

CALCULATIONS

For:

PARK HEAD LANE

On Behalf of:

MR. BEN TURNER

Project Reference: 21-009

Document Ref: 21009-MCE-XX-XX-CA-S-1002

Status S0 - Initial Status

Revision: P01

Date: 24/04/21



Project Title:
PARK HEAD LANEDate
24/04/21Subject
DOCUMENT CONTROLBy Chkd
AJH LJH

Ref.

Output

VERIFICATION RECORD

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REVISION RECORD

Rev	Status	Date	Originator	Checked	Approved
P01	S 0	24/04/21	AJH	LJH	AJH

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Subject 1.0 INTRODUCTION				By AJH	Chkd LJH
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	1.0 INTRODUCTION				

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Subject DESIGN PARAMETERS				By AJH	Chkd LJH
	Site Information				
	Site Address:	PARK HEAD LANE			
		BIRD'S EDGE			
		HUDDERSFIELD			
		HD8 8YA			
	Grid Reference:	SE 19081 08415			
	Easting:	419081			
	Northing:	408415			
	Latitude	53.571996			
	Longitude	-1.7133349			
	Elevation:	308			
	Proximiy to Sea	71.5			
	Soils Information				
	GIR Report:	NONE PREPARED			
	GDR Report:	NONE PREPARED			
	Soil Density	18			
	Allowable Pressure	100			
	Cu	-			
	ϕ	-			
	Design Sulphate Class	-			
	ACEC Class	-			
	Superstructure Information				
	Fire Resistance:	0.5			
	Concrete Grade:	35			
	Concrete Cover:	-			
	Steelwork Grade:	S355			
	Steelwork Sub-grade	-			
	Consequence Class	-			
	EXTRACT FROM BS 8004 - CODE OF PRACTICE FOR FOUATIONS				



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LOCATION PLANS

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FIGURE 1 - ARIEL PHOTOGRAPH

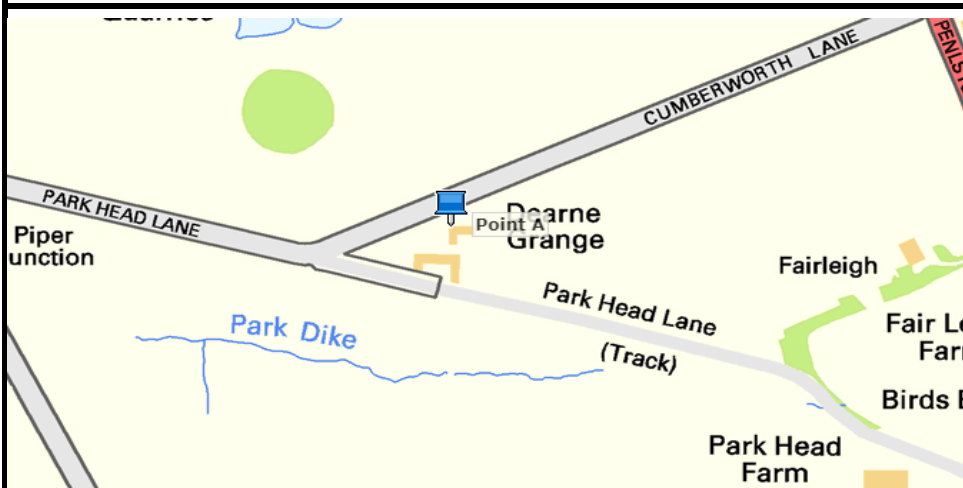


FIGURE 2 - OS BLOCK PLAN

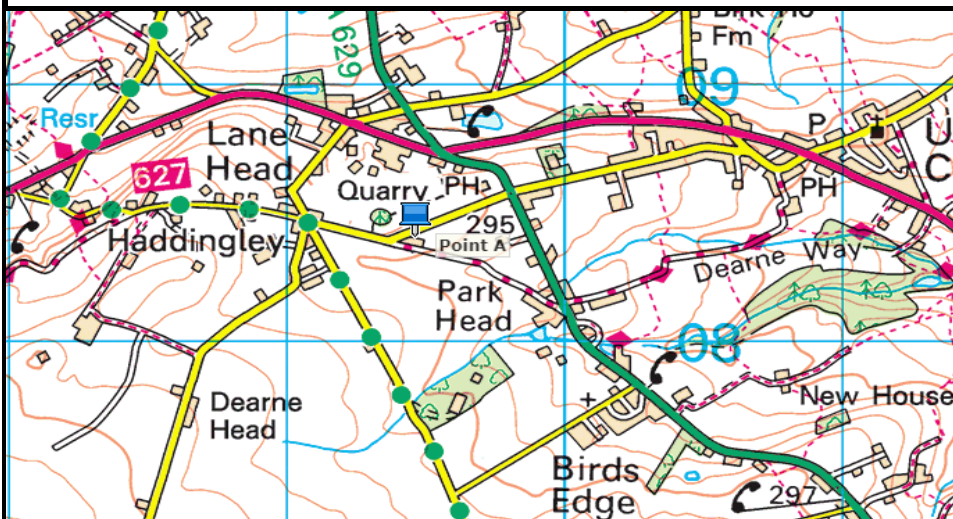
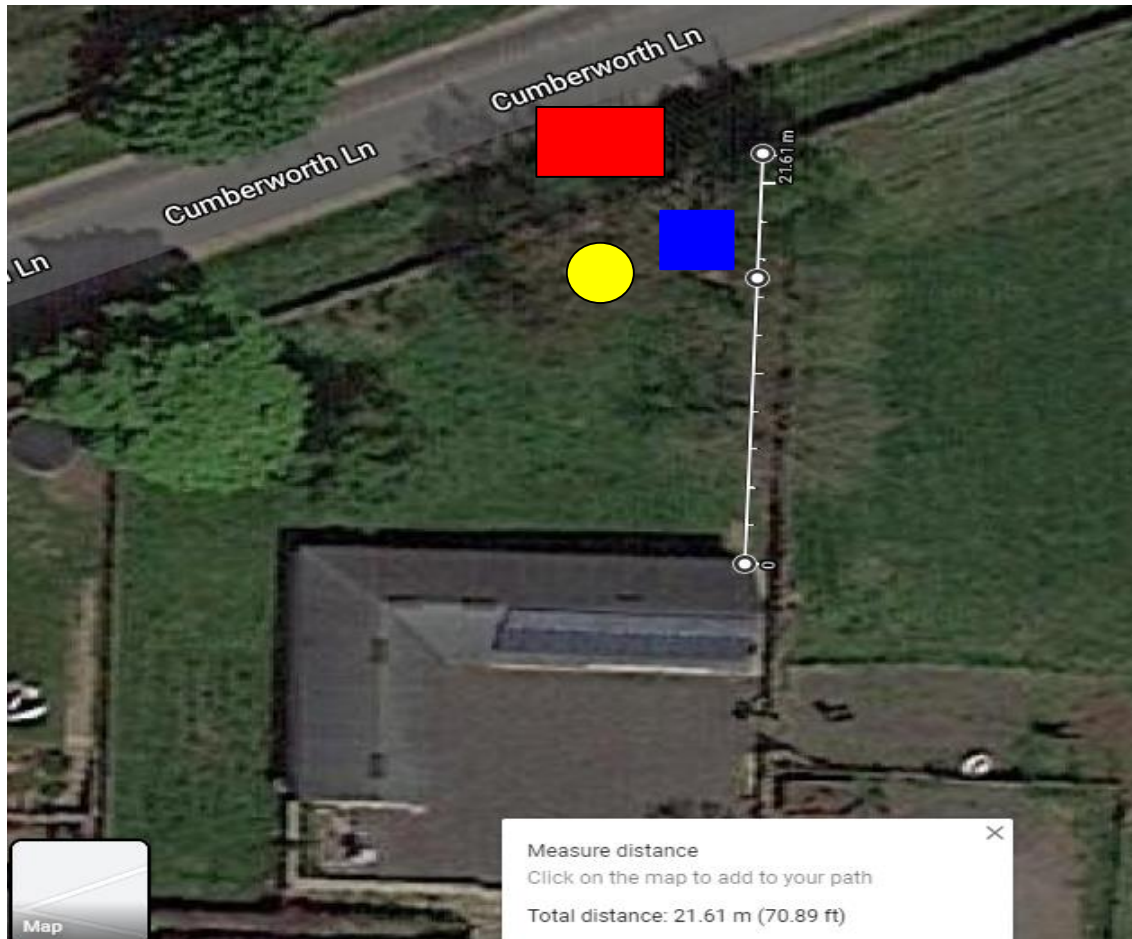


FIGURE 3 - OS LOCATION PLAN (SCALE 1:2500)

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FIGURE 3 - DISTANCE TO SEA (GOOGLE MAPS)					
NOT USED					
FIGURE 4 - FRONT ELEVATION (GOOGLE STREET VIEW)					
NOT USED					
FIGURE 5 - SITE ELEVATION					



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DENOTES LOCATION OF KLARGESTER DOMESTIC BIODISK BA DOMESTIC SEWAGE TREATEMENT PLANT



DENOTES LOCATION OF 2m X 2m DRAINAGE FIELD TO BE CONSTRUCTED IN ACCORDANCE WITH APPROVED DOCUMENTS D, SECTIONS 1.26 - 1.44.



DENOTES POSTIION OF VEHICLE TO EMPTY TREATEMENT PLANT

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Subject 3.0 NOTES				By AJH	Chkd LJH
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	3.0 NOTES				

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		S0 - Initial Status		N1	P01
Subject GENERAL NOTES RELATING TO THE SKETCHES AND DRAWINGS				Date	
				24/04/21	
				By	Chkd
				AJH	LJH
1	DO NOT SCALE FROM THE SKETCHES OR DAWINGS.				
2	THESE SKETCHED ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERING, ARCHITECTURAL AND SPECIALIST SUPPLIER DRAWINGS, SPECIFICATION OF WORKS, DESIGN RISK ASSESSMENTS AND METHOD STATEMENTS.				
3	THE PRINCIPAL DIMENSIONS AND LEVELS FOR SETTING OUT ARE INDICATED. THE CONTRACTOR IS TO TAKE ACCURATE SITE MEASUREMENTS TO VERIFY PRINCIPAL SETTING OUT DIMENSIONS AND LEVELS PRIOR TO THE EXECUTION OF ANY WORK. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES ABOVE OS DATUM UNLESS NOTED OTHERWISE.				
4	ALL WORK IS TO BE CARRIED OUT TO THE APPROVAL OF THE CLIENT, ENGINEER AND BUILDING CONTROL AND TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING REGULATIONS APPROVED DOCUMENTS AND PLANNING PERMISSION WHERE APPROPRIATE. ALL WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE RELEVANT BRITISH STANDARDS, CODES OF PRACTICE OR EUROCODES AND THE AGREED PROJECT SPECIFICATION.				
5	THE CONTRACTOR IS TO ENSURE COMPATIBILITY AND GOOD FIT BETWEEN NEW AND EXISTING CONSTRUCTION THROUGHOUT, TAKING SITE DIMENSIONS AS NECESSARY PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR IS TO MAINTAIN STABILITY OF ALL WALLS, FLOORS, COLUMNS, TRUSSES AND OTHER STRUCTURAL AND NON-STRUCTURAL ELEMENTS AND TO DESIGN, DETAIL, SUPPLY AND FIX ALL TEMPORARY SUPPORTS TO MAINTAIN VERTICAL AND HORIZONTAL STABILITY OF THE STRUCTURE AND ADJACENT STRUCTURES FOR THE DURATION OF THE WORKS.				
6	ALL PROPRIETARY PRODUCT DETAILS ARE INDICATIVE. FOR CONSTRUCTION DETAILS SEE SPECIALIST SUPPLIERS INFORMATION. ALTERNATIVE PROPRIETARY PRODUCTS MAY BE PROPOSED BUT SHOULD BE IN ALL RESPECTS EQUAL TO THE PRODUCT DETAILED AND WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND BUILDING CONTROL. ALL PROPRIETARY PRODUCTS ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS.				
7	IF ANY PROPOSED OR EXISTING SPAN CONFIGURATIONS ARE NOT AS ASSUMED, CEASE WORK AND REPORT FINDINGS TO THE ENGINEER				

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Project Title: PARK HEAD LANE				Date 24/04/21	
Subject DRAINAGE NOTES				By AJH	Chkd LJH
1	MANHOLE COVERS AND GULLEY TOPS TO BE CAST IRON TO BS EN 124 AND BS 7903 WITH 600mm CLEAR OPENING. TYPE D400 COVERS TO VEHICLE AREAS AND B125 COVERS TO PEDESTRIAN AND LANDSCAPED AREAS.				
2	ALL DRAINS TO BE VITRIFIED CLAY TO BS EN 294-1 OR CLASS H CONCRETE TO BS 5911 WITH FLEXIBLE MECHANICAL JOINTS SURROUNDED IN PEA GRAVEL, LAID TO SELF-CLEANSING FALLS. ALL DRAINS BENEATH OR WITHIN 1M OF STRUCTURES TO BE SURROUNDED IN 150mm CONCRETE WITH 20mm THICK FOSROC EXPANDITE FLEXCELL IMPREGNATED FIBREBOARD FILLER TO JOINTS.				
3	NEW DRAINS SHOULD NOT BE LOCATED CLOSER TO ANY BUILDING/STRUCTURE THAN THE MINIMUM OF THE DEPTH OF THE SEWER BELOW THE FOUNDATION OR 1.2 M.				
4	ALL DRAINS TO BE BACKFILLED WITH TYPE 1 SUB-BASE OR CLEAN INERT HARDCORE COMPACTED IN LAYERS NOT EXCEEDING 150mm AND BENCHED INTO THE EXCAVATION SIDES AS NECESSARY.				
5	ALL DRAINS PASSING THROUGH WALLS TO HAVE CONCRETE LINTELS OVER WITH 50mm CLEARANCE.				
6	ALL BRANCH CONNECTIONS SHOULD BE SET WITH SOFFIT LEVELS NO LOWER THAN THAT OF THE MAIN PIPE AND THE INVERT LEVEL OF THE CONNECTING PIPE AT LEAST 50 MM ABOVE THAT OF THE MAIN PIPE. WHERE THE DIFFERENCE BETWEEN THE DIAMETER OF THE CONNECTING PIPE AND THE MAIN PIPE IS GREATER THAN 50 MM, THE CONNECTION SHOULD BE SET WITH THE SAME SOFFIT LEVEL AS THE MAIN PIPE.				
7	MINIMUM DEPTHS OF COVER TO THE CROWN OF PIPES WITHOUT PROTECTION SHOULD BE AS FOLLOWS: i DOMESTIC GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS – 0.35 M; ii DOMESTIC DRIVEWAYS, PARKING AREAS AND YARDS WITH RESTRICTIONS TO PREVENT ENTRY BY HGV'S – 0.5 M; iii DOMESTIC DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. MEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR HGVS - 0.9 M; iv AGRICULTURAL LAND AND PUBLIC OPEN SPACE - 0.9 M; v OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS FOR HGVS - 1.2 M.				

H2 GUIDANCE

ONLINE VERSION

Ground conditions

1.31 Well drained and well aerated subsoils are usually brown, yellow or reddish in colour. Examples of subsoils with good percolation characteristics are sand, gravel, chalk, sandy loam and clay loam. It is important that the percolation characteristics are suitable in both summer and winter conditions. Poorly drained or saturated subsoils are often grey or blue in colour. Brown and grey mottling usually indicates periodic saturation. Examples of subsoils with poor percolation characteristics are sandy clay, silty clay and clay.

1.32 A preliminary assessment should be carried out including consultation with the Environment Agency and local authority to determine the suitability of the site. The natural vegetation on the site should also give an indication of its suitability for a drainage field.

1.33 A trial hole should be dug to determine the position of the standing groundwater table. The trial hole should be a minimum of 1m² in area and 2m deep, or a minimum of 1.5m below the invert of the proposed drainage field pipework. The groundwater table should not rise to within 1m of the invert level of the proposed effluent distribution pipes. If the test is carried out in summer, the likely winter groundwater levels should be considered. A percolation test should then be carried out to assess the further suitability of the proposed area.

1.34 Percolation test method – A hole 300mm square should be excavated to a depth 300mm below the proposed invert level of the effluent distribution pipe. Where deep drains are necessary the hole should conform to this shape at the bottom, but may be enlarged above the 300mm level to enable safe excavation to be carried out. Where deep excavations are necessary a modified test procedure may be adopted using a 300mm earth auger. Bore the test hole vertically to the appropriate depth taking care to remove all loose debris.

1.35 Fill the 300mm square section of the hole to a depth of at least 300mm with water and allow it to seep away overnight.

1.36 Next day, refill the test section with water to a depth of at least 300mm and observe the time, in seconds, for the water to seep away from 75% full to 25% full level (i.e. a depth of 150mm). Divide this time by 150. The answer gives the average time in seconds (V_p) required for the water to drop 1mm.

1.37 The test should be carried out at least three times with at least two trial holes. The average figure from the tests should be taken. The test should not be carried out during abnormal weather conditions such as heavy rain, severe frost or drought.

1.38 Drainage field disposal should only be used when percolation tests indicate average values of V_p of between 12 and 100 and the preliminary site assessment report and trial hole tests have been favourable. This minimum value ensures that untreated effluent cannot percolate too rapidly into groundwater. Where V_p is outside these limits effective treatment is unlikely to take place in a drainage field. However, provided that an alternative form of secondary treatment is provided to treat the effluent from the septic tanks, it may still be possible to discharge the treated effluent to a soakaway.

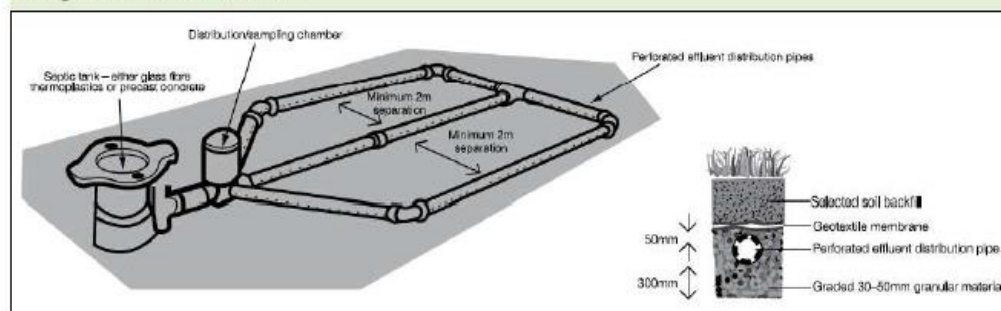
Design and construction

1.39 Drainage fields or mounds (see Diagrams 1 and 2) should be designed and constructed to ensure aerobic contact between the liquid effluent and the subsoil.

1.40 Drainage fields should be constructed using perforated pipe, laid in trenches of a uniform gradient which should be not steeper than 1:200.

1.41 Pipes should be laid on a 300mm layer of clean shingle or broken stone graded between 20mm and 50mm.

Diagram 1 Drainage field



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Subject 4.0 DESIGNER'S RISK ASSESSMENT				By AJH	Chkd LJH
Ref.	4.0 DESIGNER'S RISK ASSESSMENT				Output

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CALCULATIONS		Project Title PARK HEAD LANE						24/04/21	
Subject DESIGNER'S RISK ASSESSMENT								By AJH	Chkd LJH
LOCATION	HAZARD	Probability	Severity	Risk	Available Control Measures	Residual Risk	Action by	Procedure	Output
General	Being struck by moving plant or materials.	High	Medium	High	Exclude pedestrians from the vicinity of the works. Barriers / fences to be erected accordingly. Adopt suitable traffic management system.	Low	Contractor	Contractor to implement suitable scheme	
General	Members of the general public, the client and others coming in to conflict with construction work.	High	Medium	High	Secure site, net scaffolding, use rubbish chutes, exclude pedestrians from the vicinity of the works, adopt suitable vehicle and pedestrian traffic management systems.	Low	Contractor	Contractor to implement suitable scheme	
General	Exposure to building dust	Medium	High	High	Prevent dust by using wet cutting and vacuum extraction on tools; use a vacuum cleaner rather than sweeping; use a suitable, well-fitting mask.	Medium	Contractor	Contractor to implement suitable scheme	
General	Contact with protected/priority species of fauna and flora.	Medium	High	High	Be vigilant and take precautions as necessary to avoid affecting protected/priority species of fauna and flora.	Medium	Contractor	Contractor to implement suitable scheme	
General	Hot works	Medium	High	High	Suitably trained staff to undertake any hot works required and suitable protection methods put in place	Medium	Contractor	Contractor to implement suitable scheme	
General	Hazardous substances	High	Low	Medium	Suitable PPE to be worn including protective gloves. Masks to prevent inhaling of hazardous chemicals. Washing facilities to be present on-site	Low	Contractor	Contractor to implement suitable scheme	
General	Contact with hazardous animal waste.	Medium	Medium	Medium	Suitable PPE to be worn including protective gloves. Masks to prevent inhaling of hazardous substances. Washing facilities to be present on-site	Medium	Contractor	Contractor to implement suitable scheme	
General	Contact with discarded needles and sharp objects	Medium	High	High	Suitable PPE to be worn including protective gloves to prevent injury from contaminated objects. Washing facilities to be present on-site	Medium	Contractor	Contractor to implement suitable scheme	

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Subject DESIGNER'S RISK ASSESSMENT									By AJH	Chkd LJH
General	Contact with services.	Medium	High	High	Carry out survey to establish position of live services, protect and divert if necessary.	Medium	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Contact with services.	Medium	High	High	Carry out survey to establish position of live services, protect and divert if necessary.	Medium	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Falling into open excavation.	High	Medium	High	Provide barriers / fences to be erected accordingly. Place warning signs in prominent positions	Low	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Collapse of excavation.	High	Medium	High	Provide suitably designed and coordinated temporary excavation support or batter back excavation sides as necessary.	Low	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Collapse of excavation.	High	Medium	High	Do not position or move plant or store materials, including excavation arisings, adjacent to open excavations such that the means of ensuring the excavation stability is affected.	Low	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Objects and material falling into excavations	High	Medium	High	Do not store materials adjacent to or above an open exaction which can be dislodged and fall into the excavation.	Low	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Unsafe excavations.	High	Medium	High	Excavations to be inspected in accordance with Regulation 22 and 24 by a competent person.	Low	Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Affecting buried services	Medium	High	High	Utilise buried services information and position access scaffolds to avoid loading services. Provide spreader plates to ensure load applied to the surrounding ground are within the allowable bearing pressure.	Medium	Designer/ Contractor	Contractor to implement suitable scheme		
Foundation and drainage works	Electrocution by live electrical cables	Medium	High	High	All works to be supervised by appropriately experienced and qualified competent technical staff. Suitable protective measures to be implemented including encapsulation of the electrical equipment during the works. Consult buried services information.	Medium	Contractor	Suitable Scheme to be implemented.		

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Subject DESIGNER'S RISK ASSESSMENT								By AJH	Chkd LJH
Foundation and drainage works	Undermining existing structures	Medium	High	High	Carry out trial pits to ascertain nature and condition of the existing structural foundations if not identified in the contract drawings. Report the findings to the designers. Implement appropriately designed and coordinated temporary works scheme.	Medium	Contractor	Contractor to implement suitable scheme	



Project Title:

PARK HEAD LANE

Date

24/04/21

Subject

DRAINAGE FIELD DESIGN

By

AJH

Chkd

LJH

TEST RESULTS

TEST 1		TEST 2		TEST 3	
Depth, d (mm)	Time (s)	Depth, d (mm)	Time (s)	Depth, d (mm)	Time (s)
1400	0	1350	0	1330	0
1480	60	1400	60	1360	60
1620	120	1620	120	1500	120
1670	180	1660	180	1550	180
1700	240	1700	240	1580	240
1710	300	1730	300	1610	300
1860	600	1820	600	1750	600
1999	900	1999	900	1840	900
				1999	1200

PERCOLATION VALUE, VP

Test 1 - Full depth of test, d:

Test 1 - Depth at 75% of full level

Test 1 - Depth at 25% of full level

Test 1 - Distance between 75% full and 25%

Test 1 - Time to drain to 75% depth

Test 1 - Time to drain to 25% depth

Test 1 - Time between 75% full and 25%

Test 2 - Percolation Value, Vp:

Test 2 - Full depth of test, d:

Test 2 - Depth at 75% of full level

Test 2 - Depth at 25% of full level

Test 2 - Distance between 75% full and 25%

Test 2 - Time to drain to 75% depth

Test 2 - Time to drain to 25% depth

Test 2 - Time between 75% full and 25%

Test 2 - Percolation Value, Vp:

Test 3 - Full depth of test, d:

Test 3 - Depth at 75% of full level

Test 3 - Depth at 25% of full level

Test 3 - Distance between 75% full and 25%

Test 3 - Time to drain to 75% depth

Test 3 - Time to drain to 25% depth

Test 3 - Time between 75% full and 25%

Test 3 - Percolation Value, Vp:

Percolation Value, Vp:

599 mm

1480 mm

1710 mm

230 mm

60 s

300 s

240 s

1.043 s/mm

649 mm

1400 mm

1820 mm

420 mm

60 s

600 s

540 s

1.286 s/mm

1999 mm

1750 mm

1999 mm

249 mm

600 s

1200 s

600 s

2.410 s/mm

1.580 s/mm

NOTE AS VP<12 OR >100 THE DRAINAGE FIELD IS NOT SUITABLE FOR USE WITH A SEPTIC TANK

SIZE OF DRAINAGE FIELD

Number of persons served by the system

Percolation Value, Vp

Area of drainage field, At = P.Vp 0.25:

6 No

1.580 s/mm

2.369 m²