

PROPOSED STUDENT ACCOMMODATION
MAKSONS HOUSE
52 STATION ROAD
WEST DRAYTON
MIDDLESEX
UB7 7BT

SUDS STATEMENT
APRIL 2016
16032.D100B

SUDS STATEMENT
PROPOSED STUDENT ACCOMMODATION, MAKSONS HOUSE
STATION ROAD, WEST DRAYTON, MIDDLESEX

MAY 2016

Issue	Prepared by	Checked by	NOTES	Date
D100	JC	SM		04/05/16
D100A	SM	SM		15/07/16
D110B	SM	SM	AMENDED TO LATEST DRAINAGE SURVEY INFO, COORDINATED WITH SITE PLAN AND LEGAL LAND BOUNDARY CONSIDERATIONS	28/11/16

1.0 Introduction

Shear Design Ltd has been appointed to prepare a Sustainable Urban Drainage System (SUDS) Statement in respect of a proposed student accommodation at 52 Station Road, West Drayton, Middlesex, UB7 7BT.

The purpose of this statement is to identify suitable Sustainable Urban Drainage Systems for the disposal of surface water from the site and identify methods to minimise water use on the site.

The report has been amended following further site investigation works of the existing surface water drainage, review of the Thames Water sewer records and clarification of legal boundaries.

A sketch of the existing surface water drainage layout plotted with associated catchment areas and the Thames Water sewer records are included in [Appendix A](#).

The red line boundary plan showing extent of land lease and proposed amenity area plan are included in [Appendix B](#).

2.0 Existing Conditions

The site comprises of an existing building fronting on to Station Road with existing car parking to the rear and small yard to the side. The site has pedestrian and vehicular access from Station Road to the east. Access is to remain unchanged.

The existing site has an area of 640m² within the legal ownership boundary and is completely impermeable. This comprises of 200 m² of hardstanding and 440 m² of roof area. See drawing 16032-100 for Existing Impermeable Areas Plan in [Appendix A](#).

To establish the existing discharge rate of the site, the run off from hardstanding and roof areas has been calculated. As per Building Regulations: Part H, a rainfall intensity of 50mm/hr has been used for areas less than 2,000m².

Therefore:

$$\text{Existing Discharge} = 640 \times 50 \times 0.000278 = 8.89 \text{ l/s}$$

From the site investigation works it has been established that the foul and surface water for the site are positively drained by separate gravity systems. These connect to the surface water and foul water public sewer networks respectively.

The roof area is served by gutters and rain water pipes. To the Station Road frontage the RWP's go into the ground along the footway edge. There are no private drainage chambers visible in the footway on Station Road and it is evident that the RWP's connect directly to the public sewer network. These RWP's are not changing under the proposals.

To the rear of the property there are 2 private surface water sewers.

The first collects yard gullies for the car park area and the some RWP's serving the rear area of roof of the main BT building. This drains to the west and wraps around the BT building linked to the second private SW Sewer run before connection to the Public Surface Water Sewer in Swan Road.

The second private surface water sewer runs beneath under croft parking that the BT building overhangs. This then passes through the pathway between Maksons House and the BT building, leading to the western SW drainage. This drainage run serves gullies in the under croft parking area, rain water pipes from the BT building roof and rain water pipes from the rear of Maksons House. There is also a drainage channel connection from the southern yard within the development boundary.

The existing foul drainage system runs down an access lane leading to a public sewer connection on Ferrers Avenue. This serves Maksons House and the BT building.

3.0 SUDS Considerations

Under Ciria Design Guides application of SUDS to Brownfield sites can be achieved with consideration to maintaining or reducing surface water discharge rates and pollution control.

This development is in reality refurbishment of an existing building with change of use, it is not strictly a brownfield site in respect to demolition and re-build. The drainage infrastructure is already in place and serves other 3rd party properties.

The development land within their wholesale control consists of the building (440m²), rear access footway (40m²) and the southern yard (160m²). This totals the 640m² for the site.

Thames Water have advised that as this is an existing site, it is just refurbishment of an existing building, there is no increase in the impermeable area and the existing drainage system connections will remain that a like for like discharge would be acceptable; however a reduction of 20% would be preferred.

From a water quality perspective the site is predominantly roof area which is generally accepted as clean water. Although the car the car parking area is owned by BT we have considered water quality matters but as it is only circa 300m² and only contains 15 spaces (7 within application demise but under lease). Under EA Guidelines the hardstanding is less than 800m² and less than 47 parking spaces, this is a low risk development and use of trapped gullies would be sufficient to deal with pollution control.

As stated previously the existing site layout comprises a total 640m² of impermeable area, meaning that the site is currently 100% impermeable. The drainage system serving this is either contained in public highway or shared with a third parties which make up the greater catchment of the SW drainage system. This along with land ownership matters constrains the use of SUDS in more open

areas such as the car parks and restrictions on modification of third party property.

The proposal is to introduce of an area of landscaping totalling 140m² to the southern yard. In addition to this a portion of roof area measuring 60m² is to discharge to water butts which will over flow into a nominal stoned soakaway on beneath the grassed amenity area. The 20m² of cycle parking will drain directly onto the landscaped area. The grassed amenity area levels will be dished so that potential ponding would be retained in the grassed area.

This removes a total of 220m² of previously drained surfacing from the surface water drainage system. On this basis there will be a 34% reduction in the existing discharge rate.

4.0 Existing Water Usage

The existing building currently has a total internal area of 634m². This is split between 334m² on the ground floor and 300m² on the first floor. The ground floor is currently 50% retail space and 50% storage. Assuming that there is 1 FTE (Full Time Employee) per 19m² for retail premises, an occupation of 9 persons has been calculated.

$$\text{GF Occupation} = 334 \times 0.5 / 19 = 9 \text{ persons}$$

Due to the known use of the building, an occupation of 5 has been assumed as a more accurate figure.

The first floor of the existing building was previously used as office space. Assuming that there is 1 FTE (Full Time Employee) per 12m² for serviced office space, an occupation of 25 people has been calculated.

$$\text{FF Occupation} = 300 / 12 = 25 \text{ persons}$$

This gives a total occupation number for the existing building of 30 persons. Due to the existing building only being used for 12 hours per day, this has been considered in the peak discharge rate. As per Flows and Loads 4, retail and serviced office spaces have a discharge rate of 90 l/per person/day. This figure has been used in the calculation of the existing peak discharge. The existing peak discharge is as follows:

$$\text{EPD} = (30 \times 90) / (12 \times 3600) \times 6 \times 1.1 = 0.413 \text{ l/s peak discharge}$$

The above figures are conservative and use the latest water usage figures which are based on the use of more efficient plumbing provisions than exists within the property.

The proposed peak discharge of the site is based on the development of 29 single occupancy student rooms. Based on this use, there is to be a daily discharge of 120 l/per person per day. The proposed peak discharge as per Building Regulations Part H is as follows:

$$\text{PPD} = (29 \times 120) / (24 \times 3600) \times 6 \times 1.1 = 0.266 \text{ l/s peak discharge}$$

Again, this is a conservative estimate as the rooms have limited plumbing facilities (shower, WC and wash basin) and communal kitchens.

Based on the above calculations there is a reduction in water usage and therefore foul discharge.

5.0 Maintenance and Management

The SUDS manual 2007 outlines operation and maintenance requirement for pervious surfaces and this along with manufacturers guidance will be the basis for maintain the operation of the system.

This type of facility will have management in place and maintenance responsibility for the amenity area with associated drainage system and its surrounding area will be placed by the student accommodation provider.

Silting of a soakaway would be the long term issue and provision of a standard inspection chamber online with a removable silt basket would enable quick and easy access for inspection and removal of any possible silt. For a facility of this size the inspection and silt removal (if required) can be done as part of the general upkeep works for the grassed amenity area during lawn cutting etc. A monthly frequency would be recommended.

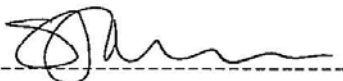
6.0 Conclusion

Although the site offers limited scope for the use of SUDS, the proposed design has incorporated permeable paving, reducing the total impermeable area of the site by 34%.

The site is classed as low risk from a pollution perspective; however introduction of a modern silt trap chamber with removable basket on the RWP drainage will offer further water quality control with an easy maintenance regime.

Provision of water butts will also assist in reduced water usage, as well as the use of modern plumbing fittings for reduced flows in accordance with the latest Building Regulations.

Report carried out and prepared by:



ON BEHALF OF SHEAR DESIGN LTD
SIMON MASON I.Eng M.I.C.E.

APPENDIX A

Existing Impermeable Areas Plan – 16032-SK2000

Thames Water Sewer Map

2 to 6

1 to

ONLY SPACES 1 TO 7 IN CLIENT FULL CONTROL. ALL OTHER AREAS SHARED OWNERSHIP/LEASES.

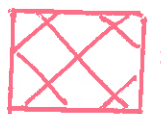
CAR PARK & BT ROOF (PART) DRAINAGE

OUTLINE OF FLAT ROOF

OUTLINE OF BT BUILDING OVER

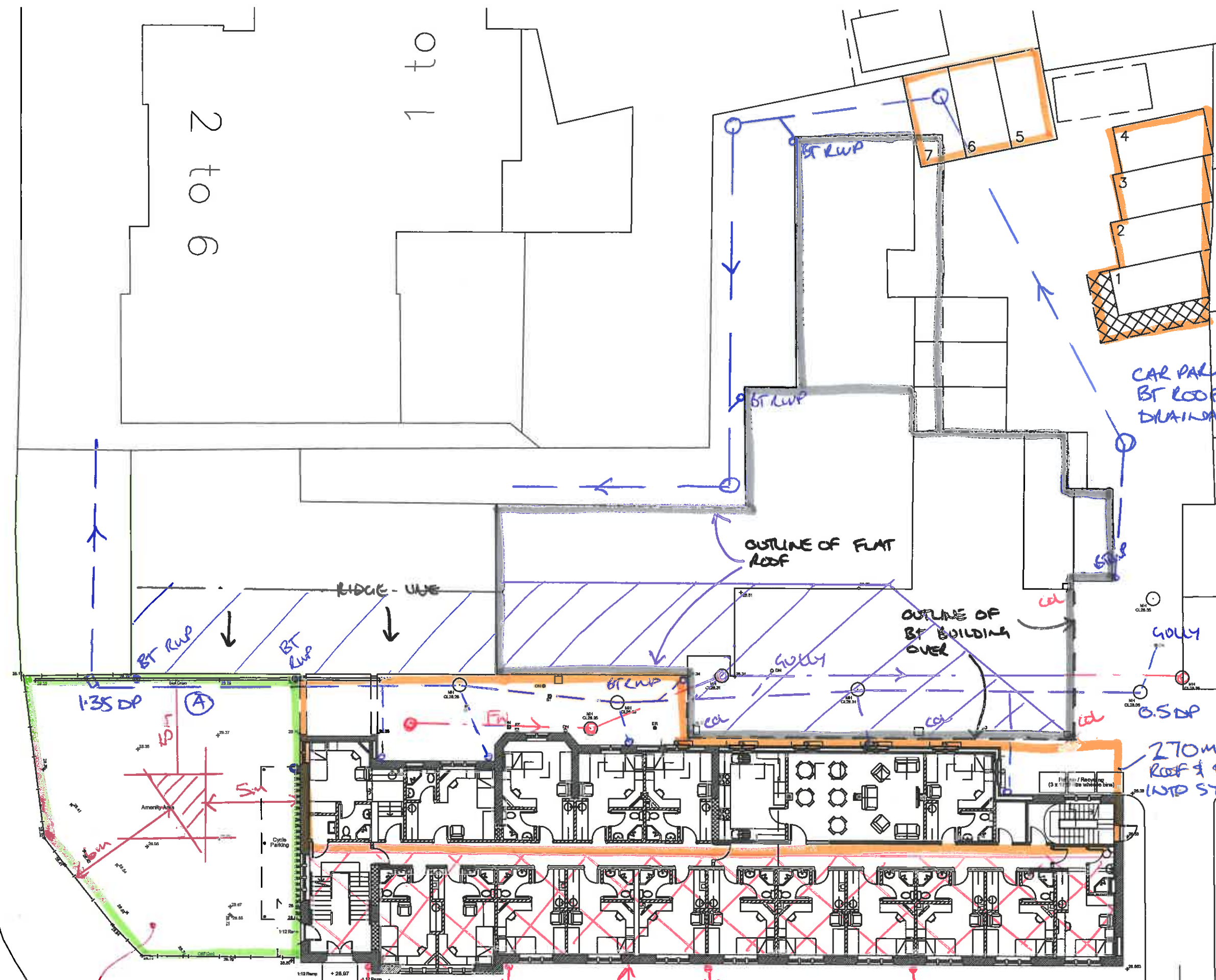
PROPOSED GRASSED AMENITY AREA CURRENTLY LANDSTANDING APPROX 160 m²

HIGHWAY LAND.

 = 245 m² OF BT ROOF DRAINAGE NO SYSTEM
 = 210 m² OF ROOF INTO HIGHWAY LAND.

MAKSONS HOOSE STATIONS ROAD WEST DRAUGHTON

16032/SK2000 SCALE 1/200



THAMES WATER
SEWER MAP WITH
SURVEY COMMENTS ON

16032

APPENDIX B

Red Line Boundary Plan with Leased Land

1.0 INTRODUCTION

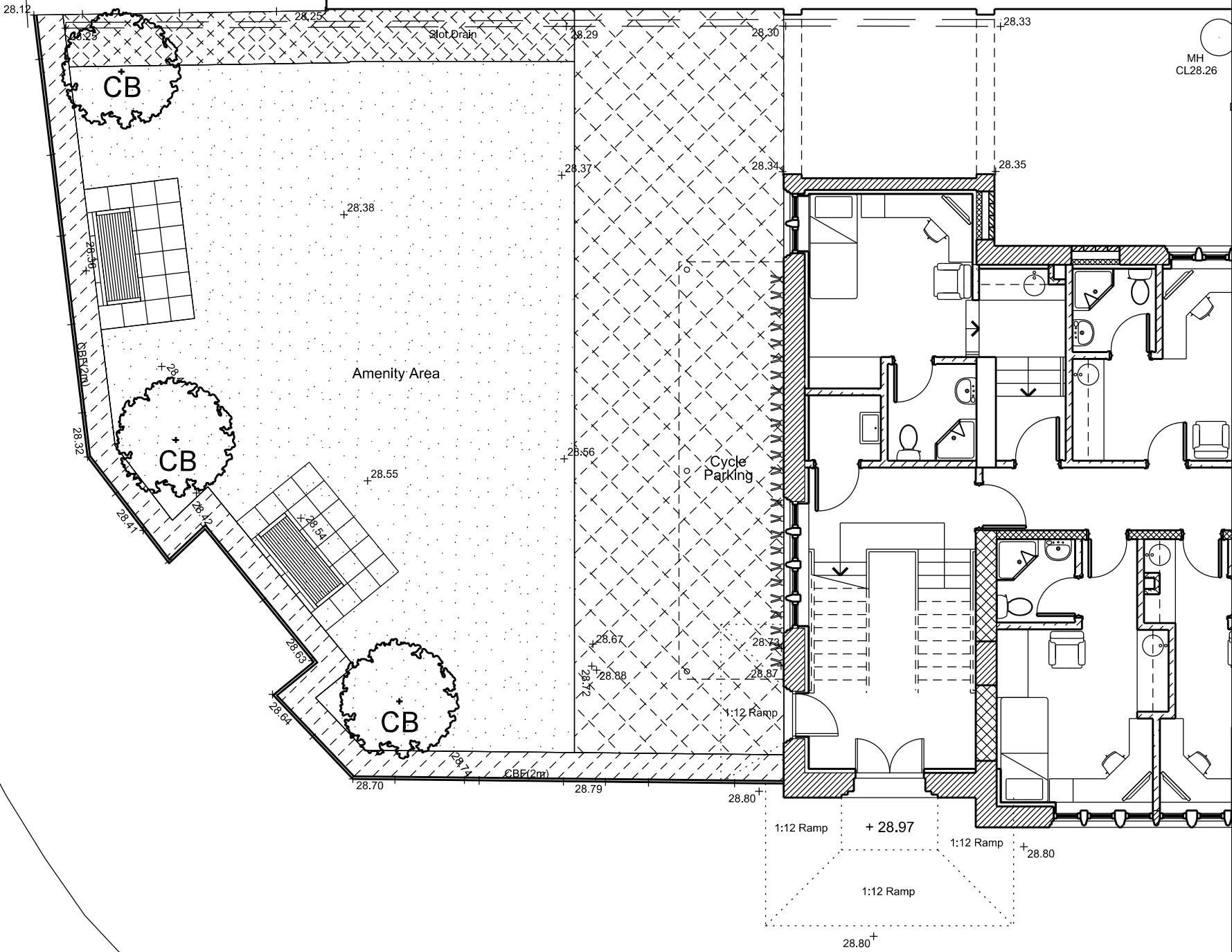
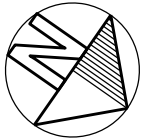
1.1 This method statement describes the procedure required for the planting and post maintenance of containerised trees and shrubs.
1.2 Although containerised trees can be planted throughout the year, we would recommend planting in the dormant season between November and early March. Planting outside this period would require careful watering management.
1.3 The recommendations for tree and shrub species and dimensions are detailed below and were available at the time of this report but will be subject to availability:
2.0 METHODOLOGY
2.1 The Planting pits for trees will be no less than 0.75m.x 0.75 wide and dug to a depth of no less than 450mm ensuring sub soil is broken down to allow drainage, levelled and cultivated to a fine tilth. If the existing soil is in poor condition it shall be replaced with a similar soil type as to recommendations in 'BS3882 Specifications for Topsoil 1994'..
2.2 Any weed growth will be removed, including the roots systems using a garden fork.
2.3 Mark out the size of the planting pit with a spade by scraping the edge along the ground surface. The planting pit will be square in shape and be a minimum of 40cms larger than the diameter of the containerised root ball. Screen planting areas should be marked out on site and if required turf removed to create planting bed.
2.4 The final depth of the planting pits will be the same as the height of the root ball of the tree/shrub from the base of the container to the inner compost level. This can be measured by holding the spade or cane against the container and transferring the measurement to the planting pit.
2.5 Loosen the base and sides of the planting pit with a garden fork and lightly firm the base of the pit. The trees will be supported with a single 1.8m tanolised tree stake driven into the base of the planting pit at this point and tied to this stake with individual tree ties allowing good space between the tree and stake. Hedging plants will not require support.
2.6 Prune any damaged branches and formative prune the crown as per to BS3998 'Recommendations for Tree Work'(2010) SEE ALSO Fig. G1 BS 8545. No heavy pruning or crown reduction will take place at this time.
2.7 Transfer the trees/shrubs, removed from containers without disturbing the root ball, into the planting pit; centrally position it with the stake(s) to ensure ties can be applied and check the pit dimensions against the root ball.
2.8 If the excavated soil condition and structure is poor, it can be ameliorated at this stage using well composted organic matter or a commercially developed material developed for the purpose. Any organic matter addition shall not exceed 5% of the total volume of the tree pit. Excessive organic matter may lead to serious soil settlement meaning that the root ball and root collar will finally settle below the soil level.
2.9 Care shall be taken to avoid disturbing the root ball.
2.10 Any weed growth will be removed from the surface of the root ball and disposed of.
2.11 The backfill soil mix will be placed into the planting pit, filling the void between the root ball and the sides of the planting pit. The excavated top soil will be used for topping up, if required. The backfill shall be worked around the root ball in layers of 10 15 cms with each layer being carefully firmed using the sole of the foot without damaging the root ball.
2.12 During the process of backfill, the trees/shrubs will continually be checked for straightness.
2.13 Any leftover soil and debris arising from the planting will be removed and disposed of accordingly.
2.14 The trees and shrubs will be mulched with a well-composted organic mulch such as woodchip to a depth of 8cms when settled. The mulch will be placed around the base of the tree to a diameter of no less than 1m to form a bund for water retention. No build- up of mulch will be situated around the base of the stem as any heat produced by the mulch may kill the cambium and also prevent respiration.
2.15 The trees/shrubs will be watered immediately by slowly filling the mulch bund with ten litres of water allowing for the water to soak into the root ball and planting pit.

3. MAINTENANCE

3.1 During the first two growing seasons after planting, the trees/shrubs will be watered regularly especially during dry periods from March to October. The amount of water required will be dependent on the soil type but water logging will be avoided. Any water should be applied slowly avoiding run off away from the root ball. An ideal way to achieve this is with a seep hose placed in a spiral pattern around the base of the tree. Tree stakes can be removed at this point or if the root system has not sufficiently established the tree should be assessed for replacement or re staking.
3.2 All grass and weed compaction around the base of the tree to a minimum of 1m diameter shall be eliminated in the first three growing seasons.
3.3 The mulch shall be topped up to maintain a depth of 8cm during the first three growing seasons.
3.4 The ties and stake can be removed once the root system has established in the ground and the tree is firmly rooted within the first two years.
3.5 Any trees or shrubs dying within the first 5 years of completion will be removed and replaced with similar size and species.

4.0 MATERIALS

4.1 Topsoil and subsoil to BS 3882 (Table 1)
4.2 Contact: BRITISH TOP SOIL
4.3 Organic Matter (if soil condition poor), Mulch,
4.4 Tree stakes 7 no. round 1.8m treated <80mm dia



N

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Soft Landscaping



Prunus lusitanica hedge



New Low Level Planting Bed Consisting
A Mixture Of:
Cholsya Ternata
Geranium Maccrorrhizum
Hebe Albicans
Hebe Blue Gem
Hebe Blue Star
Lavandula Angustifolia 'Hidcote'
Pittosporum 'Tom Thumb'
Rosmarinus Officialis



Tree Species - Carpinus betulus 'Frans Fontaine'
Density - As Shown
Height/Girth - 14/16g
Root Condition - Rootballed



New Grass Turf

Hard Landscaping



Marshall's Tegula Cobble Setts
Colour - Traditional



Sustainable Furniture Teak Garden Bench
Product Code - TK2-B-R
Style - Richmond
Dimensions - L 1800 x H 900 x D 650
Finish - Teak Sealed
Anchor Kit for Soft Ground (1per bench)



Retained Existing Close Board Fencing
Made good



Marshall's Perfecta Slabs
Colour - Traditional

A	General amendments	RDP	30.06.16
REVISION	DESCRIPTION	BY	DATE

ROBERTSON FRANCIS

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RFP

CLIENT

MESSRS KARBANI

JOB TITLE

MAKSONS HOUSE
52 STATION RD., WEST DRAYTON
MIDDLESEX, UB7 7BT

DRAWING TITLE

PROPOSED LANDSCAPE PLAN

STATUS	DATE	DRAWN	CHECKED	SCALE @ A3
B. REGS	27.06.16	RDP	JNW	1:100
JOB NO.	DRAWING NO.			REV.
2280	BR 111			A

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N O T E S				
Application boundary line 99 year lease on land owned by BT				
REVISION	DESCRIPTION	BY	DATE	
ROBERTSON FRANCIS P A R T N E R S H I P Chartered Architects 13 Cathedral Road Cardiff CF11 9HA Tel : (029) 2039 9000 Fax : (029) 2038 7351 E-mail : info@rpfarchitects.com RFP				
CLIENT MR N KARBANI				
JOB TITLE MAKSONS HOUSE, 52 STATION ROAD, WEST DRAYTON, MIDDLESEX, UB7 7BT				
DRAWING TITLE SITE LOCATION PLAN				
STATUS	DATE	DRAWN	CHECKED	SCALE @ A3
PLANNING	15.04.15	RDP	JNW	1:1250
JOB NO.	DRAWING NO.		REV.	
2280	DP 100			
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