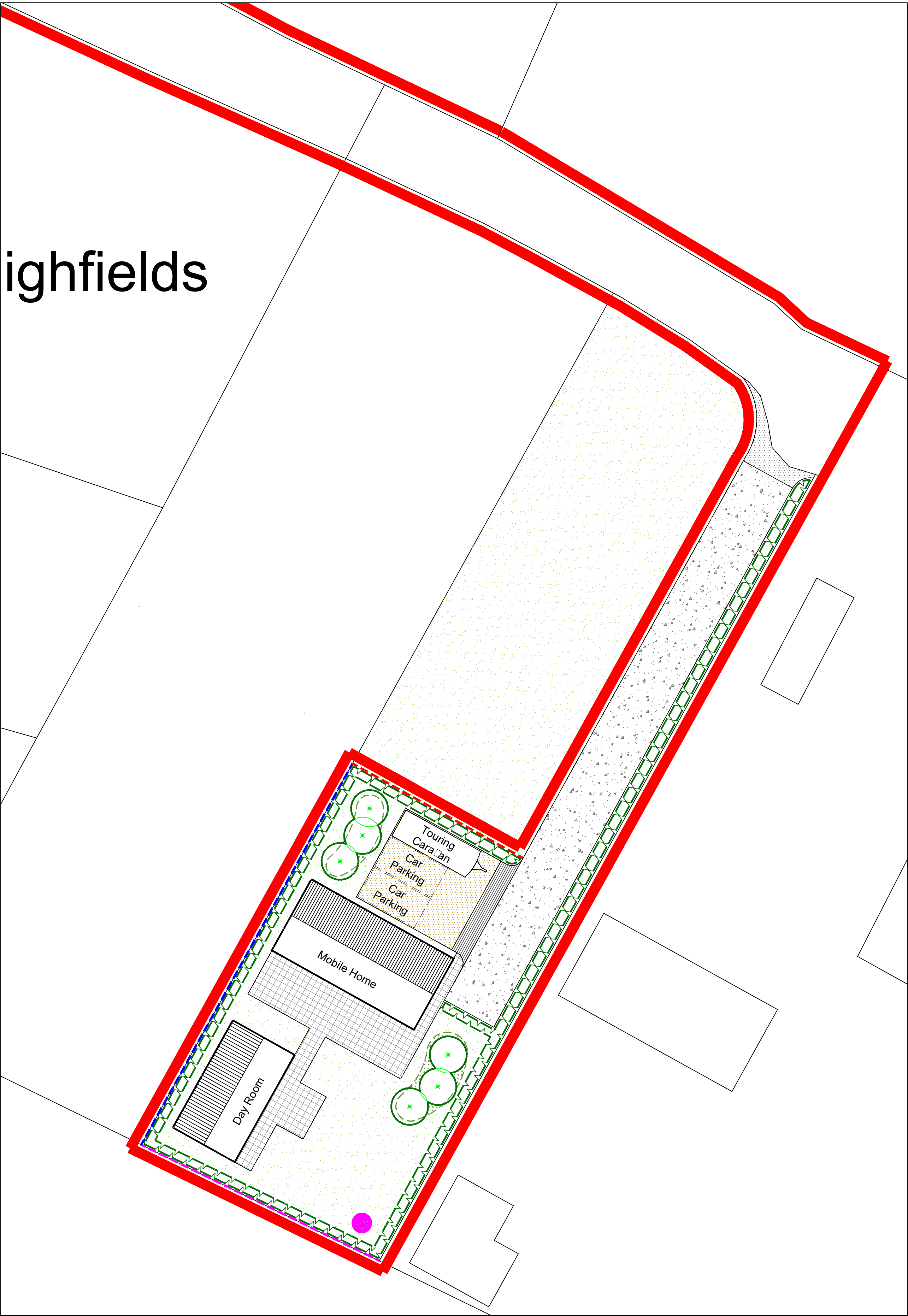


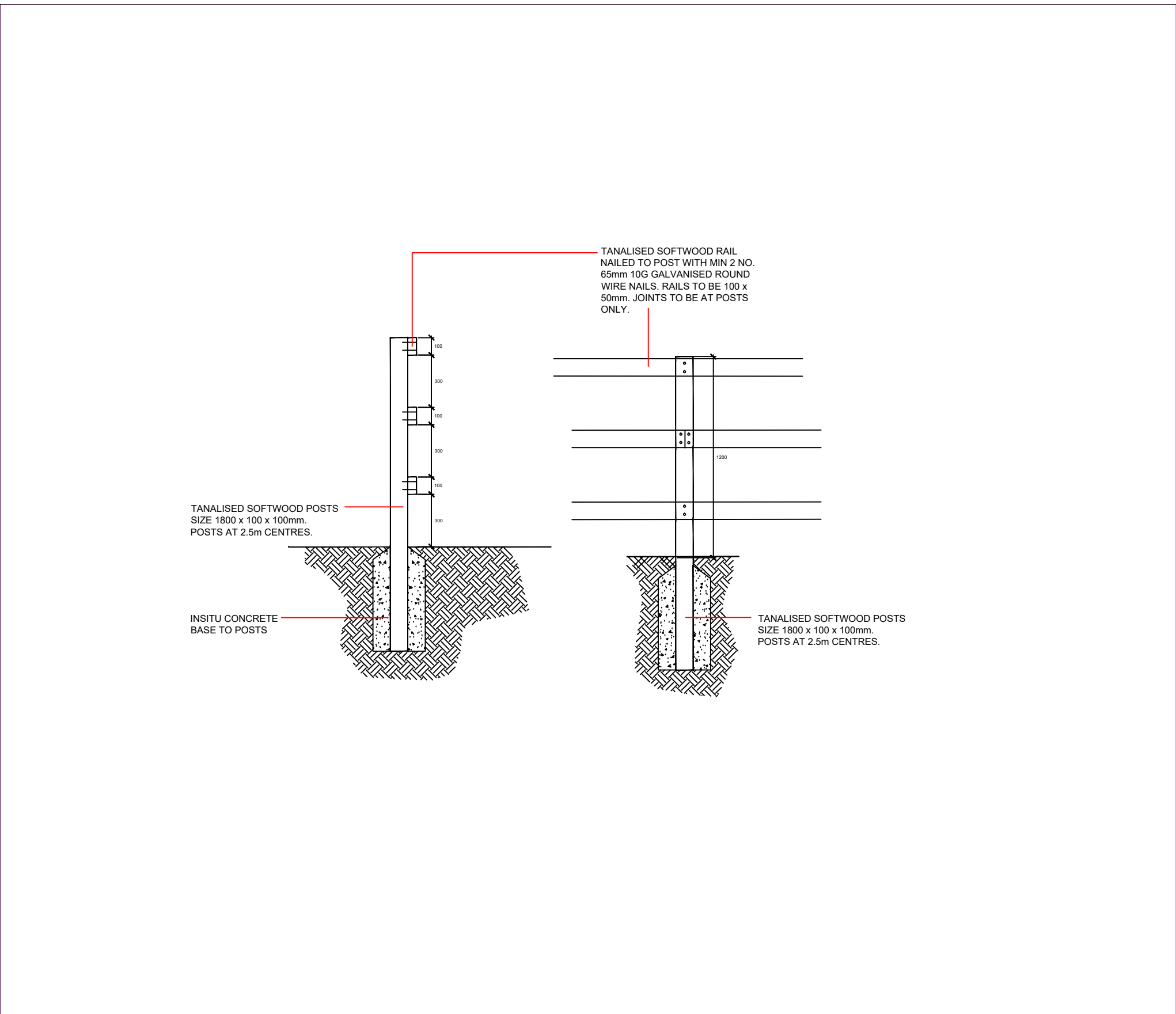
8 Appendices

8.1 Appendix A – Site Plan

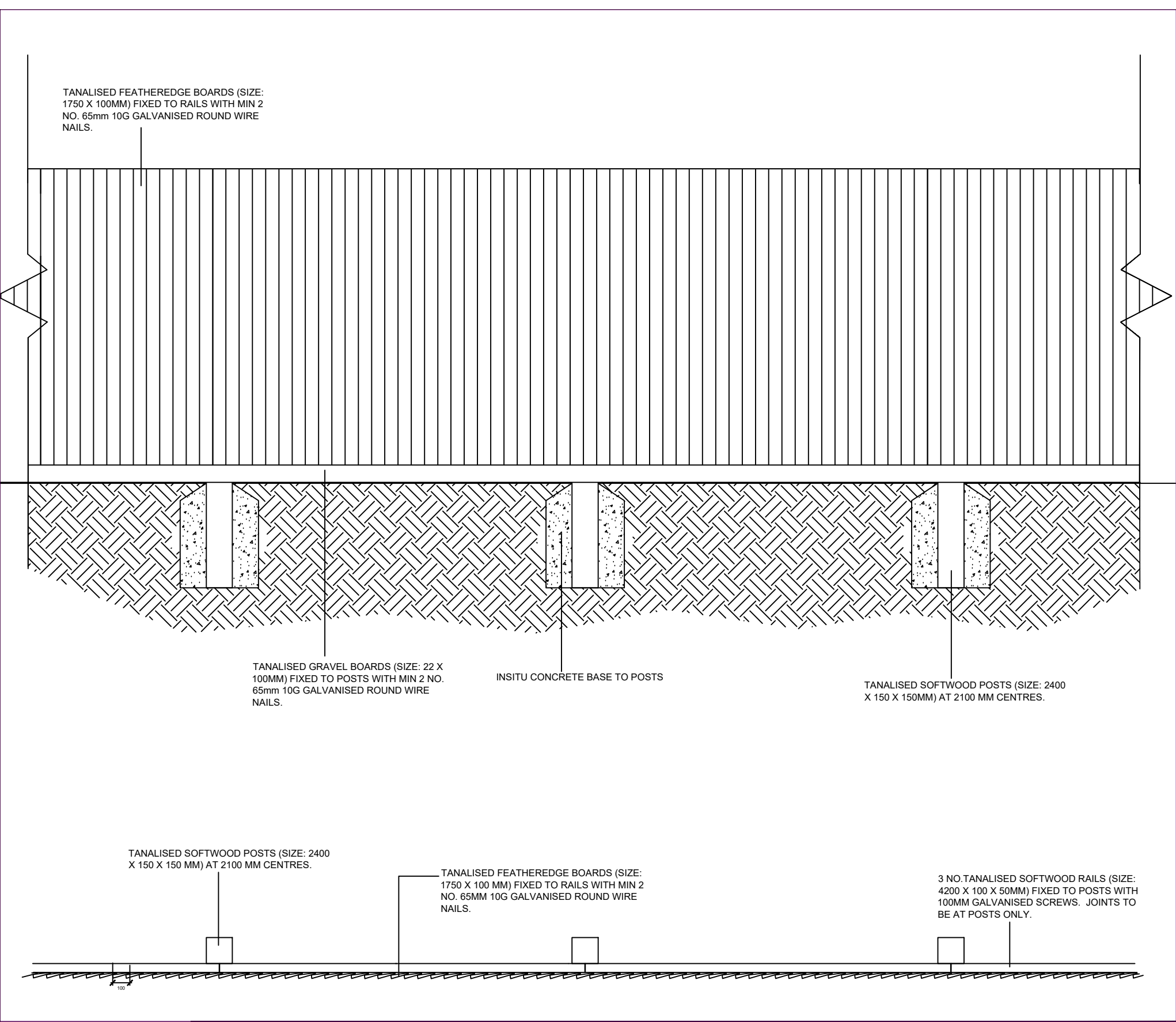
PLAN
(1:200 @ A1)



CROSS SECTION & ELEVATION OF PROPOSED
1.2M HIGH POST & RAIL TIMBER FENCE (1:25 @ A1)



CROSS SECTION & ELEVATION OF PROPOSED
1.8M HIGH CLOSE BOARDED TIMBER FENCE (1:25 @ A1)



- KEY:**
- PROPOSED ACCESS ROAD
(Areas to be surfaced with compacted quarry dust laid on a weed suppressing membrane or a compacted sub base. Surface water to drain into adjacent grass/shrub areas.)
 - PROPOSED ACCESS ROAD THRESHOLD
(Threshold to be surfaced with 200mm thick reinforced brushed concrete with smooth floated edges and to be slightly raised to stop dust egress into adjacent road.)
 - PROPOSED DRIVEWAY
(Areas to be surfaced with pea shingle laid on a weed suppressing membrane or a compacted 'open' (Type 3) permeable sub base to allow surface water percolation)
 - PROPOSED DRIVEWAY THRESHOLD
(Thresholds to be constructed using local stone sets and to be slightly raised above pea shingle to stop egress onto access road.)
 - PROPOSED PATIO AREAS & FOOTPATHS
(Areas to be surfaced with 450mm x 450mm PCC slabs. Type and colour of slabs to be approved by client)
 - EXISTING 1.2 M HIGH POST & RAIL TIMBER FENCE RETAINED
 - PROPOSED 1.2 M HIGH POST & RAIL TIMBER FENCES
 - PROPOSED 1.8 M HIGH CLOSE BOARDED TIMBER FENCE
 - PROPOSED SEWAGE TREATMENT PLANT
 - PROPOSED NATIVE TREE PLANTING
(Tree species to match those already present in the locality and to be of local provenance)
 - PROPOSED NATIVE HEDGEROW PLANTING
(Hedgerow species to match those already present in the locality and to be of local provenance)
 - EXISTING/PROPOSED GRASS AREAS
(Where required proposed lawns to be seeded with a flowering lawn mix)
 - PROPOSED BULB DRIFTS
(Drifts to contain a native mix of bulb species)

NOTE:

For details of Day Room refer to Tirlun Design Associates drawing no. TDA.2900.03 entitled 'Proposed Day Room - (Plan & Elevations)'

D	Site location amended and development & landscape proposals revised accordingly.	RhC	15.02.24
C	Cross sections/elevations of post & rail and close boarded fences added and application boundary plotted as requested by LPA	RhC	14.12.23
B	Site Layout amended as requested by client	RhC	11.10.23
A	Site Layout amended as requested by client	RhC	09.10.23
REV	NOTES	BY	DATE

TDA
CANNA STUDIO
LLANGAN
VALE OF GLAMORGAN
CF35 5DR
TEL: 01446 771250


Environment • Landscape • Design

CLIENT

MS. ISABELLA MEARS

DRAWING NUMBER
TDA.2900.02

SCALE
1:200 & 1:25 @ A1

DRAWN
RhC

DATE
SEPTEMBER 2023

PROJECT

PROPOSED GYPSY & TRAVELLER
SITE ON LAND AT HIGHFIELDS, WARNINGLID

DRAWING TITLE

PROPOSED SITE LAYOUT &
OUTLINE LANDSCAPE SCHEME

8.2 **Appendix B – BGS Historical Borehole Logs**

TQ 22 NE/18
RECORD OF BOREHOLE

Boring method		LIGHT CABLE PERCUSSION		Location		A23 WARNINGLID TO BRIGHTON		Borehole No.		1270	
Boring equipment		PILCON WAYFARER		National Grid Reference		E 526681 N 125776		Sheet		1 of 1	
Boring diameter (mm)		150mm		Contractor		GROUND ENGINEERING		Date Commenced		22.2.88	
Casing diameter (mm)		150mm		Contractor's Job Reference		11311520		Ground Level (m) AOD		102.25	
Depth (m)	Sample	In situ test	Date & casing depth (m)	Depth to Water (m)	Strata Thickness (m)	Strata Depth (m)	Strata Description	Level (m) AOD	Legend		
0.20 - 1.00	1 B		22.2.88			0.15	TOPSOIL with some rubble.	102.10			
1.00 - 1.50	2 B				1.55		Stiff orange brown and light blue grey slightly sandy CLAY with bands of orange brown weakly cemented sandstone.				
1.50 - 1.85	3 U	(75)				1.70		101.55			
1.85 - 1.90	4 D				0.40	2.10	Hard dark grey brown mottled light chocolate brown slightly sandy CLAY.	101.15			
2.20 - 2.25	5 D					0.70	Very stiff orange brown and light blue grey fissured silty CLAY.				
2.50 - 2.95	6 U	(78)				2.80	Very stiff to hard dark brown grey slightly sandy CLAY with dark burgandy weakly cemented layers.	100.45			
2.95 - 3.00	7 D				1.20	4.00	Very dense light blue grey very clayey fine to medium SAND.	98.25			
3.00 - 3.45	8 D	S(100)									
3.00 - 3.50	9 B										
3.50 - 3.70	10U	(75)									
3.70 - 3.95	11D										
3.85	15W			3.90							
4.15	12D				1.00						
4.50 - 4.80	13D	S(64)									
4.50 - 5.00	14B			1.50	3.85	5.00		97.21			
							BOREHOLE COMPLETED.				

Remarks

i) Service pit excavated to 1.50m.

ii) '1' denotes SPT blow count for 150mm test penetration.

iii) Water level rose from 3.90m to 3.85m in 20 minutes and rose to 2.25m in 60 minutes.

Piezometer installation:

Top Seal : 2.15m to 4.15m.

Filter : 4.15m to 4.60m.

Tip : 4.50m.

Bottom Seal : 4.60m to 5.00m.

Key to symbols & abbreviations in Preface notes

Figure

TQ22 SE / 43
RECORD OF BOREHOLE

[illegible]

8.3 **Appendix C – Infiltration test**



Job: Highfields, Warninglid - Test 1

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1.2

a_{p50} =

1.71

 m/squared

t_{p75-25} =

4150

 seconds

V_{p75-25} =

0.162

 m/cubed

F =

2.28E-05



Job: Highfields, Warninglid - Test 2

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1.2

a_{p50} =

1.71

 m/squared

t_{p75-25} =

4750

 seconds

V_{p75-25} =

0.162

 m/cubed

F =

1.99E-05



Job: Highfields, Warninglid - Test 3

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1.2

a_{p50} =

1.71

 m/squared

t_{p75-25} =

5595

 seconds

V_{p75-25} =

0.162

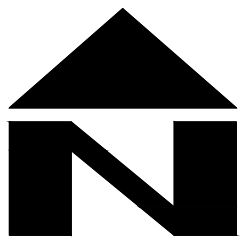
 m/cubed

F =

1.69E-05

8.4 **Appendix D – Proposed Contributing Area Plan, Proposed Surface Water Drainage Plan, Proposed Construction Details and Hydraulic Calculations**

ghfields



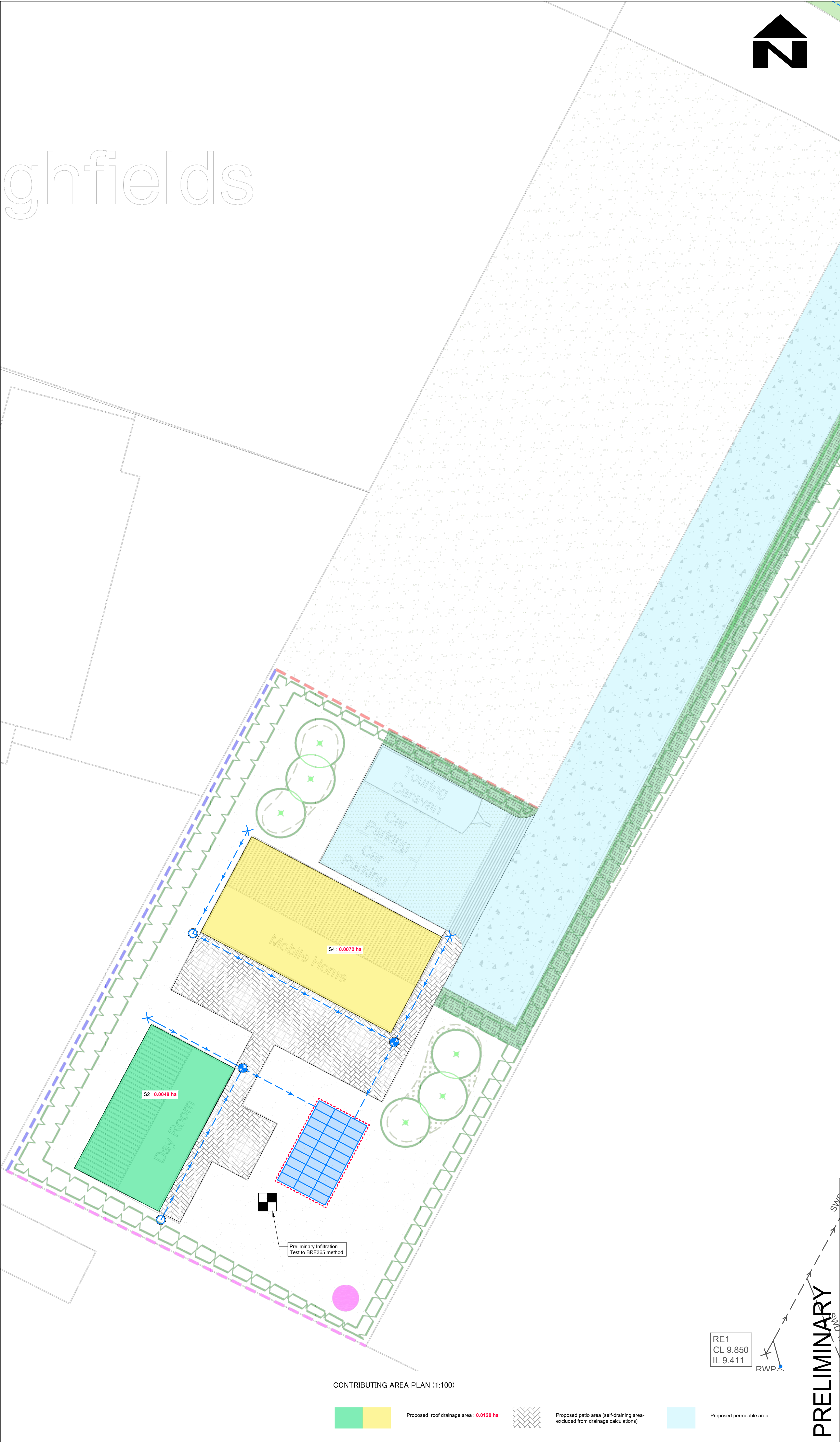
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 - COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
 - ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA
 - ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS85 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911-PART 1.
 - ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
 - ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
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 - MANHOLE AND CHAMBER COVER GRADES:

- 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
- 'B125' IN ALL DRIVEWAYS
- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefixed to drawing numbers shall signify the following:-

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P1	05.11.24	INFILTRATION TEST LOCATION ADDED		KCK	TZ	CS
P.	09.04.24	PRELIMINARY ISSUE		KCK	TZ	CS
REV	DATE	DESCRIPTION			BY	CHK/APP
cgs  civils Consulting Civil Engineers						
CLIENT ISABELLA MEARS						
ARCHITECT TDA						
JOB TITLE HIGHFIELDS, WARNINGLID RH17 5SY						
DRAWING TITLE PROPOSED CONTRIBUTING AREA						
DRAWN KCK		ENGINEER TZ		CHECKED CS	APPROVED CS	
DATE APRIL 2024		SCALE @ A1 1:100				
JOB No. C3104		STATUS P	DRAWING No. 201		REV. P1	



CONTRIBUTING AREA PLAN (1:100)

- Proposed roof drainage area : 0.0120 ha
- Proposed patio area (self-draining area-excluded from drainage calculations)
- Proposed permeable area

PRELIMINARY

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PLANNING AUTHORITY
BUILDING CONTROL
WATER AUTHORITY

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN BY OTHERS
LOCATION AND DEPTH OF EXISTING UTILITIES

Site Specific Notes

- Proposed SW drainage designed based on desktop study available BGS Historical Borehole Logs.
- Proposed soakaway and permeable block paving designed to recorded infiltration rate $1.69 \times 10^{-6} \text{ m/s}$.
- A preliminary onsite BRE365 infiltration test was undertaken to a total depth of 1.2m BGL and identified site being underlain by soils with moderate potential for infiltration. Infiltration rate of $1.69 \times 10^{-6} \text{ m/s}$ was calculated and adopted for drainage design. No groundwater was identified at the time of infiltration testing.
- Surface water drainage has been designed to cater for the Critical 1 in 100 year + 45% climate change event.
- Proposed external levels as taken from topographical survey. External levels to be designed by others.
- The proposed *CL and IL inspection chambers final levels to be designed during detail design and are shown indicatively only- for drainage purposes only.
- Foul water is to be discharged into the existing public foul sewers. Connection is subject to s106 approval.

Proposed Treatment Plant:
Marsh Ensign Ultra (Model 10) with pumped outlet
(max. population of 10)
Pumped discharge - 1.9l/s
D:2.6m x W:1.65m x H:1.935m
CL 100.73
Inlet IL 99.870
Outlet IL 99.795 subject to manufacturer specification

Treated effluent to be discharged into the existing watercourse. Final type and size to be confirmed by the manufacturer.

PP1
Permeable Paving with Porous Sub-base
Infiltration
• 50mm Gravel Filled EcoGrid reinforcement system
• 40mm Laying Course
• Geotextile
• 350mm 5/20mm Clean stone with min 30% void ratio
• Geotextile
Designed to recorded infiltration rate of $1.69 \times 10^{-6} \text{ m/s}$

STANDARD DRAINAGE NOTES

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DRAINAGE LEGEND

PROPOSED FEATURES

- FWD Foul Drainage
- Foul Rising Main
- SWD Surface Water Drainage
- Rainwater pipe
- Storm water access chamber (3000)
- Storm water inspection chamber (4500)
- Storm water catchpit chamber (4500)
- Storm water rodding eye
- Extent of permeable paving with porous sub-base
- Soil stack (type TBC by architect/m&e engineer)
- Foul water access chamber (3000)
- Foul water inspection chamber (4500)
- Proposed Bio-Retention units
- Proposed FFL and external ground levels proposed based on the datum levels provided from site by others.
- Pipe info - diameter, length, gradient, bedding type

ABBREVIATIONS

- MH - MANHOLE
- IC - INSPECTION CHAMBER
- AC - ACCESS CHAMBER
- CP - CATCHPIT
- BC - BRAKE CHAMBER
- RE - RODDING EYE
- IL - INVERT LEVEL
- SL - SUMP LEVEL
- RA - RESTRICTED ACCESS COVER
- CL - COVER LEVEL
- TL - TOP OF CELLULAR SA
- BL - BASE OF CELLULAR SA
- FL - FORMATION LEVEL

Proposed surface level (Assumed)

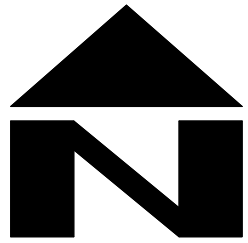
PRELIMINARY

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P2	07.11.24	UPDATED TO CLIENT COMMENTS	KCK	TZ	CS
P1	16.10.24	UPDATED TO LLFA COMMENTS	KCK	TZ	CS
P.	09.04.24	PRELIMINARY ISSUE	KCK	TZ	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

cgs civils Consulting Civil Engineers							
CLIENT	ISABELLA MEARS						
ARCHITECT	TDA						
JOB TITLE	HIGHFIELDS, WARNINGLID RH17 5SY						
DRAWING TITLE	PROPOSED DRAINAGE STRATEGY SHEET 1						
DRAWN	KCK	ENGINEER	TZ	CHECKED	CS	APPROVED	CS
DATE	APRIL 2024		SCALE @ A1	1:100			
JOB No.	C3104	STATUS	P	DRAWING No.	101	REV.	P2



DESIGN SUBJECT TO THE APPROVAL OF:
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BUILDING CONTROL
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- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

Based on the site walkover and information provided by the client, it has been confirmed that the existing watercourse follows its historical route, ultimately discharging into an existing pond located to the west of the site. The pond, when reaching capacity, overtops into a shallow ditch that subsequently flows southward.

EXISTING 100MM PUBLIC Foul SEWER

Existing Pond

Site Specific Notes

- Proposed SW drainage designed based on desktop study available BGS Historical Borehole Logs.
- Proposed soakaway and permeable block paving designed to recorded infiltration rate 1.69x10⁻⁵m/s.
- A preliminary onsite BRE365 infiltration test was undertaken to a total depth of 1.2m BGL and identified site being underlain by soils with moderate potential for infiltration. Infiltration rate of 1.69 x 10⁻⁵m/s was calculated and adopted for drainage design. No groundwater was identified at the time of infiltration testing.
- Surface water drainage has been designed to cater for the Critical 1 in 100 year + 45% climate change event.
- Proposed external levels as taken from topographical survey. External levels to be designed by others.
- The proposed *CL and IL inspection chambers final levels to be designed during detail design and are shown indicatively only- for drainage purposes only.
- Foul water is to be discharged into the existing public foul sewers. Connection is subject to s106 approval.

Prefixed to drawing numbers shall signify the following:-

PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the only drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

P2	07.11.24	UPDATED TO CLIENT COMMENTS	KCK	TZ	CS
P	31.10.24	PRELIMINARY ISSUE		TZ	CS CS
REV	DATE	DESCRIPTION	BY	CHK	APP



CLIENT	ISABELLA MEARS				
ARCHITECT	TDA				
JOB TITLE	HIGHFIELDS, WARNINGLID RH17 5SY				
DRAWING TITLE	PROPOSED DRAINAGE STRATEGY SHEET 2				
DRAWN	TZ	ENGINEER	TZ	CHECKED	CS
DATE	OCTOBER 2024	SCALE @ A1	1:100	APPROVED	CS
JOB No.	C3104	STATUS	PL	DRAWING No.	102
				REV.	P1

PRELIMINARY



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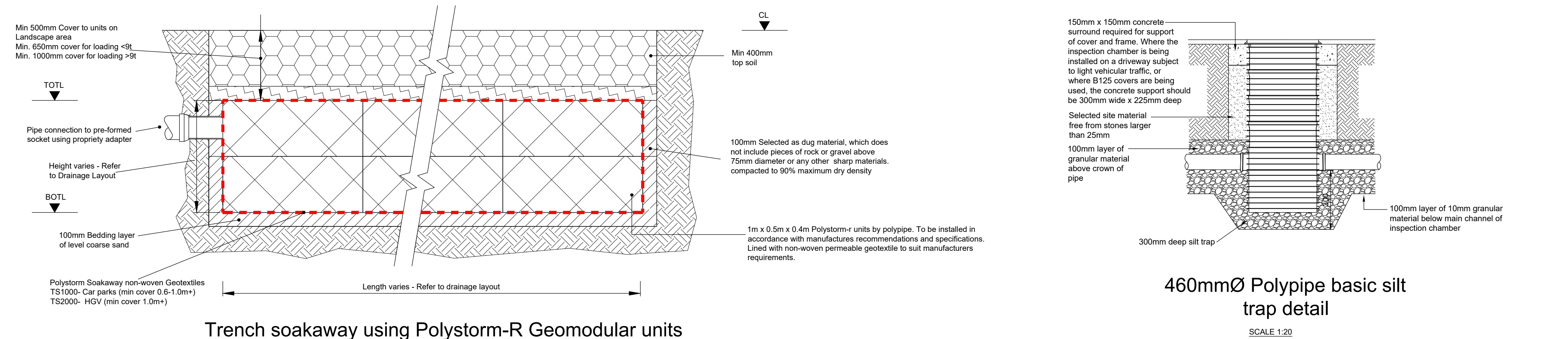
The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2022 Ordnance Survey 100031673. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

chris@cgscivils.co.uk
Highfields





Trench soakaway using Polystorm-R Geomodular units

All storage tank drainage works shall be carried out in accordance with the specifications, method statements and recommendations of Polypipe

FIGURE B 23
TYPICAL INSPECTION CHAMBER DETAIL - TYPE E

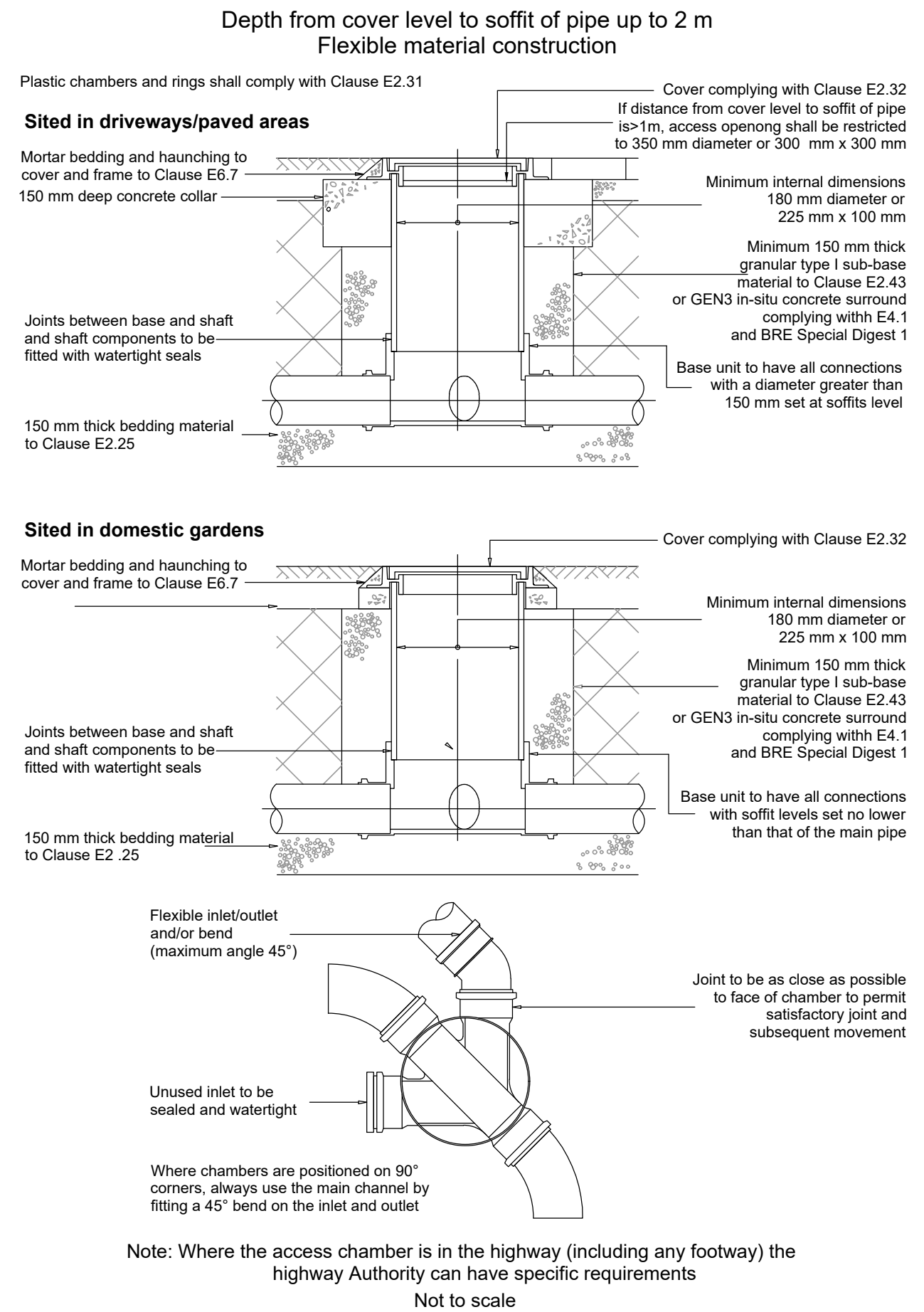
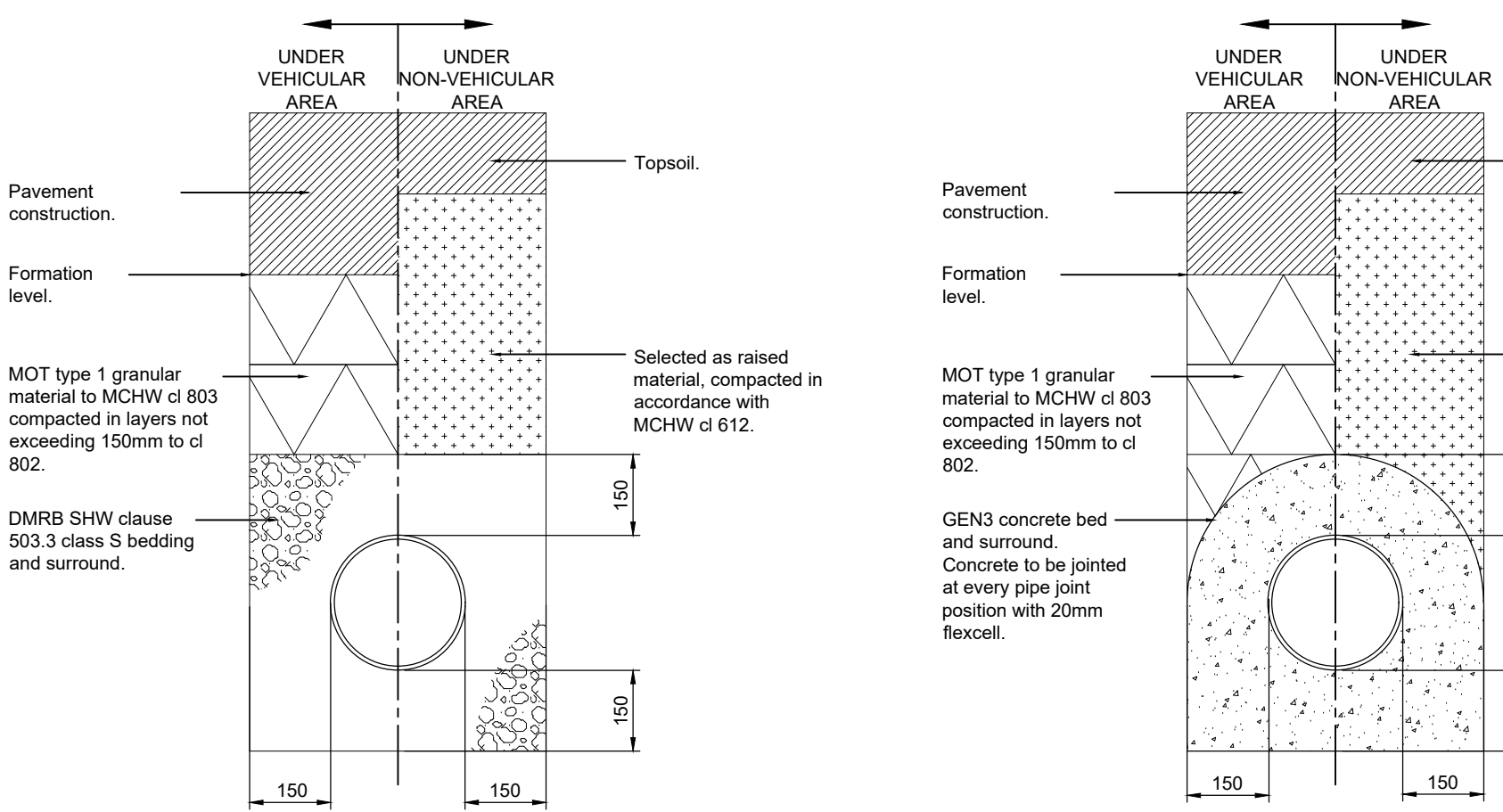
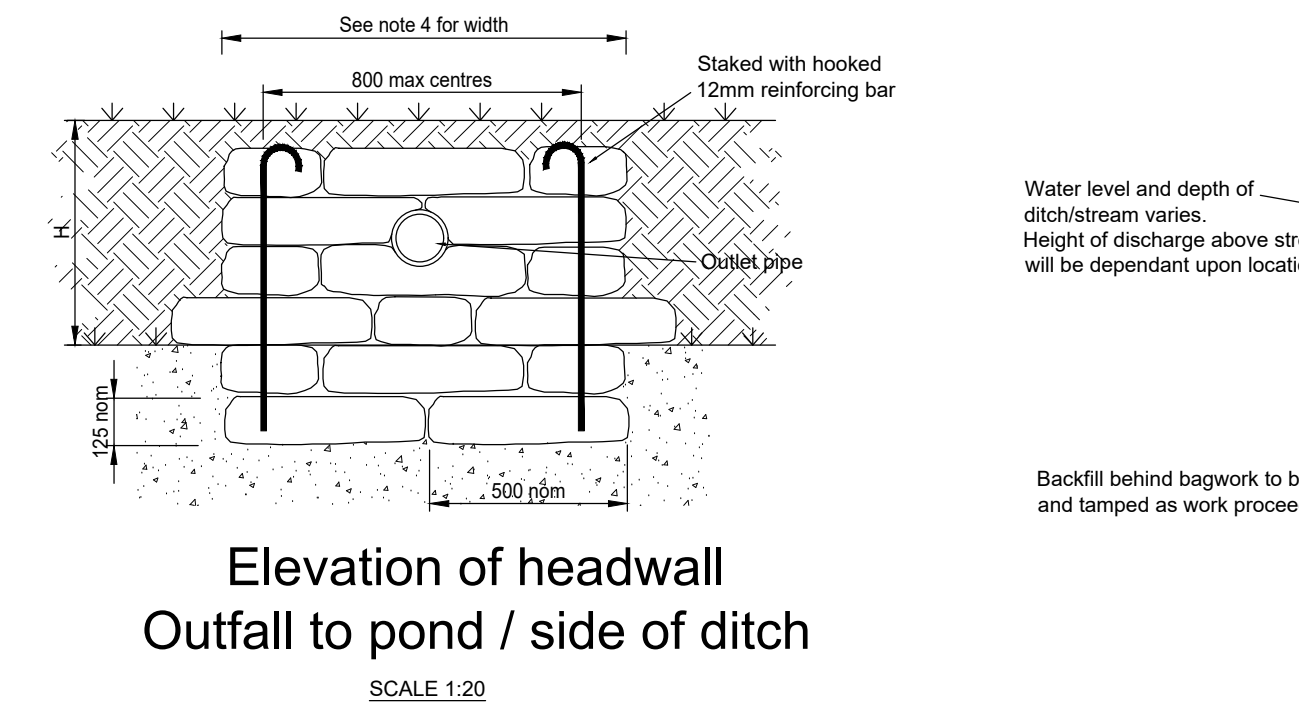
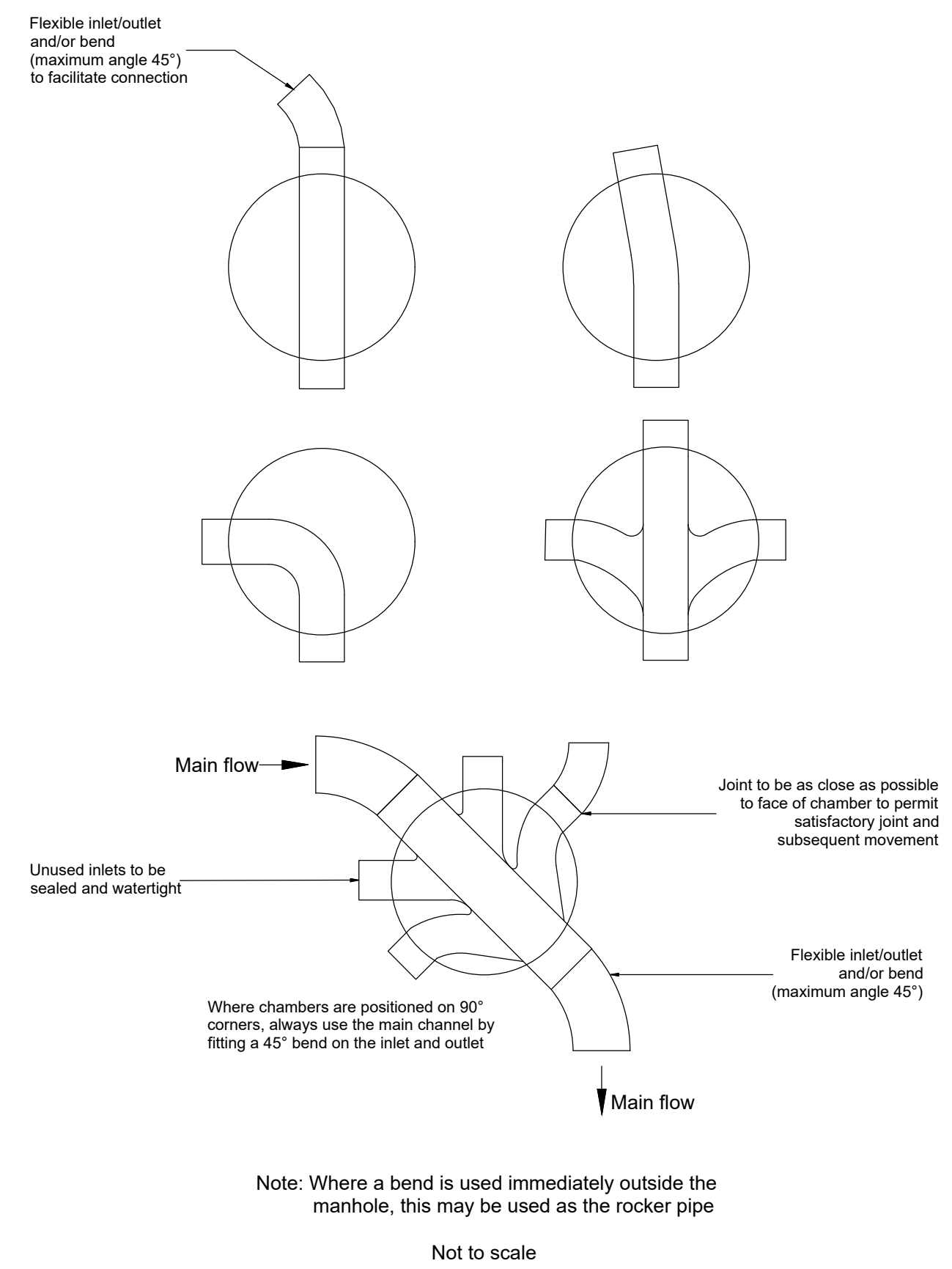
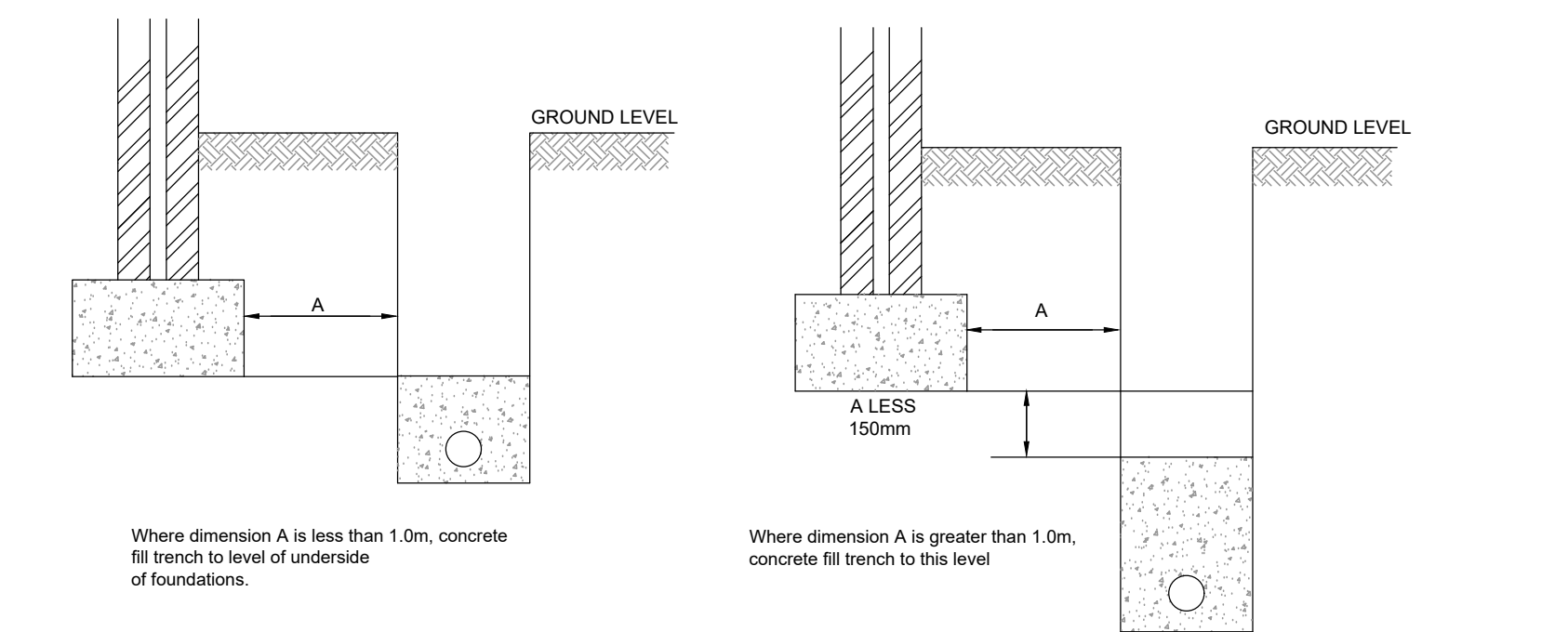


FIGURE B 22
TYPICAL BASE LAYOUTS FOR TYPE D CHAMBERS



Pipe Bedding Details

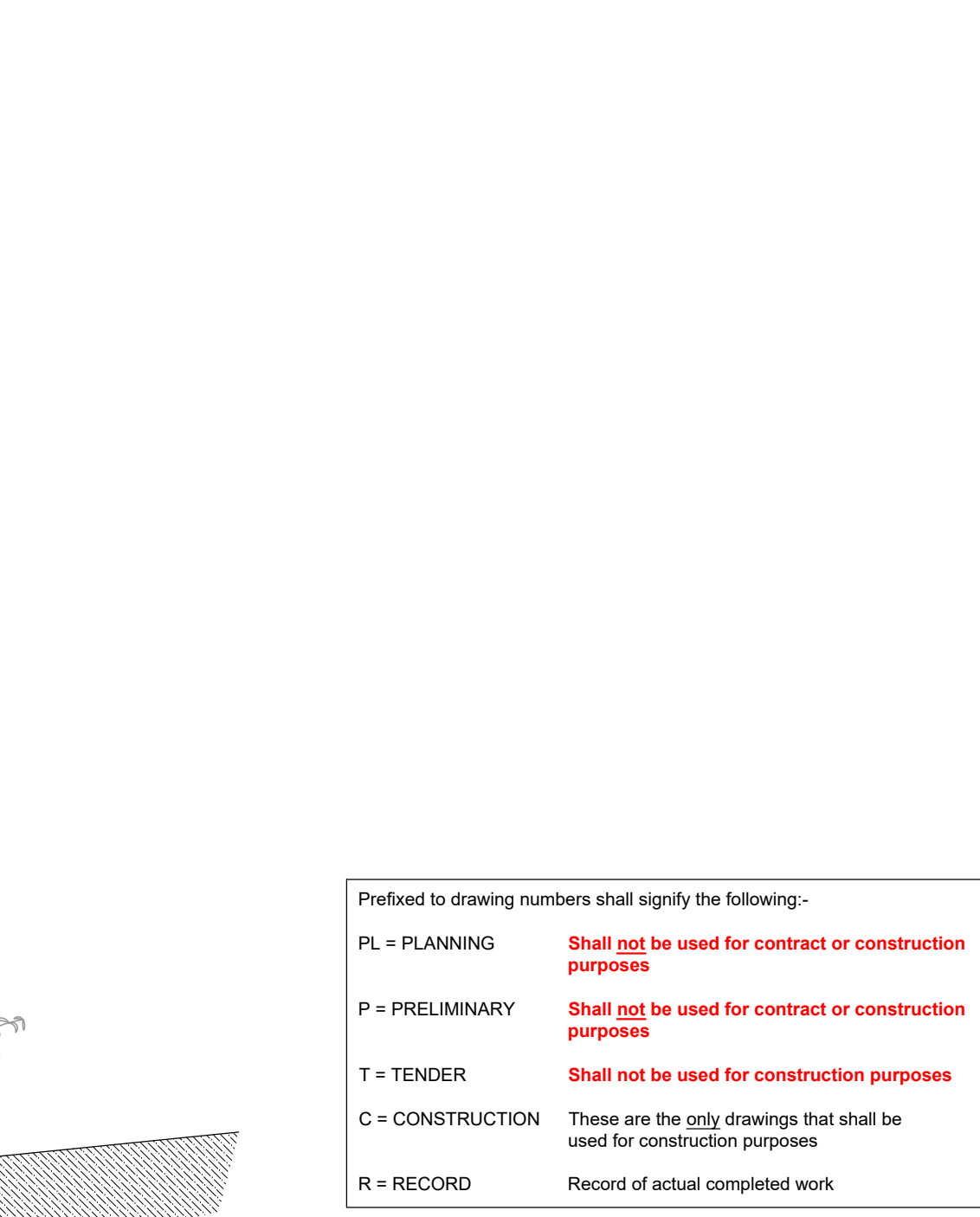
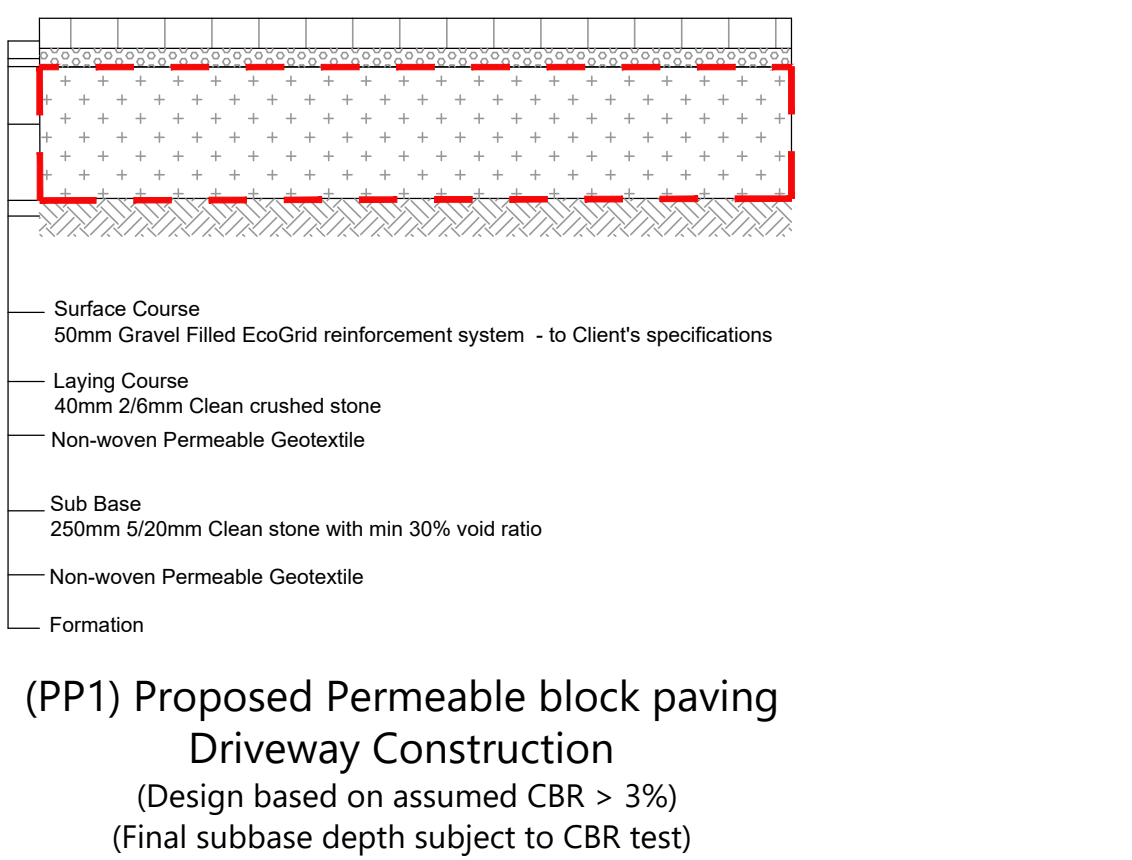
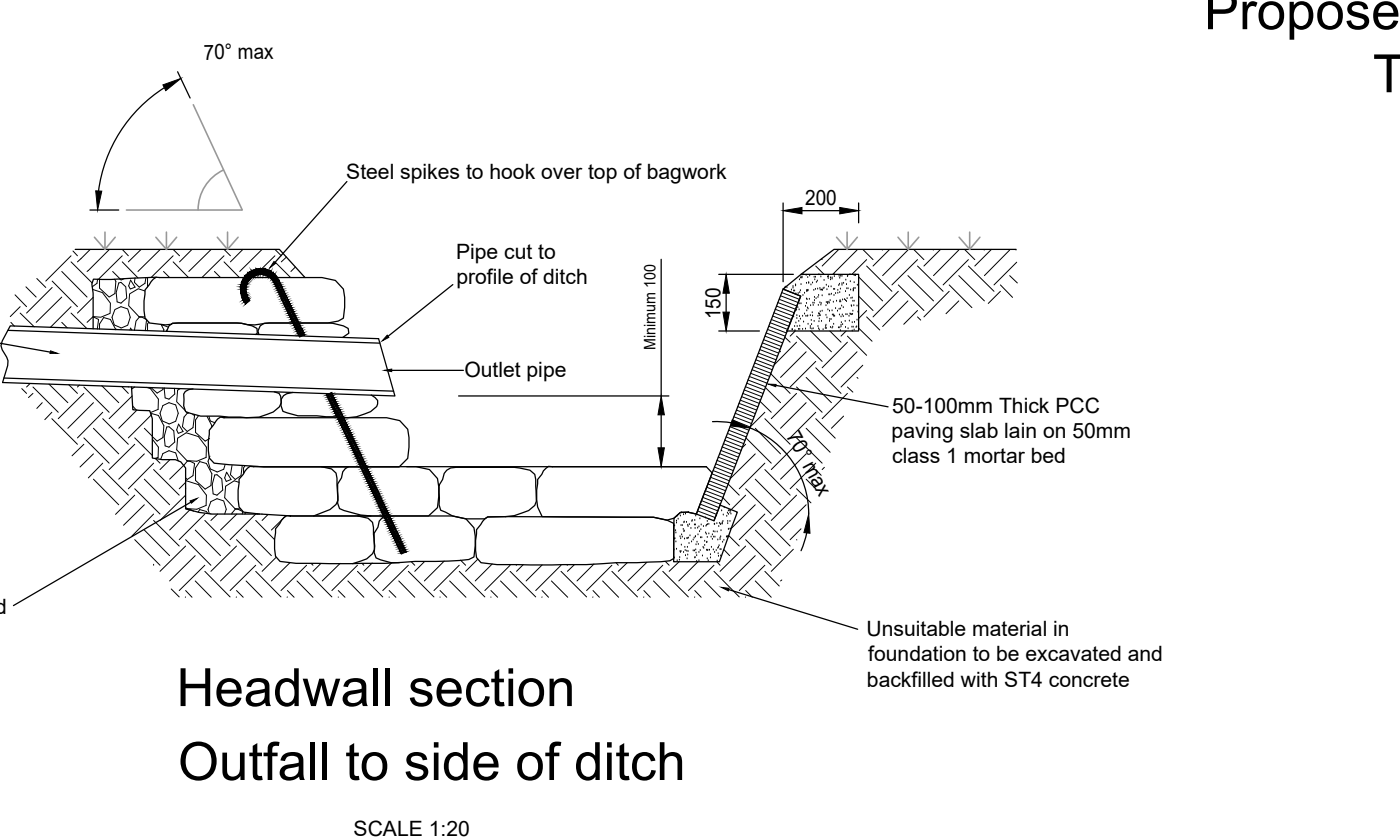
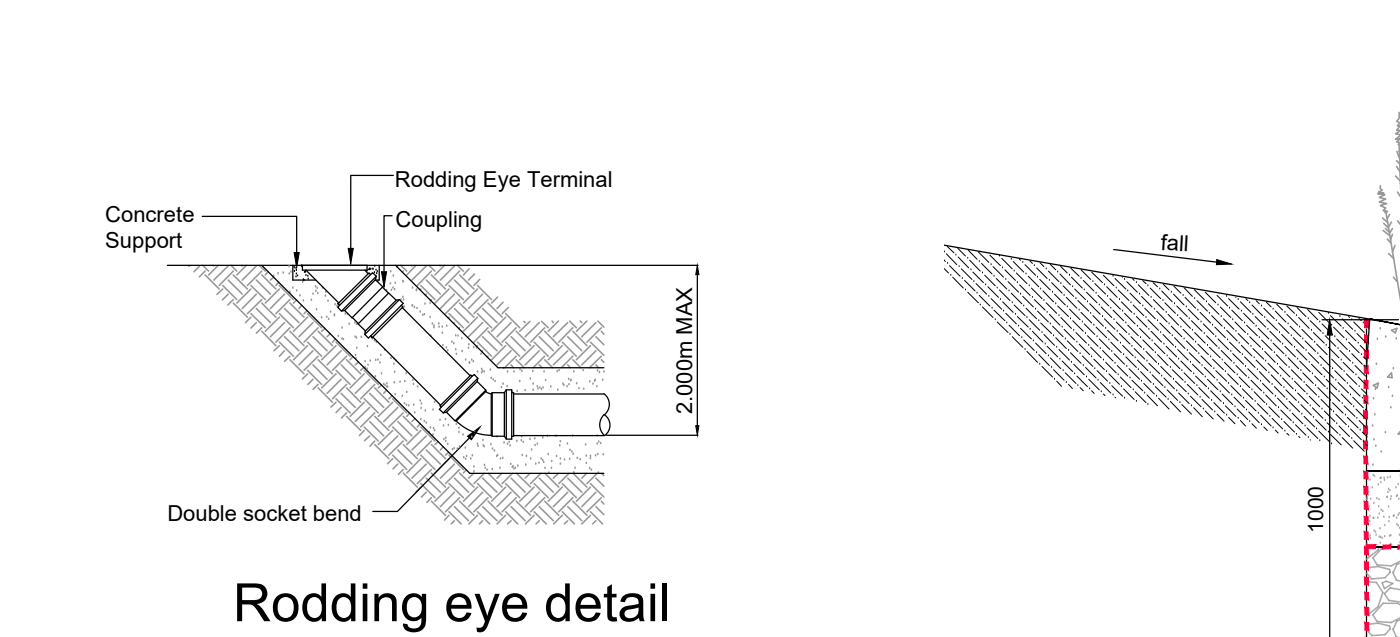


Pipes near buildings

NTS

Pipes through wall detail

NTS



PRELIMINARY

P.	09.04.24	PRELIMINARY ISSUE	KCK	TZ	CS
REV	DATE	DESCRIPTION	BY	CHK	APP
CLIENT ISABELLA MEARS					
ARCHITECT TDA					
JOB TITLE HIGHFIELDS, WARNINGLID RH17 5SY					
DRAWING TITLE PROPOSED TYPICAL CONSTRUCTION DETAILS					
DRAWN	KCK	ENGINEER	TZ	CHECKED	CS
DATE	APRIL 2024	SCALE @ A1	AS SHOWN	APPROVED	CS
JOB NO.	C3104	STATUS	P	DRAWING NO.	501
REV.	P-				

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	✓
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	4.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SA	0.012	9.800	450	1594.087	-1046.451	1.300

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	0	0	0	100	0	0	0
30	0	0	0	100	45	0	0
30	40	0	0				

Node SA Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00720	Porosity	0.95	Pit Width (m)	5.000	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.06084	Invert Level (m)	8.500	Pit Length (m)	3.000	Number Required	1
Safety Factor	1.5	Time to half empty (mins)	1031	Depth (m)	0.800		



Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	SA	690	8.842	0.342	0.5	4.9325	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
720 minute summer		SA	Infiltration	0.1				



Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	SA	720	8.907	0.407	0.7	5.8586	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
720 minute summer		SA	Infiltration	0.1				



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	SA	960	9.099	0.599	0.6	8.6352	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
1440 minute summer	SA	Infiltration	0.1



Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

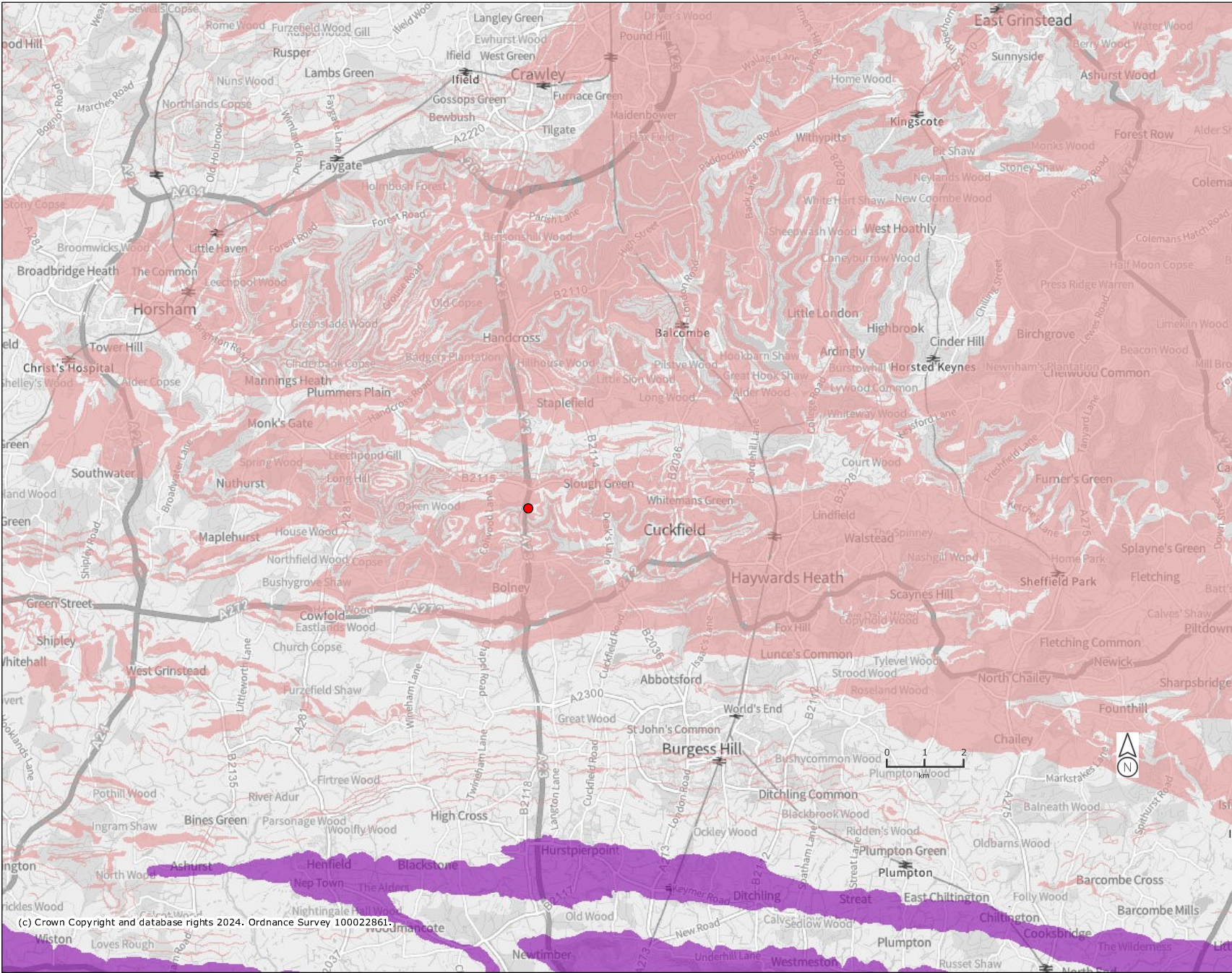
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	SA	705	9.008	0.508	0.5	7.3239	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
960 minute winter		SA	Infiltration	0.1				

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	SA	705	9.254	0.754	1.0	10.8656	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
960 minute summer		SA	Infiltration	0.2				

8.5 **Appendix E – Magic Map from Environment Agency**

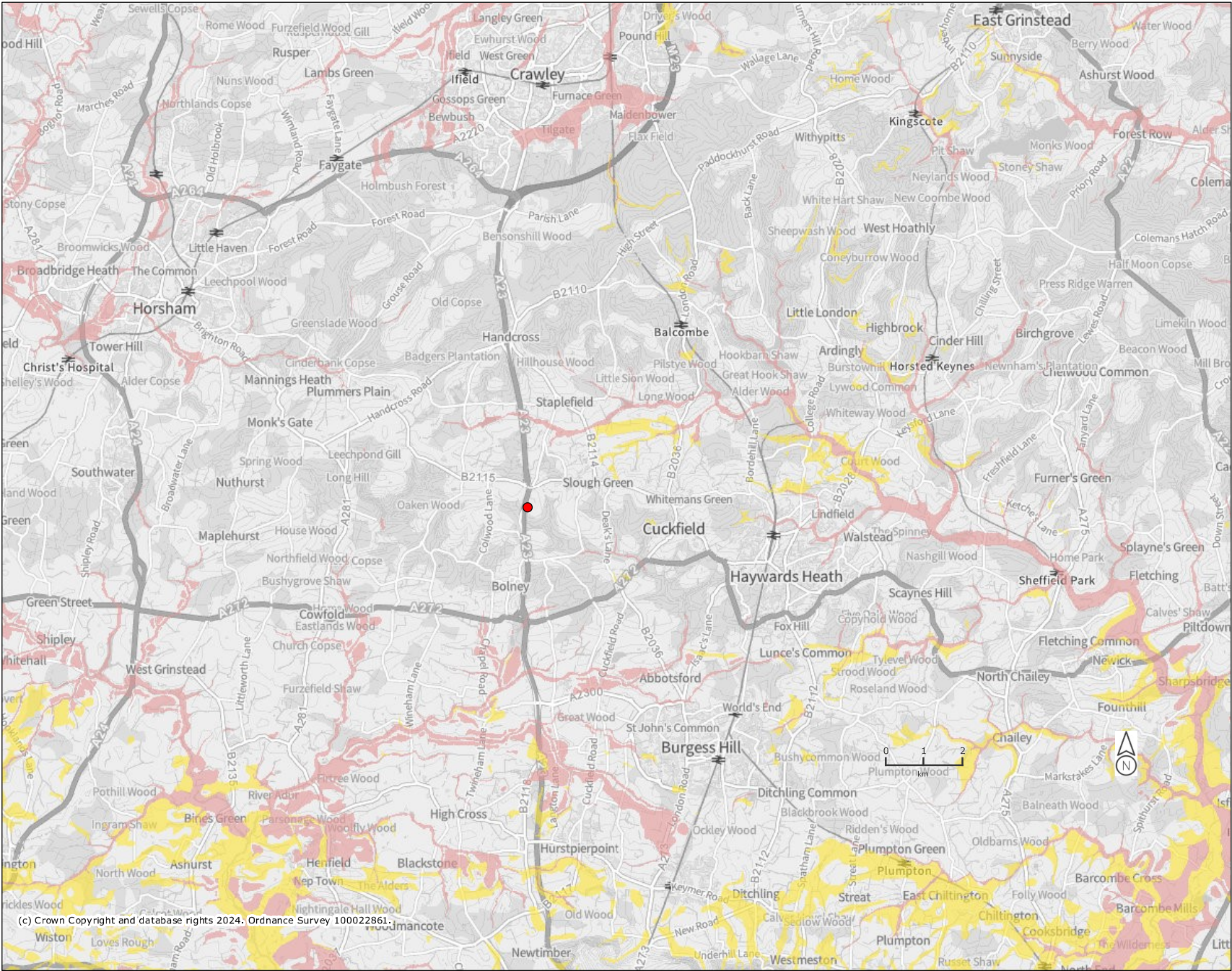
Aquifer Designation Map (Bedrock)



Legend
Aquifer Designation
Map (Bedrock)
(England)

- Principal
- Secondary A
- Secondary B
- Secondary (undifferentiated)
- Unproductive

Projection = OSGB36
xmin = 503600
ymin = 113400
xmax = 554400
ymax = 138400
Map produced by MAGIC on 5 April, 2024.
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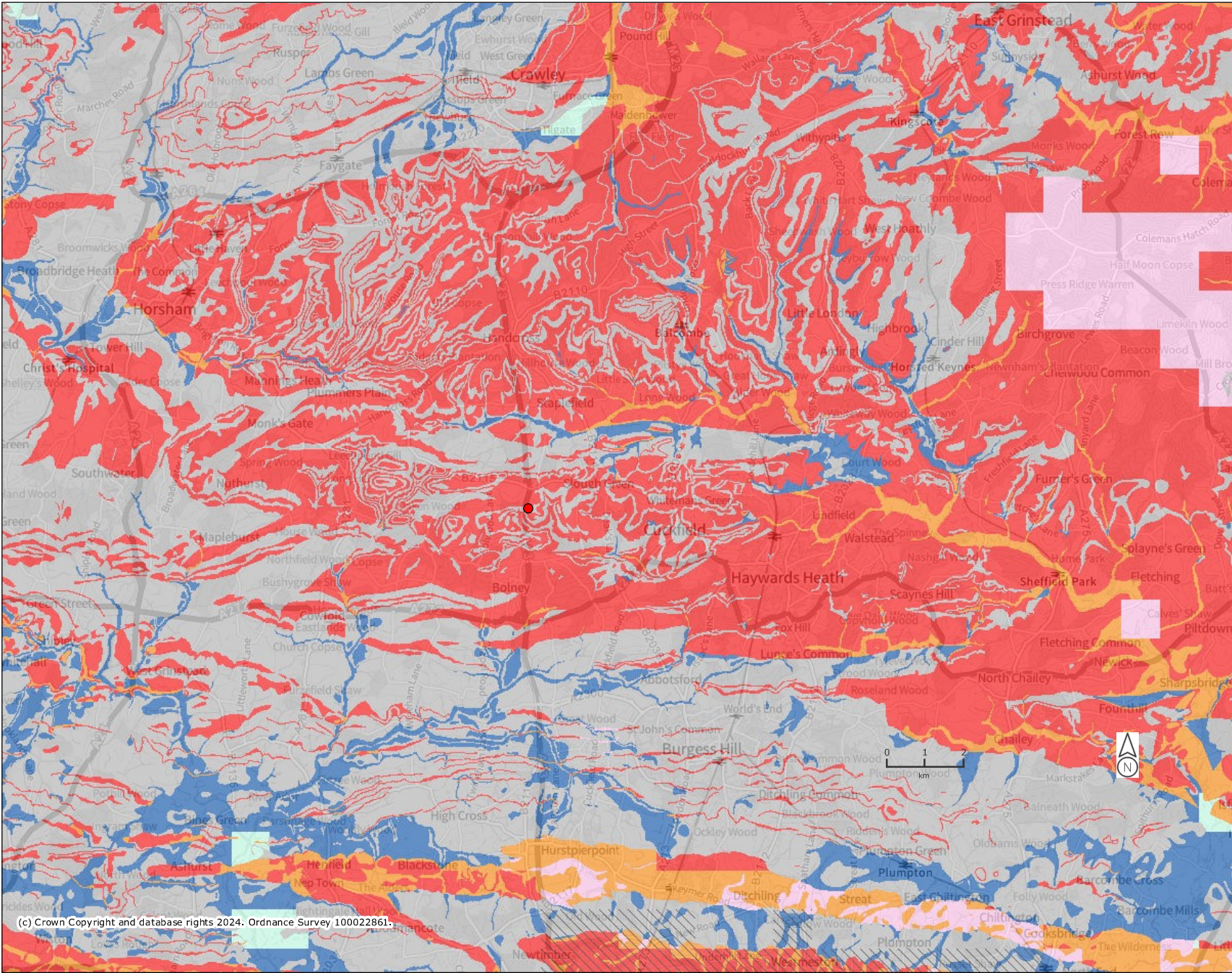
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Legend
Aquifer Designation Map (Superficial Drift) (England)

- Principal
- Secondary A
- Secondary B
- Secondary (undifferentiated)
- Unknown (lakes+landslip)
- Unproductive

Projection = OSGB36
xmin = 503600
ymin = 113400
xmax = 554400
ymax = 138400
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Groundwater Vulnerability Map



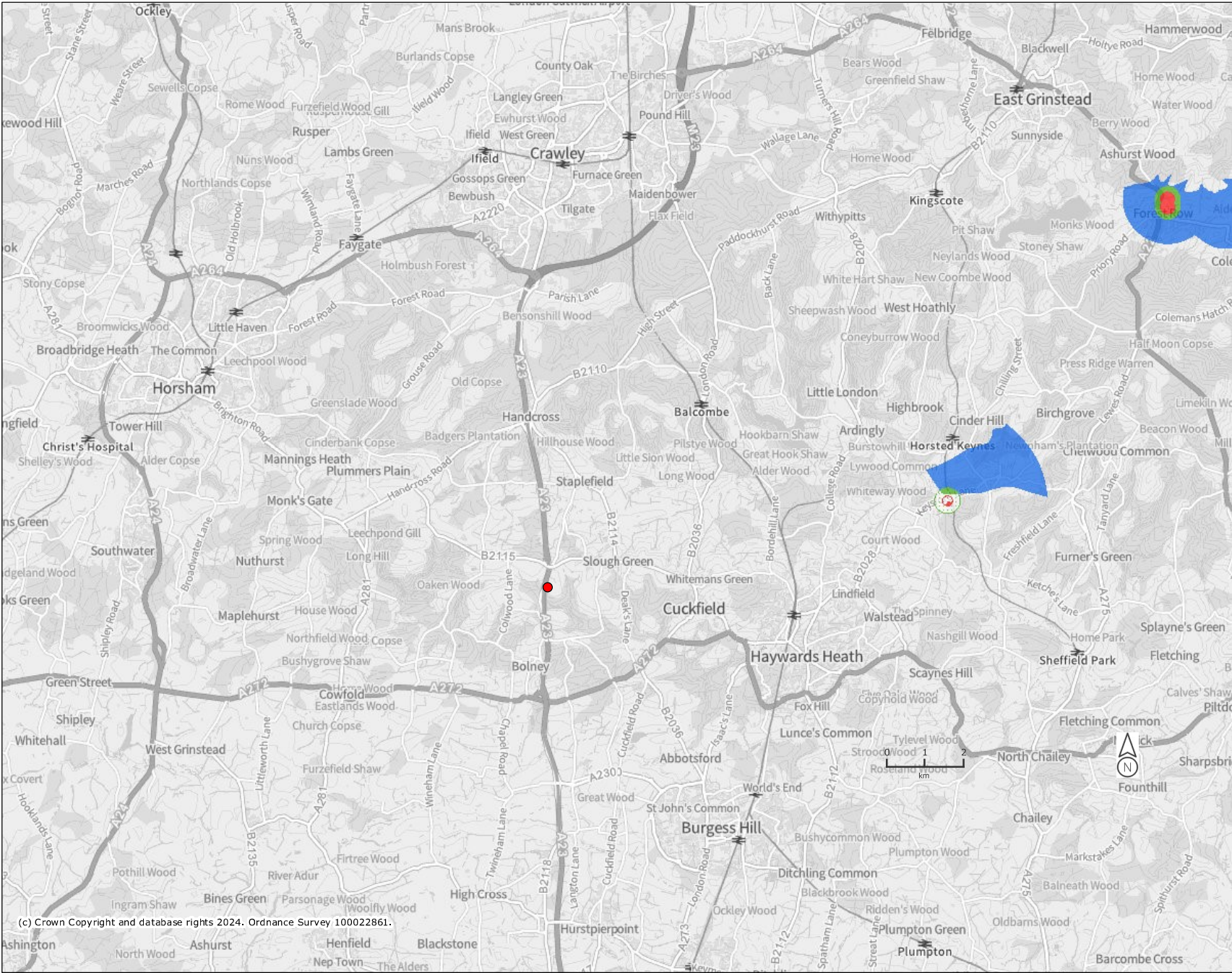
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Legend
Groundwater
Vulnerability Map
(England)

- Local Information
- Soluble Rock Risk
- High
- Medium - High
- Medium
- Medium - Low
- Low
- Unproductive

Projection = OSGB36
xmin = 503600
ymin = 113400
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Source Protection Zones merged



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Legend

Source Protection Zones merged (England)

- Zone I - Inner Protection Zone
- Zone I - Subsurface Activity
- Zone II - Outer Protection Zone
- Zone II - Subsurface Activity
- Zone III - Total Catchment
- Zone III - Subsurface Activity
- Zone of Special Interest

Projection = OSGB36
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ymax = 140500

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