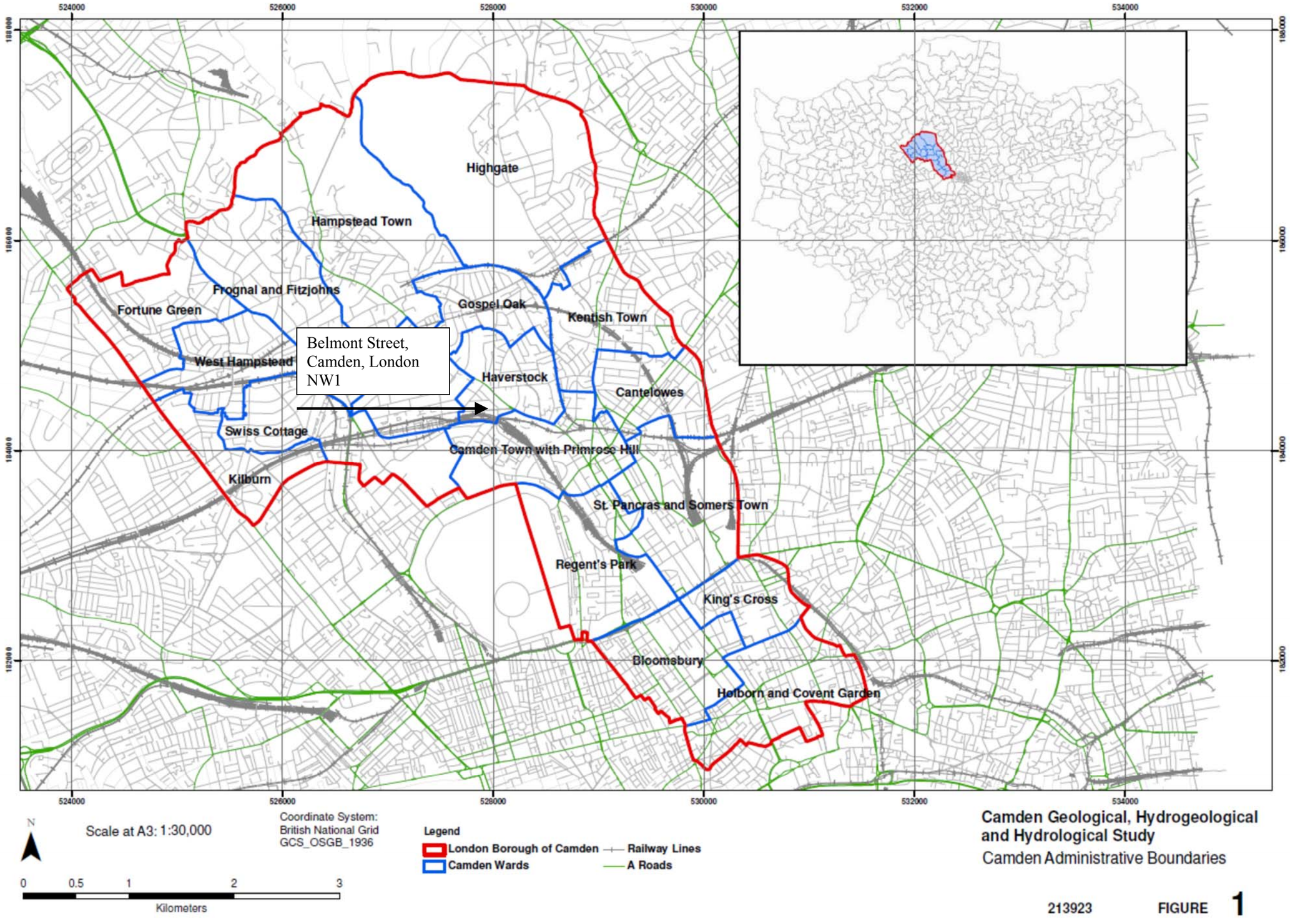
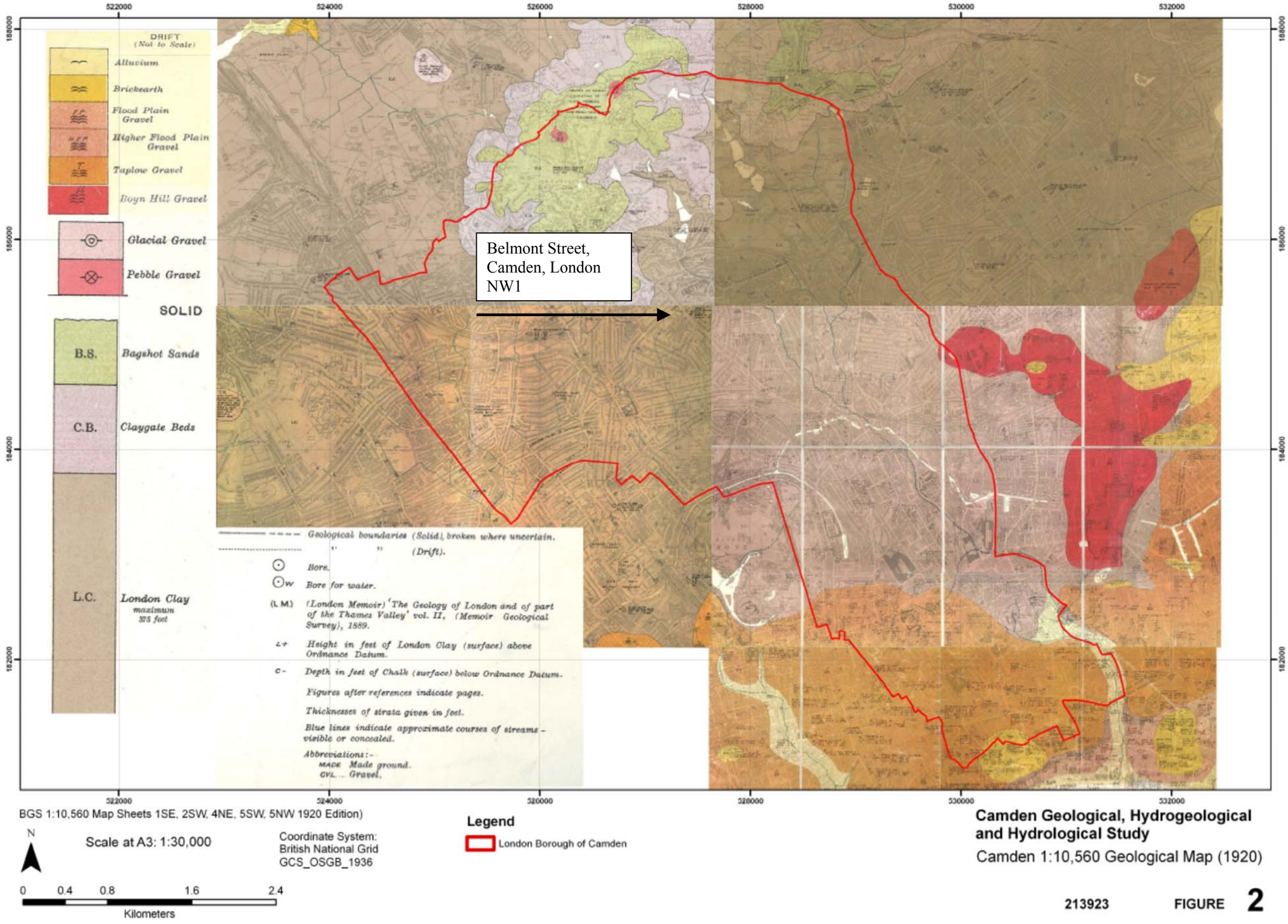
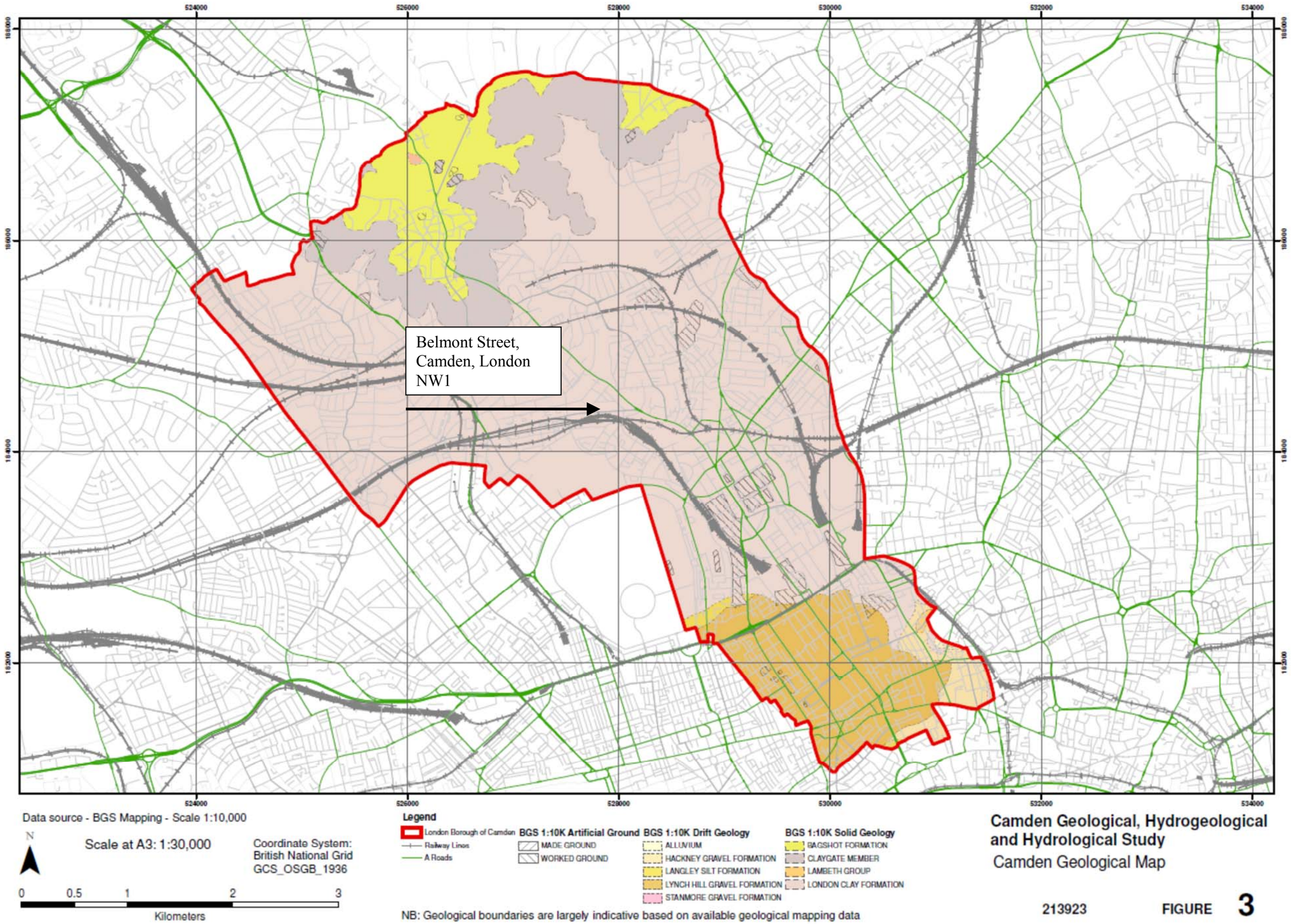


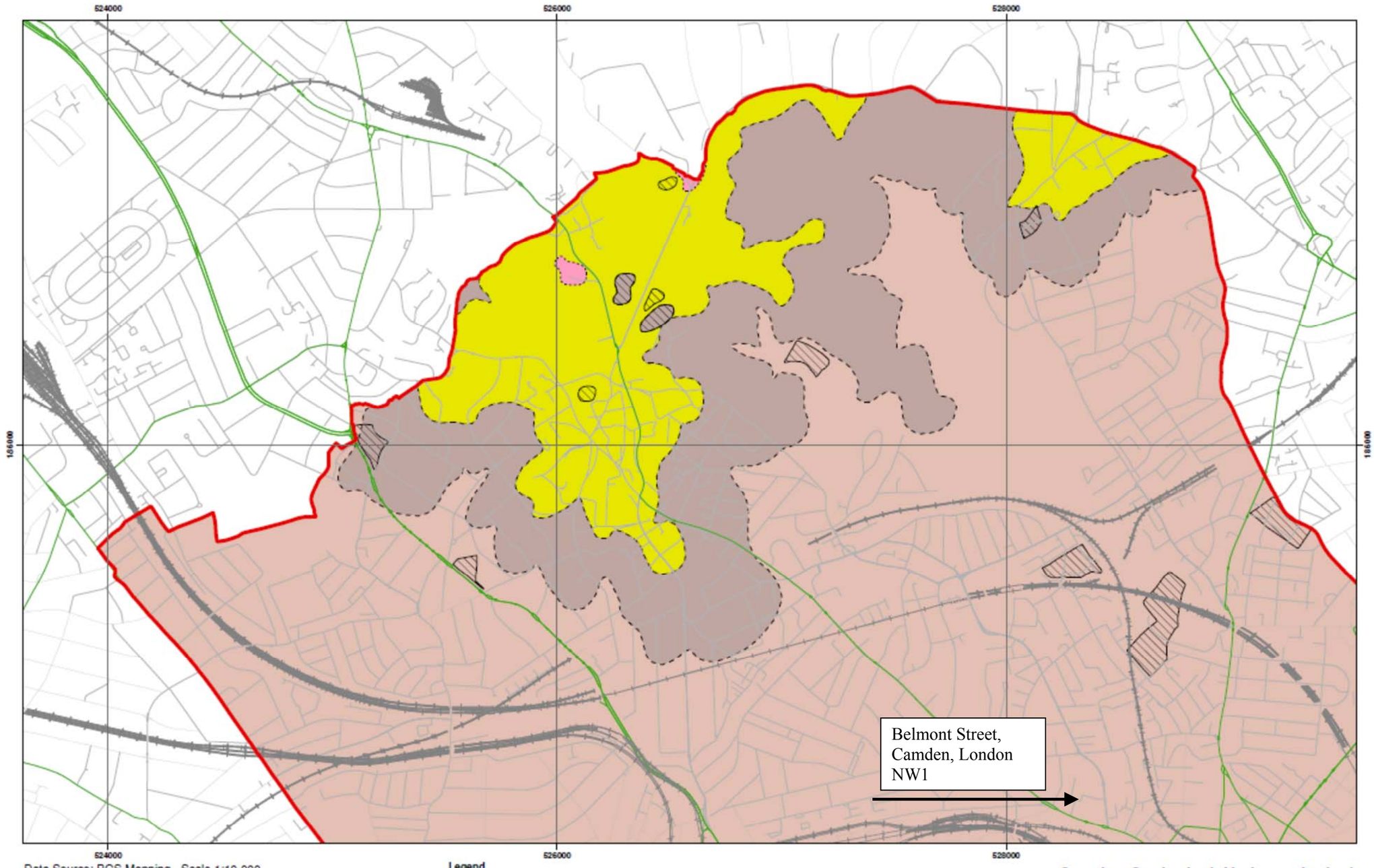
A.7 CGH&H Study – Fig 1 Administrative Boundaries



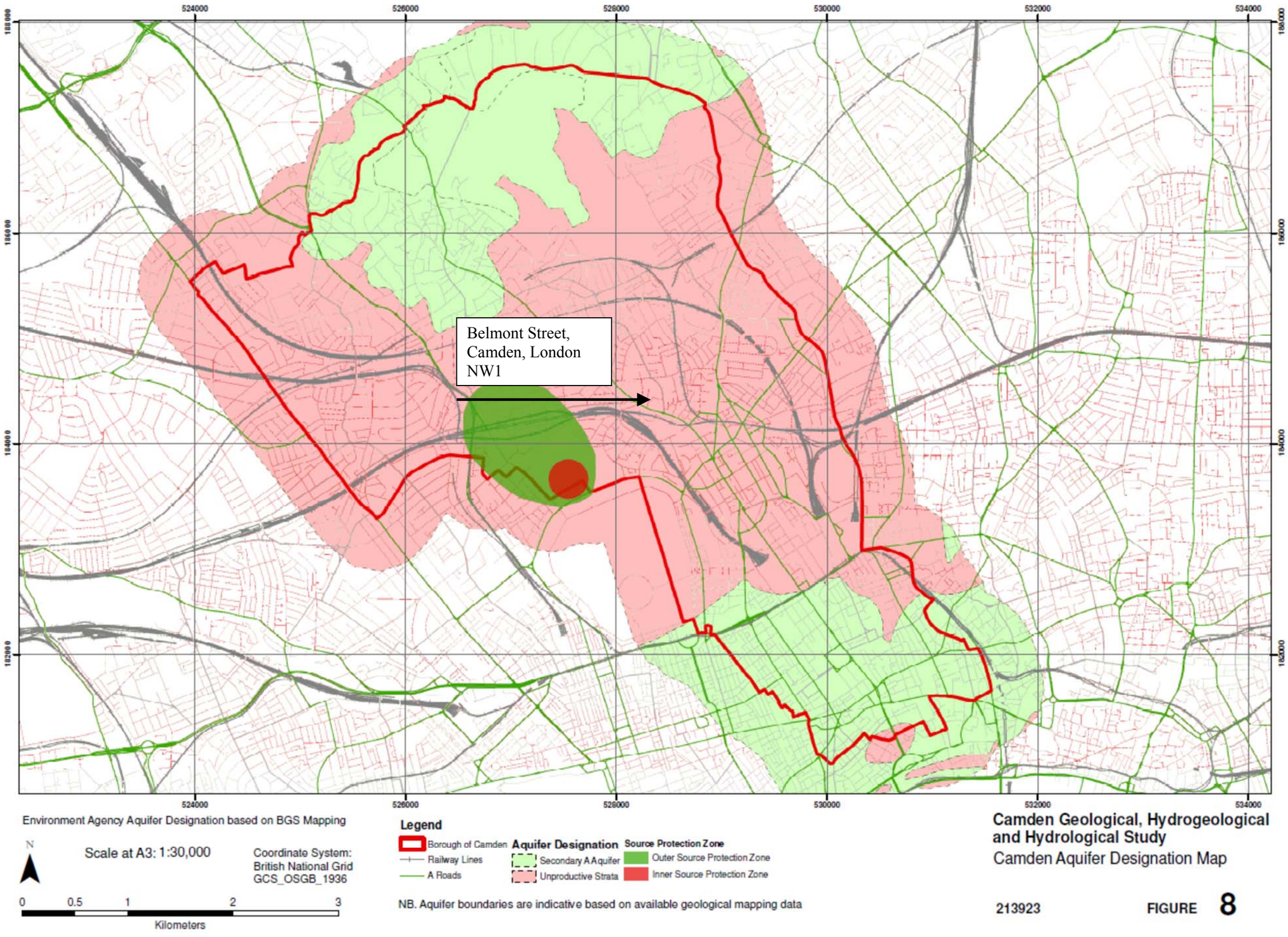
A.8 CGH&H Study – Fig 2 Geological Mapping Data (1920)



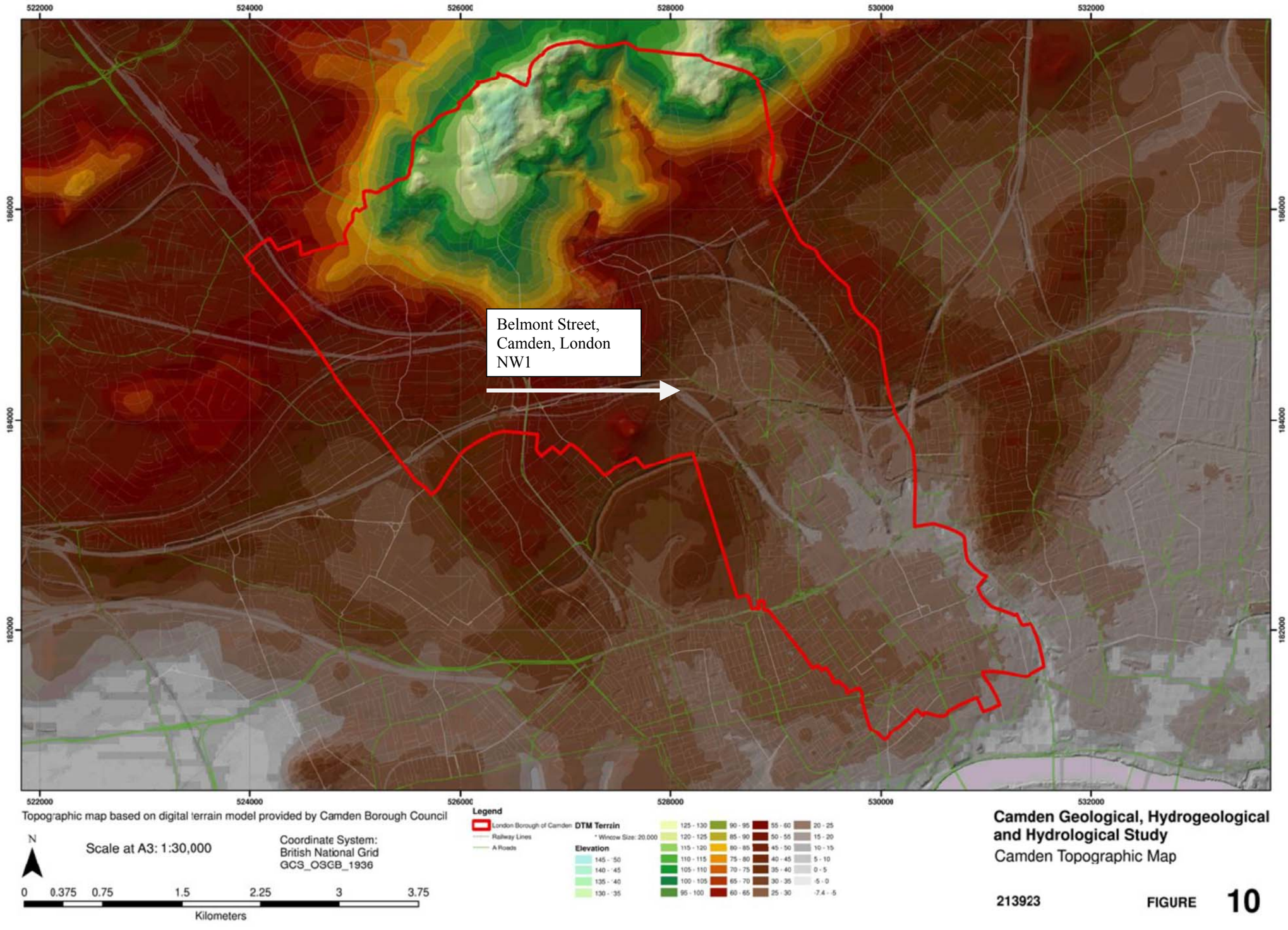
A9 CGH&H Study – Fig 3 Geological Map



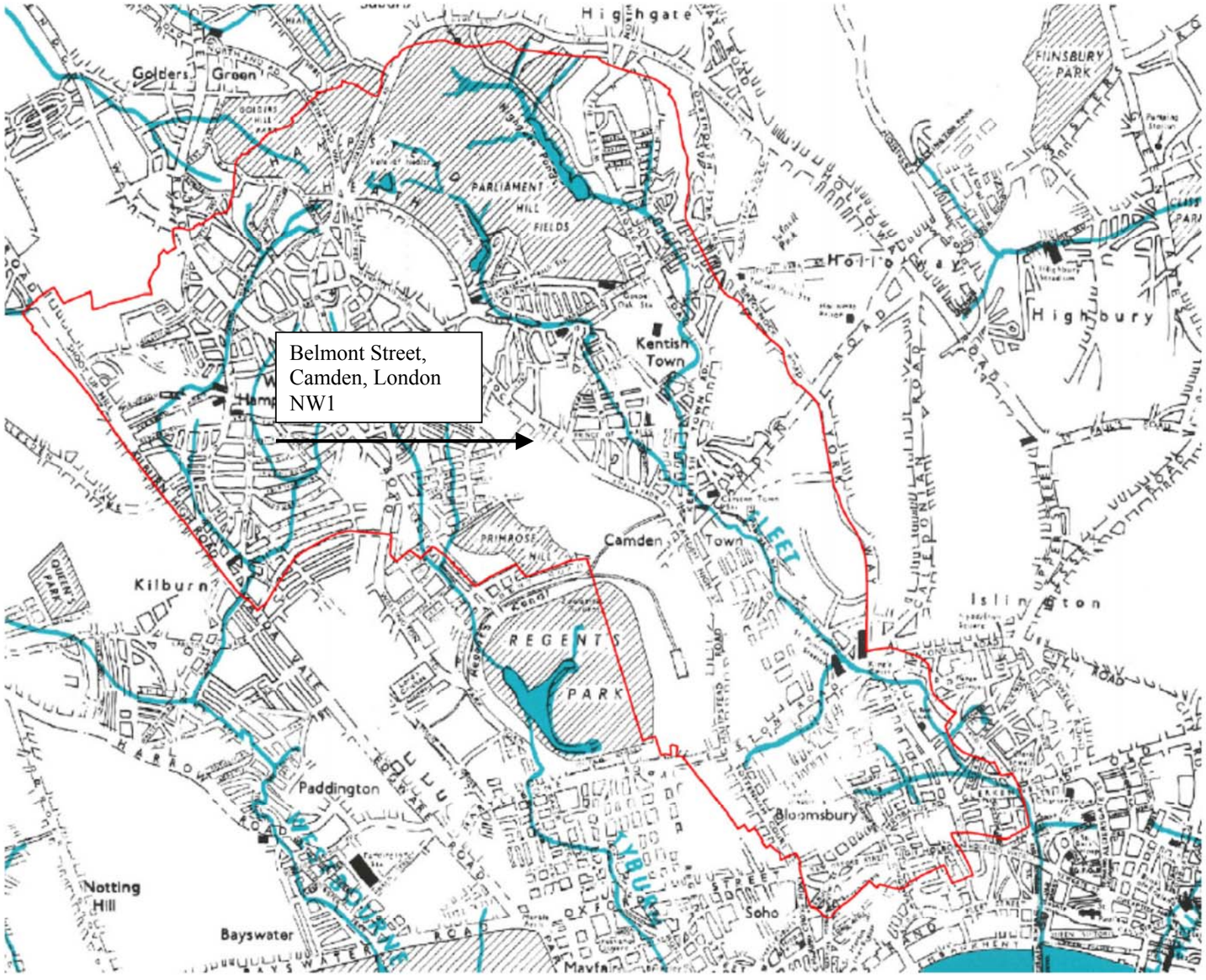
A.10 CGH&H Study – Fig 5 South Camden Geological Map



A.11 CGH&H Study – Fig 8 Camden Aquifer Designation Map



A.12 CGH&H Study – Fig 10 Camden Topographic Map

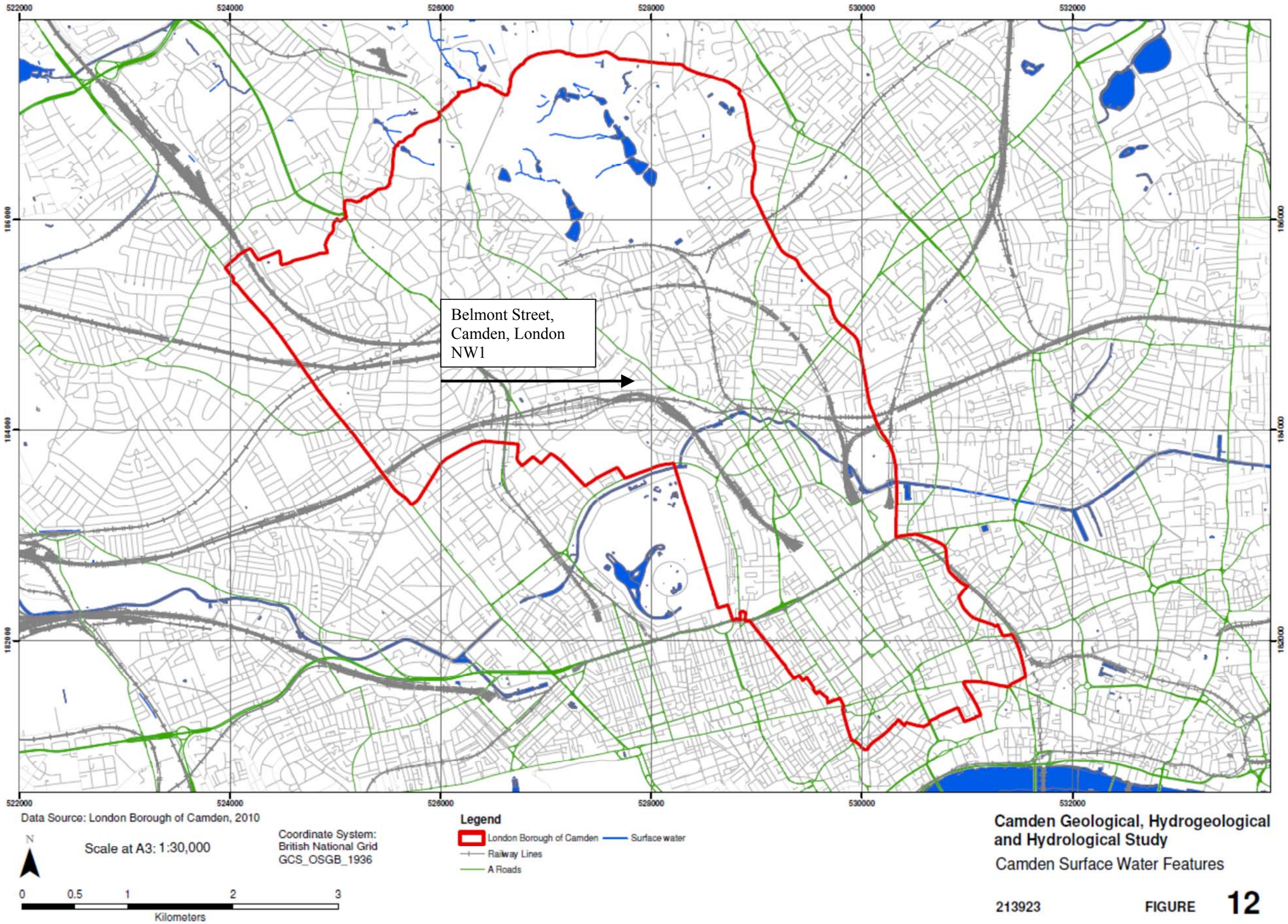


Source – Barton, Lost Rivers of London

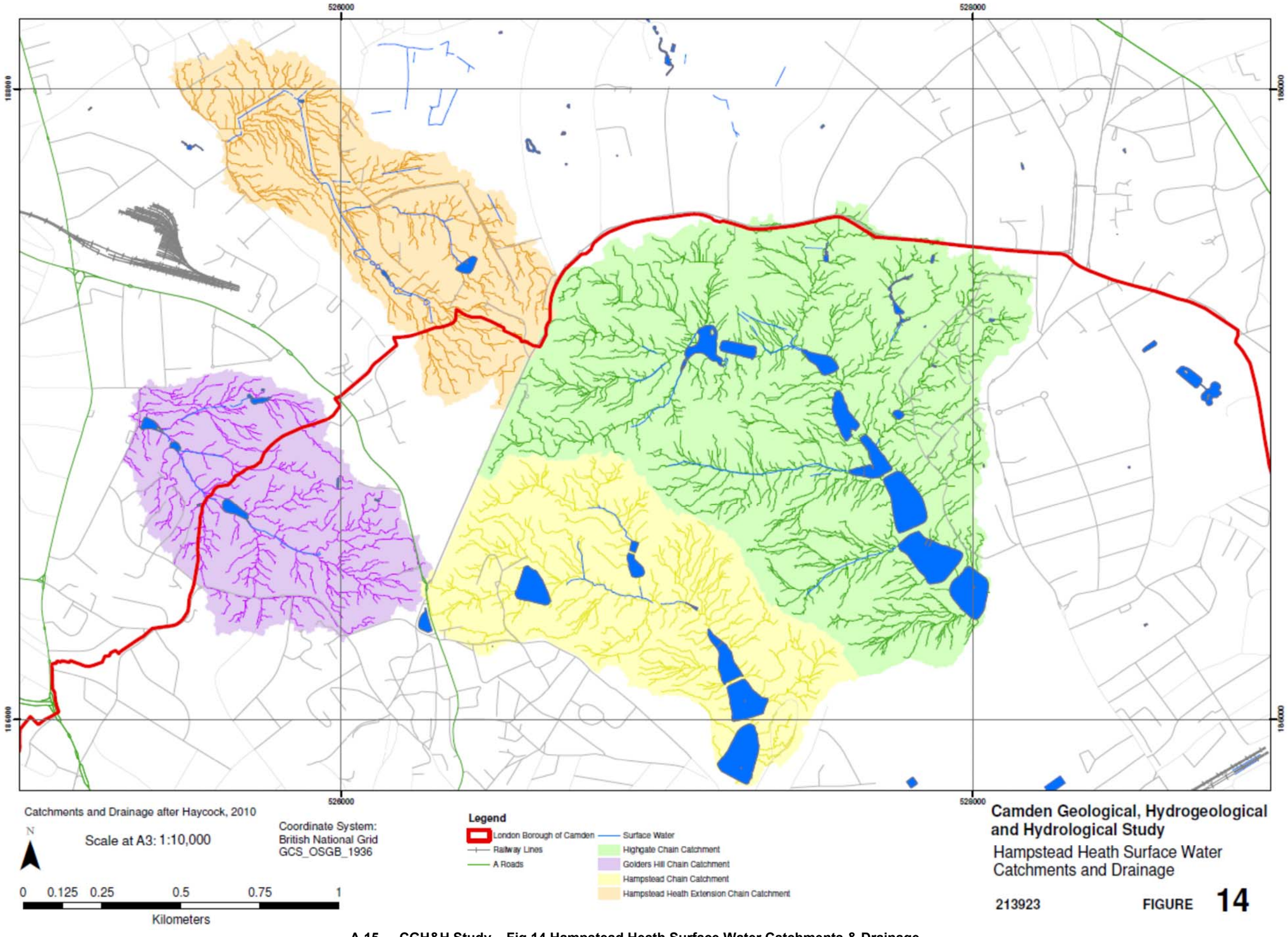
Camden Geological, Hydrogeological and Hydrological Study
Watercourses

213923 FIGURE **11**

A.13 CGH&H Study – Fig 11 Camden Watercourses



A.14 CGH&H Study – Fig 12 Camden Surface Water Features



A.15 CGH&H Study – Fig 14 Hampstead Heath Surface Water Catchments & Drainage

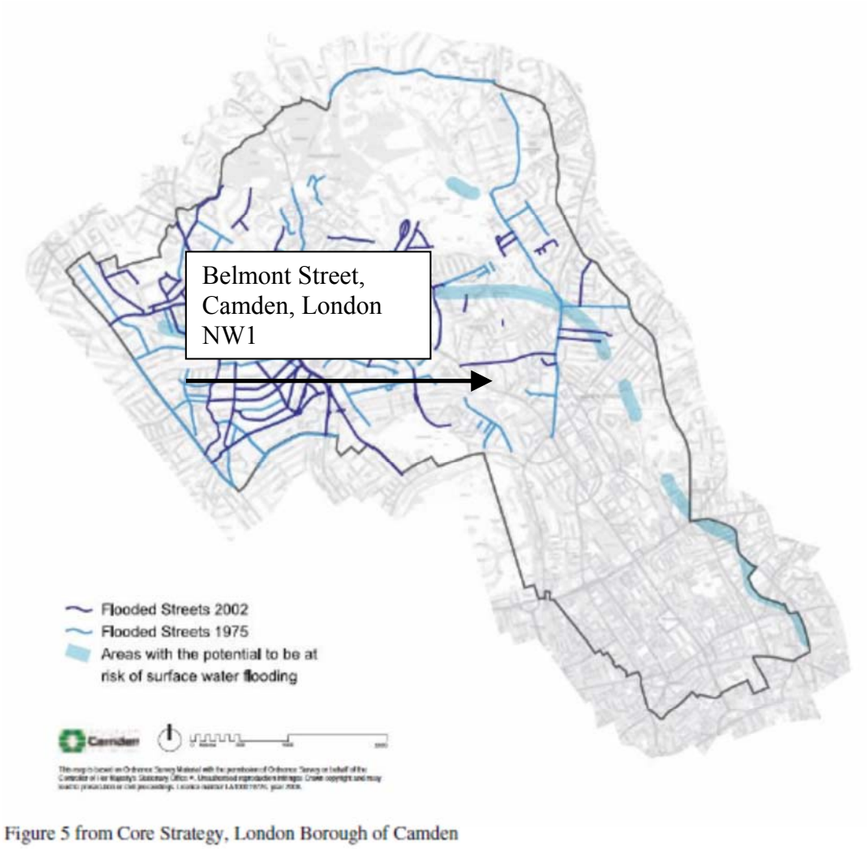
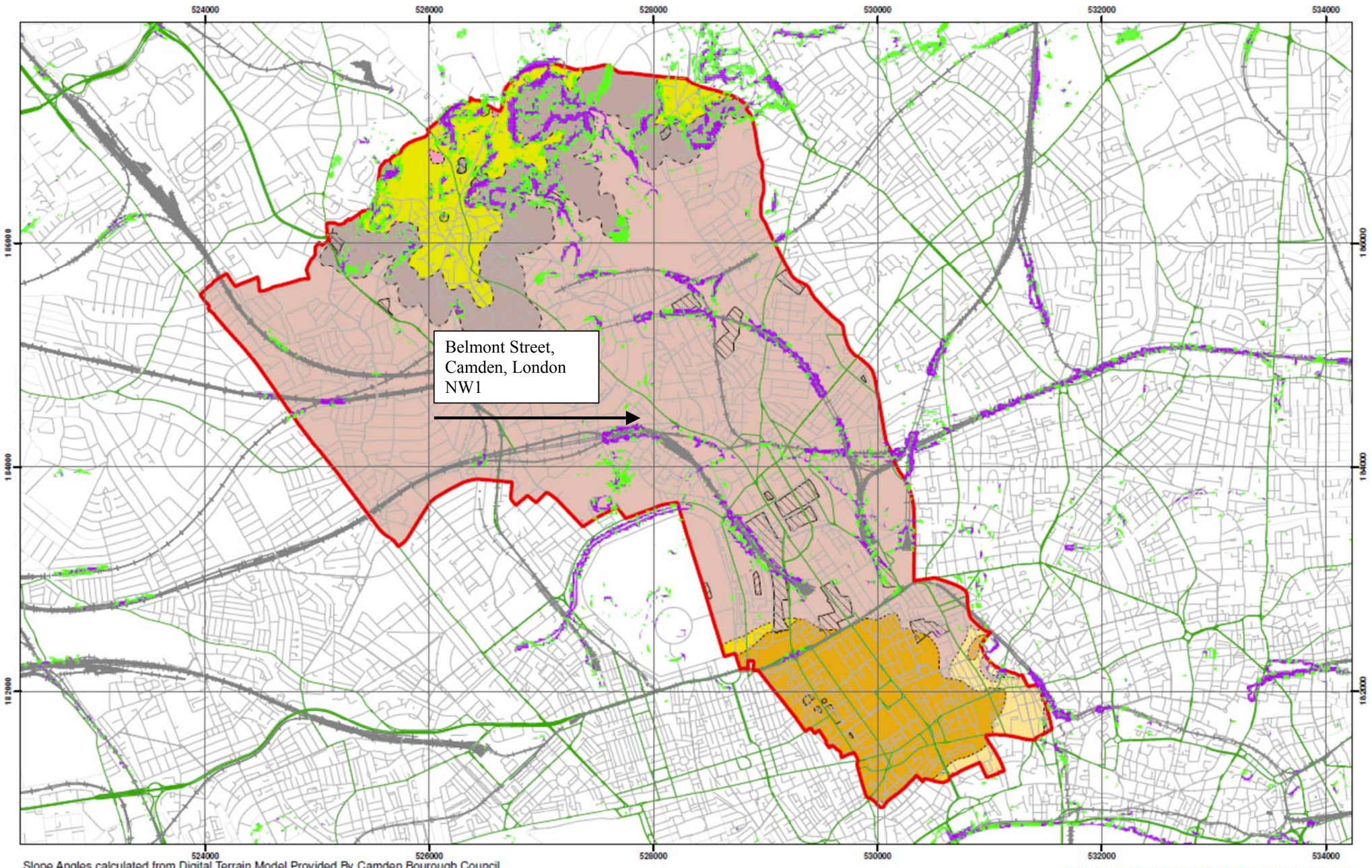


Figure 5 from Core Strategy, London Borough of Camden

Camden Geological, Hydrogeological and Hydrological Study
Flood Map

213923 FIGURE **15**

A.16 CGH&H Study – Fig 15 Camden Flood Map

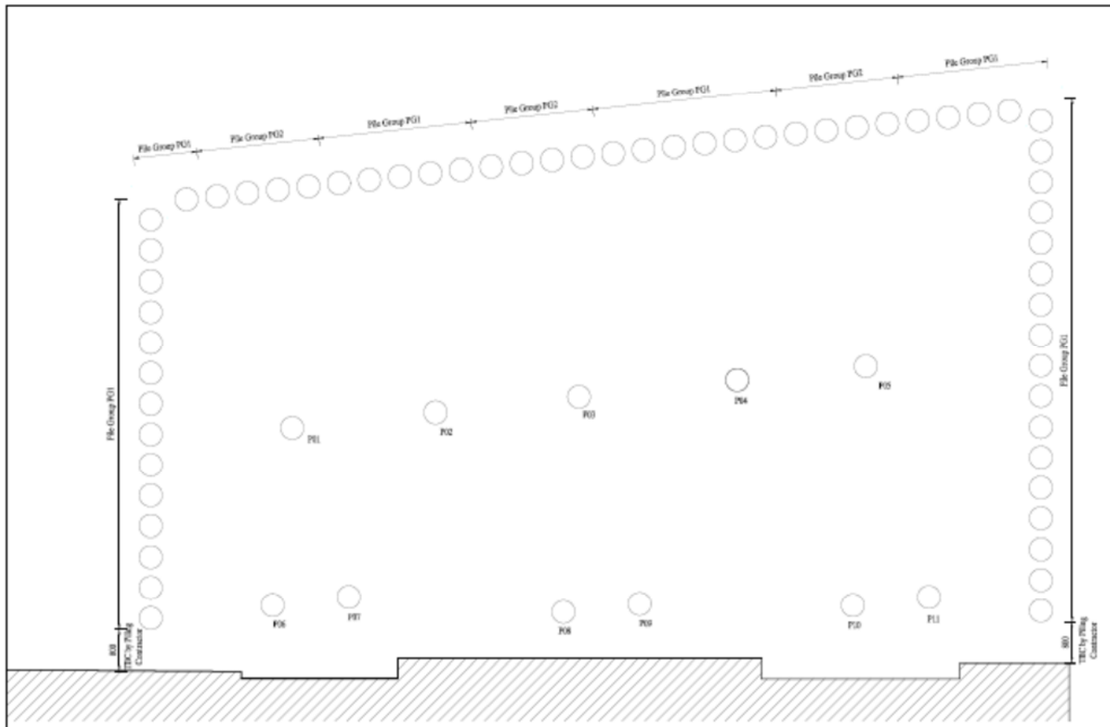


A.17 CGH&H Study – Fig 16 Camden Slope Angle Map

Appendix B

Pringuer-James Consulting Engineers
Basement Impact Assessment

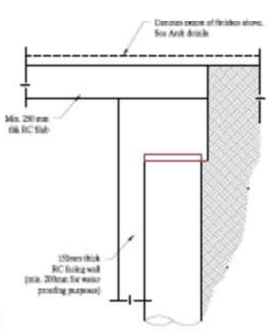
Preliminary Drawings



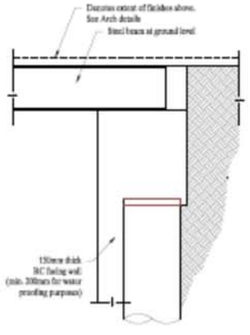
GENERAL ARRANGEMENT - PILING
Scale 1:50

Contiguous Pile Groups, Vertical Loadings				
Pile No.	Permanent (kN/m)	Variable (kN/m)	Uplift (kN/m)	Pile Cut Off Level
PG1	50	25	30	TBC
PG2	265	65	30	TBC

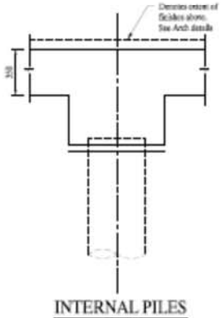
Vertical Pile Loads				
Pile No.	Tension & Compression Forces			Pile Cut Off
	Permanent (kN)	Variable (kN)	Uplift (kN)	
P01	320	275	200	TBC
P02	320	275	200	TBC
P03	320	275	200	TBC
P04	320	150	200	TBC
P05	320	150	200	TBC
P06	400	215	150	TBC
P07	400	215	150	TBC
P08	400	215	150	TBC
P09	400	215	150	TBC
P10	400	215	150	TBC
P11	400	215	150	TBC



PG1
Scale 1:20
(Typical section showing pile cut of level)



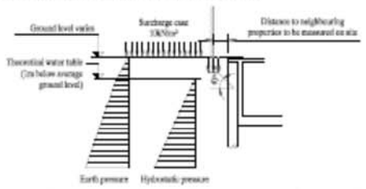
PG2
Scale 1:20
(Typical section showing pile cut of level)



INTERNAL PILES
Scale 1:20
(Typical section showing pile cut of level)

PILING NOTES

1. This drawing is to be read in conjunction with Pringuer-James Consulting Engineers specification for foundation and basement enclosure wall piles, and all other contract documentation.
2. For details of extent of existing buildings refer to architects survey drawings of the existing building. These are issued for information only. The design team do not take any responsibility for the accuracy or completeness of the information contained on these drawings.
3. For Geotechnical and Geoenvironmental Site Assessment Report refer to Soil Consultants Ltd GI report, ref no. 91/13/RCH/GT, Rev 01 dated 1st February 2012.
4. All dimensions are in millimetres and levels in metres o.d. unless noted otherwise.
5. All piles are on grid lines except where noted.
6. The drawings should not be scaled. Any discrepancies in dimensions are to be referred to the Structural Engineer or the Contract Administrator.
7. For piles adjacent to deep excavation (i.e. mashelon) particular attention should be given to the design of the piles in both temporary and permanent conditions. e.g. no shaft friction capacity should be taken for piles adjacent to excavation for the height of the excavation.
8. A minimum concrete compressive strength for reinforced bearing piles to be C28/35 (35N/mm² at 28 days).
9. The Contractor's attention is drawn to the requirement for connection of lightning protection earthing to pile reinforcement. For location and details of lightning protection, refer to Services Engineers' drawings and specification.
10. The contractor is to visit the site and must note all visible obstructions to his work. The Contractor must allow for these obstructions when considering the piling equipment and must allow for any protection works he considers appropriate.
11. It is the Contractors responsibility to ensure that the setting out of the piles complies with the requirements of the specification.
12. a) Minimum reinforcement to concrete piles should not be less than :-
Minimum number of longitudinal bars - 5 no.
Minimum diameter of longitudinal bars - H16
Minimum diameter of links/helix - 10mm
The minimum pitch centres of pile reinforcement shall not be less than 200mm centres to allow the placing of slab, pilecap or capping beam reinforcement through pile reinforcement. the minimum length of reinforcement cage shall not be less than 6 metres from the top of the pile.
b) The length of the reinforcement cage shall be determined by the piling Contractor to adequately reinforce the pile to the length required to resist the forces applied.
c) Tensile resistance of the pile concrete shall be ignored, where piles are subject to net uplift forces reinforcement cage to be full length of the pile.
d) Where piles are subject to net tensile forces the piling contractor shall in his design limit the sum of the elongation of the pile and upward deflection of the pile to a maximum of 5 mm.
13. Live loads on piles vary from zero to the maximum stated at each location and this should be taken into account in any settlement calculations.
14. The piling Contractor is to design and detail the piling works based upon the geotechnical data relating to the site. The piles shall be designed for a maximum absolute settlement of 18 mm and a maximum relative settlement of 5 mm. Maximum relative settlement for any other dimensions will be taken pro-rata. The piling Contractor shall take into account all factors that may effect pile/soil interaction and pile capacity -
a) loss of skin friction due to close proximity of excavation for drain runs and chambers, etc. -refer to Services Engineers drawings.
b) Effect of temporary works in the ground adjacent to piles. refer to the contractor for details.
c) Negative skin friction from the made soil strata and backfill material.
d) Close proximity between piles and piles in groups.
15. In the permanent design case the concrete piles shall be designed to resist the following vertical and horizontal loads which can be combined appropriately to produce the most onerous loading combination.
a) Vertical loads - the most onerous upwards and downwards vertical loads shall be determined by appropriately combining the vertical loads in the pile load table.
b) Moments due to eccentric vertical loading of piles. - Piles shall be designed to resist moments due to
pile / column eccentricity - determined from the worst case combination of :-
i) Design eccentricity of walls = 100mm relative to the specified location of the piles.
ii) Eccentricity due to the most adverse combination of construction tolerances of both piles and the supported structure.
c) Additional horizontal loads on contiguous pile wall -
i) Lateral earth pressure imposed by the retained height of soil to existing pavement level. This loading may increase due to local excavations for drainage, lift pits etc.
ii) Permanent case hydrostatic water pressure to comply with BS 8102 in addition a water table at 1.0m below the average pavement level shall be taken to comply with BS 8102 where a load factor of 1.05 maybe applied to this load for the design of pile reinforcement only.
iii) Lateral earth pressure due to external surface surcharge load, taken as - on boundaries adjoining the highway/footpath surcharge loads of 20KN/m² and any additional loading advised by the contractor and the city engineer.
iv) Surcharge loading to be taken for existing building's foundation where applicable piling Contractor to provide proposals for Structural Engineers approval.
16. In the temporary construction stage case the concrete piles shall be designed to resist the following vertical and horizontal loads which can be combined appropriately to produce the most onerous loading combination.
a) Vertical loads worst case combination of -
i) Vertical loads given in note 15.
ii) Additional loads due to temporary works, construction method and sequence for sub and super structure and any site temporary loading. Refer to the contractor for details.
b) Moments due to eccentric vertical loadings of piles.
i) Loading as given in note 15.
ii) Additional loads due to temporary works, construction method and sequence for sub and super structure and any site temporary loading. Refer to the contractor.
c) Horizontal loadings worst case combination of -
i) Loading as given in note 15.
ii) Horizontal loadings due to temporary works (e.g. propping to perimeter basement walls etc.). Incidental loading due to construction sequence, methods and plant for substructure construction e.g. differential excavation and plant surcharge and accidental loading. Refer to the contractor.
iii) For contig pile wall, hydrostatic pressure at temporary construction stage may be taken as the pushed water level from the soil investigation report adjusted to give annual maximum level.
iv) Embankment wall loads to adjacent property.
v) Deflections due to horizontal forces shall be limited to 20mm at ground level.
17. The pile reinforcement projecting from piles into the capping beam above should be designed to resist the forces and moments from wall above the pile. The pile reinforcement shall extend a lap length anchorage length into the capping beams. The projecting pile reinforcement length shall take due account of the depth of the capping beam (capping beam depth). For larger dia. pile reinforcement, coupled bars and mechanical reinforcement couplers may be required to provide the anchorage to the pile reinforcement. Where coupled bars and mechanical couplers are required, these shall be the responsibility of the contractor to design and install. The minimum pile reinforcement projecting into capping beams shall not be less than 600mm.
18. See Contract Administrator drawings for setting out of the building grid lines. Wherever dimensions differ from those shown on the 'CA' drawings the dimensions given by the 'CA' shall take precedence.
19. All design loads are unfactored loadings unless stated otherwise.
20. The contractor shall determine the piling platform levels and advise the structural engineer accordingly.
21. The contig piling layout shown on the drawing is indicative only. The contractor is responsible for the final design and setting out of all piles.
22. The contractor is responsible for all trimming, cutting, excavation and drilling into piles and ensuring that piles are not damaged in the process.
23. All piles to be designed for temporary and permanent cases and detailed accordingly



TYPICAL CONTIGUOUS PILE WALL LOADINGS

1 General
All Structural Engineering drawings are to be read with the specification and with all relevant Architects drawings and specifications.

Do not scale from any Structural Engineers drawing. All dimensions are in millimetres and levels in metres.

All waterproofing (DPM & DPC) works to Architects details.

All fire protection works to Architects details unless specifically noted otherwise.

Abbreviations -

SSL - Structural slab level	FFL - Finished floor level
CJS - Calcium Silcate	CC - Column Capped
C/O - Column Over	T.O.C - Top of Concrete
T.O.W - Top of Wall	

UNO - Unless Noted Otherwise OSA - Or Similar Approved

The Contractor is responsible for the design, installation and maintenance of all necessary temporary works to ensure the strength and stability of the building throughout the course of the works. Drawings and calculations detailing all temporary works shall be submitted to the Engineer for comment prior to commencement of the works.

The existing structural information shown on these drawings is based on visual inspection of the building and upon limited opening up works. All details of the existing construction are subject to confirmation by the Contractor during the works on site.

2 Steel
All steelwork to be grade S275 in BS EN 10025. (UNO)

The steel structure is execution Class 2 (EXC2). It is highly recommend that the Steel Contractor(s) / Fabrication(s) appointed for the project are members of the BCSA. Otherwise, the Main Contractor or Client should complete the detailed design for those elements shown on the design drawings and produce co-ordinated drawings showing all connection details etc.

The steelwork fabricator shall produce and submit two copies of dimensioned fabrication drawings to the Engineer for comment. The Engineer requires ten working days to return and comment.

All bolted connections are to include a minimum of two M16 bolts per member unless specifically indicated otherwise on details. All connection details to be designed by Contractor.

All bolts are to be grade 8.8 shoulder) to
BS 4921, class1. All bolts, nuts and washers are to be to BS 7650: Part 2 clause 2.2. Washers are to be placed beneath twisted bars.

All welds to be minimum 6mm leg length continuous fillet welds unless specifically noted otherwise.

All steelwork coatings to be as specification and below. Coatings to be provided by Sherwin Williams Protective & Marine Coatings or similar approved. All coatings to be light grey in colour, red oxide is NOT to be used.

LOCATION	CATEGORY	PAINT SYSTEM
Internal dry/protected	C2 - Low	CARBOZ Shop Zinc Phosphate coating (120 microns DFT) + Finish coat.
Internal dry	C3 - Very Low	CARBOZ Shop Zinc Phosphate coating (75 microns DFT) + Finish coat.
External	C4 - High	Galvanized in accordance with BS EN ISO 1461 to achieve a minimum mean coating thickness of 140 microns.

3 Concrete
Concrete to be in accordance with BS EN 206-1 and as follows :
Blinding - C16/20
Mass concrete - C25/30
Reinforced concrete - C32/40

4 Masonry
All loadbearing blockwork to have a minimum characteristic strength of 7.3N/mm². All loadbearing brickwork is to have a minimum characteristic strength of 20N/mm².

5 Timber
All timber members to be grade C16 to BS EN 1995 unless noted otherwise. Timber to be pressure impregnated with preservative and cut ends brush treated.

6 Pedestals
All pedestals to be concrete, min grade C20/25 using max 20 mm aggregate. All steel beams supported on pedestals to bolted to pedestals with min 2 No. HSFG M16 bolts and HY 200 resin. (OSA)

Rev.	Date	Drawn	Amendment
01	28.05.15	JC	Construction Review
1	28.05.15	JC	For Information

PRINGUER-JAMES
CONSULTING ENGINEERS
10 Barnlak Road, Wimbledon, LONDON, SW19 5SB
Phone: 020 8940 4159
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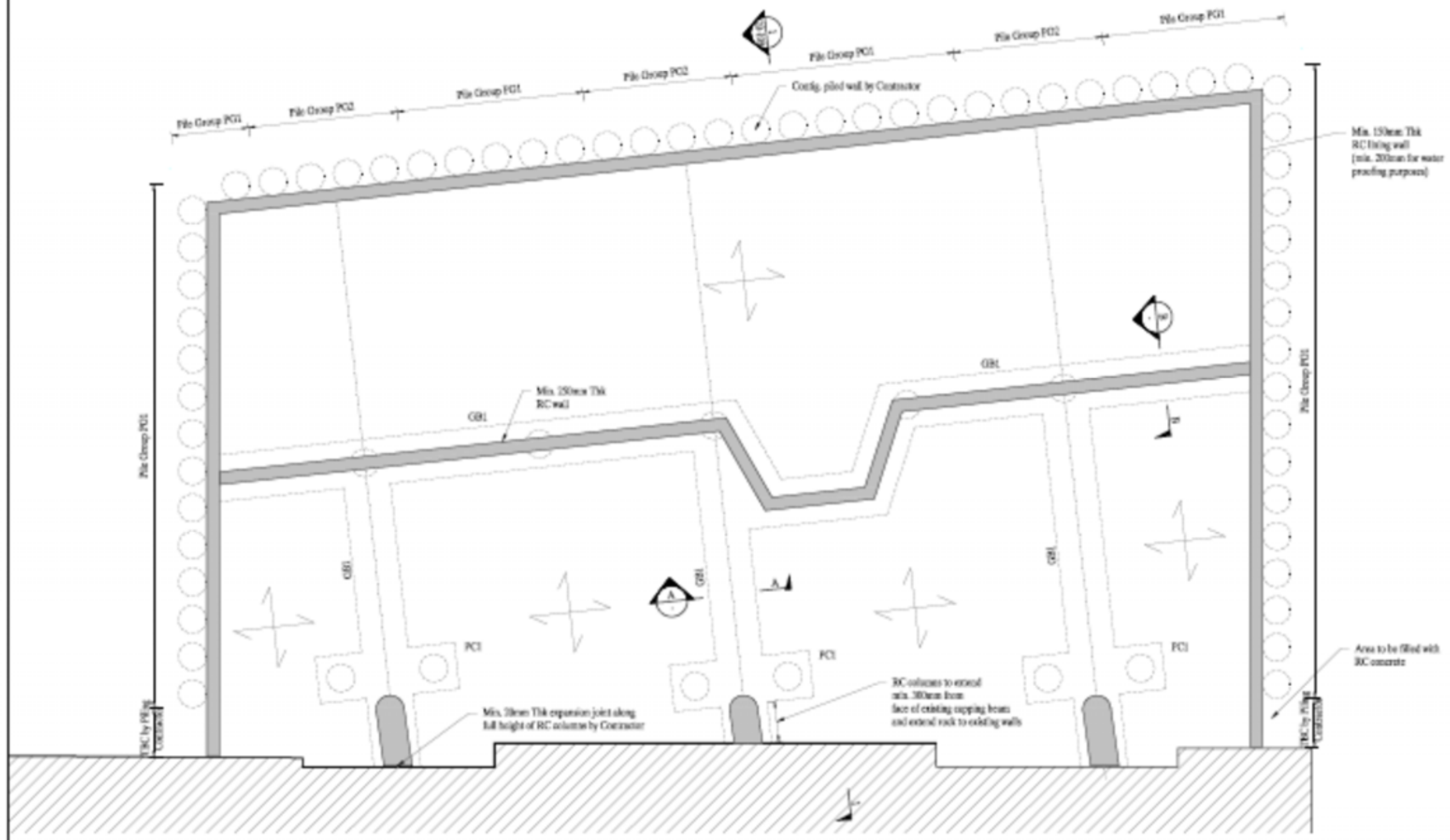
WARMHAZE LTD

10a BELMONT STREET
LONDON NW1

GENERAL ARRANGEMENT OF PILING

Status : PRELIMINARY

Scales:	As noted @ A1	Date:	APR 2015
Drawn:	JC	Engineer:	TF
Checked:	TF		
Drawing No.:	L1732-05-01	Revision:	



BASEMENT LAYOUT

Scale 1:50

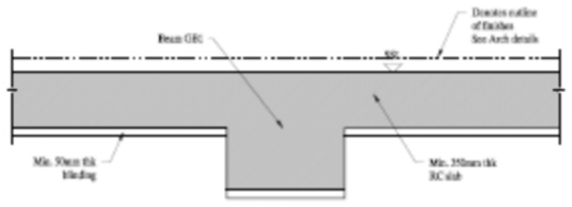
Key:
Min. 250mm thk RC slab on min. 50mm Thk blinding

GROUND BEAM SCHEDULE

BEAM	WIDTH (mm)	DEPTH (mm)	COMMENTS
GB1	1000	750	-

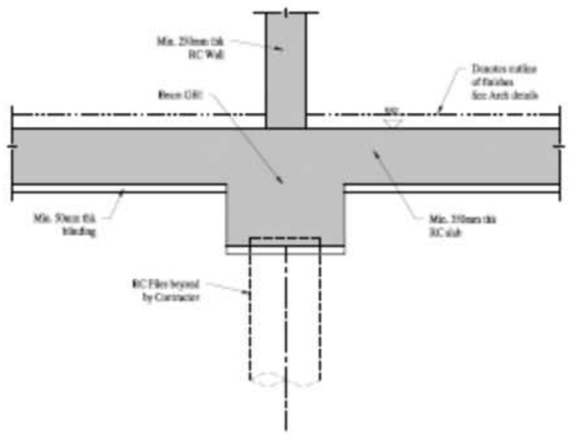
PILE CAP SCHEDULE

PILE CAP	LENGTH (mm)	WIDTH (mm)	DEPTH (mm)	COMMENTS:
PC1	2250	750	750	-



SECTION A - A

Scale 1:20



SECTION B - B

Scale 1:20

Rev.	Date	Drawn	Amendment
-	29.05.15	JC	Construction Review

PRINGUER-JAMES CONSULTING ENGINEERS
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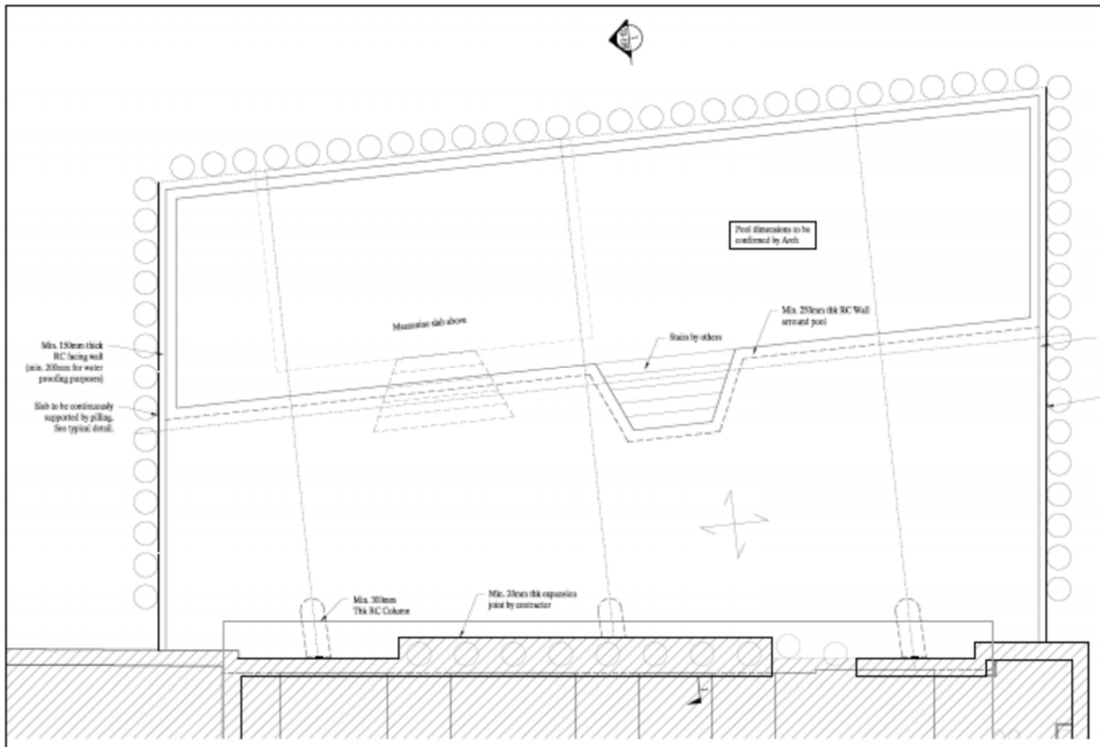
WARMHAZE LTD

10a BELMONT STREET
LONDON NW1

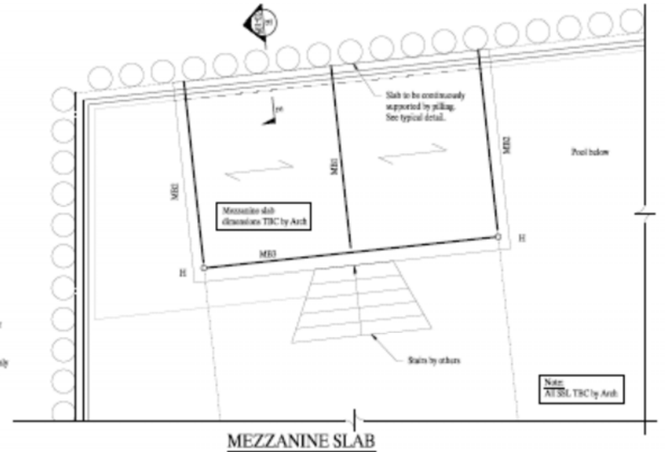
GENERAL ARRANGEMENT
BASEMENT LAYOUT

Status : PRELIMINARY

Scale: As noted @ A1 | Date: APR 2015
Drawn: JC | Engineer: TP | Checked: TP
Drawing No. L1732-05-02 | Revision



GENERAL ARRANGEMENT - SLAB ABOVE POOL EQUIPMENT AREA
Scale 1:50



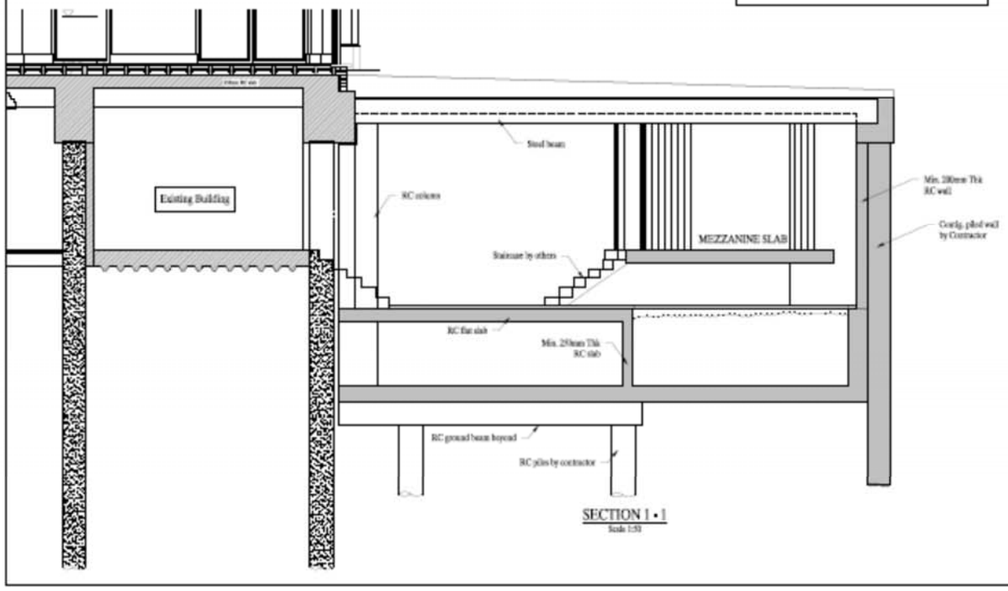
MEZZANINE SLAB
Scale 1:50

BEAM	TYPE	SHEAR (kN)	SPLICE MOMENT (kNm)	END MOMENT (kNm)	GRADE	Comments
MB1	UC 203x203x46	-	-	-	S355	TOS = TBC by Arch
MB2	UC 203x203x46	-	-	-	S355	TOS = TBC by Arch
MB2	UC 203x203x60	-	-	-	S355	TOS = TBC by Arch

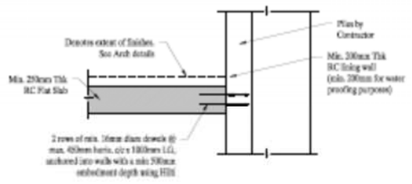
(All loads are factored ultimate limit states)
(All steelwork to have min 1 hour fire protection - details by architect)

COLUMN / HANGER	TYPE	AXIAL LOAD (kN)	MOMENT (kNm)	GRADE
H	CHS 114.3x5	-	-	S355

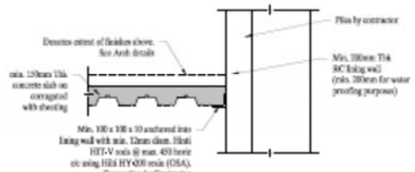
(All loads are factored ultimate limit states)
(All steelwork to have min 1 hour fire protection - details by architect)



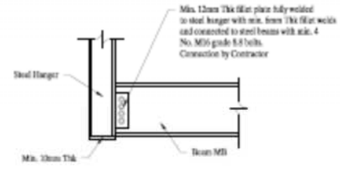
SECTION 1 - 1
Scale 1:50



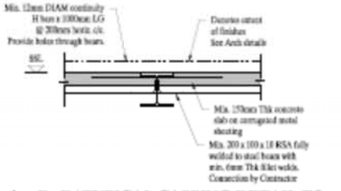
TYPICAL BEARING DETAIL OF FLAT SLAB ON WALLS
Scale 1:20



E - E
Scale 1:20



BEAMS TO STEEL HANGERS
TYPICAL CONNECTION OF STEEL
Scale 1:10



Section F - F / TYPICAL CAPPING DETAIL TO CONTIG PILED RETAINING WALLS
Scale 1:20

1 General
All Structural Engineering drawings are to be read with the specification and with all relevant Architects drawings and specifications.

Do not scale from any Structural Engineers drawing. All dimensions are to millimetres and levels in metres.

All waterproofing (DPM & DPC) works to Architects details.

All fire protection works in Architects details unless specifically noted otherwise.

Abbreviations•
SSL • Structural slab level — FFL • Finished floor level
CS • Column Stops — CC • Column Capped
C/O • Column Over — T.O.C • Top of Concrete
T.O.W • Top of Wall
UNO • Unless Noted Otherwise OSA • Or Similar Approved

The Contractor is responsible for the design, installation and maintenance of all necessary temporary works to ensure the strength and stability of the building throughout the course of the works. Drawings and calculations detailing all temporary works shall be submitted to the Engineer for comment prior to commencement of the works.

The existing structural information shown on these drawings is based on visual inspection of the building and upon limited opening up works. All details of the existing construction are subject to confirmation by the Contractor during the works on site.

2 Steel
All steelwork to be grade S275 to BS EN 10025. (UNO)

The steel structure is execution Class 2 (EXC2). It is highly recommend that the Steel Contractor(s) / Fabrication(s) appointed for the project are members of the BCSA. Otherwise, the Main Contractor or Client should complete the detailed design for those elements shown on the design drawings and produce coordinated drawings showing all connection details etc.

The steelwork fabricator shall produce and submit two copies of dimensioned fabrication drawings to the Engineer for comment. The Engineer requires two working days to return and comment.

All bolted connections are to include a minimum of two M16 bolts per member unless specifically indicated otherwise on details. All connection details to be designed by Contractor.

All bolts are to be grade 8.8 sherardised to BS 4921, class1. All bolts, nuts and washers are to be to BS 5931 Part 2 clause 2.2. Washers are to be placed beneath rotated item.

All welds to be minimum 6mm leg length continuous fillet welds unless specifically noted otherwise.

All steelwork coatings to be as specification and below. Coatings to be provided by Sherwin Williams Protective & Marine Coatings or similar approved. All coatings to be light grey in colour; red oxide is NOT to be used.

LOCATION	CATEGORY	PAINT SYSTEM
Internal dampproof free	C1 - Low	Ref. to Epoxy Zinc Phosphate coating (125 microns DFT) + Fleetcoat
Internal dry	C1 - Very Low	Ref. to Epoxy Zinc Phosphate coating (75 microns DFT) + Fleetcoat
Internal	C4 - High	Galvanized in accordance with BS EN ISO 1461 to achieve a minimum zinc coating thickness of 140 microns

3 Concrete
Concrete to be in accordance with BS EN 206-1 and as follows :
Blinding • C16/20
Mass concrete • C25/30
Reinforced concrete • C32/40

4 Masonry
All load bearing blockwork to have a minimum characteristic strength of 7.5N/mm². All loadbearing brickwork is to have a minimum characteristic strength of 20N/mm².

5 Timber
All timber members to be grade C16 to BS EN 1995 unless noted otherwise. Timber to be pressure impregnated with preservative and cut ends brush treated.

6 Fasteners
All fasteners to be concrete, min grade C25/25 using max 20 mm aggregate. All steel beams supported on padstones to bolted to padstones with min 3 No. (4) M20 HAS incl with HY 200 resin. (OSA.)

Rev.	Date	Drawn	Amendment
-	20.05.15	JC	Construction Review

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SLAB ABOVE POOL EQUIPMENT AREA / MEZZANINE SLAB

Status : PRELIMINARY

Scale :	As noted @ A1	Date :	APR 2015
Drawn :	JC	Engineer :	TP
Checked :	[JW]		
Drawing No.	L1732-20-109	Revision	