Figure 1. Subterranean (ground water) flow screening chart

The Developer should consider each of the following questions in turn, answering either "yes", "unknown" or "no" in each instance.

Consideration should be given to both the temporary and permanent works, along with the proposed surrounding landscaping and drainage associated with a proposed basement development.

Question 1a: Is the site located directly above an aquifer?

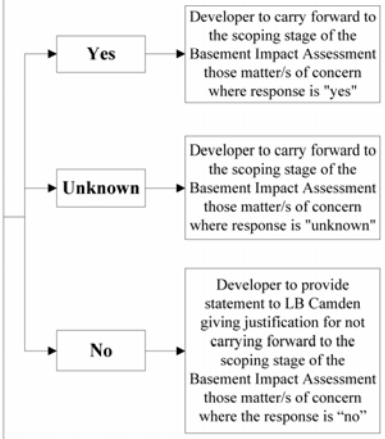
Question 1b: Will the proposed basement extend beneath the water table surface?

Question 2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?
Question 3: Is the site within the catchment of the pond chains on Hampstead Heath?

Question 4: Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?

Question 5: As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?

Question 6: Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line.



Notes / sources of information

Question 1: In LB Camden, all areas where the London Clay does not outcrop at the surface are considered to be an aquifer. This includes the River Terrace Deposits, the Claygate Member and the Bagshot Formation. The location of the geological strata can be established from British Geological Survey maps (e.g. 1:50,000 and 1:10,000 scale). Note that the boundaries are indicative and should be considered to be accurate to ±50m at best.
Additionally, the Environment Agency (EA) "Aquifer Designation Maps" can be used to identify aquifers. These can be found on the "Groundwater maps" available on the EA website (www.environment-agency.gov.uk) follow "At home & leisure" > "What's in Your Backyard" > "Interactive Maps" > "Groundwater". Knowledge of the thickness of the geological strata present and the level of the groundwater table is required. This may be known from existing information (for example nearby site investigations), however, it may not be known in the early stages of a project. Determination of the water table level may form part of the site investigation phase of a BIA.
Question 2: Watercourses, wells or spring lines may be identified from the following sources:

- Local knowledge and/or site walkovers
- Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). If features are marked (they are not always) the following symbols may be present: W; Spr; water is indicated by blue colouration. (check the key on the map being used)
- British Geological Survey maps (e.g. 1:10,000 scale, current and earlier editions). Current maps will show indicative geological strata boundaries which are where springs may form at the ground surface; of relevance are the boundary between the Bagshot Formation with the Claygate Member and the Claygate Member with the London Clay. Note that the boundaries are indicative should be considered to be accurate to ±50m. Earlier geological maps (e.g. the 1920's 1:10560 scale) maps show the location of some wells.
- Aerial photographs
- "Lost Rivers of London" by Nicolas Barton, 1962. Shows the alignment of rivers in London and their tributaries.
- The British Geological Survey (BGS) GeoIndex includes "Water Well" records. See www.bgs.ac.uk and follow "Online data" > "GeoIndex" > "Onshore GeoIndex".
- The location of older wells can be found in well inventory/catalogue publications such as "Records of London Wells" by G. Barrow and L. J. Wills (1913) and "The Water Supply of the County of London from Underground Sources" by S Buchan (1938).
- The Environment Agency (EA) "Source Protection Zone Maps" can be used to identify aquifers. These can be found on the "Groundwater maps" available on the EA website (www.environment-agency.gov.uk) follow "At home & leisure" > "What's in Your Backyard" > "Interactive Maps" > "Groundwater".
- The EA hold records of licensed groundwater abstraction boreholes. LB Camden is within the North East Area of the Thames Region. Details can be found on the EA website.
- LB Camden Environmental Health department may hold records of groundwater wells in the Borough.

Where a groundwater well or borehole is identified, it will be necessary to determine if it is extending into the Lower Aquifer (Chalk) or the Upper Aquifer (River Terrace Deposits, Bagshot Formation, Claygate Member etc). It is water wells extending into the Upper Aquifer which are of concern with regard to basement development.
Question 3: Figure 14 in the attached study, (prepared using data supplied by the City of London Corporation's hydrology consultant, Haycocks Associates) shows the catchment areas of the pond chains on Hampstead Heath.
Question 4: This will be specific to the proposed development and will be a result of the proposed landscaping of areas above and surrounding a proposed basement.
Question 5: This will be specific to the proposed development and will be a result of the chosen drainage scheme adopted for the property.
Question 6: The lowest point will be specific to the proposed development. Knowledge of local ponds may be taken from

- Local knowledge and/or site walkovers
- Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). If features are marked (they are not always) the following symbols may be present: W; Spr; water is indicated by blue colouration. (check the key on the map being used)
- Aerial photographs

Figure 2. Slope stability screening flowchart

The Developer should consider each of the following questions in turn, answering either "yes", "unknown" or "no" in each instance.

Consideration should be given to both the temporary and permanent works, along with the proposed surrounding landscaping and drainage associated with a proposed basement development.

Question 1: Does the existing site include slopes, natural or manmade, greater than 7°? (approximately 1 in 8)

Question 2: Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7°? (approximately 1 in 8)

Question 3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°? (approximately 1 in 8)

Question 4: Is the site within a wider hillside setting in which the general slope is greater than 7°? (approximately 1 in 8)

Question 5: Is the London Clay the shallowest strata at the site?

Question 6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained? (Note that consent is required from LB Camden to undertake work to any tree/s protected by a Tree Protection Order or to tree/s in a Conservation Area if the tree is over certain dimensions).

Question 7: Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?

Question 8: Is the site within 100m of a watercourse or a potential spring line?

Question 9: Is the site within an area of previously worked ground?

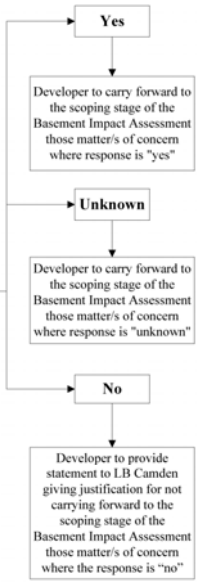
Question 10: Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?

Question 11: Is the site within 50m of the Hampstead Heath ponds?

Question 12: Is the site within 5m of a highway or pedestrian right of way?

Question 13: Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?

Question 14: Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?



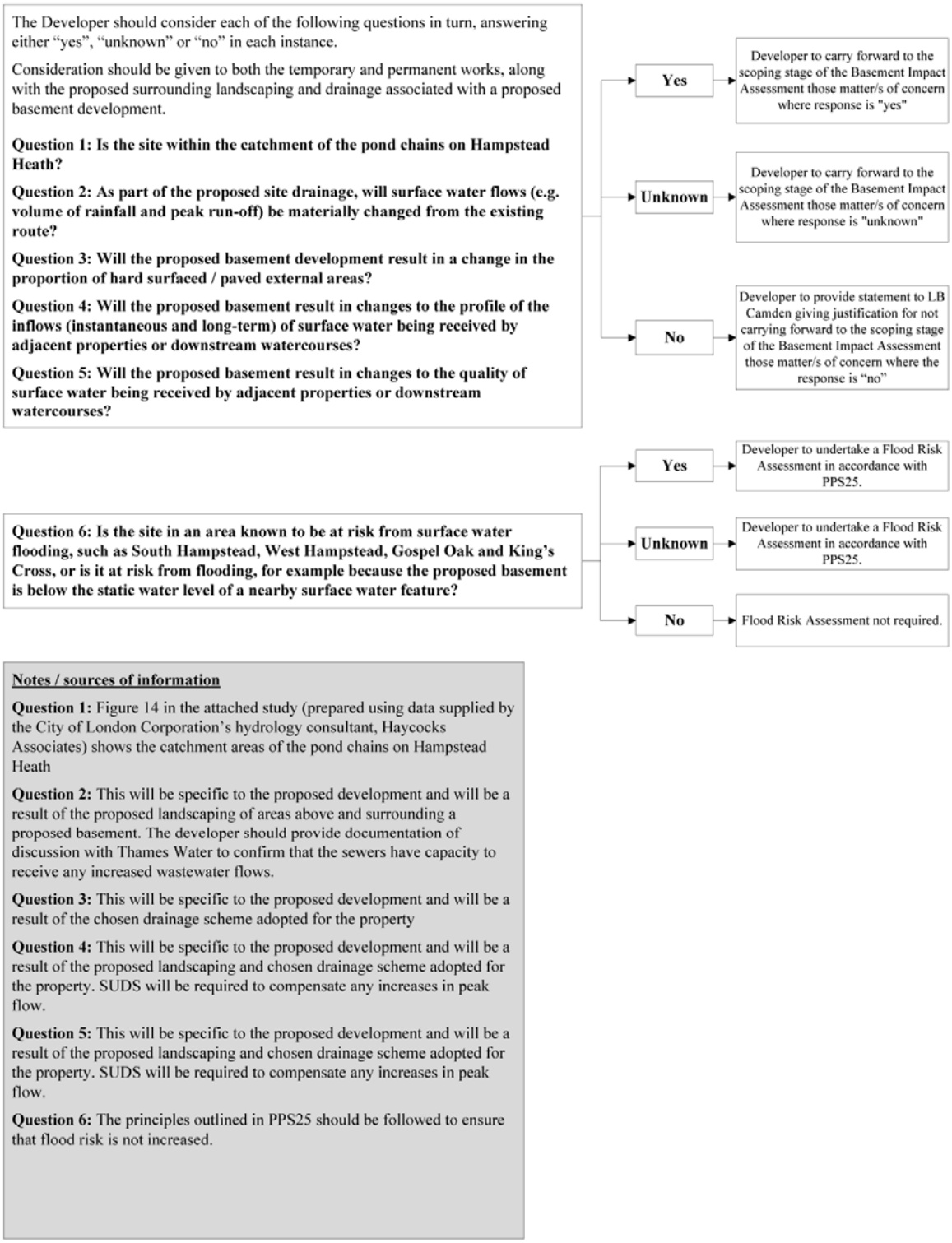
Notes / sources of information

Question 1, 3 & 4: The current surface slope can be determined by a site topographical survey. Slopes may be estimated from 1:25,000 OS maps, however in many urban areas such maps will not show sufficient detail to determine surface slopes on a property-by-property scale, just overall trends. With regard to slopes associated with infrastructure, e.g. cuttings, it should be ensured that any works do not impact on critical infrastructure.
Question 2: This will be specific to the proposed development and will be a result of the proposed landscaping of areas above and surrounding a proposed basement.
Question 5: The plan footprint of the outcropping geological strata can be established from British Geological Survey maps (e.g. 1:50,000 and 1:10,000 scale). Note that the boundaries are indicative and should be considered to be accurate to ±50m at best.
Question 6: this is a project specific determination, subject to relevant Tree Preservation Orders etc.
Question 7: this can be assessed from local knowledge and on-site observations of indicative features, such as cracking. Insurance firms may also give guidance, based on post code. Soil maps can be used to identify high-risk soil types. Relevant guidance is presented in BRE Digest 298 "Low-rise building foundations: the influence of trees in clay soils" (1999); BRE Digest 240 "Low-rise buildings on shrinkable clay soils: part 1" (1993); and BRE Digest 251 "Assessment of damage in low-rise buildings" (1995).
Question 8: Watercourses or spring lines may be identified from the following sources:

- Local knowledge and/or site walkovers
- Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). If features are marked (they are not always) the following symbol may be present "Spr"; water is indicated by blue colouration. (check the key on the map being used)
- Geological maps will show indicative geological strata boundaries which are where springs may form at the ground surface; of relevance are the boundary between the Bagshot Formation with the Claygate Member and the Claygate Member with the London Clay. Note that the boundaries are indicative should be considered to be accurate to ±50m at best. British Geological Survey maps (e.g. 1:10,000 scale, current and earlier editions).
- Aerial photographs
- "Lost Rivers of London" by Nicolas Barton, 1962. Shows the alignment of rivers in London and their tributaries.

Question 9: Worked ground includes, for example, old pits, brickyards, cuttings etc. Information can be gained from local knowledge and/or site walkovers, and from historical Ordnance Survey maps (at 1:25,000 or 1:10,000 scale, or better) and British Geological Survey maps (at 1:10,000 scale, current and earlier editions). Earlier geological maps (e.g. the 1:10560 scale series from the 1920s) include annotated descriptions such as "old pits", "formerly dug", "brickyard" etc.
Question 10: In LB Camden, all areas where the London Clay does not outcrop at the surface are considered to be an aquifer. This includes the River Terrace Deposits, the Claygate Member and the Bagshot Formation. The general footprint of the geological strata can be assessed from British Geological Survey maps (e.g. 1:50,000 and 1:10,000 scale). Note that the boundaries are indicative and should be considered to be accurate to ±50m at best.
The Environment Agency (EA) Aquifer Designation Maps can be used to identify aquifers. These are available from the EA website (www.environment-agency.gov.uk), by clicking on 'At home & leisure' > 'What's in Your Backyard' > 'Interactive Maps' > 'Groundwater'.
Details are required of the thickness of the geological strata present and the level or depth of the groundwater table. This may be known from existing information (for example nearby site investigations); however, it may not be known in the early stages of a project. Determination of the water table level may form part of the site investigation phase of a BIA and may require specialist advice to answer. Depth of proposed development is project specific.
Question 11: From local knowledge and/or site walkovers, and from Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). In relation to the stability and integrity of the pond structures and dams, the guidance of a Panel Engineer should be sought. (Details of Panel Engineers can be found on the Environment Agency website: http://www.environment-agency.gov.uk/business/sectors/64253.aspx). Duty of care needs to be undertaken during any site works in the vicinity of the ponds.
Question 12: From local knowledge and/or site walkovers, and from Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). Any works should not impact on critical infrastructure.
Question 13: From local knowledge and/or site walkovers. May find some details on neighbouring properties from searches of LB Council databases, e.g. planning applications and/or building control records.
Question 14: From local knowledge and/or site walkovers, from Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale) and directly from those responsible for tunnels (e.g. TfL or Network Rail). Any works should not impact on critical infrastructure.

Figure 3. Surface flow and flooding screening flowchart



APPENDIX G

Fastrack Geotechnical - borehole log

Geotechnical Survey Report

FSI Ref:	8722
Issue Date:	May 2014
Address:	6a North End London NW3 7HL
Engineer:	Dan Vickerstaff
Company:	Cranbrook Basements

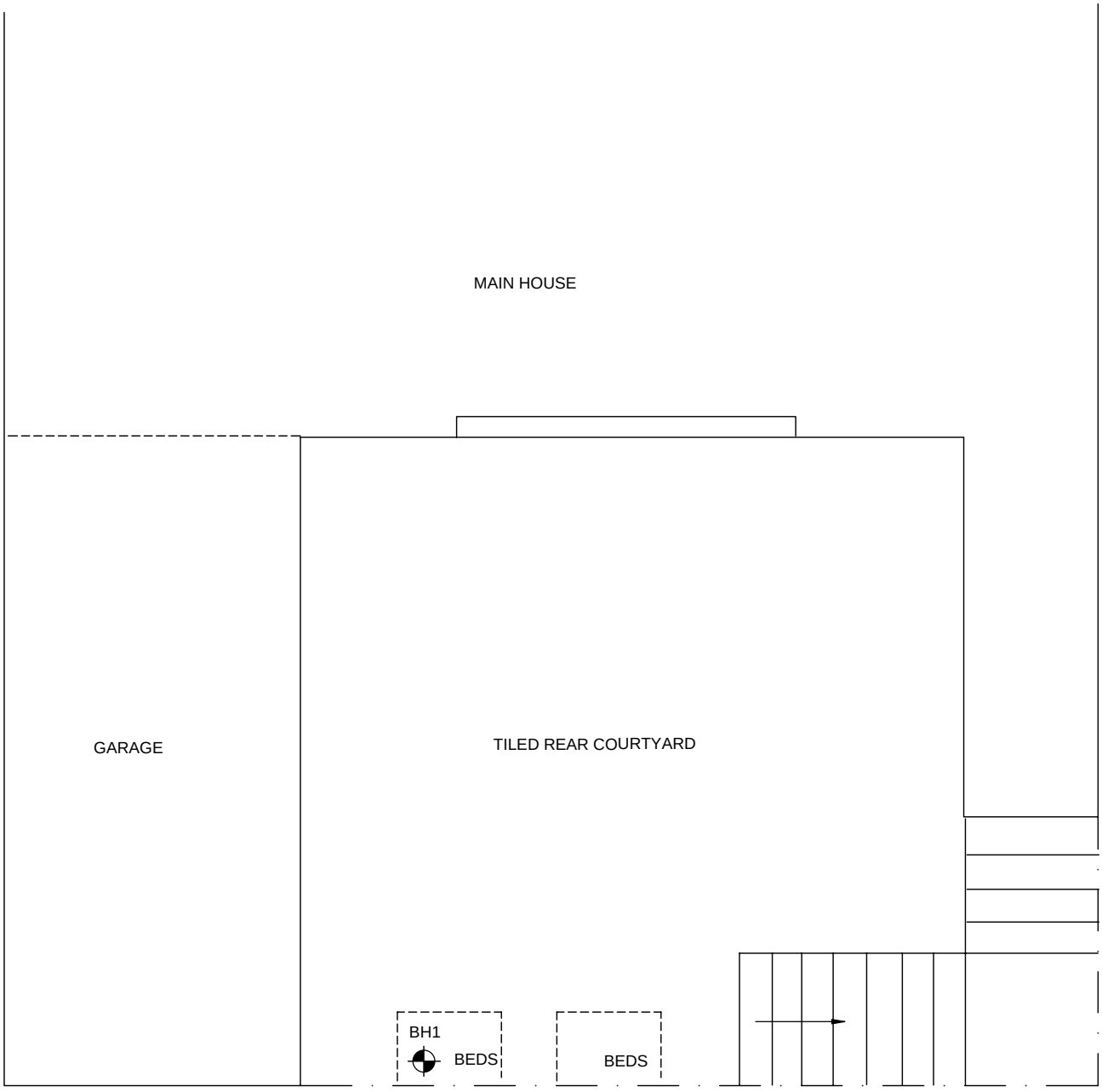
Director:	Martin Rush MSc FGS
Office Manager:	Louise Hiscock BSc (Hons)
Report Writer:	Perry Martin AMCIHT
Laboratory Manager:	Lara Knight

FASTRACK
Tyndales Farm, Southend Road, Woodham Mortimer,
Maldon, Essex, CM9 6TQ
Telephone: 0844 3358908
Fax: 0844 3358907
Email:enquiries@fastrackgroup.co.uk
Web: www.fastrackgroup.co.uk

Appendix No: 1
FSI Ref: 8722

SITE PLAN

Property Address: 6a North End, London, NW3 7HL
Client Claim Ref: 6a North End
Survey date: 23/05/2014
Operative: SE1



Scale:	Drawn by:	Key:
NTS	LK	Trial Pit, Borehole, Manholes, Rain Water Pipe, Soil & Vent Pipe, Surface Water Gully, Foul Water Gully, Shrub, Tree (Conifer), Tree (Deciduous)

FASTRACK
Tyndales Farm, Southend Road, Woodham Mortimer
Maldon, Essex, CM9 6TQ
Tel: 0844 3358908
Fax: 0844 3358907
Email: enquiries@fastrack-geotechnical.co.uk
Web: www.fastrack-geotechnical.co.uk

Appendix No: 2
FSI Job No: 8722

BOREHOLE LOG

Property Address: 6a North End, London, NW3 7HL
Client Claim Ref: 6a North End **Survey date:** 23/05/2014 **Operative:** SE1

Borehole ID: BH1 Hole Type: FA Scale: 1:35

Water Strikes	Samples Type	Samples Depth (m)	Insitu Tests Type	Insitu Tests Results	Depth (m)	Legend	Stratum Description and Observations
							Light / mid brown CLAY
					0.40		Firm light / mid brown silty sandy CLAY
		1.00	V	48.00 54.00			
		2.00	V	110.00 114.00			
		3.00	V	126.00 130.00			
					3.40		Stiff mid brown CLAY containing grey mottle and sand pockets
▽		4.00	V	140.00			
					4.20		Medium Dense mid brown SAND Water strike (Very slow seepage) at 4.20m
		5.00	MP	28/75mm			
		5.08	MP	29/75mm			
		5.15	MP	32/75mm			
		5.23	MP	31/75mm			
		6.00	MP	32/75mm	6.00		End of Borehole at 6.00 m
		6.08	MP	32/75mm			
		6.15	MP	34/75mm			
		6.23	MP	35/75mm			

Key: ▽ Water Strike D Disturbed Sample V Insitu vane test (kPa) MP Mackintosh Probe Test

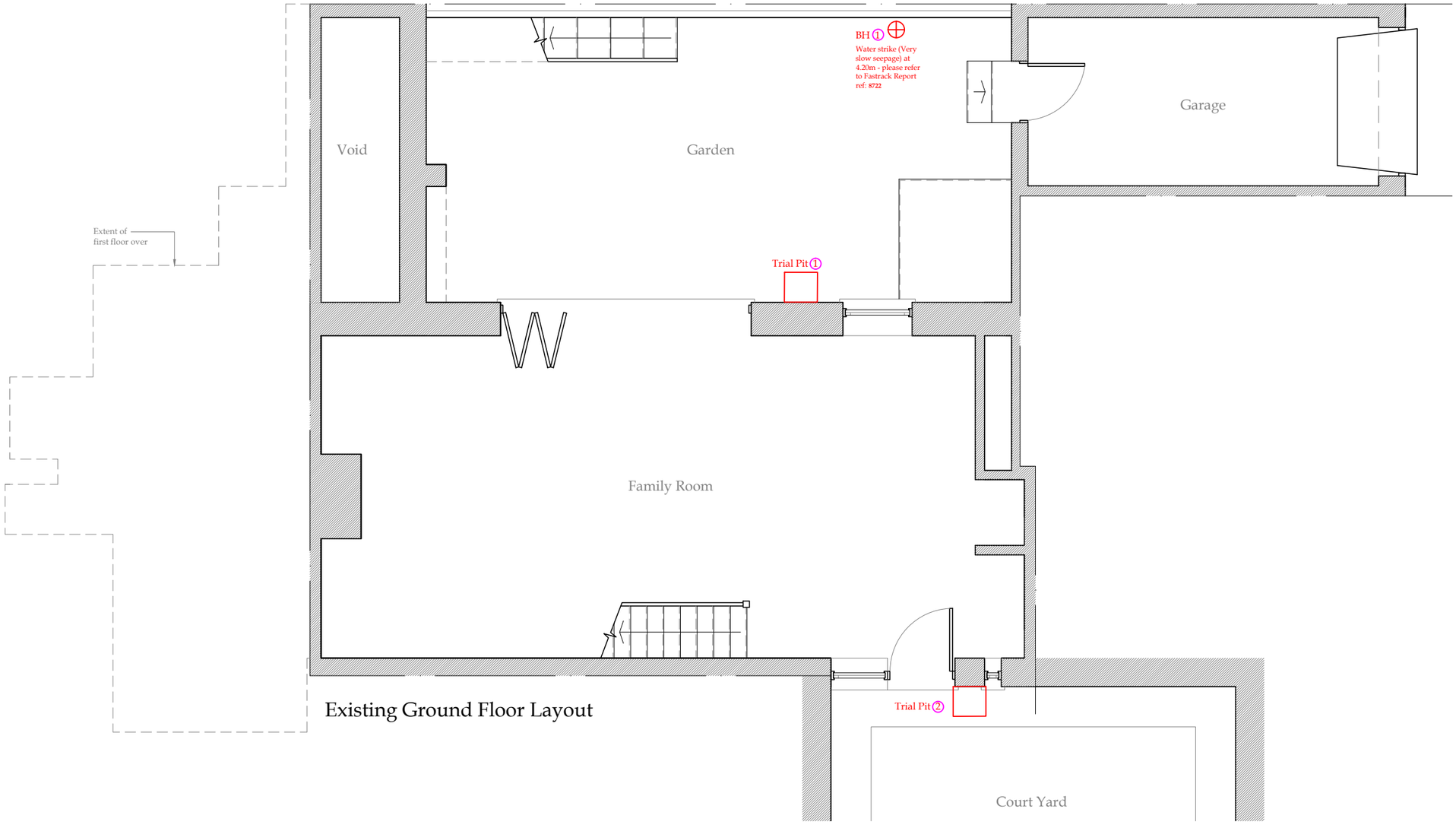
Remarks: Borehole was closed at 6.00m as requested. Standing water recorded at 4.80m below ground level on completion. Standpipe installed, monitoring at 2 week intervals

N.b. Unless otherwise stated small vane paddle used. To convert MP to SPT divide average blows for 75mm by 1.5

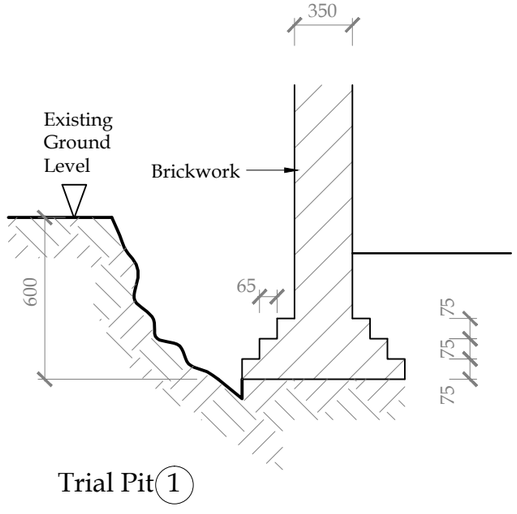
AGS

APPENDIX I

Foundation inspection pit record



Existing Ground Floor Layout



Trial Pit 1

Note - TP1 & TP2 Similar

No.	Date	Amendment	Initials

Client : Mr & Mrs Calcraft

Project : 6A North End
London
NW3 7HL

Drawing : Existing Trial Pit & Borehole Locations

Scale : NTS @ A3

Status : PRELIMINARY

Rev : -

Date : 03 Jun 14

Dwg No : 2173-120

Cranbrook Basements
26-28 Hammersmith Grove,
Hammersmith,
London, W7 7BA
T +44 (0)208 551 5555
F +44 (0)208 551 1580
admin@cranbrook.co.uk
www.cranbrook.co.uk

APPENDIX L

WALLAP output

Units: kN,m

INPUT DATA

SOIL PROFILE

Stratum no.	Elevation of top of stratum	Soil types Active side	Passive side
1	0.00	1 MG	1 MG
2	-0.35	6 Bagshot Fm cohesive	6 Bagshot Fm cohesive
3	-2.70	2 Bagshot Fm	2 Bagshot Fm

SOIL PROPERTIES

-- Soil type -- No.	Description (Datum elev.)	Bulk density kN/m3	Young's Modulus Eh,kN/m2 (dEh/dy)	At rest coeff. Ko (dKo/dy)	Consol state. NC/OC (Nu)	Active limit Ka (Kac)	Passive limit Kp (Kpc)	Cohesion kN/m2 (dc/dy)
1	MG	18.00	14000	1.000	NC (0.490)	1.000 (2.389)	1.000 (2.390)	20.00u
2	Bagshot Fm	20.00	27000	0.470	OC (0.200)	0.268 (0.000)	4.964 (0.000)	
3	Claygate .. (-5.20)	18.00	34000 (1.700)	1.000	OC (0.490)	1.000 (2.509)	1.000 (2.510)	68.00u (3.400)
4	Concrete slab	24.00	2.00E+7	0.590	OC (0.490)	0.227 (1.104)	6.680 (8.112)	500.0d
5	Claygate .. (-5.20)	18.00	25000 (1.300)	0.520	OC (0.200)	0.292 (1.276)	3.305 (5.178)	0.0d
6	Bagshot Fm cohesive	20.00	27500	0.577	OC (0.490)	1.000 (2.509)	1.000 (2.510)	55.00u
7	Bagshot cohes-drain	20.00	20625	0.577	OC (0.200)	0.348 (1.399)	3.509 (5.380)	0.0d

Additional soil parameters associated with Ka and Kp

------- Soil type ------- No.	Description	--- parameters for Ka --- Soil friction angle	Wall adhesion coeff.	Back-fill angle	--- parameters for Kp --- Soil friction angle	Wall adhesion coeff.	Back-fill angle
1	MG	0.00	0.500	0.00	0.00	0.500	0.00
2	Bagshot Fm	32.00	0.500	0.00	32.00	0.500	0.00
3	Claygate Beds	0.00	0.750	0.00	0.00	0.750	0.00
4	Concrete slab	35.00	0.665	0.00	35.00	0.670	0.00
5	Claygate - drained	29.00	0.750	0.00	24.00	0.750	0.00
6	Bagshot Fm cohesive	0.00	0.750	0.00	0.00	0.750	0.00
7	Bagshot cohes-drain	25.00	0.750	0.00	25.00	0.750	0.00

GROUND WATER CONDITIONS

Density of water = 10.00 kN/m3

	Active side	Passive side
Initial water table elevation	-5.40	-5.40

Automatic water pressure balancing at toe of wall : No

WALL PROPERTIES

Type of structure = Fully Embedded Wall
Elevation of toe of wall = -3.80
Maximum finite element length = 0.20 m
Youngs modulus of wall E = 3.0000E+07 kN/m2
Moment of inertia of wall I = 2.5000E-03 m4/m run
E.I = 75000 kN.m2/m run
Yield Moment of wall = Not defined

STRUTS and ANCHORS

Strut/ anchor no.	Elev.	Strut spacing m	X-section area of strut sq.m	Youngs modulus kN/m2	Free length m	Inclin -ation (degs)	Pre- stress /strut kN	Tension allowed
1	-0.30	1.20	0.150000	2.000E+08	3.00	0.00	0	No
2	-2.50	1.20	0.150000	2.000E+08	3.00	0.00	0	No
3	-3.70	1.20	0.150000	2.000E+08	3.00	0.00	0	No
4	-0.10	1.20	0.150000	3.000E+07	3.00	0.00	0	No

SURCHARGE LOADS

Surch -arge no.	Elev.	Distance from wall	Length parallel to wall	Width perpend. to wall	Surcharge ----- kN/m2 ----- Near edge	Far edge	Equiv. soil type	Partial factor/ Category
1	0.00	0.00(A)	8.00	9.00	10.00	=	N/A	N/A

Note: A = Active side, P = Passive side

CONSTRUCTION STAGES

Construction stage no.	Stage description
1	Apply surcharge no.1 at elevation 0.00
2	Excavate to elevation -0.40 on PASSIVE side
3	Install strut or anchor no.1 at elevation -0.30
4	Install strut or anchor no.3 at elevation -3.70
5	Excavate to elevation -3.70 on PASSIVE side
6	Install strut or anchor no.4 at elevation -0.10
7	Remove strut or anchor no.1 at elevation -0.30
8	Change properties of soil type 6 to soil type 7 Ko pressures will be reset

FACTORS OF SAFETY and ANALYSIS OPTIONS

Stability analysis:
Method of analysis - Strength Factor method
Factor on soil strength for calculating wall depth = 1.25

Parameters for undrained strata:
Minimum equivalent fluid density = 5.00 kN/m3
Maximum depth of water filled tension crack = 0.00 m

Bending moment and displacement calculation:
Method - Subgrade reaction model using Influence Coefficients
Open Tension Crack analysis? - No
Non-linear Modulus Parameter (L) = 0 m

Boundary conditions:
Length of wall (normal to plane of analysis) = 1000.00 m

Width of excavation on active side of wall = 20.00 m
Width of excavation on passive side of wall = 20.00 m

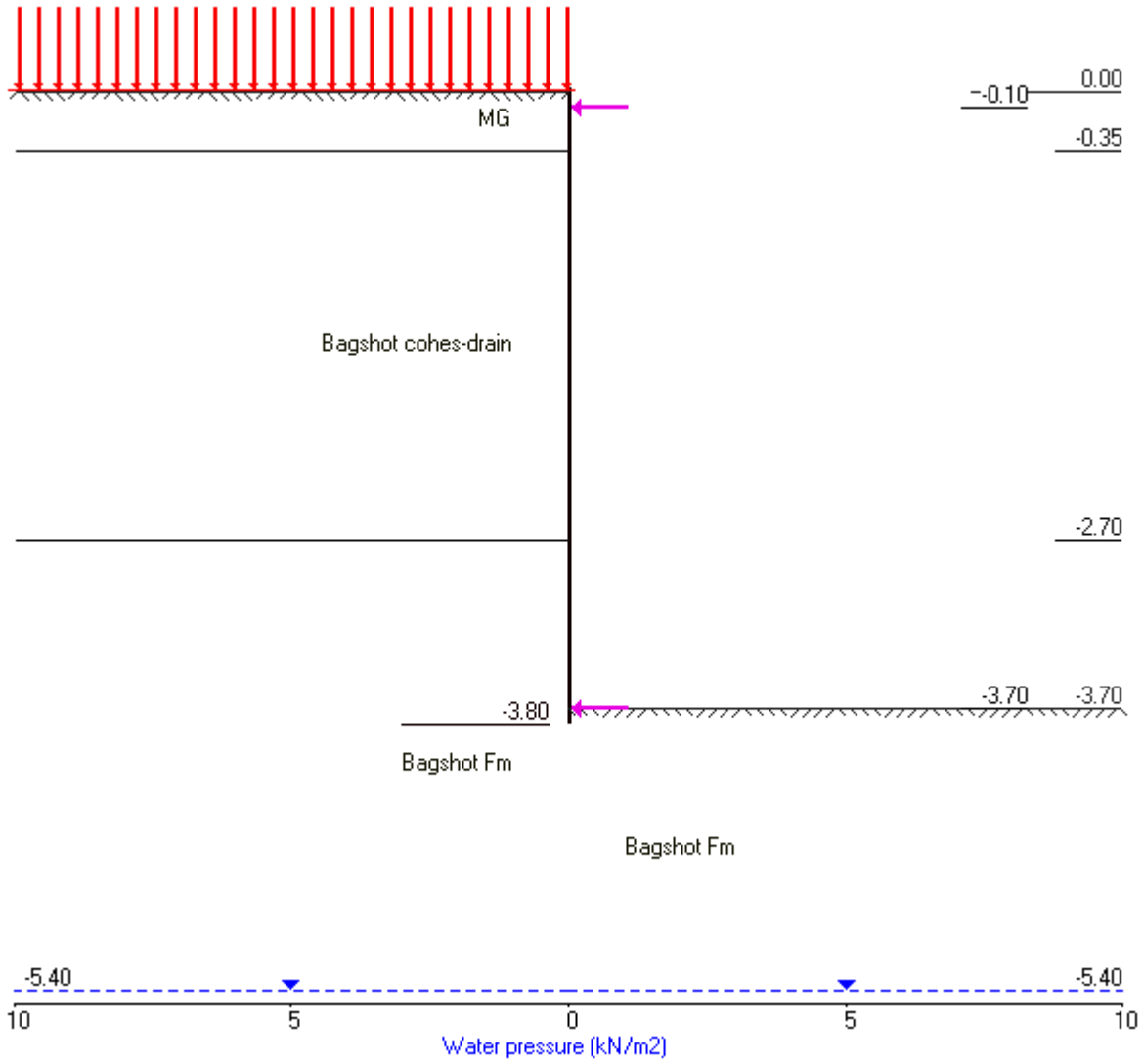
Distance to rigid boundary on active side = 20.00 m
Distance to rigid boundary on passive side = 20.00 m

OUTPUT OPTIONS

Stage no.	Stage description	Output options: Displacement, Bending mom., Shear force	Active, Passive pressures	Graph. output
1	Apply surcharge no.1 at elev. 0.00	Yes	Yes	Yes
2	Excav. to elev. -0.40 on PASSIVE side	No	No	No
3	Install strut no.1 at elev. -0.30	No	No	No
4	Install strut no.3 at elev. -3.70	No	No	No
5	Excav. to elev. -3.70 on PASSIVE side	Yes	Yes	Yes
6	Install strut no.4 at elev. -0.10	No	No	No
7	Remove strut no.1 at elev. -0.30	Yes	Yes	Yes
8	Change soil type 6 to soil type 7	No	No	No
*	Summary output	Yes	-	Yes

Units: kN,m

Stage No.8 Change soil type 6 to soil type 7



Units: kN,m

Stage No. 8 Change properties of soil type 6 to soil type 7
Ko pressures will be reset

STABILITY ANALYSIS of Fully Embedded Wall according to Strength Factor method
Factor of safety on soil strength

Stage No.	G.L. Act.	G.L. Pass.	Strut Elev.	FoS for toe elev. = -3.80 Factor of Safety	Moment equilib. at elev.	Toe elev. for FoS = 1.250 Toe elev.	Wall Penetr -ation
8	0.00	-3.70		More than one strut			

*** Warning - Weak strata at or below toe of wall:
Active limit (active side) > Passive limit (passive side)
22.39kN/m2 > 9.93kN/m2 at elev. -3.80

The above pressures include water pressure.

*** Warning - Failure and flow of soil BELOW the toe of the wall may occur if the wall is not toed in to a firm stratum. It may occur even when acceptable factors of safety and displacements have been calculated.

BENDING MOMENT and DISPLACEMENT ANALYSIS of Fully Embedded Wall
Analysis options
Length of wall perpendicular to section = 1000.00m
Subgrade reaction model - Boussinesq Influence coefficients
Soil deformations are elastic until the active or passive limit is reached
Open Tension Crack analysis - No

Rigid boundaries: Active side 20.00 from wall
Passive side 20.00 from wall

Node no.	Y coord	Nett pressure kN/m2	Wall disp. m	Wall rotation rad.	Shear force kN/m	Bending moment kN.m/m	Strut forces kN/m
1	0.00	8.84	0.001	-2.89E-04	0.0	0.0	
2	-0.10	8.14	0.001	-2.89E-04	0.8	0.0	34.6
		8.14	0.001	-2.89E-04	-33.7	0.0	
3	-0.30	9.12	0.001	-2.81E-04	-32.0	-6.5	
4	-0.35	9.96	0.001	-2.76E-04	-31.5	-8.1	
		9.20	0.001	-2.76E-04	-31.5	-8.1	
5	-0.40	9.74	0.001	-2.70E-04	-31.0	-9.7	
6	-0.60	11.92	0.002	-2.36E-04	-28.9	-15.7	
7	-0.80	14.11	0.002	-1.87E-04	-26.3	-21.2	
8	-1.00	16.30	0.002	-1.24E-04	-23.2	-26.1	
9	-1.20	18.51	0.002	-4.89E-05	-19.7	-30.4	
10	-1.40	20.72	0.002	3.69E-05	-15.8	-34.0	
11	-1.60	22.95	0.002	1.31E-04	-11.4	-36.7	
12	-1.80	25.20	0.002	2.31E-04	-6.6	-38.6	
13	-2.00	27.46	0.002	3.35E-04	-1.4	-39.4	
14	-2.20	29.73	0.001	4.40E-04	4.4	-39.1	
15	-2.40	32.02	0.001	5.42E-04	10.5	-37.6	
16	-2.55	33.74	0.001	6.15E-04	15.5	-35.7	
17	-2.70	35.47	0.001	6.84E-04	20.6	-33.0	
		20.58	0.001	6.84E-04	20.6	-33.0	
18	-2.85	22.60	0.001	7.47E-04	23.9	-29.7	
19	-3.00	24.67	0.001	8.02E-04	27.4	-25.8	

(continued)

Stage No.8 Change properties of soil type 6 to soil type 7
Ko pressures will be reset

Node no.	Y coord	Nett pressure kN/m2	Wall disp. m	Wall rotation rad.	Shear force kN/m	Bending moment kN.m/m	Strut forces kN/m
20	-3.20	27.49	0.001	8.63E-04	32.6	-19.8	
21	-3.40	30.38	0.001	9.06E-04	38.4	-12.7	
22	-3.55	32.57	0.000	9.26E-04	43.2	-6.6	
23	-3.70	34.77	0.000	9.32E-04	48.2	0.2	52.0
		34.77	0.000	9.32E-04	-3.8	0.2	
24	-3.80	41.16	0.000	9.32E-04	0.0	0.0	

Strut force at elev. -0.10 = 34.56 kN/m run = 41.47 kN/strut
Strut force at elev. -3.70 = 52.00 kN/m run = 62.40 kN/strut

ACTIVE side

Node no.	Y coord	Water press. kN/m2	Effective stresses: Vertic -al kN/m2	Active limit kN/m2	Passive limit kN/m2	Earth pressure kN/m2	Total earth pressure kN/m2	Soil stiffness coeff. kN/m3
1	0.00	Total>	10.00	0.00	57.80	8.84	8.84	174567
2	-0.10	Total>	11.80	0.50m	59.60	8.14	8.14	4223
3	-0.30	Total>	15.40	1.50m	63.20	9.12	9.12	4223
4	-0.35	Total>	16.30	1.75m	64.10	9.96	9.96	4223
		0.00	16.30	5.66	57.18	9.20	9.20	4375
5	-0.40	0.00	17.30	6.01	60.69	9.74	9.74	4375
6	-0.60	0.00	21.29	7.40	74.68	11.92	11.92	4375
7	-0.80	0.00	25.27	8.78	88.65	14.11	14.11	4375
8	-1.00	0.00	29.24	10.16	102.58	16.30	16.30	4375
9	-1.20	0.00	33.19	11.53	116.46	18.51	18.51	4375
10	-1.40	0.00	37.13	12.91	130.30	20.72	20.72	4375
11	-1.60	0.00	41.06	14.27	144.08	22.95	22.95	4375
12	-1.80	0.00	44.98	15.63	157.81	25.20	25.20	4375
13	-2.00	0.00	48.88	16.99	171.49	27.46	27.46	4375
14	-2.20	0.00	52.76	18.34	185.13	29.73	29.73	4375
15	-2.40	0.00	56.64	19.68	198.72	32.02	32.02	4375
16	-2.55	0.00	59.53	20.69	208.89	33.74	33.74	4375
17	-2.70	0.00	62.43	21.69	219.04	35.47	35.47	4375
		0.00	62.43	16.73	309.86	20.58	20.58	5727
18	-2.85	0.00	65.31	17.50	324.19	22.60	22.60	5727
19	-3.00	0.00	68.20	18.28	338.51	24.67	24.67	5727
20	-3.20	0.00	72.04	19.31	357.57	27.49	27.49	5727
21	-3.40	0.00	75.87	20.33	376.60	30.38	30.38	5727
22	-3.55	0.00	78.75	21.10	390.86	32.57	32.57	5727
23	-3.70	0.00	81.62	21.87	405.11	34.77	34.77	5727
24	-3.80	0.00	83.53	22.39	414.61	43.50	43.50	131285

PASSIVE side

Node no.	Y coord	Water press. kN/m2	Effective stresses: Vertic -al kN/m2	Active limit kN/m2	Passive limit kN/m2	Earth pressure kN/m2	Total earth pressure kN/m2	Soil stiffness coeff. kN/m3
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.0
3	-0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.0
4	-0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.0
5	-0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.0
6	-0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0
7	-0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.0
8	-1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
9	-1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.0

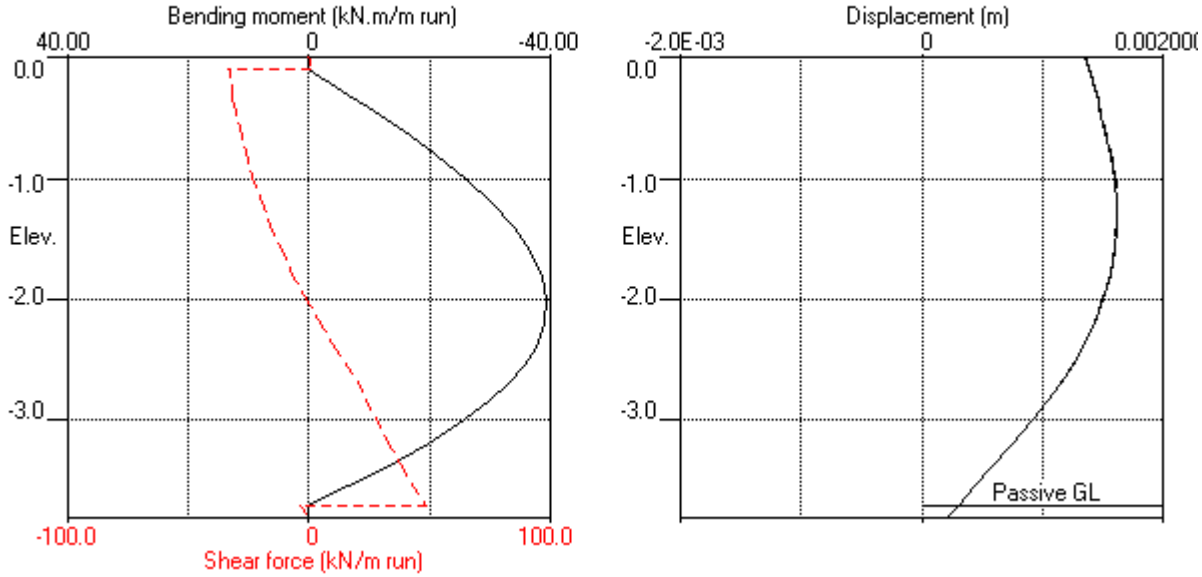
(continued)

Stage No.8 Change properties of soil type 6 to soil type 7
Ko pressures will be reset

Node no.	Y coord	PASSIVE side: Water press. kN/m2	Effective stresses: Vertic-al kN/m2	Active limit kN/m2	Passive limit kN/m2	Earth pressure kN/m2	Total earth pressure kN/m2	Soil stiffness coeff. kN/m3
10	-1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.0
11	-1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.0
12	-1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.0
13	-2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
14	-2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.0
15	-2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.0
16	-2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.0
17	-2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.0
18	-2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.0
19	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
20	-3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.0
21	-3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.0
22	-3.55	0.00	0.00	0.00	0.00	0.00	0.00	0.0
23	-3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.0
		0.00	0.00	0.00	0.00	0.00	0.00	1701781
24	-3.80	0.00	2.00	0.54	9.93	2.34	2.34	131285

Units: kN,m

Stage No.8 Change soil type 6 to soil type 7



Stage No.8 Change soil type 6 to soil type 7