	
	Agricultural land	At risk	High	
	Agricultural land	At risk	High	

APPENDIX E -- Site Photographs

Site Photographs



	
Plate 1: Central Wetlands facing west towards Phase 4	Plate 2: Central Wetlands facing south
	
Plate 3: Central wetlands facing asbestos stockpile	Plate 4: Land Parcel E1 facing NE

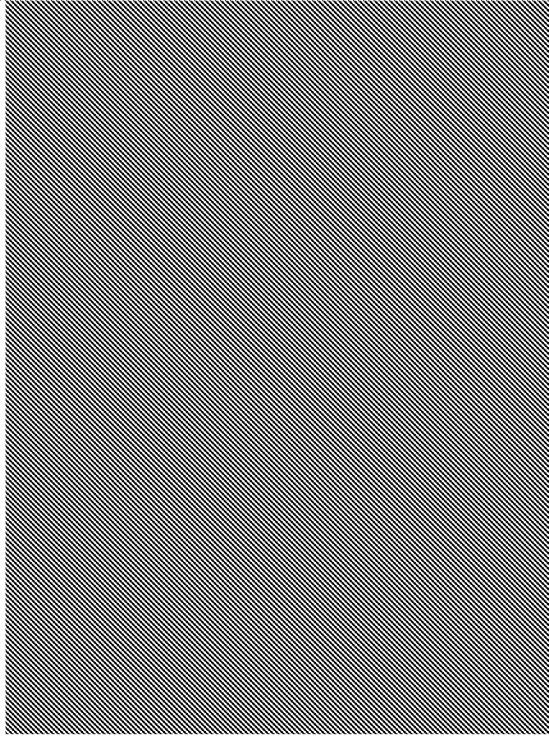


Plate 5: Land parcel E1 facing south



Plate 6: Land behind northern tree line in land parcel E1/E2, facing west towards flood plains

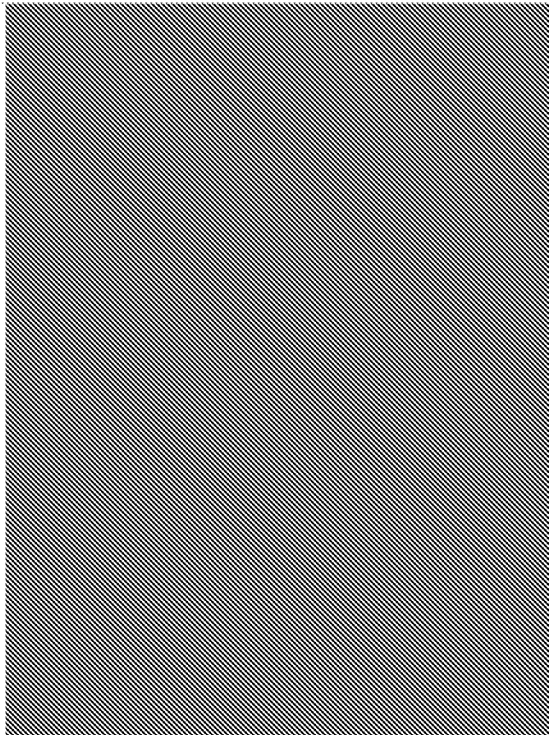


Plate 7: Land behind northern tree line in land parcel E1/E2, facing east towards flood plains



Plate 8: Land parcel D2 facing NW



Plate 9: Land parcel D1 facing east

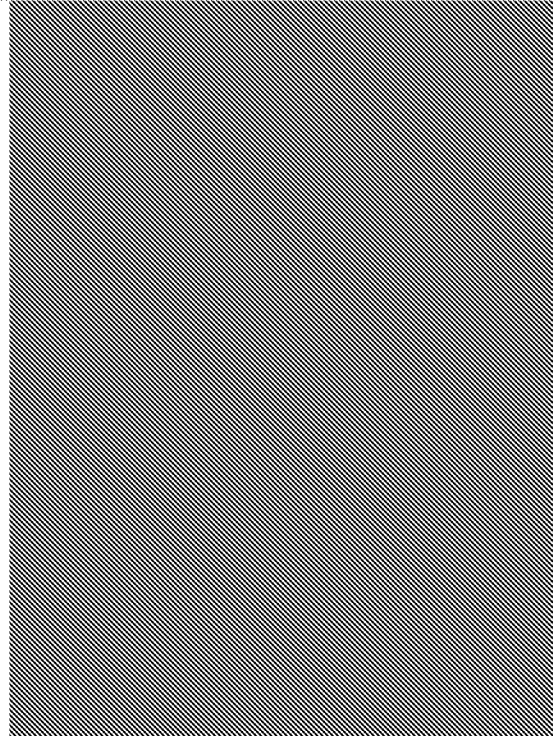


Plate 10: Sample location TP101.

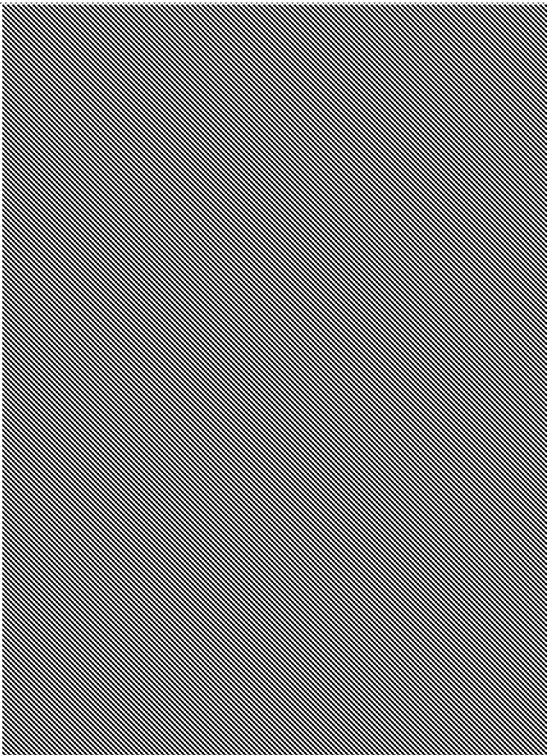


Plate 11: Water ingress within TP107.

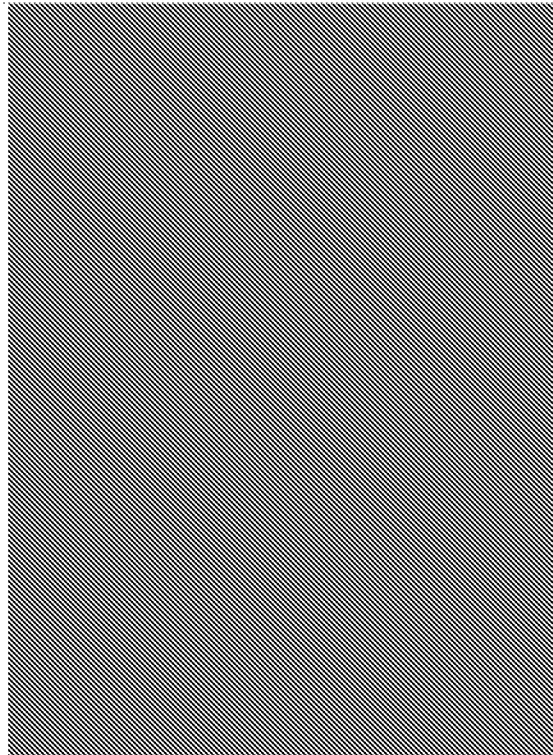


Plate 12: Water ingress within TP130.