REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION, AREA B1B, COLCHESTER GARRISON

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1 INTRODUCTION

1.1 This written scheme of investigation (WSI) is for Stage 2 and 3 archaeological mitigation investigations of restricted impact locations at Colchester Alienated Land Area B1b, Flagstaff compound, Colchester Garrison (Fig. 1). The proposed 2.9ha development is for 140 residential units with around half of the existing buildings refurbished as private residences. This report updates an earlier WSI (RPS July 2014) which in turn updated a WSI prepared in 2008 for the previously consented scheme. The current scheme (application no. 131935 & 131936) for the erection of 138 residential units, along with demolition of buildings and creation of access, car and cycle parking, landscaping and open spaceôis now approved. The archaeological condition is as follows:

ñ*No works shall take place, including demolition, until a scheme of archaeological investigation (including programme of archaeological excavation, recording any finds and publishing the results) has been submitted and agreed, in writing, by the Local Planning authority.*

Reason: To enable a proper archaeological investigation of the site and the identification and recording of any items of archaeological importance.ò

1.2 Every effort has been made, in consultation with Historic England and CBC (at various meetings in 2013, 2014 and 2015) and additional email communications, to reduce archaeological impacts to a minimum. This consultation process and the provision of the July 2014 WSI led to Scheduled Monument Consent (SMC) St Johnôs Abbey (reference: S000894493) on 5th September 2014 and for the Roman Circus on 11th September 2014 (reference: S00089498). The July 2014 WSI was also approved by the then CBC Archaeological Officer in an email of 18th July 2014. Inevitably since then detailed design has required some minor modifications to some of the construction aspects set out in the RPS July 2014 WSI and as a result Historic England and the Colchester Borough Council Archaeological Officer (CBCAO) require this updated WSI to provide the updated detailed methodology for mitigation of impacts. Historic England confirmed (in a meeting of 2nd April 2015) that the exiting SMCôs remain in place and that this updated WSI is to be provided as an addendum to those SMCôs.

1.3 In terms of context Area B1b represents the meeting point of three Roman archaeology zones; Roman extra mural activity comprising a settlement area, cemetery and public entertainment in the form of the Roman circus (Fig. 2). Much of the area also lies within the precinct of St Johnôs Abbey (SM 26307). All development works with below ground impacts within the Scheduled Roman Circus (SM 35614) and the St Johnôs Abbey SM are subject to the Scheduled Monument Consent. The *c*.4ha land parcel is currently under the ownership of Taylor Wimpey for redevelopment. Most of the area comprises existing buildings, car parking and vehicular access routes, although the eastern area (of the proposed ôRose Gardenô and Nature Reserve) comprises rough scrub and trees. Development proposals within B1b will comprise demolition of several existing 20th century structures, construction of new residential units, refurbishment of the original 19th century structures, the provision of an upgraded access road running north from Napier Road through the area, resurfacing of areas of hard standing new services and the provision of a Rose Garden in the eastern area (See ôZone 7ôon Fig. 7).

1.4 The requirements for archaeological evaluation and mitigation of this land parcel were included in a 2004 strategy document (Colchester Garrison Alienated Land Outline Archaeological Project

Strategy Proposal and Quality Plan; RPS 2004). This document was required by and agreed by Colchester Borough Council and led to completion of trial trenching by CAT under RPS management in 2007 (CAT Report 438, January 2008). Trench locations (with broad interpretive comments) are provided on Figure 2. The red line boundary excludes the Napier Road Car Park site within the south-east corner of the Area B1b land parcel. Archaeological mitigation was undertaken within the car-park site during the construction of the car park in 2011 and 2013 (CAT 2014) and the results of those archaeological works are provided within the archaeological background section below.

1.5 The eastern end of the Roman circus is encountered in the southern area off the site. It should be noted that the entire area of the Roman circus, including Area B1b and has been the subject of a separate RPS report entitled ôImpact Assessment for Colchester Roman Circus Addendum to Chapter 15 (cultural Heritage) of the MoD Colchester Garrison PFI: composite Environmental Statement (Atkins, 2002)ô (RPS 2008). This WSI reviews the mitigation strategies proposed within that assessment document that relate specifically to Area B1b but there are no significant changes to the level of effect previously identified.

1.6 RPS, Taylor Wimpey and Richard Jackson Ltd (the Project Engineers) in consultation with Historic England, have facilitated a series of design mitigation solutions in order to ensure that impacts to archaeologically sensitive levels are as restricted as possible. These include raised foundations via use of minimal piling, raised surface construction and installation of services above archaeologically sensitive levels where possible. The design solutions and those locations where any archaeological monitoring, excavation and recording will be necessary, are shown graphically on a series of Richard Jackson Ltd strategy and design drawings (provided as Figs. 3 to 11) (NB the previous consented schemeôs implications drawings KLH 2026/440 and KLH 2026/441 are now obsolete). These have been updated following detailed design. In addition the remediation strategy has been developed since the last version of this WSI and this is appended in full as Appendix 5. Design changes prior to the further minor design modifications (i.e. between July 2014 and January 2015) have already been subject to amendments to the existing SMC and are approved by Historic England. These are provided as Appendix 6.

1.7 The Scheduled Monument descriptions are provided as Appendix 3 and Appendix 4. The Abbey SM description states that all visible and buried remains of the Abbey, including the gatehouse and precinct wall, in addition to part of the Roman extra-mural cemeteries that were later subsumed within the partially extant Abbey precinct wall, are included. The circus SM states that all buried elements of the Roman circus including the racetrack and a 10m buffer around the exterior cavea wall, are included. For clarity, in terms of buried remains, it is stated that all ground beneath the modern non-scheduled standing buildings, surfaces and services are included. The presence of below ground archaeology in these Scheduled areas was confirmed by the 2002 and 2007 trenching and by 2013 monitoring of SI works (CAT 2013).

1.8 An archaeological mitigation strategy for this site is provided below with further details provided as Appendix 1. The mitigation includes:

- Pre-investigation of the circus SM cavea wall position and possibility the spina (subject to detailed design) where crossed by the main north-south access road.
- Pre-investigation of the footprint of proposed Building NB3 in the St Johnôs Abbey SM

- Pre-investigation of soakaways to the north and west side of NB3
- Pre-investigation of a section of re-laid road adjacent to Building O
- Continuous archaeological monitoring and recording of services (including full excavation where corridor depth reaches archaeological levels), ground reductions (including full excavation where corridor depth reaches archaeological levels) and demolitions elsewhere

1.9 This document is specifically designed to provide a sound basis for fieldwork and post excavation practice for the completion of limited ground impacts as set out in Appendix 1 and shown on Figures 3-11. The WSI sets out proposals for the archaeological work including treatment of finds, production of a report, and deposition of the archive. It mirrors standards and practices contained in Guidelines on Standards and Practices for Archaeological Fieldwork in the Borough of Colchester (Colchester Borough Council's 1996, revised 1999). The CBCAO and -Historic England require this document in order to approve the specific locations of archaeological works and the aims and methods for archaeological recording and reporting. The WSI is prepared by RPS in association with CAT and will be adhered to by CAT.

1.10 The requirements set out in this WSI for protection of archaeological remains should be included within a Construction Management Plan.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Drift geology of the area is predominantly sands and gravel. This is occasionally in a clay matrix, and is sometimes capped by cover loam. The B1b site is broadly flat at around 34mOD in the southern and central areas falling to just above 30.0mOD to the north. The eastern area of scrub/tress (area of proposed Nature Reserve and Rose Garden) is more undulating due in part to the terracing of former tennis courts but also an undated earthen mound in the southern area.

2.2 The archaeological and historical setting of the Garrison redevelopment area has already been comprehensively explored in an archaeological desk-based assessment of the Colchester Garrison PFI site (CAT Report 97, by Kate Orr, 2000), and will only be summarised here.

2.3 **Prehistoric:** Neolithic and Bronze Age pits have been identified during the Alienated Land project within Areas C1, C2 and Flagstaff Road to the west of A1 suggestive of intermittent or seasonal occupation (CAT Report 361, Jan 2006). The possible storage pits within C1 appear to be dated to the middle-late Neolithic since they contained both Mildenhall Ware and Peterborough Ware and may therefore be transitional between these middle and late Neolithic traditions. The associated pits were considered to represent the earliest Neolithic features from Colchester but a probable tree removal pit found within T23 of the 2010 Area A1 evaluation are likely to be earlier. At least two further tree-holes or tree removal pits within the A1 evaluation trenches contained flint blades (one in each) and these finds may represent offerings made of cultural objects following initial tree clearance for early farming (Neolithic farmers are considered to have undertaken swidden or ôslash and burnô farming with temporary clearances made for several seasons of arable before movement to a fresh clearance and reversion to scrub). Another early pit found within Alienated Land Area C2 containing decorated Beaker pottery may date to the late Neolithic to early Bronze Age.

2.4 Other evidence from this period (3rd to early 2nd millennium BC) is extremely scant, and no features of this date were noted during the A1 evaluations. Middle to later Bronze Age features were similarly scant in A1, perhaps suggesting that the area was not occupied or farmed at this time (c.1400-800BC). However, a series of late Bronze Age pits further to the west, in Alienated Land Area J1, indicates one settlement focus.

2.5 The site (like much of the land south and south-west of Colchester's modern town centre) falls within the area of the pre-Roman (late Iron Age) oppidum of Camulodunum. The only above-ground traces of this oppidum are the linear banks and ditches of the defensive dyke system that surrounded it. The Garrison area occupies the eastern edge of the oppidum, and one of the defensive dykes (the Berechurch Dyke) crosses the extreme south-eastern edge of the Garrison (on the east edge of Roman Barracks).

2.6 As presently understood, the oppidum had two main centres of activity: at modern Gosbecks Farm (2km south-west of the Garrison), which was a Late Iron Age (LIA) and Roman rural farmstead (and possibly the home of Cunobelin); and Sheepen (2km north-west of the Garrison), which was the industrial and trading centre. Apart from these two large centres (above), it is likely that there were a number of smaller domestic and farming sites in the oppidum. One of these farms was identified by the field boundaries paddocks and other features recorded at Kirkee & McMunn Barracks in 1994 (Shimmin 1998: figs 8, 11) and another farmstead with origins in the latest Iron Age was investigated in 2010 at the former Goojerat Barracks (CAT 2012).

2.7 The most significant prehistoric remains identified and investigated during the Meeanee and Hyderabad Barracks (Area A1 immediately to the south-east of Area B1b) archaeological excavations in 2011 comprised a late Iron Age large dyke (ditch) of the oppidum. The dyke-ditch was found within the south-east corner of the Area A1 (excavation 'Site J2'), was some 7m wide and about 2.5m deep and was found to kink within area J1 from approximately north-south (at the south extent) to north-east-east proceeding east towards the River Colne (CAT forthcoming). Pottery from the base of the ditch confirmed its Late Iron Age date and comparison with the layout of Camulodunum's dykes (i.e. the defensive system of the royal estate of the late Iron Age kings of the Trinovantes and later the Catuvellauni) strongly suggests that the dyke in A1 is a continuation of the previously known 'Berechurch Dyke', from 1km to the south, that formed the eastern side of Camulodunum. In addition to the farms and dykes a large area of cropmarks is recorded over the southern part of the Garrison area. Geophysical survey has confirmed and added to the pattern of linear cropmark features (CAT Report 184).

2.8 **Roman:** The remains of a major Roman road junction is located north-west of the site under Colchester Boys High School, from which roads radiated out to London, the Roman site at Gosbecks. It is also possible that a road ran eastwards from the junction though the grounds of St John's Abbey. In addition a wide Roman ditched and metalled track or road found in Taylor Wimpey land parcel Area J1 (where it was flanked by hundreds of burials extending into Area H) would appear to link with this road junction, if continued to the north-west, whilst it appears to continue southwards into the rural hinterland of the town. The northern area of the Abbey was built over a Roman cemetery area. A total of 34 Roman inhumations were found during excavations from 1971 to 1985 in the Abbey grounds, to the north and north-east of Area B1b, the shallowest being about 1m below ground level. Other inhumations have been found within this area since the 19th century, including some interred in lead coffins.

2.9 No burials were known within the Flagstaff House proposal site until the find of an inhumation in the southern area near Napier Road in 2006 (CAT 2011). Numerous Roman burials have also been recently found during the Taylor Wimpey Colchester Garrison development areas in the vicinity of B1b, most notably (in terms of proximity) within Area C2, Napier Road Car Park & Napier Road (collectively over 100 burials) and within Area A1 (c.100 burials). Over 400 burials were excavated further to the west within Taylor Wimpey Area J1 (near Butt Road) in 2004 (CAT 2011) with a further c.380 excavated within Area H in 2012 and early 2013 (CAT forthcoming).

2.10 The south and south-western area of Area B1b is now known to contain nationally important Roman archaeology. A stone built monumental Roman circus, currently unique to Britain, has been discovered during excavations in Alienated Land Areas C1, C2 and J1 to the NE of Area J2 in 2004 and 2005, with further walls and a monument base uncovered during service works at Napier Road in 2006 (see Fig. 1) (CAT 2011). The western end of the spina was found beneath Circular Road North in 2007 whilst the starting gates themselves were partially exposed by CAT excavations in 2007 (ibid). The east-west orientated circus is approximately 450m in length and 70m wide with a central 'spina' barrier and was used for chariot racing. Elements identified to date include the seating cavea with internal and external (buttressed) walls, two entrance ways through the southern cavea, a lowered racetrack dirt surface (the removed topsoil was presumably used to construct cavea banks on which seating was constructed), a segment of the semi-circular end of the circus, a fragment of the starting gates structures (demonstrating bays for eight chariots rather than twelve), a monument base on the line of the spina (for an obelisk?),

and further elements of the spina including its western end and a fragment of a turning post pillar (metae).

2.11 The circus runs through the southern area of Flagstaff compound to its eastern extent to the west of the existing car park in the south-east corner of the Flagstaff compound (as shown on Figure 2). The area represents the eastern c.158m of its northern cavea walls, probably just over 100m of the central spina (the precise eastern end of which remains uncertain) and the majority of the semicircular end (the southernmost fragment of the curve was recorded within Napier Road to the immediate south). The outer wall is approximately 0.8m wide and up to 0.5m deep with the inner wall less substantial. The circus foundations have largely been robbed out (probably during the medieval period) but significantly *in-situ* footings and buttresses were uncovered in both Area C2 and Napier Road to the south. The unpredictable nature of the survival of footings is however highlighted at Area C1 and Flagstaff Road where they were entirely robbed, whilst two narrow trenches dug in the Flagstaff compound by CAT in 2006 (FHT2 and 3) in search of the circus found the outer cavea wall to have been robbed there too. The 2006 trenches, with the Napier Road circus curve, confirm the degree of curvature of the semicircular end. The 2006 (FHT2) trench also located an inhumation burial buried against the outer wall. The burial is most likely to be of later Roman or Saxon date.

2.12 It was normal for there to have been a monumental entrance at the apex of the semicircular end of Roman circuses. At present, and assuming this is the case at Colchester, the arch would have been at least partially below a later extension to the east wing of the Victorian building (Building A on Fig. 3 - the removal of this later addition from above the site of the arch is therefore beneficial to the reading of the circus layout). The outer wall of the circus was apparently pulled down in the late Roman period, as represented by rubble spreads exterior to the outer wall noted in the excavations, whilst the inner (podium) wall fell forwards into the track in some areas (e.g. at Napier Road). This evidence suggests a seating bank between the walls was still upstanding when the walls fell. In some areas (e.g. at Areas C1, C2 and in B1b) a metalled surface representing a track has been identified around the circus.

2.13 Development Areas A1, C2, H, Napier Road, Circular Road North, Napier Road Car Park, and investigation of Abbey Field have shown that areas around the circus were used for cemeteries, both during and after the second to third century use of the circus. However, significantly in the area to the north of the circus, including the central and northern area of B1b continuing north into Area B1a, evaluation trenching in 2002 and again in 2007 has provided indications of extra mural settlement instead.

2.14 2002 Trench 2 contained two Roman ditches (BF202-203) and a Roman pit (BF206) at a depth of 670mm, whilst trench 6 contained a Roman pit (BF605/613) containing a substantial assemblage of early-mid 2nd century pottery at a depth of 880mm. Residual finds from trench B3 included probable Roman briquetage and a coin of Domitian (AD 83-96), whilst trench B2 produced coins of Hadrian (AD117-18 or 119-38) and Trajan (AD98-117). A model of a Roman ópipe clay bed with occupantôwas previously listed as a find just to the east of B1a (UAD 1122). Further pottery and tile of Roman date has been recovered from the south-eastern area of Flagstaff House (UAD 10 and 1157) and during recent service works on Flagstaff Road. The recent stage 1b evaluation of Area B1a identified further Roman pits within trench 8 along with possibly associated post holes (CAT Report 405, January 2007). Here, in addition to large unabraded sherds of 2nd-3rd century date and 1st and 4th century residual finds, 26 fragments of painted wall plaster combined with the identification of at least two post holes, suggest timber framed buildings with

some pretensions of grandeur in the close vicinity. Further information on the specific results of the 2002 and the 2007 evaluations and associated with a CAT watching brief on geotechnical works in 2013, with regard to Roman remains, is provided separately in section 3 below.

2.15 **Saxon:** An Early Saxon cemetery just east of Mersea Road (as suggested by fragmentary remains and grave goods) may encroach into the eastern Abbey precinct. Further evidence for the period was identified in 1972 when the remains of the small Anglo-Saxon church of St John were excavated before the construction of St Botolphôs roundabout. A coin of Elthelred was found in 1852 in the vicinity of the northern edge of Area B1b (UAD 1181) but the only Saxon find during the 2002 evaluation comprised a residual Middle Saxon sherd within trench B3. Whilst this could allude to occupation in the vicinity there is currently no firm evidence.

2.16 The burial ground in the north-west corner of Area A1 comprised about 70 öRomanô inhumation graves, although some or many of these may alternatively be post-Roman graves, and around ten Roman cremations and öpyre-pitsô The earliest burials may be two stone walled mausoleum enclosed burials (an inhumation and a cremation) in the south zone which date to the second or third century AD. The cremations are also Roman, ranging in date from second to third/fourth century. However, the inhumations may date to either (or both) the late Roman period or the early Saxon period. Many contained Roman pottery, one woman was found with a Roman style necklace with a late Roman coin, but three graves contained weapons (spear heads with iron shield bosses) which date to the sixth century AD. These were associated with at least four ring-ditches of probable barrows, of a form also seen in the late 3rd century at Area C1/Napier Road/ Circular Road North, - they are therefore Roman, but which are also similar to typical early Saxon small barrows elsewhere in eastern England.

2.17 On balance the majority of the cemetery is likely to date to the 6^{th}-7^{th} century. As noted there were certainly 5th to 7th century early Saxon burials found in the late 19th century to the north of the Area A1 and east of Area B1b (whilst a Saxon cremation may have been recovered from Area A1 in 1926).

2.18 **Medieval:** The remains of St Johnôs Abbey is the dominant standing archaeological feature in the northern area of the overall Taylor Wimpey development site. As indicated parts of the Abbey walls still survive, along with the magnificent Abbey gatehouse, but the remainder of the Abbey is not visible above ground. The fact that the south-western area within the Abbey precinct in Area B1b is not part of the SM (see Fig.2) does not detract from the potential importance of below-ground remains which, as stated in the Environmental Statement (Atkins 2002) could include domestic buildings belonging to the Abbey, the abbotôs lodgings, guestsôlodgings and gardens. The precise location of the Abbey Church is now known. Following a fire at the Garrison Officers Club building, evaluation trenching by CAT exposed extremely large robber trenches which indicate the site of the abbey church. These investigations demonstrate that the church was located further north than was previously thought (CAT Report in prep.). The middle and then the west end of the church were located, and subsequent geophysical survey by Dr Tim Dennis detected the east end. Area B1b also appears to be located to the south of the medieval abbey church cemetery.

2.19 The following text for the Medieval period is taken from the DBA (CAT Report 97, 2000):

> **The Abbey was built by the Benedictine Order by 1115 but burnt down in 1133. It was rebuilt in the early 13th century. The cruciform –shaped church is thought to have stood in the north of**

> **the Abbey precinct. A wall was seen during investigations at St Botolph's roundabout in 1972 and 1986 which might be part of the church. Human remains, certainly medieval burials associated with the Abbey, have been recorded several times in this area (Crummy et al 1993, 203-221). The church was added to and altered in the 14th and 15th centuries. To the north of the church were the cloister, chapel house and domestic buildings. Some of the domestic buildings were said to have been moved to the south side of the church after 1133 and this has been backed up by archaeological evidence (Crummy 1981, 28-30)…**
>
> **The Abbey and St Giles's Church were surrounded by a precinct wall with towers. The wall dates from before the 13th century and was refaced in parts in the 16th century. It was partly demolished when building St Botolph's roundabout in the early 1970's, but it was recorded before its destruction (Crummy et al 1993, 219). Surviving stretches (some refaced in brick) can still be seen in various places …**
>
> **The surviving Abbey gatehouse was built in the 15th century as the main gatehouse, giving access to the town. The upper storey was blown up during the Siege in 1648 and was rebuilt, probably in the 1840s...The building is Grade 1 Listed and is also scheduled. It is possible that there was a second gatehouse, in the Flagstaff House area.**
>
> **The Abbey was dissolved in 1538 and started to fall down or be demolished at this time.**

2.20 The Abbey precinct wall survives along the full length of the eastern side of B1b along Mersea Road, as a short section along the western edge against Flagstaff Road, whilst the southern wall remains as a standing structure along the northern edge of the car park in the South-East area of B1b and as another short segment about 40m to the east. The wall line is thought from cartographic sources to have had a dog-leg form in the western area of B1b (see Fig. 2) where it does not survive intact. There was little evidence for Abbey period archaeology within 2002 trenches B1-6, although a large group of Colchester-type ware came from trench B1 including cisterns and cooking pots that must have been part of a pre-Dissolution dump of domestic rubbish from the Abbey. The Area B1a 2007 trenching (CAT Report 405) did however identify a short section of in-situ wall and a robber trench of probable medieval date, possibly both from a single building against the to the northern precinct wall. Further information on the specific results of the 2002 and the 2007 evaluations, with regard to medieval remains, is provided separately in section 3 below.

2.21 **Post-medieval:** The DBA further states:

> **(The Abbey) passed through many hands including the Lucas family, was confiscated during the Civil War, and then changed ownership several times until it was bought by the War Office in 1860. Maps from 1610 and 1648 show (possibly) part of the abbey church, other abbey buildings and part of the precinct wall still standing. These maps may not be entirely accurate; however, some abbey buildings may still have been standing at this time but having different uses. Lucas's house is one of these (see section 6.8.6). There also appears on these maps to be buildings to the west of the abbey gatehouse (where Abbey House is now) and to the north of Lucas's house (on Flagstaff Road).**

2.22 Evidence for post dissolution activity at the site of St John's Abbey was located within four trenches within Area B in 2002. A dense area of post-medieval (16th-19th century) pitting was encountered within trench B3 (pits BF304/5/7/10/14/15/17-20/22/25/28-30/33/34/36-39/41 and 42) in the northern area of B1b. Similar pitting has been found in Area B1a to the north. Other features included post holes suggesting the presence of building (BF306/26/27/31 and 32) and a dog burial (BF303). Trenches B1-3 of the 2002 evaluation and trenches 7 and 8 of the 2007 trenching therefore suggest relatively intensive post-Dissolution and more recent activity within the north-west area of B1b and in Area B1a. Most of the features within trenches B2 and 3 post date 1648 and the post-holes within trench B3 in particular clearly post-date the Civil War. Further information on the specific results of the 2002 and the 2007 evaluations, with regard to post-medieval remains, is provided separately in section 3 below.

2.23 **Historic maps:** Speeds Map of Colchester 1610 has little detail and is not to scale but shows the precinct wall with buildings in the south-west area of the compound and a tall church building in the central northern area. The remainder of the area within the Flagstaff compound appears to have been open ground. This situation is consistent with the Siege Map of 1648 (which shows 'Lucas House' in the south-west area) and the French map of Colchester 1650 (which also shows a church located south-east of the gatehouse, probably within area B2). Philip Morant's 'Map of Colchester 1748' shows greater detail of ordered orchards within Area B1b, although the only buildings are along the dog-leg section of the western precinct perimeter wall (no other buildings are shown in the central area of the precinct south of the gatehouse). This situation is confirmed by Thomas Sparrow's map of Colchester 1767, Chapman and Andre's map of the County of Essex – Colchester Town centre- 1777 and Cole & Roper's map of Colchester c.1800-1815. These also show a 'mount' in the south-east area of the compound. This appears to correspond with 'The Mount' shown on the modern OS and represented by an earth mound north of the standing section of precinct wall that flanks the northern side of the car park. The most probable explanation is an association with the siege works.

2.24 The OS 1st Edition 1:10,560 map of 1874-1876 shows that after the construction of barrack blocks to the west the area continued to be occupied by gardens prior to a sequence of development of military buildings within the Flagstaff compound. The map shows the buildings to be retained that flank Flagstaff Road and the two structures that stand on top of the Roman circus.

3 EVALUATION RESULTS

3.1 Prior to 2002 and the instigation of the Colchester Garrison PFI project there were few archaeological finds within the specific B1b site on HER (historic environment record held by the Colchester Museums Service of Colchester Borough Council). However, the archaeological context of the area is now relatively well understood following a series of evaluations and excavations conducted in adjacent areas since 2000.

3.2 Trial trenching was undertaken in two stages (Stages 1a and 1b). This was followed in 2013 by a watching brief on geotechnical works (CAT 2013). The first phase was undertaken on behalf of RMPA Services in advance of outline planning permission in 2002. Part of the trial trenching had previously been undertaken on behalf of RMPA Services in advance of outline planning permission in 2002 (Stage 1a). At this time Colchester Archaeological Trust, managed by RPS, undertook trenching in available areas to provide a 0.21% sample of the area. This comprised 4 trenches within grassed and tarmac areas to the east of Flagstaff Road (comprising 84 square metres). Trench B3 was located on grass south of Abbey House, trench B4 was located on grass in the eastern area of B1b whilst trenches B5 and B6 were located within the main car park area within the western area of B1b (CAT report 206, August 2002, see Figure 2). Trenches B1 and B2 of the 2002 evaluation were located immediately to the north of B1b within Area B1a whilst further trenching within B1a, trenches B7 and B8 was conducted in 2007 (CAT Report 405, January 2007). These recent investigations have greatly supplemented the previous Urban Archaeological Database (UAD) records held by Colchester Museum. For the Roman period these included finds of Roman roof tile, pottery, oyster shell and animal bone within a test pit in the central/eastern area of the site (UAD 10/1197).

3.3 For Stage 1b trenching an initial trenching plan providing up to 3% trenching by area was prepared by CAT and RPS for discussion at an on site meeting with English Heritage (now Historic England), the CBCAO, Taylor Wimpey and CAT on 3rd April 2007. At the meeting this 3% sample was reduced as certain areas could to be avoided/ partially avoided by trenching due to a lack of intrusive construction works. These areas comprise the Rose Garden and Nature Reserve area in the eastern area and most of the area within the Roman circus in the south and south-western area. The trenches excavated in 2007 are shown on Figure 2 and equated to a further 2.32% trenching (making a total of 2.53%, 927 square metres and 515m linear of 1.8m wide trenches). The information obtained from the combined Stage 1a and 1b evaluations has determined whether further mitigation (excavations, Continuous archaeological monitoring and recording or avoidance strategies) are required ahead of or during the construction phase.

3.4 The 2002 evaluation found that archaeological deposits were buried between 0.67m (Trench BT2) and a metre below present ground level in the northern area (Trench BT3) whilst remains in the central and southern area were identified at between 0.5m ï 0.88m depths. However, the Roman circus (see below) is known to have elements that are buried at just below circa 0.3m depth just to the south within Napier Road.

3.5 The full results of the trenching undertaken in 2007 are provided within a CAT report (CAT Report 438, January 2008). Twenty five trenches were excavated (NB this was undertaken prior to the scheduling of the circus). Trenches 9-15 (130m linear) were located within the Abbey SM and therefore required SM consent. These trenches, combined with trenches 16-22 (215m linear) in

the central area of B1b, were designed to establish the presence/absence and extent of extra mural Roman settlement and of any monastic structures that may extend into B1b, particularly in areas of potential new build in the north-east area and beneath buildings to be demolished in the northern and central areas. Trenches 17 and 20 were also designed to inform the likely impact of an upgrade of the existing access through the Flagstaff compound.

3.6 Trenches 23-29 were designed to intercept the projected elements of the Roman circus and the area immediately around the circus, and includes trench 23 designed to intercept the northern walls, 28 and 29 to intercept the curved eastern end and to evaluate a possible alternative access route around the eastern end of the circus, trench 26 and 27 to define the spina and its probable eastern end point, in addition to the race track. In particular trench 27 was designed to inform the impact on the circus of an upgrade of the existing access through the Flagstaff compound whilst trenches 26 and 27 were offset from this route line due to the location of extensive services on the actual alignment of the access (they nevertheless provide information on the likely depth and character of the archaeology between the services on the route line itself).

3.7 Trenches 30-33 were designed to investigate the archaeological potential of the south east car park. The development would entail reconstruction of the car park, therefore the depth of archaeological remains will be critical for the formulation of methodologies that facilitate preservation in situ (where possible). The trenches uncovered evidence for prehistoric, Roman, medieval and post-medieval activity. These periods are summarised in turn below (based on CAT Report 438):

Prehistoric

3.8 Three prehistoric flints were recovered from Area B1b. There were no prehistoric sherds. This would indicate low levels of pre-Roman activity on this site.

Roman

3.9 Area B1b is now known to be the extra-ordinary meeting point of three significant extra mural activities from c.30m to the south of the Roman town wall. These comprise a settlement zone in the northern area, the eastern end of the recently discovered Roman circus public entertainment building in the south- western area and part of the southern cemeteries within the south-east corner of B1b.

3.10 Evidence for extra-mural Roman settlement: Roman pottery (22kg) and brick/tile (57kg) were very common residual finds from Area B1b. This clearly indicates a high level of Roman activity here. The pottery and brick/tile is presumably derived from domestic activity and Roman buildings in this area. Unfortunately, it is not possible to be more specific because no Roman structures (other than the circus, below) were apparent among the excavated remains. The domestic site appears to focus on the group of trenches to the north of the Roman circus with specifically Roman pits within T10, T12 and T13. Further domestic pits were identified and sampled during the 2002 evaluation within trenches BT2 and BT6.

3.11 A possible Roman ditch from T17 can be added to the two Roman ditches within BT2 of the 2002 evaluation (in area B1a). In addition large quantities of Roman pottery were also recovered from pits and post-holes in the adjacent 2007 evaluation area of B1a where painted wall plaster suggested structures of some pretensions. Quarry or large pit F94 in T12 produced an average sherd weight of 28.1g (259 sherds weighing 7kg) whilst quarry F28 of T31 in the south-east area

of B1b produced an average sherd weight of 12.15g (151 sherds). This tends to suggest that the settlement was indeed focussed north of the Roman circus around T12 with T31 peripheral (as can be expected in an area associated with burials at the east end of the circus). Although no buildings of Roman date were identified the large quantity of brick and tile recovered (comprising 37 pieces of imbrex and 315 tegula fragments from roofing, 19 flue tile fragments from hypocausts, 49 brick fragments and 12 tesserae from floors) confirm that town type or 'villa' buildings were located in this area. The suggested area of this 'settlement zone' is shown on Fig. 2.

3.12 Evidence for Roman burials and quarries: Roman cemetery areas can be more closely identified within the recently constructed Napier Road (northern) Car Park (CAT 2008 and 2014). Several were identified during the evaluation of Area Blb. Two inhumation burials were excavated in T33 and one cremation burial in T31 deep within a then partially infilled quarry pit, at the south end of Area B1b (and south of the later Abbey precinct wall). A density of burials was subsequently excavated in 2011 during the deeper drainage and attenuation works for the new car park (CAT Report 652, 2014). However, the majority of the archaeology was preserved due to sensitive construction methods that retained modern cover over the archaeology. Similar works for the southern Napier Road car park in 2013 have also uncovered Roman burials within attenuation/drainage works (CAT Report 652, 2014). These burials were probably part of the wider Roman cemetery excavated in GAL Area C2 (c.66 burials) in 2004 (150m WSW of this site: CAT Report 361) and within Napier Road in 2006 (7 burials) (CAT Report 412, 2011).

3.13 Apart from those burials, three more (at least) can be inferred from finds probably derived from disturbed Roman burials - a copper alloy armlet in T10, a pottery lamp in T23, and a glass fragment in T30. The T30 and perhaps the T23 potential burials can be counted as part of the same burial area just mentioned, with the additional information that the possible T23 site burial must have been close to the north wall of the circus. The outlier is the find in T10 on the north edge of Area B1b which may simply reflect a casual loss.

3.14 **The Roman Circus:** The predicted position of the east end of the Roman circus coincided with the southern edge of Area B1b, and five trenches were specifically targeted on the circus structure. Modern and post-medieval intrusions in T23 had cut away the cavea walls. Trench 26 had two targets - the circus spina, and St John's Abbey precinct wall. The in situ foundations of the precinct wall were located, rather than the circus spina, although an undated ditch-like feature on the alignment of the spina may well have been related in some way such as drainage. Trench T27 was positioned over the circus' racing track area. Greensand blocks were found laying within a wide eroded feature. The stone debris is considered to represent the robbed or collapsed remains of the eastern end of the spina of the Roman circus, which lay only 2m north-west of the north end of T27. As indicated in the text above the hollow was quite possibly caused by chariot erosion as the charioteers turned sharply around the eastern turning posts.

3.15 T28 intercepted the curved east end of the circus, and revealed the robber trench of the outer cavea wall. This foundation cut contained peg-tile, which must indicate that however early the robbing of the circus structure began, robbing was still current in the later medieval or even the post-medieval period. Trench 28 also exposed a well laid gravel surface on the outer side, in this case at the north-east end of the circus. This gravel surface matches similar gravel surfaces found on the outer side of the circus on GAL sites C1 and C2 (CAT Report 361; CAT Report 412, 2011). Cleaning above the gravel surface produced pottery of the late 2nd to 3rd century AD, but the initial use of the surface will predate these finds.

3.16 Additional SI monitoring by CAT in 2013 (CAT Report 730, October 2013) included the identification of the northern cavea wall as robbed features at TP1, adjacent to the location of previous trench 23 and at TP3 immediately east of retained Building H. These confirm the previously calculated position of the walls and their depth of burial (c.400-500mm at TP1 and c.810mm at TP3). However, TP4, positioned immediately south-east of Building A and over the position of the inner cavea wall at the curved eastern end of the circus, proved this area is heavily truncated by a large post-medieval quarry and no Roman remains are likely to be preserved there. A further TP (TP5) outside the circus walls in this area was similarly disturbed. In addition two test pits were investigated within the track of the circus. TP2 south of the spina just west of the proposed access road encountered post-medieval pits and an undifferentiated 950mm thick ôtopsoil depositô above natural gravel, some 300mm below modern surface deposits. TP11 was designed both as an SI pit and to mitigate the impact of the proposed square attenuation area (shown on Fig. 5) in advance. The natural sand and gravel was encountered at 750mm to 850mm depth. No trace of archaeology associated with the circus was identified.

Anglo-Saxon

3.17 In view of the fact that Anglo-Saxon burials are recorded as having been found on the east side of Mersea Road (CAR 1, fig 2), it is surprising that no Anglo-Saxon material was recovered from this evaluation.

Medieval

3.18 Features contemporary with Abbey: The southern face of the Abbey precinct wall foundation was exposed in T26. It was solidly built with Roman brick and tile, septaria chunks and greensand fragments bonded in a yellow sandy lime mortar. Area B1b coincided with the southern and western part of St Johnôs Abbey precinct, well to the south of the Abbey church. The expectation prior to evaluation was that the remains of buildings ancillary to the Abbey might be found. Despite this, only one structure could definitely be associated with the medieval Abbey. The evidence comprised a right angle of wall with a rough stone surface on its west side and a clay floor on its east side, within Trench T18. This appears to have been the south-west corner of building with an internal clay floor. Given the position of this structure, it is tempting to speculate that this was the south-west corner of the Abbey cloister. The clay floor would perhaps make this unlikely, but the possibility remains to be proven or disproved at a later date.

3.19 The back-filling of a simple pit built lime kiln in T17c, located close to the right-angle connection of the north-south and east-west wings of the proposed new building NB5,- is dated to the 13th century. It may be inferred therefore that the kilnôs period of use was contemporary with the rebuilding of the Abbey after the major fire of AD1133, and that it was used to produce lime mortar at that time.

3.20 T9 and T11 produced large amounts of kitchen waste (i.e. the middens) probably the result of the disposal of food waste from the Abbey kitchens. The deposits are dated by a token of AD1380-1422 and also by peg-tile. As the trenches are so close together, it would be expected that they are contemporary and were from the latter period of abbey use.

3.21 Finds from the Abbey church include thick window glass from T14. This trench was probably within 50 metres of the site of the Abbey church, and the glass is almost certainly from the Abbey church windows. Four pieces have grozed edges, showing that they formed part of panels in a stained-glass window. One piece has surface painting (tendrils?). This glass is probably of 14th-

or 15th-century date, and so would be contemporary with a repair of or an addition to the original Abbey structure. Various fragments of glazed medieval floor tiles from floor tiles are probably derived from abbey complex buildings.

3.22 Another possible association with the Abbey is indicated by the distribution of fragments of lava quern. These were traded into Britain in both the Roman and the medieval period, so fragments can date to either period. It is quite possible that all these fragments are Roman (and residual), but all the find-spots (T11, T12, T22 and T25) are inside the Abbey precinct wall, and an association with ancillary Abbey structures (kitchens?) can be suggested.

3.23 There are other walls which may or may not be part of the Abbey complex. These are walls which contained peg-tile, in T25 and T9. Unfortunately, peg-tile can occur in both medieval and post-medieval contexts and it is therefore not clear whether these walls are late medieval (and so connected with the Abbey), or post-medieval (and associated with post-Dissolution use of the site).

Post-Dissolution

3.24 Walls in T25 and T9 which contain peg-tile may be part of the post-Dissolution buildings on this site. The major known structure of this period is the Lucas mansion, and these might be walls connected with it. Another wall of certain post-medieval date was found in T22. Again, this may be part of the Lucas mansion or its ancillary buildings. Two pieces of window glass from T23 may also be fragments from the windows of the Lucas mansion.

4 STRATEGY AND IMPACTS

4.1 This method statement is in accordance with the research design developed in consultation with CBC and complies with the guidelines laid down in Planning Policy Guidance on Archaeology and Planning (NPPF) and with the Institute of Field Archaeologistsô Standards and Guidance for Archaeological Excavations (IFA 1997 as revised 2008). CAT (the contractor) will liaise closely with RPS (the Archaeological Project Managers) and Taylor Wimpey (Project Managers) with respect to all important matters concerning the co-ordination and management of the project. CBC and HE will be kept fully informed of all archaeological developments. All archaeological excavation areas will be monitored and ósigned offô by the Archaeological Project Managers, and the CBC/HE monitors prior to any further construction works by the contractor.

4.2 The general aim of the archaeological recording works is to ensure that any archaeological levels that cannot be avoided through design solutions, and are exposed during pre-construction excavation or construction phase, are subject to continuous archaeological monitoring and are excavated and recorded sufficiently to characterise the nature, date, function and importance of the archaeological features within the effected area. The overarching research themes, as stated in the research design are to:

- Inform how the landscape was used and to what level of intensification, prior to the construction of Camulodunum (are there further indications of late Neolithic and Bronze Age settlement?);
- To elucidate the nature of spatial organisation within the oppidum;
- To address the question of the effect of the establishment of the Roman town on the agricultural hinterland;
- Elucidate the relative density of Roman burials and the influence of the recently discovered Roman circus across the northern zone of Colchester garrison.

4.3 Specific Aims: The results of previous excavations in this area in conjunction with similar work elsewhere in England, especially the southeast, enable the following issues in relation to the cemeteries to be identified as research priorities for the Alienated Land:

Roman circus SM

- To record and report any minor impacts to the Roman circus and to place the findings within the wider understanding of the structure and its functions.

Extra mural Roman settlement zone

- To further elucidate the location of Roman burials in B1b and presence of possible settlement related features that may suggest this area was a suburb in the Roman period and/or whether these features relate to activities associated with the circus.

Medieval Abbey remains

- To determine whether there were any burials, buildings such as workshops/ other domestic activities, physical evidence of gardens, or other evidence for monastic activities via

continuous archaeological monitoring and recording of ground intrusions, and if so excavate and assess their significance;

- To record and assess the significance of any remains of the abbey precinct wall foundation that may be exposed by attenuation service works south of new building NB5 and/or during works associated with new building NB5.

4.4 All construction phases will be communicated by Taylor Wimpey to RPS (the archaeological project managers) at least two weeks before any planned works proceed. RPS will then communicate these works to Historic England and CBC and provide opportunities for HE/CBC to visit the site. The following text comprises an assessment of the archaeological impact that is likely to occur from demolition and construction associated with demolition of structures, construction of the new (NB1, NB2, NB3, NB4 & NB5) and to be refurbished buildings (A, C, E, F, G, H, & I), service provision and SUDS, surface treatments & circus demarcation. For the purpose of the archaeological project the site is described as seven zones, two within the Roman circus SM, three within the St John's Abbey SM and two within the non-scheduled central area of the site. These comprise;

- Zone 1 – Eastern end of the circus including retained Buildings A and F (circus SM)
- Zone 2 – Western extent of the circus within B1b including retained Buildings G and H (circus SM)
- Zone 3 – Central eastern zone including NB1 and retained Buildings C ad E
- Zone 4 – Central western zone including NB4 and retained Building I
- Zone 5 – Western zone of St John's Abbey SM within B1b including NB4
- Zone 6 – North-eastern zone of the St John's Abbey SM within B1b including NB2, NB3 and retained Building O
- Zone 7 – Eastern zone of St John's Abbey comprising Rose Garden & Nature Reserve

Development Proposals and the Roman Circus SM (See Figs 3, 5 & 7)

4.5 The following highlighted text is derived from the Roman Circus addendum to the Environmental Statement (RPS 2008a) and was included within the 2008 WSI (RPS 2008b). The text sets out both the context of the circus related finds and the mitigation strategies that will be required to offset the minor physical impacts (the figure nos relate to the 2008 ES addendum document).

> **'The eastern end of the circus intercepts the southern and south-western area of the Flagstaff compound (B1b). The circus remains were targeted for evaluation purposes in 2007 (CAT Report 438) and the results of that trenching are commented on below relative to the current re-development detailed application. The proposals for B1b, in the area of the circus, are for demolition of cabins and temporary lightweight structures, retention of Victorian buildings for refurbishment (for residential and commercial use), creation of public open space, new car-parking areas and for demarcation of the Roman circus (including demolition of part of a building range**

(E) to open up a route along the northern (cavea) seating stand of the circus. The impacts are assessed for each building and its adjacent area below.

Zone 1 – Eastern end of the circus including retained Buildings A and F (Circus SM)

4.6 **Introduction:** The following text and impact assessment was provided for Building A and its surrounds within this zone in 2008 (ibid);

> **'East End of the Circus Comprising Building A and Surrounding Area:**
>
> **Building A is a Victorian structure that will be retained for residential use, with proposed public open space on its south and west sides and a car park to the north. The building neatly overlies the centre point within the curve of the eastern end of the circus, such that its east end almost certainly directly overlies the (presumed) monumental arch of the Roman circus.**
>
> **It is proposed that the cavea would be marked on the ground surface for its semi-circular end at the east end of the Victorian building and through the grassed public open space and car park. There remains the future possibility of de-marking an approximation of the monumental arch as a mural on the east end of the building (as part of the CBC lottery funding bid beyond the scope of the Taylor Wimpey application). The proposal is to mark the line of the inner and outer walls on the ground using granite sets, with tarspray and shingle surface treatment between to represent the seating area. This will create a public access route-way around the eastern end of the circus from an access on Napier Road.**
>
> **Mitigation by design will ensure that no groundworks in this area affect the circus remains (including marking of the circus). These works will nevertheless require Scheduled Monument Consent for hard standings, landscaping and circus demarcation and thus will be subject to full English Heritage (EH) agreement of procedures.**
>
> **The area between buildings A & B [now termed New Build 1 'NB1'] would include the demolition of the existing wooden structure that currently overlies part of the north-eastern end of the circus to no deeper than 250mm, the demolition of -buildings- to be no deeper than 250mm and the subsequent construction of a car park to no deeper than 250mm. The circus cavea wall lines would be marked through the car park area with no car park spaces on the actual cavea alignment. Mitigation by design will therefore ensure that there are no impacts to buried circus archaeology, which is found a minimum of 300mm below ground level. Surface drainage will also be retained above the circus remains.**
>
> **There is a possibility some services will need to be cut below 300mm and therefore that some preservation by record may be required. However pre-archaeological investigation of service lines may allow for minor modifications of line, depth or other design to avoid direct impacts to any surviving circus fabric. Such activities and design modification will require specific agreement with All works affecting the ground within the circus SAM will require Scheduled Monument Consent for hard-standings, landscaping, services and circus demarcation. These**

works will require Scheduled Monument Consent for tarmac removal and new car park construction, services and associated landscaping within the 10m-protection buffer for the circus.

Impact Assessment

The B1b evaluation provided evidence that a post-medieval quarry had removed part of the south-eastern end of the circus. However, the outer cavea wall and external metalling survive elsewhere at the eastern end. The grassed area of open space will not impact the circus although a beneficial effect here will result from its marking out on the surface. Retention of the existing Building A, controlled demolition of the wooden structure and the southern ends of Building B, in concert with controlled construction of the car park area will also result in beneficial effects since a new setting for the east end of the circus will be created. With the marking out of the eastern end of the circus on the ground public legibility and accessibility will be provided. Overall effect of the B1b proposals for the eastern end of the circus are therefore considered to be moderate beneficial.

4.7 It should be noted that the circus surface treatment was since amended to use of Silver Grey granite sets, with - Rumblestone Block Paving in Milano by 'Blyko Paving Products'

4.8 With regard to Buildings F - and E the following text was included the impact assessment and WSI (RPS 2008a & b):

4.9 'Buildings E, F, the Modified Access Route and Surrounding Area:

Buildings E and F are currently a single range which extend from the stub of surviving medieval abbey precinct wall (that directly overlays the circus spina) through the line of the northern cavea walls of the circus to a point well to the north of the 10m buffer zone around the circus. This existing building is to be refurbished for commercial use. The proposal is, however, to create a (roofed) gap in the north-south range in order to create a walkway along the line of the circus cavea. Mitigation by design would ensure that the demolition and then construction of the circus cavea demarcation would be less than 300mm below existing ground level. There is a possibility of art-work representing the circus on walls flanking the cut through but this would require lottery funding via CBC's bid. The demolition and demarcation (in the manner suggested above) will require Scheduled Monument Consent for demolition, new hard-standings, services and circus demarcation where within the circus and its 10m buffer zone.

The remainder of building F would be refurbished for commercial use. The southern end supports a stump of standing medieval abbey wall that was given SAM status at the same time as the circus. This will not be impacted. An aspiration for following agreement with CBC and EH, is to mark the supposed location of the eastern end of the spina (to the immediate south-east of the southern end of building F) with a flag pole or similar marker. The spina line will also be marked on the ground in an appropriate manner (to be agreed by EH and CBC) within the public open space south of F and G and across the modified access road to the west. Mitigation by design to ensure that no archaeology is exposed by works associated with F. All works in this area will

require Scheduled Monument Consent (circus and section of abbey precinct wall) for hard-standings, landscaping, services and circus demarcation.
Modified access and services during upgrading of north access south road (to adoptable standard)

This route crosses the line of the spina and northern cavea walls. However, the 2007 evaluation demonstrated poor survival of these elements on this route. The outer cavea wall was removed by an east-west service corridor, whilst the inner cavea wall was removed by a post-medieval intrusion (Trench 23, CAT Report 438). The spina walls were not found within the evaluation trench although a fragment of ditch on the line of the spina may be associated. This was found at a depth of 0.5m (Trench 26, CAT Report 438). Detailed design for the road construction will have to be acceptable both to the Highways Agency and EH and at present it seems probable that a similar solution that was achieved during relaying of Napier Road in 2006 (see below) can also be achieved for this access. This comprised ensuring construction impacts were no deeper than 300mm. This being the case there would be a neutral impact on any circus remains that may exist on the route.

A mains sewer trench and other services would need to be laid within the road however. It is proposed that the line would run along the course of the evaluation trenches T23 and T26 where services and post-medieval intrusions had removed circus remains previously. The locations would nonetheless need to be archaeologically examined prior to any pipe trench cutting to ensure that any archaeology that may have survived on the course of the pipe is preserved by record as a minimum. It may alternatively be possible to avoid any additionally identified archaeology via minor adjustments to the pipe alignment (as was achieved on Circular Road North, see below). The pipe trench would cut through the track to the north and south of the spina and this impact would require mitigation by record. A positive out come of this recording would be the first long section across the circus track both north and south of the spina. This may show wear patterns caused by erosion although it is possible that if the track was not eroded at all within this transect and little physical evidence of it will remain.

Impact Assessment

Demolition of the short section of building E [now shown part of conjoining Building F] above the northern cavea circus walls will be controlled, ensuring that no footings extending further than 300mm below present ground level will be removed. This should ensure a neutral physical impact, whilst the subsequent demarcation of the wall lines, providing currently unavailable public access route along the northern wall cavea, must be seen as a beneficial effect. The sensitive design of the road avoiding physical impacts, with demarcation of the spina line and northern cavea (using a design to be agreed with CBC and EH) will also be beneficial. In terms of the service trench the B1b evaluation provided evidence that the spina and northern cavea walls are poorly preserved on the line of the modified road access. However, as a precaution the pipe trench will need to be stripped to archaeological levels under archaeological supervision to

ensure that any elements associated with the circus are recorded and avoided by modification of the pipe route where possible. The combined impacts will therefore be minimal whilst there is a positive benefit from demarcation and public access. The overall effect on the circus of these elements, following mitigation by design and by record (where necessary) is therefore considered to be minor beneficial.'

4.10 Following minor changes to the demolition strategy and updates to the servicing strategy this text now requires updating as follows:

4.11 **Demolition:** The principal change with regard to Victorian Building A and its surrounding area comprises the demolition of the later extensions to the east and west wings of Building A to a depth of no deeper than 300mm (compare Fig. 2, existing with Fig. 3, proposed). Similarly the existing light buildings located to the north of Building A above the north-eastern area of the circus cavea will be carefully demolished. Removal of the eastern extension of Building A in particular will have a moderately beneficial effect of the Roman circus SM by removing modern build from overlaying the semi-circular end of the monumentsô cavea (the presumed location of a monumental arch based on analogy with other preserved examples and contemporary depictions). Combined with the removal of buildings over the north-east end of the cavea, this beneficial effect will be further enhanced by allowing the full extent of the semi-circular end cavea to be fully marked out via the circus surface treatment works. The full cavea width public right of way pavement around the eastern end of the circus (rather than it partial easternmost marking as previously) will allow unencumbered public full access to the former cavea location. This would slightly increase the beneficial effect previously recorded (RPS 2008a).

4.12 Building F will be knocked through at ground level with roof retained to allow demarcation of the cavea. In addition a new breach physically separating Building F from E will be created to form a new access road to Buildings NB1 (and refurbished Building C) to the north of the 10m circus buffer (included within the SM). As such this second break and new road would have no (neutral) impact on the circus SM. The demolitions to other structures within the SM as provided in 2008.

4.13 **New adopted road, private parking aisle and private bays - surfacing:** The 2008 text above indicated a likely 300mm depth of impact including new junction. For the north-south adoptable road detailed design stage now indicates that depths into existing levels above the circus would vary from between170mm and 460mm, with *c.*300mm the normal depth along the west side of the road, but with the slightly deeper depths of *c.*450mm along the east side (see Figure 3). Therefore the deeper depths are slightly in excess of the 375mm previously envisaged, even allowing for finished level raised by 140-150mm above existing level. It should be noted that although the circus depths are variable the spina and cavea walls if surviving may be found at *c.*500mm in this zone based on trenches T23 and T26 respectively. However the more recent monitoring of geotechnical works in the area of the northern cavea at the previously investigated area of trench 23 (CAT Report 730) located fragments of demolition layers and robbed out walls slightly higher (c.400-450mm). For this reason Historic England have required that as a minimum zone the crossing of the northern cavea by the road will be stripped to the depth of the archaeology (even if slightly below formation level) to allow pre archaeological excavation. These areas of excavation are shown as ôEx.Aô(117m²) and ôEx.Bô(253m²) on Figures 16 and 17 and in the case of the northern cavea crossing extend to the edge of Building E/F to also cover the area of private car parking where construction depths of between 340mm and 490mm are indicated. The remainder of the circus track areas will be excavated to formation depth under strict

archaeological supervision. Should any archaeology within these track areas be identified at higher than expected levels machining will be stopped and the remains be fully recorded as set out in the procedures below.

4.14 **Enhancement of existing mains, new combined service trenches and linking ducts to buildings:** Although there remains a possibility that the existing water service west of Building F may be useable for an adoptable quality Anglian Water service it is likely that a combined trench of 1.8m wide trench to the west side of Buildings E and F and using, as far as possible, an existing service duct, would be sufficient to carry combined new main north-south services for the scheme through Zone 1 (comprising LV & HV electricity cables, water, gas, telecom and cable). This 1.8m width trench may be wider than the existing service trenches and therefore there may be minor impacts to undisturbed archaeology on one or both sides.

4.15 The southern end of the alignment stops short of the central spina position, as previously investigated by CAT in 2007 by Trench T26 (Fig. 7). T26 was almost obliterated by existing services but a narrow section identified the foundation of the abbey precinct wall at a depth of c.450mm and a linear cut which may represent a drain or foundation of Roman date running along the line of the spina from a depth of 600mm below existing ground level). Assuming that the adopted road is raised by c.140mm the cut for the road construction should be at above this level whilst the trench suggests that the existing services may have removed much of the remains. Nevertheless as noted above the road area above the northern cavea is to be pre-archaeologically investigated as a precaution.

4.16 Circus track related levels at the eastern end of the spina in Trench T27 included an erosion hollow caused by circus track use, whose upper levels were identified 500mm from modern ground level. The c.1m (975mm) deep trench for the combined service trench runs north from just north of the spina and through the northern cavea wall line. Based on the above approximately the upper 475mm of the former track level may be impacted within any undisturbed areas beside or beneath existing services on the line.

4.17 At present the condition of the northern cavea walls of the circus is informed to a degree by Trench T23 on the alignment of the adoptable road. This indicated modern disturbance and no survival of the cavea foundation trenches. Natural gravel was encountered at 500mm depth in T23 and this is the level at which foundations (if surviving) might be expected to survive). Trench T28 to the east indicated a robbed out northern cavea foundation trenches, with a gravel surface to the north side of the circus. The gravel surface and robbed foundation for the outer wall were buried relatively deeply, at a metre below ground level and cutting into the geology in Trench T28. The combined information from these trenches indicate that any surviving circus related archaeology associated with this stretch of the northern cavea walls is likely to be between 0.45m and 1.0m below ground level. The main north-south combined service trench may therefore slightly effect any surviving circus remains, that may survive within the wider corridor. Some minor investigative works under archaeological supervision are required to locate the service trenches and assess suitability for re-use or modification.

4.18 The updated service trenching strategy also includes a new 1.8m wide by 975mm deep service trench that would run east-west along the south side of Building A from a connection with existing mains at Napier Road. The new service along with a number of connection pipes to link Building A are located within the circus track (Fig. 7). The eastern extent is located immediately adjacent to the inner cavea wall where its location was examined by an archaeologically monitored SI test

pit (TP 4; CAT Report 730). However, a large post-medieval quarry was found to have removed the circus walls within Trench T29 and TP4 just to the south of the eastern extent of this service, and the east extent of this service trench will fall within its cut. Elsewhere the new trench (and its connections) is likely to cut a maximum of *c.*475mm into the former track level, however, with the possible exception of areas of track erosion no circus related archaeology are likely to be associated with the former surface (Trench T28 encountered the foundation remains of the circus at 1m depth, but Trench T27, at the eastern end of the spina encountered Roman circus deposits at only 0.5m below ground level). As investigations within the track have found there to be little structural evidence (particularly away from the walls of the building where collapse may be found) the effect of impacts from the services to the circus are likely to be minor.

4.19 The services trenching strategy drawing (Fig. 7) shows the requirement for perpendicular service pipes/ducts to link the buildings. These minor transverse connections would be cut to between 450mm at the building connection point, falling to a maximum of c.900mm at connection with the associated mains trenches. These may, therefore, impact former track level depth, but are unlikely to encounter significant structural circus related archaeology. The foul water and surface water drains would ultimately connect with the existing Anglian Water surface water and foul water manholes in Napier Road.

4.20 There are additional requirements for foul water sewers and surface run-off drains to connect Zone 1 Buildings F and A (Fig. 5). Surface water runoff from most of the buildings and parking areas will be directed to the new drains provided, where possible, along existing drainage routes. With the exception of Buildings A, G and H within the circus area, surface water will be directed to the existing Anglian Water surface water sewer in Flagstaff Road. Within Zone 1 Building A will require a new sections of Anglian Water surface water and foul water (carrier sewer) connections linking Napier Road. The adjacent routes for these running though the track area are shown on Fig. 5 and would be up *c.*1.2m in depth within trenches 450mm wide but *c.*700mm around buildings (within existing cuts where possible). These may cut into the upper surface of the circus track but should not encounter circus related archaeology (possibly with the exception track erosion). Ultimately the services will connect Napier Road at the existing sewer and surface water drainage manholes. At the road connection points the new pipes will be laid directly at or above existing pipes and there would be no impact to archaeology.

4.21 The location of new and re-used sections of exiting foul and surface water services are also shown on Fig. 5. The foul water trench at the crossing point of the northern cavea walls will utilise the existing foul water trench with drainage at or above existing levels. The sensitive east end of the spina will not be affected by the new foul and surface water services, as the alignment kinks south-east to avoid the position of the spina (even if it extended slightly further east than anticipated). In addition the foul water has been located within an existing c.0.7m deep BT cable trench that would be wide enough to be re-used (for the 450mm wide new trenches ï see Fig. 5). The foul and surface water service runs shown along the south of Building A will utilise the same corridor as the combined service trench and existing services respectively (the existing buildingsô existing foul and surface water drainage can be utilised) but new trenches will be required adjacent to the north side of Building A. There is a short stretch of drainage service trench running north-south along the east side of Building A, but would be no deeper than 800mm according to the key of Figure 5. Although it would run above the semi-circular apex of the inner cavea wall position the nearby trench 28 indicated circus remains at a depth of 1000mm. The trench will be cut under archaeological supervision and if in-situ structural circus related remains

(for example associated with a former arch) are encountered higher than in Trench 28 it may be necessary to relocate/design the service to avoid damage to it. All drainage will run south to Napier Road.

4.22 The effects of services on the SM within Zone 1 are therefore likely to be no greater than minor adverse and would not alter the previous overall impact assessment.

4.23 **Removal of tarmac surface for creation of green-space within the circus and representation of circus elements**: Subject to SI investigation it is envisaged that no more than 250mm of hard-standing tarmac etc will be removed prior to addition of imported topsoil to within the south-east area of Zone 1. The spina will be slightly raised - to 150mm high with three courses of granite sets flanking its edges whilst the circus cavea alignment will be marked out using ôRumblestone Block Pavingô

4.24 The surface removals are also part of a general remediation strategy which requires that the present surfacing to create the POS within circus related Zones 1 and 2 will be removed to a depth of 250mm (Merebrook March 2015). Section 3 ôRemedial Action Planôstates that:

ñ*3.1.1 Remediation will take into consideration;*

i. the presence of archaeology on the site which will restrict the allowed depth of deleterious material to be removed from areas of soft landscaping; and

ii. the nature of - the soft landscaping: private gardens or POS.

3.1.2 An archaeological constraints plan is provided in Appendix 1 showing the Archaeology Zones. Following consultation with the site archaeologist...the maximum depth of material that will be removed from private garden areas in Archaeology Zones 1 and 2 (location of the Roman circus) will be 250mm, and 400mm for the remainder of the site. The maximum depth of material removal from POS areas will be restricted to 250mm across the site...

3.1.3 Plant used for removing soils in soft landscaped areas will be selected as to minimize the potential for any rutting (for example use of tracked rather than wheeled excavators). Soils will be scraped and removed with a toothless bucket. The use of toothed buckets will only be permitted on sections of hardstanding. Where the formation has been reduced, no machinery will be permitted to cross those areas until the replacement clean cover systems has been installed. Clean cover systems will be installed from - the higher ground level by means of pushing material out ahead of gentle compaction. All works will be monitored by a Colchester Archaeological Trust archaeologist.

*The remedial strategy...will be adopted for the areas – of soft landscaping (private garden or POS). Dig barriers (high visibility geotextile membrane such as Terram Hi-Vis) will be installed in all soft landscaping areas to mitigate against mixing of underlying soils with clean capping.*ò

4.25 The statement above (which is also relevant for the remainder of the Site) thus includes the additional safeguard of a dig barrier over the archaeological remains. This provides a clear marker of the point at which any subsequent digging activities, whether part of the development process or the subsequent management of private space or POS, should cease. The depth of 250mm for the circus/POS and 400mm for the privately owned gardens is the depth to which

works can take place without contravening Scheduled Monument consent and the subsequent amendment relating to this June 2015 updated WSI. Depth control during reduction will be controlled via laser tagging and all reductions will be continuously monitored by a CAT operative to ensure compliance. The restricted dig depth in relation to the private gardens (e.g. tree pits, fence posts, vegetable gardens) within the SMs will be communicated to the prospective buyers by TW and consolidated within the Deeds.

Zone 2 – Western extent of the circus within B1b including retained Buildings G and H (circus SM)

4.26 With regard to Buildings G and H the following text was included the impact assessment and WSI (RPS 2008a & b):

> **The western area of B1b overlaying the circus includes retained Victorian buildings G and H to be refurbished for residential use. South of these will be grassed public open space that includes the line of the spina. Building G is situated within the track between the spina and the northern cavea, whilst Building H extends from just north of the spina to cross the northern cavea wall lines. The proposals show new parking spaces east and west of Building G and the continuation of the demarcation of the circus cavea walls to the north (running into Building H). There are also car parking spaces to the north of Building G and south of Building I. The alignment of these reflects the northern edge of the northern cavea. The spina is shown demarked within the public open space to the south of G and H (RPS 2008 Fig. 3).**
>
> **Mitigation by design would be required to ensure that the car parks, spina and northern cavea demarcation (using granite sets as described above) are constructed above the buried archaeology (ie no deeper than 250mm). Existing service runs will be used where possible and services will be raised above the circus where feasible. There is a possibility that this will not be possible in all cases and some preservation by record may be required. However pre-archaeological investigation of service lines may allow for minor modifications of line, depth or other design to avoid direct impacts to any surviving circus fabric. Such activities and design modification will require specific agreement with EH. All works affecting the ground within the circus SAM will require Scheduled Monument Consent for hard-standings, landscaping, services and circus demarcation.**
>
> **Demolitions-within this area will include Building 3 comprising cabins east of Building G, Building 5 comprising the wooden meeting room building north of Building G, removal of paths around the north-west side of Building G, removal of Buildings 1 and 2 currently forming extensions on the east side of Building H and removal of Building 4. These demolitions thus remove buildings that currently overlay the northern cavea and track and therefore opens up the space for public access and interpretation. A particularly beneficial effect will be the creation of a route linking the B1b area with Flagstaff Road, providing a means of walking the northern circus cavea alignment from the eastern end of the circus right through to Area C1 to the west. Demolitions will**

be strictly controlled such that there is no grubbing out below 250mm in depth.

Impact Assessment

Retention of the main buildings for refurbishment ensures largely neutral impacts in the circus in this area. Demolition of the some of the minor buildings overlaying the circus in this area will not impact the buried archaeology and will be of great benefit as it will allow demarcation, create an accessible route and provide interpretation for the public. Demarcation of the spina within public open space will also be beneficial whilst the only potential ground impacts to the circus may be from services and may be avoided via pre archaeological investigation of proposed routes. With these measures in place the effect of these elements is considered to be moderate beneficial.

4.27 **Demolition**: The above 2008 text includes reference to demolition of various extension structures to buildings G and I and of a structure overlaying the northern cavea to a depth of no deeper than 300mm.

4.28 **New private parking aisle and private bays - surfacing:** The basic premise is that these surfacing works will not be permitted to damage surviving circus remains. However, CBR testing remains to be undertaken which will determine the load bearing characteristics of the subsoil and infiltration testing is also outstanding which will determine the percolation rates of the sub-soil, therefore Richard Jackson are currently working to ***worst case*** scenario. The private car parking spaces and aisle running east-west, and effectively defining the northern cavea walls and circus seating area between them, is shown in grey on Figure 3. The construction thickness is shown at 480mm following level raise for the aisle and 350mm for the parking spaces. Figure 3 also shows both the formation level of the proposed surfacing and the ***maximum*** dig into existing to reach formation at given points. This indicates worst case depths of cut into existing of between 180mm and 380mm at the eastern end of the cavea (i.e. north-east of Building H) with depths generally between 400mm and 500mm to the west. Although two points at 700mm and one at 800mm are also indicted these relate to areas raised above the general ground level. The parking bays to the north and south of the aisle also indicate a similar depth worst case range.

4.29 The circus depths are surprisingly variable within this zone at between *c*.500mm-810mm. The *c*.500mm depth for the spina and northern cavea on the adoptable road line (east end of the aisle) was located within trenches T23 and T26, whilst TP2, just west of Building H (CAT Report 730 2013) located the outer cavea wall at the deeper depth of *c*.810mm below existing ground level. The implication is the Roman ground level dipped from east to west on this section of cavea. The worst case construction depths *should* therefore remain above the circus remains but it is acknowledged that the aim is for the construction depths to be reduced further, following CBR testing. The HE Inspector of Historic Monuments has confirmed that a further two trenches will be placed between the existing two known circus cavea depth indicators in order to confirm the relationship between the robbed circus walls and the construction formation. These will be *c*.7m in length and 1.8m in width. Their locations are shown on Fig.16. The trenches will also be used for the aforementioned CBR testing (within areas CAT confirm are free from archaeology) with resulting implications to be confirmed to the HE Inspector of Historic Monuments who will require assurance that the circus remains will not be impacted by aisle construction.

4.30 Richard Jackson Ltd note that the aisle construction and associated car parking bays are designed to the current NHBC Standards Chapter 9.2 for the expected vehicular loads envisaged. The use of Cement Bound Granular Mixture (CBGM) which is specified for the sub-base material rather than the more common Type 1 unbound granular mixture reduces the overall construction makeup depth due to its increased strength. Although, whilst effort has been adopted to minimise the extent of dig into the existing ground, the proposed access aisle and parking bays finished levels are constrained by the existing adjacent structures that they are to provide access to.

4.31 The drainage in this region has been designed to minimise impact to the cavea walls and circus seating area, where it has been necessary for drainage to cross the aforementioned, the existing service corridor to the west end of the northern cavea has been utilised.

4.32 **Enhancement of existing mains, new combined service trenches and linking ducts to buildings**: Again the text above highlights the potential for some impacts through service installation but further comments can now be added. It remains possible that an existing telecoms route running north-south through the SM between Buildings H and G can be re-used to some extent although combined service trench widening and some new sections of combined service trench are likely to be required (Figs. 5 and 7). This ócombined service trenchô would be c.975mm in depth and 1.8m wide and run through the alignment of the northern cavea walls, using the line of the existing services where possible or would stop short of the northern cavea of the circus on either side subject to detailed design. The southern extent of the combined service trench would not extend as far south as the spina position. An archaeological trench within Flagstaff Road to the east shows the northern cavea foundations had been robbed there, as did the TP2 immediately east of Building H. Trench T23 and TP1 to the east demonstrated high levels of modern truncation of the circus wall positions by services but also found the circus walls to have been robbed in antiquity. Part of an individual monument base foundation on the line of the spina had also partially survived modern service truncation at the cross roads of Napier Road with Flagstaff Road (CAT 2011). The archaeological monitoring of SI TP3 was designed to establish the sensitivity of the cavea, i.e. whether it had survived as a stone foundation, and the location of existing services, which was achieved. As the cavea wall was found to be completed robbed (as appears to be the case for its entire length through B1b) the sensitivity of crossing its line is reduced.

4.33 In addition a new 1.8m wide and 1m deep combined service trench will be required running east-west from the existing mains trench service Building G (Fig. 7). It is currently considered that this will run to the south side of Building G and will partially use an existing service trench. Further new trenches would be required to link into Building G as shown. These alignments would cut through the circus track where only natural gravel or perhaps an erosion hollow through use, are anticipated. The impact on significant elements of the circus would therefore be negligible. Building H will require similar service pipes/ducts linking the main north/south combined service trench. These links have been placed to avoid the structural elements of the circus and there should be no significant damage to circus related archaeology. However, continuous archaeological monitoring of machining to archaeological horizon to begin with, and recording of any remains prior to continuation to formation level, will be required as a precaution.

4.34 As indicated for Zone 1 above foul and surface water drains will be connected to Building G via the suggested crossing point of the northern cavea wall west of Building F. The foul water will cross the circus walls within existing service corridor as far as is possible to achieve. In order to limit the crossing of the circus wall by services a surface water drainage system has been developed for Buildings G and H comprising a cellular soakaway located within the central part of the circus track (where no archaeological features are anticipated). This soakaway would be up to c.6m x 5m in size and 2m depth from existing. As noted above the location has been targeted with a large SI trench (TP11; CAT Report 730, 2013) which Historic England agreed would determine its feasibility and clear any minor/circus unrelated archaeological features. The TP was archaeologically blank and therefore there are no archaeological issues regarding its installation. In addition new 450mm wide trenches up to 700mm deep will connect the soakaway to the new drainage around Buildings G and H. The foul and surface water drainage on the south side of Building G can reuse an existing service trench but new 450mm wide trenches may be required on the north side. All the surface and foul water drains are, nevertheless located within the track area of the SM where significant remains of the circus are unexpected (other than wall collapse material and erosion). Close monitoring of their construction by CAT will ensure new impacts are minimised and any archaeology (e.g. inner podium wall collapse for the serves on the north side of Building G) are minimised.

4.35 It was also noted in 2008 (RPS 2008b) that the construction of the external iron fence line for the development will cross the line of the spina in the south-west corner of the development site. The very minor impacts of fence construction may not be avoidable (see mitigation below). It is unlikely that the above possible impacts would affect the overall impact assessment provided in 2008.

4.36 **Removal of tarmac surface for creation of green-space within the circus and representation of circus elements**: Subject to SI investigation it is envisaged that no more than 250mm of hard-standing tarmac etc will be removed prior to addition of imported topsoil to within the grassed areas east, west and south of Building G within Zone 2. The spina will be slightly raised as a 150mm high with three courses of granite sets flanking its edges whilst the circus cavea alignment will be marked out using ôRumblestone Block Pavingô along the line of the Private Parking Aisle (access to parking spaces). The remediation strategy and dig barrier have been discussed above.

Building F ('Wagon shed') break through point:

4.37 One of the amendments to the SMC (Appendix 6) is designed to establish the current depth of foundations/pads associated with the retained building F via test pits. Two are located over the locations of required new cross floor walls required to facilitate the cut through on the line of the circus cavea. These will be undertaken by the works contractor under the close control of CAT to ensure that the level of the circus foundations and geology is understood. The northern test pit may encounter the outer cavea wall or associated construction/demolition spread while the southern test pit is between the inner and outer cavea walls. The third test pit is designed to establish the current foundation depth and suitability of existing pads to support a new retaining wall fronting the west-facing elevation. The test pit will be undertaken with CAT in attendance as above. All works would be undertaken in accordance with the processes set out in the WSI (RPS 2014) for the SMC.

Roman Circus Mitigation

4.38 The following mitigation processes within the Roman circus SM comprise;

- Pre-excavation of the northern cavea wall (possibly of the spina subject to detailed design) where crossed by the north-south adoptable access road.
- For demolitions of existing buildings within the circus SM footings should be grubbed out to no deeper than 250mm with continuous archaeological monitoring of activities that might expose archaeology (with recording intervention if necessary) as a precaution;
- Archaeological monitoring of activities that might expose archaeology (and intervention and recording in the event of archaeological exposure) during demolition of structures;
- Archaeological monitoring of activities that might expose archaeology (and intervention and recording in the event of archaeological exposure) during surface removals for the adoptable road construction generally and other surfacing works (private parking aisle and parking bays)
- Archaeological monitoring of activities that might expose archaeology (and intervention and recording in the event of archaeological exposure) during removal of hard standings for creation of POS (no greater than 250-300mm below existing);
- Archaeological monitoring of activities that might expose archaeology (and intervention and recording in the event of archaeological exposure) during groundworks for the construction of the circus demarcation and private parking aisle (no greater than 300mm below existing subject to confirmation of circus depths from SI);
- Archaeological monitoring of activities that might expose archaeology (and intervention and recording in the event of archaeological exposure) during the new service trench cutting and re-use for existing service trenches (a strip map and sample approach will be taken where the archaeologist controls initial machining to expose archaeological levels, if above formation level, and CAT excavate and record remains prior to any reduction to formation by the main contractor);
- Archaeological monitoring of activities that might expose archaeology (and intervention and recording in the event of archaeological exposure) during boundary fence construction (the trench for the fence be stripped to the archaeological level under CAT supervision). If possible the fence posts will be placed to avoid any surviving structural remains (should they be present) and if this is not possible some very limited excavation of the holes may be required ahead of the fence construction.
- The two retained 19th century villas within the circus (Buildings A and G) each have paired stairwells that will require deeper foundations for stability purposes (TW Drawings ôBuilding A ï proposed Ground Floor Plan 1367: 251 rev. P2ôand ôBuilding G ï proposed Ground Floor Plan 1367: 151 rev. P2ô). As the excavations are likely to reach geology (commensurate with the level of the circus track) the associated foundation cut will be monitored by CAT such that any archaeological remains encountered are fully recorded.
- No rutting will be allowable within the circus SM following removal of modern surfacing. This will require construction management such that, following depth reductions, the new level (topsoil importation) is built up progressively without damaging the underlying level.

4.39 Finally with regard to the overall effect from the proposals on the SM the following statements from the impact assessment (RPS 2008a) and the desirability of a Construction Management Plan are retained:

> **Overall Effect on the Circus SAM via the B1b Development Proposal:**
>
> **The desirability of removing clutter from the circus footprint and demarking the location of the major circus components on the surface by far outweighs any minor impacts that may need to be preserved by record. It should also be noted that the investigation and identification of the circus in this area facilitated by the development has greatly contributed to archaeological knowledge. The overall effect is considered to be moderate beneficial.**
>
> **Desirability of a B1b Construction Management Plan:**
>
> **It would be prudent for RPS to contribute to any CMP's that may be required such that it is made clear (via agreed protocols) that the main contractor needs to not only adhere to formation depths that will be above archaeology (if this can be achieved at design) but also that there would be no rutting, compaction or other inadvertent damage to archaeology caused by the construction works themselves. If this cannot be achieved, there may be requirements for additional archaeological mitigation.**

Development Proposals within the Medieval Abbey and associated SM to the north of the Circus SM (See Figs. 3, 4, 5, 6, 7, & 8-11)

4.40 The proposals with regard to the abbey SM were discussed with Historic England (then English Heritage) with outline agreement reached on appropriate design principles in 2008. Following the development of the new scheme these principles are updated and consolidated within a revised set of design drawings. The following text is divided into five development zones within the abbey precinct (although part of Zone 4 lies to the west of the former precinct wall).

Zone 3 – Central eastern zone including NB1 and retained Buildings C and E

4.41 **Introduction**: Proposed structure NB1 and retained Buildings C and E are located just to the west of the St John's Abbey SM area. The new build (residential) is effectively on the same plot as the existing (to be demolished) unit. Buried walls of post-medieval date were located within adjacent trenches T22 and T25 and these may extend under the existing and new building proposal. The foundations were encountered at 880mm below existing ground level (in adjacent Trenches T22 and T25). Building C will be converted to commercial use. This retained building is also west of the Scheduled Monument and therefore groundworks in its vicinity are not part of the required SM Consent. The largely retained Building E also lies outside of the St John's Abbey SM. Trial trench T21 ran parallel within the existing road to the east of the building. Almost all this north-south trench (except the extreme northern extent) overlaid a post-medieval quarry which must also extend beneath Building E (from a depth of 500mm). T20 in the road area to the west of the range was heavily disturbed by a series of modern services but also contained a post-

medieval ditch and a possible Roman pit at a depth of 960mm from present ground level. The principal sources of impact within this zone comprise;

- demolition of existing buildings,
- piling and construction of foundations for NB1,
- new road link, car park surfacing and drainage
- enhancement of existing mains and new linking ducts to Building C E and NB1
- tree pits.

4.42 **Demolition of existing buildings**: Removal of the foundation of the existing building at the proposed location of NB1 and the existing range of light industrial units to the west of NB1 should be no deeper than 600mm to avoid damage to the archaeological foundations. However, some deeper removal may be required to facilitate piling. Therefore where foundations extend below 600mm, their removal will be conducted in an archaeologically sensitive fashion in accordance such that ópobingô is minimised and foundations are carefully removed under archaeological supervision. Should removal of foundations expose archaeological remains these would be recorded in section prior to careful filling of the voids created by foundation and/or slab removal. The extent of any archaeological investigation and recording will depend on the vulnerability of exposed archaeology to further damage from construction and will be advised by the CBC Archaeological Officer at an on site meeting, if required.

4.43 **Piling and construction of foundations for NB1 (Figs. 8 & 9)**: Following demolitions the new building will be constructed on 450mm diameter piles supporting a ground beam with 600mm square pile caps at a depth of *c.*300mm (Richard Jackson Ltd information). The impact from piles will be 1.8% of the ground beneath the 450mm ground-beam level based on the building area of 213,29m² and an combined impact from piles of 3.83m² (as calculated by Richard Jackson Ltd). This process is described in Appendix 1. Construction of the ground beam for Building NB1 will be subject to continuous archaeological monitoring of activities that might expose archaeology (with recording intervention if necessary) as a precaution. Any archaeology exposed will be excavated and recorded in accordance with the procedures set out below.

4.44 **New road link, car park surfacing and drainage**: It will be possible to construct the new road (running west of Building E) above the level of the archaeology recorded within T20. Fig. 3 by Richard Jackson Ltd shows that taking account of *c.*150mm levels rise for the N/S adoptable road there should be no more than 365mm of cut into existing levels required for its construction (providing that the proposed ó**Tensar TriAx geogrid'** is utilised). The óprivate aisleôroad that links to the east to service NB1 should require no more than 395mm of cut and use of geogrid. Car parking bays are 415mm deep at worst case in the north-east area with the majority requiring a cut between 195mm and 315mm due to levels raise of up to 200mm and use of geogrid. These activities should not effect archaeological levels as demonstrated by the trenching.

4.45 The new road also includes a second breach of Building E to provide a link to Building C and Building NB1, where its construction depth will similarly be well above the 880mm depth of walls within archaeological trenches T22 and T25. Continuous archaeological monitoring of activities that might expose archaeology (with recording intervention if necessary) will be conducted on both reconstruction depth construction and associated drainage gullies as a precaution. The

archaeological remains of the probable late medieval/post-medieval building/structures west of proposed Building NB1, would be similarly protected beneath a new surfaced area, following removal of existing hard-standings. This - area includes car parking spaces. Additional continuous archaeological monitoring of activities that might expose archaeology (with recording intervention if necessary) will also be required during removal of current hard-standing in this zone where there is any possibility that archaeological levels may be exposed. All surface drainage would be constructed above archaeological levels.

4.46 **Enhancement of existing mains and new linking ducts to Building C E and NB1**: As noted above the main combined service trench running north-south to the west of Building E would require a 1.8m wide trench which is likely to be wider than the existing service trenches. The 1m deep trench will therefore be cut under archaeological supervision and should archaeological features be exposed they will require prior excavation to the level of the base of the new trench. A linking new combined service trench will extend eastwards to link with a section of existing north-south service trench to the east of Buildings E. The existing trench will be re-used as far as possible to avoid archaeological disturbance but widening to 1.8m may encounter any surviving archaeology on either side of existing disturbances that would need to be investigated to the depth of the service trench base. New ducts/services will be required to connect the combined mains trench to Buildings C, E and NB 1 (Fig. 7). These are unlikely to be greater than 450mm in depth at the point of connection where they are unlikely to reach archaeological levels. However, these will fall to up to c.900mm maximum to connect the mains services and as such may therefore reach the upper levels of archaeology (recorded at 880mm in T22). As such continuous archaeological monitoring of activities that might expose archaeology (with recording intervention if necessary) on trench cutting will be required in order to excavate any remains above formation. Foul and surface water trenches are shown on Fig. 5. These would generally be c.450mm in width and up to 2.1m in depth.

4.47 **Tree pits**: there are four new trees on the division between this Zone and Zone 4 (included in the count for Zone 4) with one other tree pit to be located at - the northern end of retained Building E and (shown on Fig. 7). These are 0.8m squares in plan to a depth of 700mm which would be above the archaeology level in most areas. Tree pits will include root protection barriers to prevent additional root disturbance to archaeology. Precautionary archaeological excavation of any archaeology within these tree pits is therefore a requirement.

4.48 **Re-used medieval masonry pillar**: In addition a pillar of re-used medieval worked stone is built into an extension at the northern end of the Victorian range (northern end of Building E). The material is likely to have been derived from one of the more prestigious abbey buildings, such as the abbey church to the north of B1b. This extension is to be demolished (Fig. 4) and Historic England have requested that these re-used medieval elements are recorded in situ (measured drawings, photographs and interpretative supporting text CAT to remove on TWõs behalf) prior to careful hand demolition. The carved stone blocks will be retained for potential re-use at a suitable location within the proposed development (to be agreed with Historic England).

Zone 4 – Central Western Zone including NB4 and retained Building I

4.49 **Introduction**: This area is located to the north of the circus SM and to the south of the Abbey St Johnõs Abbey SM and does not require SMC (although it is partially located within the former St Johnõs Abbey precinct). Building I is a Victorian building fronting Flagstaff Road to be retained and refurbished as residential. The current open square to the east is largely retained but to

facilitate the construction of the new L-shaped Building NB4, flanking its southern and eastern sides, several existing buildings will be demolished including the large multi-storey building flanking the east side of the current car park (Figs 3- 7).

4.50 The archaeological potential of this area is established by Trenches BT5, BT6, T16 and T19 were cut within the central and eastern area of the existing car park, and by Trench T20 to the east (Fig. 2). 2002 Trench BT6, commensurate with the new square immediately north of the east-west wing of new Building NB4 identified Roman archaeology in the form of a pit containing second century finds cutting natural gravel at a depth of 880mm (33.04mOD according to CAT report). The pit was sealed beneath modern made ground. The 2007 trial trenching identified a possible fragment of the north-south aligned medieval abbey precinct wall at a depth of 700mm bgl (with ground level at 33.78m and top of wall foundation at 33.08mOD). The other trenches demonstrated only modern disturbance. Trench T20 east of the ôto be demolishedô multi-storey structure identified a further Roman pit at a depth of 960mm below current ground level.

4.51 The depth of modern overburden within the existing car park above the identified archaeology is therefore between 700mm and 880mm, whilst to the east of the square archaeology is found at *c.*960mm. The potential impacts and associated mitigation within this zone comprise:

- demolition of existing buildings,
- piling for NB4 and construction of ground beams,
- new car park surfacing, attenuation and drainage
- enhancement of existing mains and new linking ducts to Building I and NB4
- tree pits.

4.52 **Demolition**: The 2008 WSI noted that the demolition strategy should not ideally remove foundations to a depth deeper than 500mm from present ground level in areas beyond the circus SM (excluding the emptying of any associated cellars). In practice this may not be possible given that piling, following demolition, will require removal of solid obstructions. Therefore where foundations extend below 500mm, their removal will be conducted in an archaeologically sensitive fashion in accordance such that ôprobingô is minimised and foundations are carefully removed under archaeological supervision. Should removal of foundations expose archaeological remains these would be recorded in section prior to careful filling of the voids created by foundation and/or slab removal. The extent of any archaeological investigation and recording will depend on the vulnerability of exposed archaeology to further damage from construction and will be advised by the CBC Archaeological Officer at an on site meeting, if required.

4.53 **Construction of Building NB4**: Floor levels for NB4 would be split with the south part at 34.25mOD and the north part at 34.1mOD (Fig. 5). The construction process for NB4 is likely to comprise use of piled foundations as noted above. The building will therefore be raised up by piling which would ensure no more than 2% by area impact to archaeological levels. Design will include a ground beam with 600mm wide ground beams to a depth of *c.*400mm supported by 450mm diameter piles impacting 1.9% of the ground level beneath based on a building footprint of 956.11m² and combined piling impact of 18.08m² (Figs 8 & 10). This process is described in Appendix 1. Continuous archaeological monitoring of activities that might expose archaeology

(with recording intervention if necessary) will be conducted during the cutting of the ground beams as a precaution.

4.54 **New car park surfacing**: Mitigation by design includes avoidance of construction impacts below 500mm from the resurfacing of the new car parking square. The surfacing strategy provided by Richard Jackson Ltd (Figs. 3 & 4) indicates construction thickness of 350 to 440mm for the private parking access aisles and associated car parking such that construction depth from existing should not exceed c.300mm (with some levels raise of up to 150mm reducing depth further). The lower exposed level should be progressively covered, with plant rutting avoided. As a note of caution it was not possible to archaeologically trench the central and western area of the existing car park, thus it is possible (though unlikely) that - archaeology might be exposed locally in these areas at the 500mm depth. Archaeological supervision of the overburden strip will therefore be required and any exposed archaeology will be fully excavated and recorded.

4.55 **Enhancement of existing mains and new linking ducts to Building I and NB4**: ï two parallel east-west trenches (sewer/foul water deep drain) are required south of NB4 and would be placed within a single wide trench so that archaeological remains can be investigated coherently (Fig. 7). The foul water service is c.4.5m deep (increases in depth towards the connection point at Flagstaff Road) and has been placed next to the sewer to allow both to be archaeologically investigated as one corridor (Fig. 6). The considerable depth is likely to exposure of any preserved archaeology on its line, potentially including the continuation of the foundation of the former alignment of the abbey precinct wall found in archaeological trench T16 (Fig. 2). This trench will also include a combined service trench linking Flagstaff Road to the west that will follow an existing mains trench alignment. The cutting of the trench will therefore require archaeological supervision to ensure that all archaeology within is investigated and signed off by the CBCAO prior to reduction to formation level by the construction contractor. A new section of 1.8m wide and c.1m deep combined service trench will run from the north-east corner of the square to service the Building O.

4.56 As indicated below an existing mains trench runs to the east of the retained Victorian buildings H and I. As previously the existing trenches will require widening as a ócombined mains trenchô 1.8m wide and 1m deep. The 1m depth may impact archaeology on one or both sides of the existing mains trench and as such will be pre-stripped under archaeological supervision for archaeological investigation and recording ahead of service laying. Ducts will link Building I and O from the respective combined service trenches at c.450mm at the connection with the building and falling to c.900mm at connection with the mains. The surface water drainage of the car park is to be used assuring no construction impacts below 500mm. Foul and surface water trenches are shown on Figs. 5 & 6. These would generally be c.450mm in width and up to 700mm in depth.

4.57 **Tree pits**: fifteen trees within and around the square within Zone 4 shown on Figure 7. These are 0.8m squares in plan to a depth of 700mm which would be above the archaeology level in most areas. Tree pits will include root protection barriers to prevent additional root disturbance to archaeology. Precautionary archaeological excavation of any archaeology within these tree pits is therefore a requirement.

Zone 5 – Western zone of St John's Abbey SM within B1b including NB5:

4.58 **Introduction**: This area includes the location of a (previously to be retained) multi-storey building flanking the northern side of the square, that is now to be demolished. The existing building would be replaced with the east-west wing of a new L-shaped Building NB5 (Figs. 4, 6, 7, 8 & 11). The north-south arm of proposed Building NB5 extends within into a currently grassed area of the SM. The archaeological potential of NB5 and the area to its north and west (now proposed for car-parking) is informed by 2002 trench BT3 and 2007 trenches T9, T10, T11 and T17. Trenches T9, T10 and T11 (Fig. 2) and by 2013 TP7 (CAT Report 730, 2013). These demonstrated between 400mm and 880mm of raised ground above medieval and Roman cut features. Trench T10 included a pit buried only 450mm below ground level, with a large medieval midden spread/pit throughout trench T11 indicated a generally deeper coverage of 880mm (CAT 2008 Fig. 8) although its upper level was found less deeply buried at 400mm at TP7 (CAT Report 730, 2013). Trench T9 at the western end of the proposed car-parking area included a dense concentration of archaeological features including medieval wall foundations and midden deposits associated with the Abbey at a depth of c.800mm below ground level. Trench T17c at the eastern edge of the proposed east-west wing of NB5 included the identification of a medieval lime pit whose upper level was c.790mm bgl. The potential impacts and associated mitigation within this zone comprise:

- demolition of an existing buildings;
- piling and construction of foundations for NB5,
- new car park surfacing and drainage
- enhancement of existing mains and new linking ducts to Building NB5
- tree pits.

4.59 **Demolition of existing buildings**: The demolition of the existing workshops on the east edge of proposed Building NB5 would not need to be to below 400mm and is unlikely to impact archaeology. The demolition of the existing multi-storey structure (formerly referred to as Building N) is a much more significant issue, given its location within the St Johnôs Abbey SM. Given the *c.*700mm depth of the abbey precinct wall footing to the south side of NB5, the 790mm depth of the lime kiln pit at its east end and the (usually) *c.*800mm + depth of medieval archaeology on its north side, it would be prudent for foundation removal to not exceed a depth of 500-650mm, if possible to avoid potential disturbance of archaeology in the SM.

4.60 In practice this may not be possible given that piling, following demolition, will require removal of solid obstructions. Therefore where foundations extend below 500-650mm, their deeper removal will be conducted in a highly archaeologically sensitive fashion (at least at the location of piles). The CAT archaeologists will monitor slab removal and will examine the extent of foundations and structures that will require removal and advise on preferred methodology to achieve least disturbance of any underlying archaeology at that stage in liaison with the RPS archaeologist the Historic England Inspector and the CBCAO. ôProbingôfor buried structures will be minimised and foundations will be carefully removed under archaeological supervision. Should removal of foundations expose archaeological remains these would be recorded in section (as a minimum) prior to careful filling of the voids created by foundation and/or slab removal. The extent of any more detailed archaeological investigation and recording will depend on the vulnerability of

exposed archaeology to further damage from construction and will be advised by Historic England and the CBC Archaeological Officer at an on site meeting.

4.61 **Construction of Building NB5**: The construction process for NB5 is likely to comprise use of piled foundations as noted for Buildings NB1 and NB4 above which would cause c.2% damage to archaeology buried deeper than the 450mm depth of the ground beams (Richard Jackson Ltd calculate 1.9% impact from piling; i.e. 17.44m² piling impact for the 911.63m² footprint). The east-west wingôs ground beams are 600mm wide and are to be set at a depth of 400mm. The finished floor level (FFL) would be 34mOD for the east-west wing and 33.47 for the north-south wing. The ground beams for the new buildôs north-south wing (into the currently grassed area of the SM) are to be set at a depth of 350mm based on the proposed sections (Fig. 10) with the FFL at 33.475m OD to reflect the slope. Historic England have expressed concern that trench T10 to the immediate north of the east-west arm of NB5 included a Roman pit at only 450mm depth, although trench T11 identified deeper medieval deposits (that had potentially buried such Roman levels on the north facing slope towards the town centre). As a precaution, the ground beam trenches for the north-south wing of NB5 (i.e. within the currently grassed area) will be carefully pre-stripped for archaeological purposes to the formation level as a precaution. Any archaeology encountered at that depth will be sample excavated to a maximum depth of up to 1.0m below current ground level. In practice this method should retain a buffer of made ground over most of the medieval midden deposits found with trench T11 which may be found at the northern end of NB5, but may expose shallower Roman archaeology and medieval midden deposit at the southern end of NB5 close to Trench T10 and the SI pit TP7.

4.62 **New car park surfacing, private parking aisle and drainage**: Construction of new surfaces should not generally exceed 300mm depth from existing levels (although in the northern part of the car park up to 395mm of cut may be required). This depth will retain a minimum of 150mm cover (Roman pit in Trench T10) and a maximum of 580mm cover over the archaeology (medieval walls and midden deposits in various trenches). The finished levels for the car park are shown to be at least 200mm above existing on Fig. 4. Therefore construction, assuming use of Tensar Trioax geogrid should not require a construction cut of more than 195mm into existing ground level. The depth reduction will be subject to archaeological monitoring as a precaution (finds may be recovered from the disturbed modern overburden and as a check for any higher than expected deposits). The access aisle for parking would be 395mm thick but with the 200mm levels raise the impact to ground existing ground levels would be 195mm.

4.63 **Enhancement of existing mains and new linking ducts to Building NB5**: NB5 will be serviced via the combined service trench running to the south within Zone 4 with a single link at the south-east corner of the building. The link enters Zone 5 and would be 1.8m wide and 1m deep. The new trench would require pre-excavation but is likely to have been previously disturbed to some degree by modern services. Foul and surface water trenches are shown on Fig. 6. These would generally be c.450mm in width and up to 700mm in depth.

4.64 **Tree pits**: A small number of tree pits required (three in parking area, three at the northern edge of Zone 6 and a row of three along the east side of NB5 ï see Figs. 6 & 7). These are 0.8m squares in plan to a depth of 700mm which would be above the archaeology level in most areas. Tree pits will include root protection barriers to prevent additional root disturbance to archaeology. Precautionary archaeological excavation of any archaeology within these tree pits is therefore a requirement.

Zone 6 – North-eastern zone of the St John's Abbey SM within B1b including NB2, NB3 and retained Building O

4.65 **Introduction:** Building O is a retained Victorian building to be refurbished as - residential accommodation. It is sited outside of the abbey SM within an area of Roman and later archaeology (trenches T12 and T13). These show significant archaeology from a depth of only c.450mm blg. Building NB2 (formerly referred to as Building P but then aligned east-west) would be located within the currently grassed east of Building O. Along with the remainder of Zone 6 it is located within the abbey SM and will require Scheduled Monument Consent (abbey) for the archaeological recording of ground beam trenches, new car-park works, landscaping and services. Trenches T13, T14 and T15 in this area produced evidence of Roman and medieval deposits. These were buried at a depth of 1,100mm in Trench 15 (occasional Roman pits) but from only c.450mm in Trench 14 (top of post medieval demolition layers) commensurate with the northern end of the proposed structure. However, the shallow levels within Trench 14 levels relate to a series of low-grade dumped demolition spreads above pit features cut into the subsoil at a depth of 800mm. This proposed new -residential building NB3 is situated within the abbey SM to the south-west of the gatehouse and within an area shown to contain archaeology by 2002 evaluation trench BT2 where Roman ditches/pits were encountered at a depth of 670mm bgl (29.84mOD) (see Figs. 2, 4, 6, 7, 8 & 9).

4.66 **Demolition of existing buildings:** The large concrete tank facility east of Building O will be demolished to allow for the construction of NB2. This is to be removed to approximately 2.5m below the existing (higher bunded) level. Archaeological monitoring will be required to ensure that the removal is, as far as possible, conducted within the original construction pit for the facility. In the event that undisturbed areas of archaeology are inadvertently exposed these would require full archaeological excavation (see procedures below). A small existing pond will be removed. The pond and its concrete enclosure will be carefully removed under CAT supervision. This location will be used for a surface water pump chamber (this should be no larger existing tank at the same location c. depth 2m). The location will require pre-archaeological investigation. Foul and surface water trenches are shown on Fig. 6. These would generally be c.450mm in width and up to 700mm in depth.

4.67 **Piling and construction of foundations for NB2 and NB3:** The archaeology is found at depths of 1100mm and below for NB2 and at 670mm and below for NB3. Design of Buildings NB2 and NB3 will include terracing and use of ground beams 600mm wide to depths of no more than 300mm from terrace level, with 450mm diameter piles impacting 1.8% (NB2) and 2.1% (NB3) of the ground level beneath the 400mm-450mm level (based on Richard Jackson calculations of 294.7m² area and 5.44m² combined pile impacts for NB2 and 157,27m² area and 5.44m² pile impacts for NB3) . This process is described in Appendix 1. The effect of terracing combined with ground beam trench construction is discussed below.

4.68 NB2 is to be have a complex series of four steps south to north in its foundations that will minimise terracing into the south to north slope (Figs 4, 6, 7, 8 & 9). The foundation is also divided by west to east drop in terrace levels along a longitudinal axis (see Figure 8). At the southern end finished floor level (FFL) is 32.5mOD on the west side and 31.45m on the east side, dropping via steps to 31.0mOD and 29.95mOD and the north-west and north-east ends of the building. T15 (Fig. 2) demonstrated present ground level close to the southern end at 30.96mOD therefore the new floor is above existing ground level. T14 at the northern end of indicated ground level at 30.54mOD indicating that the FFL will also be higher than existing. Continuous

archaeological monitoring (with recording intervention if necessary) will nevertheless be conducted on the cutting of the ground beams as a precaution. This is likely to be particularly prudent for the northern extent of Building NB2 where the upper level of the medieval demolition deposits may be encountered. However, excavation of the deposits here should only be to formation level with teram or other suitable geo-textile membrane to be laid over any exposed archaeological deposits at formation level as a protection from the ground beam concrete. The gardens for these units would also be terraced to reflect the respective FFLs. However, four gardens to the east side of NB2 will require soakaways to receive runoff from private catchment areas, as shown on Figure 6. The suggested depth of excavation is less than 800mm based in the figure key and therefore they may not reach the depth of known medieval pitting in this area. However, the areas will be archaeologically pre-excavated to formation level to the satisfaction of Historic England as a precaution.

4.69 For NB3 ground level at trench BT2 was recorded at 30.51mOD (where Roman ditches/pits were encountered at a depth of 670mm bgl - 29.84mOD). There are two floor level changes for this building. The southern half FFL is at 31.6mOD and the northern half FFL at 31.3mOD (Figs. 4, 6, 7, 8 & 9). The floor of the building is therefore to be raised above the archaeological levels and there should be no archaeological impact. Nevertheless, minor terracing and ground beam , ground cutting will be archaeologically monitored as a precaution. ..

4.70 **Soakaway pits adjacent to NB3**: Historic England require that required soakaway pits west and north of NB3 (Fig. 6) are archaeologically excavated. The two soakaways shown in blue would be over 1500mm deep and would therefore remove archaeology whilst the soakaway in green would be between 800 and 1600mm in depth and is therefore also likely to truncate archaeological levels. Standard procedures for excavation are provided below. It remains possible that the northern soakaway will not be required should permeable paving solutions render it unnecessary.

4.71 **New car park/road surfacing and drainage:** The proposals include re-use of the existing road corridor line (and parking spaces) to the east side of Building O, with surfaced extension towards, but stopping short of, the Abbey gatehouse and with an east-west spur at the north end of Building O (Fig. 4). Parking spaces will be provided north and east of Building O. With regard to the treatment of the northern cessation of the road, south of the gatehouse, suitable bollards (e.g. wooden) to block vehicular access and suitable design and materials (e.g. gravel) for a path leading from the road cessation to the Abbey gatehouse, are required to be agreed with Historic England as a separate addendum to this WSI,

4.72 With regard to the road construction south of the gatehouse adjacent to Building O there are likely to be impacts to archaeological remains. In particular the identification of Roman and medieval archaeological remains at only 450mm depth in Trenches T13 and T12 to the north and east of Building O is problematic in terms of new surface laying. The cut levels shown on Fig. 4 and Fig.12 indicate that in practice depths into existing are varied but a zone to the north and east of Building O includes construction depths of over 1 metre. The HE Inspector of Historic Monuments therefore requires this area of deeper construction to be archaeologically excavated ahead of construction - see Ex.C (620m²) zone marked on Fig. 17. Other areas of the parking and road further south within Zone 6 would almost certainly remain above the archaeological level but will require continuous archaeological monitoring (with recording intervention if necessary) as a precaution.

4.73 The stretch of road continuing north to the abbey gatehouse is shown with shallow- impacts from ôprivate parking aisle construction approx. 480mm thickô The deeper cut levels for the western end of the road imply impacts to archaeology but these relate to heights taken along a higher section of existing retaining wall and therefore exaggerate depth, Nevertheless, the areas of road beyond Ex.C within Zone 6 will be strictly archaeologically monitored and should archaeological levels be exposed above or at formation level at any point these locations would be excavated in accordance with the protocols set out in this WSI..In order to provide prior indication of likely archaeological depth applicable for the northern road section an additional archaeological evaluation trench will be excavated in the grass area on its western side in advance of the construction phase (see Fig. 17).

4.74 **Enhancement of existing mains adjacent to Buildings O & NB2 and new combined service alignment to service to NB (and new linking ducts):** As previously the existing service trench that runs to the east side of Buildings E and F will be utilised as far as possible (Fig. 7). This extends adjacent to Building O and will include a new section to service Building NB3. The widening of the trench corridor to 1.8m to a depth of 1m and instigation of a new section of trench is likely to affect archaeology within the SM in this section given archaeological features at only 450mm depth within trench T13 close to its alignment. The trench would require pre-archaeological excavation and recording to formation level for any areas to one side on both sides of the existing service trench corridor that have not been disturbed previously. The new section of combined service trench to service Building NB3 (to the south of the gatehouse) is likely to impact archaeological levels along its length given the 670mm depth from existing of Roman ditches within adjacent trench BT2. As the trench will be pre-cut to the archaeological levels in the first instance and archaeology that will be impacted along its course would be excavated and recorded by CAT to the satisfaction of Historic England and CBCAO. The works will be archaeologically signed off before any deeper cutting of the trench to formation for service laying.

Zone 7 – Eastern zone of St John's Abbey comprising Rose Garden & Nature Reserve

4.75 This area should not be adversely affected by construction. The path within the Rose Garden will be constructed no deeper than 200mm and therefore above archaeological levels and there will be no significant ground disturbances within the Nature reserve area.

Further Discussion of Services Provision (in relation to both SM's)

4.76 Any necessary repairs to the existing drainage, should this be within the area of the SM will be undertaken within the original drainage excavation trench if possible, although widening of combined mains trenches has been advised with respect to Zones 1, 2, 5 and 6 in the text above. All such excavations will nevertheless be fully supervised by CAT under RPS management as a precaution.

4.77 The combined service strategy including sewerage is the subject of Richard Jackson Ltd Drainage Strategy drawings (Figs 5 and 6). Connection ducts to the buildings will usually be no more than 450mm deep at the connection point with buildings but will be deeper to connect with the main sewer trenches. Therefore much of the lengths of the new links will need to be fully excavated and recorded by CAT. These deeper excavation trenches will be archaeologically cleared to the formation of the trench or the top of the natural (which ever is encountered first)

prior to further machine reduction to formation level. Excavations will be managed by RPS and conducted by CAT.

4.78 Figs 5 and 6 show the majority of the major deep foul water drainage and sewerage links to be located in the central area of the site, between the SMôs but new links are shown in the St Johnôs Abbey SM in areas with potential to contain medieval and Roman pitting (etc). For the Roman Circus there - are several new links that are unavoidable but are located within the track where significant archaeological structural remains are not expected. The combined service crossing points of the northern cavea are located within existing service corridors and form part of the SM consent.

5 METHOD STATEMENT

a) Archaeological Excavation, Monitoring and recording

5.1 Machining protocols for Taylor Wimpey demolition and construction teams include the following.

5.2 All removal of footings to be conducted under archaeological supervision following input into the demolition method statement with input from RPS for the approval of Historic England and the CBCAO. All construction and service works to be conducted in accordance with this WSI and the terms of a Construction Management Plan with input from RPS for the approval of Historic England and the CBCAO.

5.3 The ground reduction machining below 200mm depth will be conducted using a toothless bucket under the supervision of the archaeological contractor (CAT). An archaeologist will ensure that ground reduction is undertaken in spits of no more than 100mm and will advise when at which point the appropriate level for archaeological recording has been reached. The archaeologist will stop the machine reduction above construction formation level if archaeology is encountered first. No further ground reduction will undertaken until the archaeology is excavated and recorded in accordance with the procedures below. Significant archaeological deposits will not be removed by machine unless sanctioned by the Historic England Inspector and CBC Archaeological Officer. In circumstances where vertical stratigraphy is found or where archaeology is vulnerable the machining will be monitored by a senior member of staff. Care will be taken to ensure that machines used do not rut, compact or otherwise damage buried or exposed archaeological features and deposits ahead of recording (see Appendix 1). Machines will not be allowed to track over stripped surfaces (whether or not archaeological remains are exposed), until these have been protected (with geotextile membrane or hardcore). All works on stipped surfaces will be archaeologically monitored, whether or not archaeological remains are exposed ï to ensure compaction and rutting does not occur (and if it does to halt work until there is adequate protection). No potentially significant archaeological deposits will be removed prior to recording and sampling (if necessary) to provide an adequate understanding of their character.

5.4 CAT Surveying. Following the overburden stripping temporary bench marks will be surveyed by CAT with respect to an Ordnance Survey datum and all features and deposits will be recorded relative to their OD height. The TBMôs will be shown on the site location plans.

5.5 The exposed formations levels, archaeological horizons or surface of the natural (whichever is encountered first) will be hand cleaned sufficiently to define any archaeological features present. This process will facilitate accurate planning and allow for metal detected finds to be correctly assigned following an initial scan of the site.

5.6 Complex areas (areas of intercutting features, surviving layers, where features are complex in form or where surface finds may plotted) will be planned by hand, usually at a scale 1:20. These plans will located via total station, scanned, vectorised and imported via CATôs CAD programme on the OS grid-based plan. Less complex areas of the site (where features are absent or rare and of simple form) will be planned using a total station with the data input directly onto CAD and the OS tiles. There will be no site grid on the ground. All site plans will show OS grid points and spot levels and will be fully indexed and related to adjacent plans. It is not anticipated that single context recording will be appropriate. However, should particularly complex sequences of

deposits or features be encountered, then single context recording will be undertaken. A uniform site plan will be produced showing all site features.

b) Sampling Strategy

5.7 Archaeological excavation will be by hand and will respect the stratigraphy of archaeological layers, features, deposits and structures. Each context will be excavated in sequence. Occasionally further use of the mechanical excavator may be required. Such techniques are only appropriate for the removal of homogenous low-grade deposits such as buried topsoil that may give a ñwindowò into underlying levels. They will not be used on complex stratigraphy and the deposits to be removed must have been properly recorded first. No archaeological deposits will be removed without the prior agreement of the CBCAO/Historic England. Horizontal archaeological deposits (e.g. layers) should be hand excavated, or sample excavated (in 1m grid squares where practicable) before a decision is made on removal.

5.8 The following sampling strategy will be adopted to ascertain the nature, depth, date and state of preservation of archaeological features as well as the stratagraphical relationships of these deposits and features to one another.

i. Normally 50% of the fills of all pits and other discrete archaeological features will normally be excavated. However, in the event that complex areas of pitting are encountered a representative sample will be excavated (although all will be planned). Pits will be fully excavated if they are particularly rich in environmental or and/or artefactual evidence, should this contribute to the research aims. Tree throw holes will not normally be investigated.

ii. Up to 10% of the exposed lengths of ditches, will be excavated, although for deeper ditches a higher sample may be required in order to safely reach the base (i.e. stepped excavation). The segments will be placed to provide adequate coverage of the ditches and will include excavation of all terminals and intersections. A flexible approach will be adopted to the location of excavation samples such that areas of exposed ditch fill with higher artefact or ecofact content may be targeted. A lower excavation sample ratio of ditches will only be acceptable in the event that the research aims will not be further advanced. Any such reduction in sample ratio will be agreed with Historic England/CBC and RPS.

iii. Up to 25% of ring gullies will include excavation of the terminals and sections at each side to the rear of the gully. Special regard will be given to significant stratigraphical relationships and concentrations of artefactual material.

iv. In the event that stone structures are encountered, these will be left in situ at evaluation stage. All stratigraphic associations will be recorded. Should floor levels (which are not anticipated) be encountered, these will sampled and environmentally sampled.

v. Any furnaces or kilns encountered will be fully excavated if possible (e.g. if partially encountered within a service/foundation trench the trench will be widened if practicable within the physical constraints on the Site to enable 100% investigation). .

vi. Animal and human burials, including cremations will be fully excavated should they have been damaged by their exposure. Allowance will be made for a human bone specialist to examine the remains in situ and advise on recording and lifting. A license will be acquired in the event of the discovery of any human remains. The discovery of human remains will be reported to the local coroner. Other structured or placed deposits will be recorded and retained as õsmall findsò

vii. Metal detectors will be used to scan for metallic finds on spoil heaps, vacated areas, areas of modern disturbance and during the excavation of key archaeological features or deposits.

c) <u>Recording</u>

5.9 The following procedures will always be initiated:

i. All features will be planned either by means of a total station or hand drawn plans where appropriate.

ii. Sections: all sectioned and excavated archaeological features will be drawn at a scale of 1:20 or 1:10, or at a smaller scale (if appropriate). All sections will be levelled to ordnance datum.

iii. All archaeological features, layers or deposits will be allocated unique context numbers prior to any hand excavation including contexts for which there is no archaeological interpretation or definition. All archaeological features, layers or deposits will be recorded on pro-forma context sheets detailing: character, contextual relationships, a detailed description, associated finds, interpretation and cross referencing to the drawn, photographic and finds records. On-site matrices will be compiled during the excavation such that the results of the written stratagraphical records may be fully analysed and phased.

iv. An adequate photographic record of the investigation will be made of all archaeological features and deposits. Standard record shots of contexts will be taken on a digital camera. The record will include working and promotional shots to illustrate more generally the nature of the archaeological operations. All photographic records will include information detailing: site code; date; context(s); section number; a north arrow and a scale. All photographs will be listed and indexed on context record sheets.

v. A record of the full extent in plan of all archaeological features, deposits or layers encountered will be produced. The detailed hand drawn plans will be related to the site, and O.S. national grid and be drawn at an appropriate scale, generally 1:20. Where necessary e.g. when recording an inhumation, additional plans at 1:10 scale, or where appropriate 1:20 will be drawn. The O.D. height of all principal strata and features will be calculated and indicated on the appropriate plans and sections.

vi. A record or index will be maintained of all site drawings and these will form part of the project archive. All site drawings will contain the following information: site name; site number and code; scale; plan or section number; orientation, date and compiler.

d) Treatment of Samples

5.10 Industrial residues will be recorded and sampled in accordance with the Society of Museum Archaeologists (SMA, 1993) guidelines. The presence of such residues will always be recorded and quantified fully, even where comprehensive retention is considered to be inappropriate. Large technological residues will be collected by hand. Separate samples (c.10ml) will be collected where appropriate for identification of hammer scale and spherical droplets. The advice provided in the Historic England/ Metallurgy Society document Archaeometallurgy in archaeological projects, will be referred to. Structural remains will be similarly recorded in accord with the SMA guidelines.

5.11 The environmental sampling policy is as follows. CAT is advised by the the HE Regional Science Advisor. In consultation with Val Fryer, CAT will bulk sample any potentially rich environmental layers or features in addition to all reliably dated deposits. These will be assessed by VF, and future sampling policy on other excavations areas will follow her advice. If any complex or outstanding deposits are encountered, then JM and/or VF will be asked onto site to advise. Pollen is not expected to survive within these soils, but should deep deposits with pollen preservation potential be encountered column samples will be retrieved for laboratory analysis.

5.12 In addition to retrieving environmental evidence (above), bulk sampling will be used to collect charcoal for potential C14 dating.

5.13 The procedures set in A guide to sampling deposits for environmental analysis (Murphy and Wiltshire 1994) and Environmental Archaeology ï A guide to the theory and practice of methods, from sampling and recovery to post-excavation (Historic England Centre for Archaeology Guidelines 2002) will be consulted. The following procedures will be followed unless otherwise amended following consultations between RPS, the Historic England Advisor in Archaeological Science, the bioarchaeologist and the Site Director:

i. 40 litre bulk samples (or 100% of smaller contexts) of anthropogenic concentrations will be taken of a representative range of deposits/features whether or not remains are visible (as they may nevertheless occur). These shall include well sealed deposits, floors, hearths etc. Environmental sampling will include undated as well as dated archaeological features. The environmental specialist will provide a statement of significance with regard to environmental remains to inform retention (and discard). The CBCAO will be consulted on such retention/discard recommendations prior to implementation.

ii. Monoliths for pollen analysis will be taken as appropriate to answer specific research questions.

iii. 30 litre bulk samples will be taken (if possible) from a selected sample of closely dated pits. These deposits will be sampled regardless of whether or not there are visible macrofossils or molluscs.

iv. Whole fill samples from a selection of post-holes of definable structures will taken for assessment.

v. Cremations and other ñspecial depositsò will be 100% sampled and sieved for the retrieval of remains.

vi. 100% recovery of animal bones will be undertaken from the soil samples. It is possible that 100 litre samples for bone may also be necessary in some circumstances.

5.14 Industrial residues will be recorded and sampled in accordance with the Society of Museum Archaeologists (SMA, 1993) guidelines. The presence of such residues will always be recorded and quantified fully, even where comprehensive retention is considered to be inappropriate. Large technological residues will be collected by hand. Separate samples (c.10ml) will be collected where appropriate for identification of hammer scale and spherical droplets. The advice provided in the Historic England/ Metallurgy Society document Archaeometallurgy in archaeological projects, will be referred to. Structural remains will be similarly recorded in accord with the SMA guidelines.

e) General Methodology

5.15 All works will be undertaken by a team of professional archaeologists. The proposed team structure is given in the Appendix 1.

5.16 All work will be according to CAT Policies and Procedures (2000), and will be informed by MoRPHE (EH 2006), and Guidelines on Standards and Practices for Archaeological Fieldwork in the Borough of Colchester (Colchester Borough Council1996, revised 1999).

5.17 All finds of potential treasure will be removed to a safe place, and the coroner informed immediately, in accordance with the rules of the Treasure Act 1996. The definition of treasure is given in pages 3-5 of the Code of Practice of the above act. This refers primarily to gold or silver objects. This procedure was required previously for silver items from both Area C2 and J1 East.

5.18 For purposes of deposition of the archive, a museum accession code will be obtained through Colchester and Ipswich Museums. This will be used this as the site code.

5.19 The Code of Conduct of the Institute for Archaeologists (IfA) will be followed.

5.20 Following completion of the manual excavation and recording the trenches will be backfilled to ground level. It is not proposed to reinstate the hard surfaces.

6 PUBLIC ARCHAEOLOGY

6.1 Due to health and safety issues and the sensitive location of the works land access will not normally be provided.

7 HEALTH & SAFETY

7.1 CAT will provide a Risk Assessment for the project prior to the commencement of the evaluation.

7.2 All the latest Health and Safety guidelines will be followed on site. CAT has a standard safety policy (CAT 1999), which will be adhered to.

7.3 No personnel will work in deep or unsupported excavations. The sides of all excavations or trenches deeper than 1.4 metres will be stepped or battered. Due to the difficulty of working in shored trenches, shoring will be avoided wherever possible. Safety helmets will worn by personnel in deep trenches or other potentially unsafe positions. All deep trenches shall be fenced off and will be clearly indicated by ñdeep excavationò signs.

7.4 The archaeologist(s) will not enter an area under machine excavation without alerting the machine driver to his/her intention.

7.5 The archaeologist(s) shall remain alert and take due care not to impede the progress of moving machinery. He/she shall stand well back from the turning circle of an excavatorôbuckets and cabs.

7.6 Spoil will be stored at a safe distance away from trench edges.

7.7 Suitable accommodation will be provided for staff to shelter from inclement weather and during breaks. Hand washing facilities will be provided.

7.8 CAT will provide any necessary protective footwear, high-visibility jackets, and safety helmets. All staff and visitors to the site will be expected to wear full PPE at all times.

7.9 The RPS site manager will be provided with a signed list of all personnel working on site each day by the CAT Supervisor and will ensure that all staff have signed out at the completion of each day.

7.10 All trench locations will be scanned by an ordnance clearance specialist ahead of and during machining in accordance with the RPS Health and Safety Plan (RPS 2004; updated October 2006).

8 FINDS

8.1 Unstratified finds will only be collected where they contribute significantly to the research aims or are of intrinsic interest. All finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed according to the United Kingdom Institute for Conservationôs Conservation Guidelines No.2, the Council for British Archaeologyôs First Aid for Finds (Third Edition, 1998) and the Institute of Field Archaeologistôs Guidelines for Finds Work (1992). Iron finds may require X-rays prior to conservation and similarly residues on pottery may require study ahead of any conservation which may be appropriate.

8.2 All finds and bones will be recorded, collected and labelled according to their individual stratagraphical context. Finds from each archaeological context will be allocated an individual finds tray and waterproof labels will be used for each tray to identify unique individual contexts. Each label will be marked with the appropriate context number in waterproof ink and will be securely attached to each tray.

8.3 A policy of marking for pottery and other finds will be agreed with Colchester Museum. Marking will include the site code and context number.

8.4 All lifting, conservation or other on-site treatment of delicate finds will be done by Anne-Maria Bojko of Colchester Museums. It is anticipated that robust items such as intact cremations will be lifted by site staff.

8.5 The site archive will be presented to Colchester Museums in accordance with the requirements for conservation and storage as outlined in Guidelines on the Preparation and Transfer of Archaeological Archives to Colchester Museums (Colchester Borough Council 1996).

8.6 All finds of potential treasure will be removed to a safe place, and the coroner informed immediately, in accordance with the rules of the Treasure Act 1996. The definition of treasure is given in pages 3-5 of the Code of Practice of the above act. This refers primarily to gold or silver objects. Any other finds remain for the landowner to assess and dispose of.

8.7 Finds work will be to accepted professional standards and adhere to the Institute of Archaeologistsôpublished booklet Guidelines for Finds Work.

8.8 Agreement with the landowner will be sought for deposition of the finds and paper archive. Arrangements for the finds to be viewed by the landowner will be made if he/she wishes.

- The following specialists have been approached for artefact and environmental analysis:
- Francesca Boghi ï Human Bone
- Susan Curle - animal bone;
- Paul Sealey ï prehistoric pottery
- Stephen Benfield late Iron Age and Roman pottery;
- Joanna Bird - Samian

- Laura Pooley/Ernest Black ï Roman Brick/tile
- Dr Hilary Cool ï Roman glass
- Dr John A Davies ï Roman coins
- Nina Crummy ï Small finds
- Sue Tyler- Saxon Pottery
- Helen Walker ï Medieval and Post-Medieval pottery
- Hazel Martingell - Lithics
- Lynn Keys ï Metalworking residues;
- Pat Wiltshire- pollen analysis
- Peter Murphy - Environmental
- Val Fryer- Archaeo-botanist
- Jackie Makinley- Cremations.

9 REPORTING

9.1 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ must be initiated and key fields completed on Details, Location and Creators forms. When the project is completed, all parts of the OASIS online form must be completed and a copy must be included in the final report and also with the site archive. A .pdf version of the entire report should be uploaded to the OASIS website. A copy of the OASIS online form should be included as an appendix to the report.

9.2 The archaeological monitoring /excavation report will include:

- A concise non-technical summary of the project results;
- Contents list, explanation of the proposed development;
- The aims and methods adopted in the course of the excavation;
- Archaeological and historical background;
- Location plan of the site(s), and areas of interest;
- Text report giving detailed results with a suitable conclusion & discussion;
- Sufficient plans and illustrations to back up the text report;
- Sections and drawings of all excavated features showing depth of deposits including present ground level with Ordnance Datum, and a scale;
- All specialist reports;
- Location of the archive and proposals for deposition;
- Project timescale and staff structure;
- Acknowledgements and references;
- Tabulated lists of contexts and finds;
- A copy of the WSI as an appendix.

9.3 Copies of the report will be issued to RPS, Taylor Wimpey, CBC (two copies ï one for the UAD), the Essex County Council Heritage Conservation Record and Historic England. A copy of the report will also be deposited with the finds and archive at Colchester Museum.

9.4 A full report on the overall project will be published in an appropriate journal, yet to be decided. If the report is concise, it may be appropriate to publish it in Essex Archaeology & History. However, longer reports may be need to be published in a different format, perhaps the new CAT in house Journal. In any case, a short summary of the work will be submitted to Essex Archaeology & History for inclusion in the annual round-up. MoRPHE (EH 2006) sets out the guidelines for the preparation of published reports.

9.5 The report should include searches of the Colchester UAD and Essex HER, and any other relevant archives, and should present the evidence in list and plan form for the site and its context (c.150m search radius min.). The report should also include any historic maps of the area, to demonstrate (changes to) the recent, post-medieval, land use of the site and its context.

9.6 An unbound hardcopy of the report (or grey literature report if otherwise agreed), clearly marked DRAFT, must be presented for approval within six months of the completion of fieldwork unless other arrangements are negotiated. The WSI will be provided as an appendix. Following acceptance, a single digital and hard copy of the report should be presented to both the Colchester UAD and the HE Inspector of Historic Monuments. A hard copy of the report should be deposited with the archive.

9.7 The report should state proposals for the deposition of the digital archive relating to this project with the Archaeology Data Service (ADS), or similar digital archive repository, and allowance should be made for costs incurred to ensure proper deposition (http://ads.ahds.ac.uk/project/policy.html).

9.8 At the end of the project, a copy of the digital vector plan, which must be compatible with MapInfo GIS software, should be sent to CBC for integration in the UAD. Files should be exported and saved into a format that can be imported into MapInfo (for example, as a .dxf or .TAB files).

10 ARCHIVE AND FINDS DEPOSITION

10.1 All retained artefacts will be cleaned, conserved and packaged in accordance with the requirements and guidelines of the United Kingdom Institute for Conservationôs Conservation Guidelines No. 2, the Council for British Archaeologyôs First Aid for Finds (Second Edition, 1987), the Institute of Field Archaeologistsô Guidelines for Finds Work (1992) and ôArchaeological Archives: A guide to best practice in creation, completion, transfer and curationô(Archaeological Archives Forum 2007). Small finds will be boxed separately from the bulk finds. Plans will be presented on hanging strips to fit Colchester Museum storage systems. A full archive will be prepared to standards outlined in Management of Archaeological Projects: 2 (English Heritage 1991).

10.2 The full archive will be deposited at Colchester Museums, subject to Taylor Wimpey consent and subject to the guidelines and requirements of MAP 2, as soon as is practicable, and within six months of completion of publication text on the project. All requirements for archive storage as given in Colchester Borough Councilôs Guidelines for the standards and practice of archaeological fieldwork in the Borough of Colchester, will be followed.

10.3 Finds (and other retained materials) will be bagged and boxed in the manner recommended by Colchester Museums.

10.4 Photographic archive is to be presented as follows: original digital data on CD Roms, hard copies of digital photos on high quality paper, or as otherwise requested by Colchester Museums.

10.5 CD Roms of material held on computers will be presented to Colchester Museums, along with bound copies of printouts.

10.6 Deposition of the archive will be confirmed in writing to CBCAO, and a summary of the contents of the archive shall be supplied to CBCAO.

10.7 All artefacts recovered from the archaeological excavation shall be deposited at the Colchester & Ipswich Museums. All recovered artefacts shall be fully catalogued, shall constitute one single deposit and shall be deposited within two years of the completion of the archaeological excavation.

10.8 Prior to the deposition of the artefacts with Colchester Museums the following procedures will have been completed:

- Notification of the fieldwork and approximate quantity of finds will be given to the museum ahead of the fieldwork phase. A ônotification formôwill be supplied with the relevant details of the project at this stage;
- Where possible the site code/accession number and context number shall be marked on all finds;
- All finds packaging, including boxes and bags will be clearly marked with the assigned accession number;

- Transfer of ownership from Taylor Wimpey to the museum will be agreed in principle prior to the fieldwork and a written transfer of ownership form will be forwarded to the museum ahead of deposition. Any other finds remain for Taylor Wimpey to assess and dispose of;
- The archive will be deposited complete and will include a full index of contents;
- There may be a case for non retention of certain artefacts of low academic value. The selection of these will accord with SMA (1993, revised 1997);
- Further guidelines and requirements of the Museums for the acceptance of finds and archive as outlined in the Museumsô procedures for the deposit of archaeological archives will be adhered to.

10.9 A projectôs archive comprises every record relating to that project, from written records and illustrative material to the retained artefacts.

10.10 The archive (including artefacts) will be retained intact, will be prepared to the standards and requirements of Colchester Museums. The archive shall be deposited at the Colchester & Ipswich Museums within two years of the completion of the archaeological excavation. The accession number assigned for the artefacts will be used for the whole project archive.

10.11 The CAT project manager will ensure that every element of the archive is kept clean and secure, and that it is stored in a suitable environment.

10.12 The archive comprising written, drawn, photographic and electronic media, will be fully catalogued, indexed, cross referenced and checked for archival consistency.

10.13 A copy of the archive (on microfiche) should be deposited with the NMR and SMR.

11 STAFFING AND TIMETABLE

11.1 The overall archaeological project will be managed by Robert Masefield CMIfA, FSA (RPS). The archaeological contractor CAT will be managed by Philip Crummy. The fieldwork will be directed in the field by Ben Holloway. The experience of the project team is included in the Appendix of this method statement.

11.2 A programme of monitoring of the project in the field shall be agreed in advance between CAT, RPS, Taylor Wimpey, the Historic England Inspector of Historic Monuments and the CBCAO. It is currently envisaged that some archaeological works such as additional trenches may commence in July 2015, although the main areas of pre-excavation (Ex.A, B & C) will be undertaken from mid/late August. Other archaeological works will take place in concert with the demolition/construction works (TBD). Provision (through regular consultation) will be made for the CBC Archaeological Officers and the Historic Englandôs Regional Science Adviser to monitor the excavation as required, including the post fieldwork analysis and report preparation stages of the project.

11.3 A minimum period of four weeks notice shall be given to the Historic England Inspector of Historic Monuments and the CBCAO prior to the commencement of the works. The timing and frequency of each monitoring visit will be agreed in advance with CBC. The CBCAO and the Historic England Inspector of Historic Monuments will regularly inspect the fieldwork to sign off relevant stripped and excavated areas in advance of subsequent building works.

11.4 Any variation or modification to the project programme in terms of working or recording either on site or off will be fully discussed and agreed with RPS, Taylor Wimpey, Historic England and CBC in advance.

11.5 Any variations of the WSI shall be agreed between RPS, the Historic England Inspector of Historic Monuments, CBCAO and CAT prior to their being carried out.

11.6 The involvement of CBCAO shall be acknowledged in any report or publication generated by this project.

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APPENDIX 1

MITIGATION MEASURES

Fundamental Design Principles

1.1 The presence of archaeological deposits potentially extending across the whole of the proposal area has been taken into account throughout the development of the scheme proposals, and has led to the establishment of a number of fundamental principles for the considered treatment and protection of archaeological remains. These have led to mitigation by design and therefore reduced the requirement for mitigation by archaeological excavation. Due to the location of the site within a Scheduled Ancient Monument these principles will require agreement with the Essex Inspector for Ancient Monuments at Historic England in addition to the CBC Archaeology Officer.

1.2 Policy: Key decisions in relation to the fundamental engineering design principles are based on the draft guidance prepared by English Heritage (Piling and Archaeology 2006). These include:

ñPiling impact on the siteôs archaeology should be kept to a minimum, and a loss of no more that 2% of the site should be the target, which is commonly achieved nowadays. When all other engineering works are also taken into account, such as services and lift pits, a maximum of 5% of the site should be seen as the upper limit of loss from foundation construction.

Where sites have been adequately characterised, it should also be possible to avoid the archaeologically most sensitive areas of the site, through careful placement of the piles, and the use, where appropriate of load-bearing spanning structures.

Pile clusters of more than two piles should be avoided wherever possible, as archaeological deposits within pile groups of three or four piles will be un-interpretable in the future. This can be achieved by increasing the diameter or depth of the piles.ò

Engineering Design Principles

1.3 It should be noted that this principle accepts that the stated acceptable percentage of loss (no more than 2% by piling and a maximum of 5% as the upper limit of loss when all other engineering works are taken into account) enshrines a principle of acceptable loss without archaeological record.

Engineering Design Principles for 2-Storey Residential Units

1.4 Use piled foundations rather than pad or strip footings ï for basic structural engineering requirements, the new buildings will need to be founded into solid ground and will therefore need to penetrate through the softer (archaeological) deposits in order to reach the gravel/London Clay. Piled foundations will have far less impact than pad or strip footings.

1.5 Minimise the amount of piling required - the development of a minimised piling strategy has identified a form of overall structural design that is based on the principle of using fewer, larger piles supporting single columns rather than a greater number of smaller piles, or columns founded on several smaller piles.

1.6 Optimise the pile design and piling methodology ï detailed discussion regarding the design of individual piles and the methodology that will be used in the piling programme has been undertaken, in line with EH documentation. Specialist flight augured and sleeved piles will be used in combination with specialist pile caps and ground beams, excavated to a depth of no more than 450mm (above the archaeology within the relevant new buildings as confirmed by evaluation trenching - CAT 2007). The piles themselves are to be 450mm in diameter unless otherwise stated.

1.7 Undertaking of piling before ground reduction excavation. This reduces/removes the impact that a large piling rig will have on exposed archaeological remains that are to be preserved in-situ. The piling rig would be founded on a piling matt laid on top of exiting levels.

1.8 Maintain a constant review of the foundation design strategy as the scheme progresses ï much consideration has been given over the last fifteen or so years to the issue of introducing informed foundation designs into areas that contain significant archaeological deposits. The strategy will continue to be based around the principles outlined above, i.e. fewer, larger piles, avoidance of pile clusters, pre-augered piles rather than driven etc. Principles adopted for the units have lead to a number of design considerations, as follows:

- Pile Diameter - Single c.450mm diameter piles will be used.
- Pile locations will be probe augured via a cutter on the end of a 100mm diameter probe, reducing the need for machine led õpile probingö
- Pile Centres ï Piles centres will be increased to minimise ground disturbance and to maintain the legibility of archaeology for future excavation.
- Piling Method ï Pre-augured, driven piles are less intrusive than other forms and will be utilised. This is in accordance with - HE guidance.
- Ground beams ï Where ground beams and pile caps are required to pick up structural columns they have been kept to a maximum of 450mm deep so as keep the depth of disturbed ground to circa 450mm below existing levels.

Archaeological Preservation and Mitigation Principles

1.9 Archaeological Principles for the project are defined within documentation prepared by the Institute of Field Archaeology (Standards and Guidance/codes Codes of Conduct), English Heritage (Management of Archaeological Projects II and publication procedures).

1.10 Approaches to archaeological mitigation comprise the preservation in-situ of significant archaeological remains that can be avoided by development through the use of load spreading devices, as recommended by English Heritage (Davis et al 2004, 57). The following principles are adopted:

- Where geotechnical investigation is required no test pits and use of only 3 no 100mm diameter boreholes, ground protection to be used to ensure no adverse compaction or rutting of the ground
- raising foundations via the use of appropriate piling methods (as set out above).

- Where raising ground level (i.e. to the immediate north of the proposed new building) use of a geo-textile membrane following removal of vegetation layer to a depth of no more then 150mm where ground level is to be raised
- where trees to be removed fell tree and grind stump to 200mm below finished ground level
- new tree pits 0.8x0.8mx0.7m to be pre archaeologically excavated by CAT
- amendments to existing drainage requiring only limited new excavations ï use existing pipes where feasible
- existing service connections to be retained where possible but new sewerage trenches will be required and where these are required other new services to be placed within the same trench (archaeological excavation of new trenches)
- existing surfaces retained and where new paving is required construction to require no more than 200mm construction depth below existing ground level
- all surfaces will be free draining either by laying to falls or by permeability
- use of existing frontage rail post-holes where possible ï where old fence to be removed (fronting Flagstaff Road and Napier Road) ï old posts to be pulled out vertical with new posts inserted ion same holes OR metal plate at base to retain soil (all supervised by CAT)
- use of soakaways where possible
- all surface water RWPôs to be retained where possible subject to CCTV survey
- new retaining wall (building Q) to have foundation no deeper than 200mm

1.11 The locations of potential impacts have been restricted by design. However, pre archaeological excavation of significant archaeological remains will be conducted in isolated locations where they are vulnerable (eg tree pits). The construction contractor will allow the archaeological team sufficient time and opportunity to undertake necessary recording works ahead of any further stage of ground reduction that may be required. The following potential impacts areas would be subject to archaeologically controlled machine stripping (using a toothless ditching bucket) and subsequent archaeological recording in accordance with the detailed methodologies presented within the Written Scheme of Investigation:

- archaeological monitoring and recording of construction trenches for pile caps and ground beams for new units
- archaeological monitoring and recording of all new services/ drainage and new connections to existing services
- archaeological monitoring and recording of tree pit for new tree pits 800mm x 800mm by 700mm deep
- archaeological monitoring and recording of hand digging of frontage railing post-holes (where existing fence holes cannot be used)
- archaeological investigation of soakaways adjacent to NB3

- archaeological investigation of relevant areas of NB3
- archaeological recording of adoptable road construction at crossing of northern cavea (and possibly also the spina subject to depth of construction)

1.12 The key underlying principle of the archaeological mitigation strategy is the preservation in situ of significant archaeological remains, where possible. This approach is in line with national guidance on archaeology and planning as expressed in NPPF, and ensures compliance with local plan policy.

APPENDIX 2

TEAM STRUCTURE

RPS PROJECT MANAGEMENT TEAM

Archaeological Project Manager

Rob Masefield

LIST OF CAT TEAM MEMBERS

Project Management

Philip Crummy

Howard Brooks

Site Manager

Ben Holloway

Site staff

C. Lister, A Wightman, E Spurgeon B Hurrell, , AN Others.

Finds

E Spurgeon

Metal detecting

Brian Hurrell

Finds Consultants

Stephen Benfield (CAT) LIA/Roman pottery

Joanna Bird (Guildford) Samian ware

Ernest Black (Colchester) Roman brick/tile

Paul Sealey (ECC) Prehistoric Pottery/ amphora

Hilary Cool (Nottingham) Roman glass

Nina Crummy (Colchester): Small finds

Julie Curle (Sylvanus: Archaeological, Natural History and Illustration Services) Human and Animal bone.

John Davis (Norwich Museum) Roman coins

Val Fryer (Loddon) Environmental processing

Nick Lavender (ECC) Prehistoric pottery

Hazel Martingell (Braintree) Lithics

Rachel Ballantyne (EH) Environmental policy

Valerie Rigby (British Museum) LIA ceramics

Paul Sealey (Colchester Museums) Roman Amphoras

Susan Tyler (ECC) Saxon Pottery

Helen Walker (ECC) post-Roman pottery.

Graphics

C Lister, E Spurgeon, J Chittenden, H Brooks

Report writing

B, Holloway, H Brooks,

RPS EXPERIENCE

Robert Masefield

Office:	Cottons Centre, London Bridge
Position in Company:	Associate
Qualifications / Memberships:	MIFA, MA, BSc
Date of Birth:	15 October 1969
Key Clients:	Taylor Wimpey, RMPA Services, Southern Water, Gallagher Estates, Cemex UK, Countryside Properties

Robert has over 20 years experience in British archaeology and has been with RPS for ten years. He has recently transferred to the London office. Experienced in the production of Environmental Impact Assessments and Statements, the design and management complex archaeological projects and the preparation of proofs of evidence, he also has extensive experience of undertaking negotiations on behalf of clients.

Experience Includes:

- Delivery of compliance with Town and Country Planning, Ancient Monuments, Conservation Area and Listed Building legislation, Environmental Impact Assessment (EIA) and Construction Design Management (CDM) regulations; and the Highways Agency Design Manual for Roads and Bridges (DMRB vol 10 & 11)
- Provision of Environmental Statement chapters including Great Western Park (George Wimpey & Taylor Woodrow), Colchester New Garrison (RMPA/ MoD) Didcot, Radcot Farm Mineral Extraction (Oxfordshire), Priors Green, Takeley (Countryside Properties) and Elstow

(National Power/JJ Gallagher), Barrington Quarry, Cambridgeshire (Cemex) plus several ES's on behalf of Southern Water (Bognorï Littlehampton, Bexhill Hastings and Brighton & Hove).

- Project Design and Management on watching briefs evaluation and excavation projects including production of written schemes of investigation and Research Agendas.
- Management and design of the 160ha Colchester New Garrison and linked Urban Village projects including identification and successful retention within the scheme of Britainõs first Roman circus, excavation of major cemetery site and excavation of prehistoric and Roman sites within Camulodunum.

DETAILS OF CAT TEAM MEMBERS

SENIOR SITE STAFF

Philip Crummy MA, FSA, MIFA

Philip is a very experienced field archaeologist, and the longest-serving director of excavations at any major archaeological organisation in Britain. Since joining CAT (or Colchester Excavation Committee as it was then, and Colchester Archaeological Unit soon after) as Site Director in the early 1970s, he has supervised or directed large urban projects including Lion Walk, Balkerne Lane, Butt Road, and Culver Street, as well as numerous small projects. Philipõs publication record is outstanding, and includes sole or joint authorship of eight of the Colchester Archaeological Report series, principally volumes 1, 3, 6, 9, and 11. He also produces major parts of the CAT annual magazine The Colchester Archaeologist. He has also contributed to Britannia, Post-medieval Archaeology, and several of the BAR series. His most recent work City of Victory is one of the local bestsellers in bookshops in Colchester. He lectures widely.

Stephen Benfield BA, Cert Archaeol (Oxon) (CAT)

After working in farming Banking, Estate Agency, and in a Jobcentre, Stephen discovered archaeology. His first involvement with Colchester archaeology was in 1985, working on a Manpower Services Commission sponsored project, assisting in processing the enormous collection of Roman pottery from excavations in the town. After that he studied for his post-graduate Certificate in Archaeology at Oxford. Returning to CAT, he has since worked on many CAT projects at various supervisory and directorial positions, including the major projects at Stanway Iron Age burial site and Gosbecks Roman temple/theatre complex. Stephen has also, through much hands-on experience, built up a considerable working knowledge of LIA and Roman ceramics. He now completes ceramic assessments and full reports for CAT, drawing on the unrivalled catalogues provided by the standard Colchester works Camulodunum (Hawkes & Hull 1947), Roman Colchester (Hull 1958) and now CAR 10, and by examining the fabric series held at CAT headquarters.

Howard Brooks BA (Hons) FSA MIFA (CAT)

Howardõs involvement in Essex archaeology goes back to 1970 when he dug at Sheepen, Colchester with Ros Dunnett. He worked for Colchester Archaeological Trust between 1976 and 1981, and again in 1985, and was involved at various levels of responsibility (up to Co-Director) in the excavation of deeply stratified urban remains in Roman Colchester and suburbs (Colchester Archaeological Report 3 [1984]). Between 1985 and 1992 he worked for Essex County Archaeology Section, first in directing the fieldwalking and excavation project at Stansted Airport (forthcoming East Anglian Archaeology), and then in Development Control. Howard then left ECC to set up and run HBAS, the county's smallest contracting team, in which capacity he carried out over twenty field projects and wrote a dozen consultancy reports. He rejoined CAT in

1997, since when he has been involved with major excavations at the Old Post Office on Head Street, the Co-operative Stores on Long Wyre Street, and other major projects. He regularly contributes to Essex Archaeology & History, and teaches WEA and University evening classes on archaeology.

Ben Holloway BSc AIFA

Ben joined CAT staff in June 2000, a graduate in Archaeology from Bournemouth University. Ben has conducted fieldwork in Scotland and the Isle of Man. Since joining the Trust Ben has carried out extensive work in Colchester at various supervisory and project positions including evaluations and excavations at Colchester Garrison PFI (including the circus), St Marys Hospital and Colchester 6th Form College. His work in Essex includes the Sandon Park and Ride Site, Skyline 120 Business Park at Great Notley, Dry Street, Basildon and the Stanhope industrial park Stanford-le-hope.

FINDS SPECIALISTS

Joanna Bird FSA (Guildford) Samian

Joanna is one of the countryôs top Samian specialists. Among her large corpus of work is a contribution to the blockbuster Colchester Archaeological Report 10: Roman pottery from excavations in Colchester 1971-86.

Ernest Black (Colchester) Roman brick/tile

Ernie is a Colchester schoolteacher with a wide interest in archaeology and the classical world. In this sense, he is following in the footsteps of A.F. Hall and Mike Corbishley who were also local schoolmasters. He has developed his specialism by large scale hands-on experience with Roman brick and tile, and has contributed to the Archaeological Journal Colchester Archaeological Report 6: Excavations at Culver Street, the Gilberd School, and other sites in Colchester 1971-85.

Dr Hilary Cool FSA MIFA (Nottingham) Roman glass

Yet another graduate of the University of Wales, Hilary is now a freelance glass and finds specialist, and has written many reports on glass from Colchester sites, including contributions to Colchester Archaeological Report 6: Excavations at Culver Street, the Gilberd School, and other sites in Colchester 1971-85, and Colchester Archaeological Report 9: Excavations on Roman and later cemeteries, churches and monastic sites in Colchester 1971-88 (1993). Among her major works is the internationally selling Colchester Archaeological Report 8: Roman vessel glass from excavations in Colchester 1971-85.

Nina Crummy (Colchester) Small finds

Nina first worked in the early 1970s as finds assistant on the major urban excavations in Colchester for the Colchester Excavation Committee (later the Trust). Over the next twenty years she built up an unrivalled working knowledge of small finds of all types. She has collaborated in most of the Colchester Archaeological Reports, and was principal author of the best-selling Colchester Archaeological Reports 2 (Roman small finds), 4 (The coins from excavations in Colchester 1971-9) and 5 (The post-Roman small finds from excavations in Colchester 1971-85). She recently worked for the Museum of London, and was instrumental in the recent transfer of and the massive improvement in accessibility to archaeological archives in London. She now works freelance on small finds reports for CAT, HBAS, and other bodies including Winchester Excavation Committee.

Julie Curle Sylvanus: Archaeological, Natural History and Illustration Services) Human and Animal Bone

Julie has over 16 years of experience in archaeology and in particular finds for the Norfolk Archaeological Unit and Norfolk Museums Service. Currently working as a freelance specialist in both human and animal bone and Illustration. She has been producing faunal and Human remains reports for many years and produces assessment and analysis reports for clients across the East Anglian region. She has her own extensive bone reference collection built up over many years. Her particular interests in faunal remains are animal husbandry and pathologies. She has also worked as a conservator, particularly on Pleistocene vertebrates and a wide variety of archaeology and natural history projects at the Norwich Castle Museum. Julie is also an extra-mural lecturer with the University of East Anglia, teaching Animal bones in Archaeology.

Dr John A Davies (Norwich Museum) Roman coins

John has, for some years, written reports on Roman coins from Colchester excavations. He specialises in barbarous radiates, and has contributed to British Numismatic Journal on that topic. Among his other publications is a contribution to Colchester Archaeological Report 4: The coins from excavations in Colchester 1971-9, and Colchester Archaeological Report 9: Excavations on Roman and later cemeteries, churches and monastic sites in Colchester 1971-88 (1993).

Nick Lavender (to follow)

Hazel Martingell BA, FAAIS (Braintree): Lithics

Hazel has for many years worked as a lithics illustrator and specialist, undertaking work for The British Museum, ECC Field Archaeology Unit and for London and Cambridge Universities, to name but a few. Since 1987 she has been self-employed and has excavated at a Middle Stone Age site at Gorham's Cave, Gibralter as well as writing and illustrating worked flint reports for CAT, ECC FAU, and the British Museum. Her impressive publication record includes reports on sites from around the globe. Closer to home she has published work in Essex Hisory and Archaeology, The East Anglian Archaeology Monograph series, Antiquity and British Museum Occasional Papers. Hazel is a fellow of the Association of Archaeological Illustrators and Surveyors and a founder member of the Lithics Study Group, London.

Rachel Ballantyne (EH) Environmental (to follow)

Valerie Rigby (British Museum) LIA ceramics

Val is one of the country's leading authorities on later prehistoric ceramics in general, and traded wares in particular. She has published widely. Her major work include Baldock: the excavation of a Roman and pre-Roman settlement, 1968-72 (Britannia Monograph Series 7, with Ian Stead). On a more local level, she has contributed to the magisterial Colchester Archaeological Report 10: Roman pottery from excavations in Colchester 1971-88, and to Ros Niblett's Sheepen: an early Roman industrial site at Camulodunum (Council for British Archaeology Research Report 57, 1985).

Dr Paul Sealey (Colchester Museums) Amphoras/prehistoric pottery

Paul has worked at Colchester Museum since the late 1970s. His PhD specialism was Roman amphoras, a topic on which he writes specialist reports for Colchester sites. His main areas of interest are prehistory and the Roman period, and he has developed a familiarity with those periods and their ceramics. He has published widely. His major works include Amphoras from the 1970 excavations at Colchester Sheepen (British Archaeological Report 142, 1985), contributions to Ros Niblett's Sheepen: an early Roman industrial

site at Camulodunum (Council for British Archaeology Research Report 57, 1985). He regularly contributes to Essex Archaeology & History.

Sue Tyler (ECC) Saxon Pottery

Sue is the County authority on Saxon material, especially pottery. She has had several spells working with Essex County Archaeology Section, interrupted by a late-1980s spell in Hertfordshire. She has written reports on Saxon material for many Essex Projects, and contributes regularly to Essex Archaeology & History, including the Anglo-Saxon cemetery at Prittlewell (Essex Archaeol Hist 19 (1988).

Helen Walker BSc (ECC) Medieval and post-medieval pottery.

Helen is Essex County Council Field Archaeology Group's medieval and post-medieval pottery specialist. Before joining ECC in 1985, she worked on finds in Carmarthen, and for Hampshire CC on projects in Winchester. Since 1985, she has contributed reports on ceramics to many other projects in the county. A regular contributor to Essex Archaeology & History, her principal publications include reports on the Rayleigh kiln dump, and George Street and Church Street, Harwich (Essex Archaeology & History, 21 [1990]), and North Shoebury (East Anglian Archaeology 75).

APPENDIX 3

EXTRACT FROM HISTORIC ENGLAND'S RECORD OF SCHEDULED MONUMENTS ï ST JOHN'S ABBEY

MONUMENT: The Benedictine Abbey of St John

PARISH: COLCHESTER

DISTRICT: COLCHESTER

COUNTY: ESSEX

NATIONAL MONUMENT NO: 26307

NATIONAL GRID REFERENCE(S): TL99832468

DESCRIPTION OF THE MONUMENT

The monument includes the buried and visible remains of the Benedictine Abbey of St John which is located on the southern outskirts of Colchester town centre, largely within the grounds of the Garrison Officers' Club. Also included in the scheduling are the buried remains of a small pre-Conquest church which preceded the foundation of the monastery, and part of one of the extensive extra-mural cemeteries associated with the Roman town and later subsumed within the area of the monastic precinct. In addition, the monument includes the buried remains of a 17th century house established after the Dissolution of the abbey and the remains of its associated formal gardens, some of whose terraces are still visible within the Club grounds. The Roman cemetery was discovered in 1972 prior to the construction of the St Botolph's Circus. The excavation uncovered 34 inhumations on the south west side of the present roundabout (in the north eastern corner of the later precinct) which were dated from coin evidence, pottery and other grave goods to the period around AD 270. Although these burials were removed, the cemetery to which they belong is thought to extend further south within the area of the former monastic precinct.

Documentary sources indicate that a parish church, founded by a priest named Sigeric, stood on the hillside to the south of the town prior to the Norman Conquest. A small structure was partly uncovered during the 1972 excavations in the area. This area has since been landscaped to form the steep verge on the south side of St Botolph's Circus. The building, which had rubble foundations and reused Roman masonry incorporated in the lower course of the walls, is considered to be Sigeric's Church of St John the Evangelist. The excavations revealed a narrow structure, around 6m wide, orientated east to west and divided into three cells, the eastern cell, or chancel, having an apsidal east wall. The southern edge of the building and the greater part of the western cell were not excavated. These remain preserved toward the top of the verge, and are included in the scheduling.

The Benedictine Abbey of St John was founded by Eudo de Rie, Dapifer (or steward) of William the Conqueror, in August 1095. The extent of the abbey is recorded on historic maps, particularly on John Speed's map of Colchester in 1610, and can still be traced on the ground. The precinct covered a roughly rectangular area of the hillside overlooking the medieval town, measuring approximately 240m east to west and 300m north to south, and now bounded by St John's Green to the north, Napier Road to the south and Mersea Road and Flagstaff Road to the east and west. The south western quarter of the precinct is overlain by a 20th century building complex belonging to the Defence Clothing Textile Authority (DCTA), and is not

included in the scheduling. Elsewhere, the majority of the precinct is largely undeveloped and will contain buried foundations of the abbey buildings and other related features. The east wall of the abbey precinct still stands alongside Mersea Road, heavily buttressed towards the northern end in order to support a drop in ground level of up to 4m from the interior.

The medieval construction in flint, Kentish ragstone and reused Roman brick, is still visible in places despite extensive refacing work in 16th century brick and numerous later repairs. It is included in the scheduling together with an adjoining length of the southern precinct wall which remains upstanding for approximately 65m, running broadly parallel to, and 50m to the north of Napier Road. Sections of the precinct wall also survive within the modern boundary wall on the western side of the monument, between the Flagstaff Road entrance to the DCTA and the outbuildings on the south side of Abbey House, and are included in the scheduling. A short section, containing fragments of decorative masonry from the abbey buildings (and therefore clearly repaired after the Dissolution) extends northwards for around 10m from the DCTA guardhouse. This is separated by a short length of modern replacement wall (not included in the scheduling) from a further length of the original structure which continues for around 22m towards the Abbey House outbuildings. This northern segment retains medieval work at the core, but displays considerable alteration from the late 16th and 17th centuries when it was utilised as the external wall of a building. The blocked windows and doors of this period remain clearly visible. To the north, the precinct wall ran along the south side of what is now Southway, and to the east and south of St John's Green. A small section of the medieval wall extends for around 15m to the west of the abbey gatehouse and is included in the scheduling, although its continuation (towards Abbey House) is a 19th century brick replacement which is not included in the scheduling. A further section survives as the lower part of the west wall of No.19 St John's Green, forming part of this house and therefore not included in the scheduling. The excavation in 1972 investigated a 140m section of monastic wall at the north eastern corner of the precinct which has since been removed by the construction of St Botolph's Circus. As elsewhere around the circuit, this wall appeared to be 16th century in date though the excavation demonstrated that later refacing had obscured the original 12th century structure.

The 15th century gatehouse, situated towards the centre of the northern precinct boundary and now the principal entrance to the Officer's Club, is the is the only abbey building to remain standing. It is Listed Grade I, preserved as a displayed monument in the care of the Secretary of State, and included in the scheduling. The building, of two stories and corner turrets, is built in stone with panels of flint flushwork. The lower part of the structure is substantially original, retaining the elaborate lierne vaulting above the carriageway and pedestrian access which run between four-centred arches to north and south. The upper chamber, northern facade and turrets were heavily restored in the mid 19th century, and are believed to be faithful copies of the original work.

To the east of the gate is the now roofless, two storied porter's lodging, which is accessible via a square headed doorway in the eastern wall of the carriageway. Traces of a spiral staircase to the upper floor are visible in the north east corner, although the floor itself is only evident from the series of joist holes in the walls. A doorway in a recess on the western side of the entranceway originally provided access to a second building, now demolished. The foundations will be preserved beneath the garden of the Officers' Mess.

Speed's map of 1610 shows the location of the abbey church to the south of the gatehouse, and the lines of some of the buried foundations of the church and claustral range were recorded as grass parch marks here in 1958. The only detailed depiction of the church is a southern elevation in Morant's History of Essex 1748, which may not be strictly accurate. This drawing shows a massive cruciform church with a large tower over the crossing surmounted by a parapet and a smaller central turret. It also shows a chapel next to the chancel and a round tower at the west end of the nave.

The cloister was originally located on the northern side of the church but, following a fire in 1133 which destroyed a large part of southern Colchester as well as part of St John's, it was moved to the southern side. However, some sources suggest that the move happened earlier, and was intended to distance the monks from the noise of the town. Benedictine abbeys were invariably built to a standard plan and it is therefore possible to reconstruct the probable layout of the abbey after the fire.

To the south of the church, the range along the eastern side of the cloister would have contained the chapter house, dorter (dormitory) and reredorter (latrines). The south range would have contained the frater (refectory) and kitchens, and the cellarer's range would have stood to the west. The abbot's house will have been located elsewhere in the precinct, probably to the west of the claustral buildings. The abbey would also have contained an infirmary, guest house and a variety of other domestic buildings, stabling and barns.

The monks' cemetery would have been located near the eastern end of the abbey church. Part of the 12th century parochial cemetery was revealed during the 1972 excavations. This had been established on raised ground overlying the area of the pre-Conquest church, the soil containing fragments of burnt masonry suggesting that the landscaping took place after the fire in 1133. A total of 15 lined graves and 18 shallow unlined graves were found cut into this surface, and it was evident that the graveyard continued to the south and probably to the west around the Parish Church of St Giles which was constructed in the northern part of the precinct between 1133 and 1171. The church still stands, having recently been converted into a masonic centre. It is Listed Grade II and is not included in the scheduling. The construction of the surrounding car park in 1973 completely removed any archaeological deposits in the immediate vicinity of the church. This area is not included in the scheduling.

The abbey was dissolved in 1539 and passed into the hands of Sir Thomas Darcy in 1544. In 1547 the site was under the control of John Dudley, Earl of Warwick and was then bought by John Lucas in 1548, who converted some of the abbey buildings, probably the abbot's house, into a residence which remained the family seat until the mid 17th century. During this period the precinct

wall was repaired, using stone from the abbey buildings which, with the exception of the church, were gradually demolished. The broad terraces which survive across the eastern part of the former precinct are thought to represent a formal garden associated with the Lucas' house. The terraces, utilised by tennis courts in the latter part of this century, descend from a level area in the south east corner of the precinct, forming part of a symmetrical pattern bisected by a narrower terraced walkway extending across the centre of the slope from east to west. The principal buildings of the post-Dissolution house are thought to have been located towards the western side of the precinct, where ranges are shown on both Speed's 1610 map and Chapman and Andre's town plan of 1777. The terraced walkway would therefore have originally led from the house providing the main axis of the garden in a manner characteristic of the period. Traces of the pattern of terraces can still be seen in the areas of lawn surrounding the northern perimeter of the DCTA complex, clearly demonstrating that the garden earthworks formerly spanned the full width of the precinct.

A large oval mound known as `The Mount' stands at the highest point within the precinct, adjacent to the surviving section of the southern precinct wall. It appears on maps from the late 18th century and is interpreted as a prospect mound, a frequent feature of post-medieval garden design, from which the house and gardens could be viewed and appreciated.

The house served as a Royalist stronghold during the siege of Colchester in 1648, suffering considerable damage as a result. The remaining abbey buildings (with the exception of the gatehouse), appear to have been demolished after the site was used to house Dutch prisoners in the 1660s and, there are no references to occupation after the mid 18th century. The abbey grounds passed to various owners prior to being

acquired by the War Office in 1860. With the exception of the abbey gatehouse, all buildings are excluded from the scheduling; also excluded are all modern surfaces, all fences and walls (with the exception of the surviving sections of the precinct wall), and all modern features such as lamp posts, benches and the fixtures of the tennis courts; the ground beneath all the above items is, however, included.

ASSESSMENT OF IMPORTANCE

From the time of St Augustine's mission to re-establish Christianity in AD 597 to the reign of Henry VIII, monasticism formed an important facet of both religious and secular life in the British Isles. Settlements of religious communities, including monasteries, were built to house communities of monks, canons (priests), and sometimes lay-brothers, living a common life of religious observance under some form of systematic discipline. It is estimated from documentary evidence that over 700 monasteries were founded in England. These ranged in size from major communities with several hundred members to tiny establishments with a handful of brethren. They belonged to a wide variety of different religious orders, each with its own philosophy. As a result, they vary considerably in the detail of their appearance and layout, although all possess the basic elements of church, domestic accommodation for the community, and work buildings. Monasteries were inextricably woven into the fabric of medieval society, acting not only as centres of worship, learning and charity, but also, because of the vast landholdings of some orders, as centres of immense wealth and political influence. They were established in all parts of England, some in towns and others in the remotest of areas. Many monasteries acted as the foci of wide networks including parish churches, almshouses, hospitals, farming estates and tenant villages. Benedictine monasticism had its roots in the rule written about AD 530 by St Benedict of Nursia for his own abbey at Monte Cassino. Benedict had not intended to establish an order of monasteries and wider adoption of his rule came only gradually. The first real attempt to form a Benedictine order came only in 1216. The Benedictine monks, who wore dark robes, came to be known as `black monks'. These dark robes distinguished them from Cistercian monks who became known as `white monks' on account of their light coloured robes. Over 150 Benedictine monasteries were founded in England. As members of a highly successful order many Benedictine houses became extremely wealthy and influential. Their wealth can frequently be seen in the scale and flamboyance of their buildings. Benedictine monasteries made a major contribution to many facets of medieval life and all examples exhibiting significant surviving archaeological remains are worthy of protection.

The Monastery of St John was founded by one of William the Conqueror's most powerful subjects and, from its inception, it controlled interests in the locality which made a major contribution to the development of the medieval town.

The standing remains of the abbey are now limited to sections of the precinct wall and the abbey gatehouse, itself a fine example of 15th century architecture and accessible to the public. However, the largely undisturbed nature of the greater part of the precinct ensures that buried evidence from many phases of occupation will survive, often accumulated to considerable depths. In addition to structural remains, this evidence will include artefacts (valuable as a means of establishing dates and as an indication of the lifestyle of the inhabitants), further skeletal material (indicating aspects of health, life expectancy and the treatment of illness and disease) and environmental evidence related to horticulture within the precinct and the diet of the community.

Documentary evidence allows further insights into the development of the monastery, and the economic and social role which it held in relation to the town. The social role, in particular, has already been studied by part excavation of the parochial cemetery adjacent to St Giles' Church and the survival of the church itself (not included in the scheduling) adds significantly to our understanding of the relationship between the monastery and the parish within which it was set.

The excavated evidence and surviving remains of the pre-Conquest church are especially important. Such buildings are rare. The discovery of this example within the later precinct clearly demonstrates a continuity of religious occupation, and the continued use of the church site as a parochial cemetery in the 12th century is of particular interest.

Part excavation of the Roman cemetery, which underlies the northern part of the precinct, has provided important information concerning the occupation of Roman Colchester - the earliest Roman town in England. Further burials remain preserved within the precinct which, by comparison with other cemeteries surrounding the town (in particular the extensive cemetery excavated at Butt's Road) will enable detailed study of the dynamics of the Romano-British population.

The development of the abbey site in the period after the Dissolution, and particularly the construction of a formal garden within the precinct, is considered highly significant. Formal gardens were intended to express wealth and refinement and to provide appropriate settings for high status residences. In the late 16th and 17th centuries, these tended to comprise regular or symmetrical patterns of flower beds, paths terraces and lawns which would create vistas related to the main building. A significant part of the garden layout related to the post-Dissolution reuse of St John's Abbey has survived in the form of visible earthworks, from which the wider arrangement of the garden can be inferred. Two features of particular interest are the prospect mound, located at the highest point within the garden, and the axial walkway, which is considered to indicate the position of the post-Dissolution house. The remains of the house itself, perhaps incorporating the former abbot's lodgings and other components of the former monastery, are thought to survive as buried features within the western part of the monument.

SCHEDULING HISTORY

This scheduling includes a previously scheduled monument:

Records show monument taken into Guardianship as:

COUNTY/NUMBER: Essex 58

NAME: St John's Abbey Gate

Monument included in the Schedule on 22nd January 1965 as:

COUNTY/NUMBER: Essex 58

NAME: St John's Abbey Gate

The reference of this monument is now:

NATIONAL MONUMENT NUMBER: 26307

NAME: The Benedictine Abbey of St John

MONUMENT INCLUDED IN THE SCHEDULE ON 31st January 1997

APPENDIX 4

EXTRACT FROM HISTORIC ENGLANDÕS RECORD OF SCHEDULED MONUMENTS ï ROMAN CIRCUS

MONUMENT: ROMAN CIRCUS 200M SOUTH OF ABBEY HOUSE

PARISH: COLCHESTER

DISTRICT: COLCHESTER

COUNTY: ESSEX

NATIONAL MONUMENT NO: 35614

NATIONAL GRID REFERENCE (S): TL9961824534

DESCRIPTION OF MONUMENT

The monument includes the buried remains of a Roman circus or chariot racing track and a section of the precinct wall relating to the Benedictine Abbey of Saint John. The monument is orientated east to west and is situated to the south of Colchester town centre on the crest of a prominent ridge.

The classic Roman circus is an elongated oval track flanked by cavea (tiers of seating) along two sides and around the curved end. A low barrier known as a spina runs down the centre to prevent collisions. Turning posts know as metae were placed at either end of the spina and at the open, non curved, end was a row of starting bays known as the carceras. Circuses were used originally for chariot racing and boxing but athletics and wrestling also became popular.

The Colchester circus is orientated east to west and measures 448.2 meters in length and between 71.1 and 74.2 meters in width. The area of protection also includes a ten metre buffer zone around the circus which is considered necessary for the support and preservation of the monument.

Three area excavations and a number of evaluation trenches have been investigated and all contribute to our understanding of the form and fabric of the circus. Most recent excavations (2007) by the Colchester Archaeological Trust have exposed a section of the spina at the junction between Napier Road and Circular Road North. All the evidence helps to illustrate and confirm the archaeological potential of the monument. It has been calculated that the circus had a seating capacity of around 8,000 ï 15,000. The starting gates are thought to have been situated at the western end of the structure with the semi circular end to the east. The stand or cavea at Colchester varied between 5.8m and 6.0m in total width. It was built of earth but was retained by stone or timber walls, a similar method of construction to that found in theatres and amphitheatres in Britain and elsewhere. At Colchester it is thought the inner cavea was built of stone. The large exterior buttresses with parallel, less substantial walls 5m inside imply the outer cavea wall was of stone and has been estimated to be at least 2m in height. These may have supported blind arcading enhanced with pilasters much like examples on the continent. Finds from robber trenches certainly confirm the presence of Romanised decorative architecture such as tile coursing, opus signinum facing mortar (fine Roman concrete), and a piece each of column and incised marble facing (possibly Purbeck). The stone used in the foundations of the cavea is greensand which is rare elsewhere in Colchester probably because it had to be brought in from Kent. On the whole dating evidence from the circus is limited but based on the dated

contexts of the stone elsewhere in the area the use of Kent greensand implies it was built in the second century AD. The sheer scale of the building was so great that it is believed that the emperor must have paid for its construction. Hadrianõs visit to Britain in AD122 is associated with a revival of public buildings in towns and it is thought that he may have been responsible for the construction of the circus in Colchester. A number of glass and potter finds discovered in Colchester in the past depict images of chariot races. Given the discovery of the circus it is now though that some of these may be souvenirs of actual events. New finds associated with the sport include a piece of horse furniture which was recovered from the robber trench of the inner wall. A coin from a grave dated to the early first century AS features a four horse chariot and rider and is a rare find in Britain. A silver coin found in a rare hoard dated to between 150BC and AD117 also depicts a four horse chariot. It is unclear when the circus came out of use but analysis suggests the circus was probably levelled in the late Roman period, whilst the footings were subsequently robbed in the medieval period.

Early medieval pottery from a trench dug to extract building material suggest that some material may have been dismantled and used in the abbey construction. The abbey precinct wall exhibits some odd bends in the south west corner and implies that its alignment may have been, at least in part, determined by elements of the surviving circus. A section of the precinct wall lies approximately 60m west from the eastern end of the monument. It stands to almost 2.5m high and although there is evidence of dressed facing stone it survives mainly as a randomly coursed stone core. This section of walling is included in the scheduling.

Excavation also confirmed that the circus was surrounded by a contemporary cemetery. A total of 516 burials have been excavated and recorded. The known areas of the cemetery have been fully excavated and preserved by record and are not therefore included in the scheduling.

All buildings, with the exception of the upstanding precinct wall are excluded from the scheduling as are all road and path surfaces, fences, signage and tennis courts. However, the ground beneath all these features is included.

ASSESSMENT OF IMPORTANCE

The Colchester Roman Circus is a unique archaeology monument in Britain. It is the only place in the country where there is excavated and convincing evidence for a circus and it one of only six locations in the north west provinces of the Roman Empire where circuses have been securely identified. The area excavations and numerous trenches investigated highlight the archaeological potential of the site and the scope for improving the knowledge and understanding of such buildings not only nationally but in an international context. The Roman circus must be considered on conjunction with other monumental buildings or structures surviving from Roman Colchester. It provides further evidence of the importance of Colchester as one of the principle urban centres of Roman Britain.

MAP EXTRACT

The site of the monument is shown on the attached map extract. It includes as 10 metre boundary around the archaeological features, considered to be essential for the monumentõs support and preservation.

MONUMENT INCLUDED IN THE SCHEDULE ON 13TH NOVEMBER 2007.

Authorised by: A R Middleton

On behalf of the Secretary of State for Culture, Media and Sport under batch no: 11589

APPENDIX 5

REMEDIATION STRATEGY

REMEDIATION METHOD STATEMENT
COLCHESTER GARRISON PARCEL B1b
TAYLOR WIMPEY
RMS-16831Z-15-26 REV F
23 MARCH 2015

AN idom GROUP COMPANY

REMEDIATION METHOD STATEMENT
PARCEL B1b, COLCHESTER GARRISON
TAYLOR WIMPEY DEVELOPMENTS LIMITED
RMS-16831Z-15-26 REV F

Current Document Details

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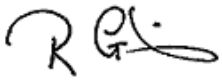

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R Glavin

Document Revisions

Rev	Date	Author	Checked	Approved
A	9/03/15	DLB	RJG	RJG
B	10/03/15	LGS	RJG	RJG
C	16/03/15	LGS	RJG	RJG
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E	20/03/15	LGS	RJG	RJG
F	23/03/15	LGS	RJG	RJG

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SECTION 1 INTRODUCTION

1.1 Taylor Wimpey Developments Ltd (TWDL) proposes to develop an area of land located at Parcel B1B site, Colchester Garrison, for residential purposes. The proposed development is understood to comprise a part refurbishment / part new-build residential scheme. Idom Merebrook Limited (Merebrook) has been commissioned by TWDL to undertake site investigation works and to advise on the environmental implications of the redevelopment of the site for the proposed end use.

1.2 Desk-based and intrusive geo-environmental investigations have been undertaken in relation to the subject site by Merebrook and others to establish ground conditions and the groundwater regime at the site. The site investigation data and qualitative risk assessment have been previously reported in the following reports:

i. Land Quality Assessment Phase One Study, Land Quality Statement. Aspinwall & Company Limited for Defence Estate Commission, April 1998;

ii. Preliminary Land Quality Assessment. WS Atkins Consultants Ltd for the Ministry of Defence, October 2000;

iii. Supplementary Land Quality Stage 2 Assessment – Final Interpretative Report. WS Atkins Consultants Ltd for the Ministry of Defence, November 2001;

iv. Contaminated Land Assessment, Parcel B1B, Colchester Garrison. Merebrook report reference CLA-16831Z-13-205, November 2013.

1.3 Third-party reports presented above relate to the larger Garrison site, of which the subject site is part. The site area as identified at the time of the 2013 site investigations is presented on drawing 16831-304-001 Rev A contained in Appendix 1.

1.4 Given the archaeological significance of the site (as discussed in later sections), and the complex requirements for the development with regard to its impact on archaeological features, additional objectives were stipulated by the Client, as follows:

i. Assist Colchester Archaeological Trust (CAT) in determining the presence or otherwise of archaeological features in each of the exploratory holes; and

ii. Determine the zone of impact that existing service runs have caused to particular archaeological features on site (locations as determined by the Client).

1.5 Investigations undertaken by Merebrook as presented above relate specifically to the subject site. The site has been used as a military barracks since before the

earliest available ordnance survey plans in 1876. The investigation data to date have identified sporadic contamination predominantly within the Made Ground.

1.6 This document sets out the remedial actions to be taken to safeguard the suitability of the site for the proposed development. The actions described will be executed as part of a groundworks contract let by the developer. The contractor's performance will be monitored throughout the works.

1.7 This report has been prepared for TWDL for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult TWDL and Merebrook as to the extent to which the findings may be appropriate for their use.

SECTION 2 BACKGROUND

2.1 GENERAL

2.1.1 The history and setting of the site have been fully described in the previous reports. In summary, the site has been a military barracks prior to the earliest ordnance survey plan of 1876. More recent plans have shown continual development of new buildings on the site up to the mid twentieth century. Units assigned to the site included the Defence Clothing and Textiles Agency (DCTA); Science and Technology Division; HQ 24 Airmobile Brigade; and Vacant MOD land (The Mount).

2.1.2 A Roman circus crosses the southern part of the site and Roman burials have been previously identified in the surrounding area. The area within and immediately beyond the circus is a Scheduled Ancient Monument (SAM) as the Abbey Gate at the entrance to the former officers club in the north of the site.

2.1.3 The previous stages of investigation have identified various potential sources of contamination with minor contamination in excess of laboratory detection limits recorded in the ensuing investigatory works.

2.1.4 The geological succession comprises made ground overlying sand and gravel drift deposits over London Clay, which is reported to attain a thickness of in excess of approximately 80 m in the vicinity of the site.

2.1.5 Merebrook's reporting on the site condition has been circulated to Colchester Borough Council (CBC) and the Environment Agency (EA).

2.1.6 This Remedial Method Statement has been produced in order to satisfy the requirements of CBC following its comments upon the Merebrook reports referenced above and our subsequent liaison.

2.2 RISK ASSESSMENT – CONTROLLED WATERS

2.2.1 The controlled waters receptors in the vicinity of the site comprise the Secondary A aquifer of the Glacial Sands and Gravels and the primary aquifer of the Chalk Formation. No significant bodies of water at the surface were reported within 250

metres of the site. Given the deep groundwater and the large attenuation potential over this distance, contamination from the site is not considered to pose a risk to these receptors.

2.2.2 Groundwater was not encountered during the Merebrook investigation. The maximum depth to which exploratory holes were advanced in previous investigations was approximately 17.0 mbgl. London Clay was proven at approximately 16.0 mbgl and groundwater encountered at approximately 15.7 mbgl. While locally significant contamination was encountered within the soil it doesn't appear to be particularly mobile, therefore it is deemed unlikely that potential on-site sources of contamination will have a significant impact upon site-wide groundwater quality.

2.2.3 The sensitivity of the shallow aquifer at the site is considered to be low and perched groundwater in the wider site area is likely to be of indifferent quality due to general urban land use.

2.2.4 With respect to the deeper Chalk aquifer, the site lies near a drinking water abstraction (934 m) but is not within an SPZ. However the London Clay (which is approximately 80 to 140 m in thickness) and Lambeth Group (a further 15 m of sand and clay material) provide an effective aquitard to prevent downward migration of shallow contamination. The primary aquifer is therefore not considered to be at risk.

2.2.5 Based upon the available data the risks to groundwater and surface waters posed by the subject site are considered to be low.

2.3 RISK ASSESSMENT – HUMAN HEALTH

2.3.1 The site was fenced and locked at the time of the site investigation. The risks posed to the general public and present site users are considered to be low. At the time of the Merebrook site investigation the area where lead was recorded was below hardstanding which effectively restricts pollutant linkage pathways; the area with recorded hydrocarbon contamination was below soft landscaping at 1.0 mbgl which also reduces the risk of exposure.

2.3.2 The previous stages of investigation have identified sporadic contamination, including lead; asbestos; polyaromatic hydrocarbons (PAHs) expressed as benzo(a)pyrene and naphthalene; and extractable petroleum hydrocarbons (EPH) bands in the range C12-C21 within the Made Ground. In localised areas the contamination is potentially significant and in the absence of remedial measures is considered to pose a potentially significant risk to future users of the proposed development.

2.3.3 Phytotoxic contamination was limited to one elevated concentration of zinc above the screening level that could potentially present a risk to future occupants or plant growth.

2.3.4 Based on the current results and CIRIA guidance, the results from ground gas monitoring indicate that new buildings on site will not require gas protection.

2.4 RISK ASSESSMENT – CONSTRUCTION RELATED ISSUES

2.4.1 Site workers employed in the development of the site are potentially in the highest risk category with regard to soil contamination, due to the likelihood of exposure to contaminants in excavations and during materials handling. In the absence of carefully controlled Health and Safety procedures site workers could be at risk of exposure to hazardous substances via dermal absorption, ingestion and inhalation.

2.4.2 Asbestos cement sheet fragments containing amosite were identified at one location (MTP8) within made ground. The remediation contractor will be required to produce a method statement for the excavation of asbestos-contaminated soils in this area and their safe off-site disposal. The method statement will include provision of appropriate training and PPE for site operatives, dust control and other necessary Health and Safety considerations to protect site operatives.

2.4.3 Providing that dust levels are kept within statutory limits and appropriate health and safety procedures are adhered to during the construction phase, the levels of contamination recorded in the majority of the site to date are not considered to present a significant risk to human health. But special precautions would be required in the vicinity of MTP8 given local hydrocarbon contamination.

2.4.4 Lead identified in the Made Ground at MWS6 will likely remain in situ as the area will become a car park under hardstanding. Nonetheless, should the area be scraped to attain the correct finished levels then care will need to be taken not to ingest or inhale any dusts formed from soils in this vicinity.

2.4.5 Potential risks to construction workers have been identified and the adoption of appropriate Health and Safety procedures will ensure that risks to operatives from hazardous materials at the site are minimised. Dust levels must be kept within statutory limits (e.g. by damping down in dry conditions).

2.5 RISK ASSESSMENT – GROUND GAS

2.5.1 Based on previous assessment, ground gas below the site is considered to present a negligible risk to occupants of the future development. No special precautions with regard to ground gas are therefore considered necessary. Any observations of ground conditions atypical of those already described should be reported to Merebrook immediately so that an assessment of appropriate action can be made which may include localised removal of undesirable material.

2.5.2 Further details in this respect are presented in Merebrook letter reference: L-16831-2.4.2-13-S599-MSG, dated December 2013.

2.6 RISK ASSESSMENT – INFRASTRUCTURE

2.6.1 Of the phytotoxic metals tested, zinc was found to exceed the applicable screening levels at one location HA01 (1.0 mbgl; 440 mg/kg). This area is outside of the proposed development.

2.6.2 Water supply services shall be protected, including the provision of ductile iron and/or plastic-covered copper pipework together with the placement of clean fill in service trenches, in sensitive areas as required by Anglian Water. The developer will confirm with Anglian Water which materials will be acceptable for potable water pipes and pipe trench backfill.

2.6.3 The Design Sulphate Class and the Aggressive Chemical Environment for Concrete (ACEC) class for the site are presented in GEA-S4088b-11-47 as DS-1 and AC-1 respectively.

SECTION 3 REMEDIAL ACTION PLAN

3.1 INTRODUCTION

3.1.1 Remediation will take into consideration:

i. the presence of archaeology on the site which will restrict the allowed depth of deleterious material to be removed from areas of soft landscaping; and

ii. the nature of the soft landscaping: private gardens or POS.

3.1.2 An archaeological constraints plan is provided in Appendix 1 showing the Archaeology Zones. Following consultation with the site archaeologist (Appendix 2), the maximum depth of material that will be removed from private garden areas in Archaeology Zones 1 and 2 (location of Roman Circus) will be 250 mm, and 400 mm for the remainder of the site. The maximum depth of material removed from POS areas will be restricted to 250mm across the site. A proposed site layout drawing is also provided in Appendix 1.

3.1.3 Plant used for removing soils in soft landscape areas will be selected as to minimize the potential for any rutting (for example use of tracked rather than wheeled excavators). Soils will be scraped and removed using a toothless bucket. The use of toothed buckets will only be permitted on sections of hardstanding. Where the formation has been reduced, no machinery will be permitted to cross those areas until the replacement clean cover systems has been installed. Clean cover systems will be installed from surrounding higher level areas by means of pushing material out ahead of gentle compaction. All works will be monitored by a Colchester Archaeological Trust archaeologist.

3.1.4 The remedial strategy outlined in Table 1 below will be adopted for the areas of soft landscaping (private garden or POS). Dig barriers (high visibility geotextile

membrane such as Terram Hi-Vis) will be installed in all soft landscaping areas to mitigate against mixing of underlying soils with clean capping.

Table 1: Remediation Strategy for each Building

Building Ref	Nature of Soft Landscaping	Archaeology Zone (s)	Nature of Formation Prior to Remediation	Action	Result	Action
NB1, NB2 and NB3	Private Garden	NB1: Zone 3 NB2: Zone 6 NB3: Zone 6	Natural	No removal required – dress area with a nominal layer of validated site derived or imported topsoil		
			Made Ground – reworked Natural	Validate Formation	Pass	No removal required – dress area with a nominal layer of validated site derived or imported topsoil
					Fail	Scrape off deleterious soils to 400mm maximum depth, install a dig barrier and replace with 400mm depth of validated site derived or imported subsoil and topsoil
			Made Ground – demolition rubble and associated waste	Scrape off deleterious soils to 400mm maximum depth, install a dig barrier and replace with 400mm depth of validated site derived or imported subsoil and topsoil		
NB4, NB5, A, C, E, F, I, G, H and O	POS	NB4: Zone 4 NB5: Zone 5 A: Zone 1 C: Zone 3 E: Zone 3 F: Zone 1 I: Zone 4 G: Zone 2 H: Zone 2 O: Zone 6	Natural	No removal required – dress area with a nominal layer of validated site derived or imported topsoil		
			Made Ground – reworked Natural	Validate Formation	Pass	No removal required – dress area with a nominal layer of validated site derived or imported topsoil
					Fail	Scrape off deleterious soils to 250mm maximum depth, install a dig barrier and replace with 250mm depth of validated site derived or imported subsoil and topsoil
			Made Ground – demolition rubble and associated waste	Scrape off deleterious soils to 250mm maximum depth, install a dig barrier and replace with 250mm depth of validated site derived or imported subsoil and topsoil		

3.1.5 Each private garden area will be visually inspected and one in every four gardens will be validated by means of chemical analysis and thickness checks.

3.2 ASBESTOS

3.2.1 Asbestos cement sheet was encountered within samples of made ground from MTP8. Following removal of the hardstanding, an inspection of these areas should be made by an environmental engineer and further soil samples collected to assess the presence/extent of asbestos. Any asbestos found will require removal prior to the commencement of groundworks in this area to avoid fibre release by disturbance. The asbestos cement sheet was located in the same area as the hydrocarbon contamination. Care should be taken to dispose of soils in this area to the correct waste acceptance facility.

3.2.2 The contractor shall be required to produce a method statement detailing the methodology for removal and disposal of any asbestos encountered during remedial excavations. Site personnel shall be made aware of the potential for encountering asbestos during the construction phase and should report possible asbestos material should it be encountered or suspected during the works so it may be dealt with appropriately.

3.3 RADIOACTIVE SURVEY

3.3.1 Following the observation of the radioactive trefoil signage in Building K and Building Q, a non-intrusive radiological survey was carried out. No radiation signatures in excess of background readings were recorded during the survey and therefore no further precautions are considered in this regard.

3.4 TANK DECOMMISSION

3.4.1 Any tanks discovered during the redevelopment of the site will require proper decommissioning prior to their excavation. If any tanks are discovered, Merebrook will be informed and attend site to supervise their removal.

3.5 ARCHAEOLOGICAL REMAINS

3.5.1 It is understood that the two SAMs at the site (Abbey Gate and Roman circus) are to remain as undisturbed as possible. Existing service routes that cross the circus are to be maintained for the implementation of new services through the development. Colchester Archaeological Trust (CAT) will need to be consulted should any planned deviance from this methodology be considered.

SECTION 4 VALIDATION CRITERIA AND METHODS

4.1 VALIDATION OF IN-SITU AND SITE-WON SOILS

4.1.1 Following clearance work, Merebrook will attend site to inspect the reduced level dig in any areas where in-situ natural soils are to remain within the stated depth of

finished levels as described above. Merebrook shall be notified immediately if other areas of suspected contamination are encountered.

4.1.2 Arisings from foundation and drainage excavations shall be segregated into made ground and contaminated/uncontaminated natural ground. These may be re-used elsewhere on site subject to their chemical and physical suitability (i.e. no bricks or demolition wastes within the made ground) for the proposed end-use and within the constraints of the Waste Management Licensing Regulations. Unsuitable arisings shall be disposed of off-site in accordance with the relevant statutes.

4.1.3 Validation sampling shall be undertaken, inter alia, in proposed soft landscaped areas at a nominal rate of approximately one sample per 300 m^2.

4.1.4 Chemical acceptance criteria for in-situ and site-won soils are listed in Table 2. The validation regime will augment the existing dataset and inspection of the base of dig will provide further statistical confidence in the general physical and chemical quality of soils which are to remain in-situ.

4.1.5 In addition to the chemical validation, soils shall be inspected for physical suitability for the intended use and shall not include significant quantities of deleterious materials, staining or malodours.

4.2 VALIDATION OF IMPORTED MATERIALS

4.2.1 Material imported for the formation of private gardens and soft landscaped areas shall be obtained from a validated source. Validation of the imported soils shall include both assessment of the provenance of the material, which shall be supported by chemical data on the source soils provided by the supplier, and validation of the emplaced soils.

4.2.2 Imported soil should be assessed for compliance with the requirements of the Essex Contaminated Land Consortium document Technical Guidance for Developers. Details of any imported soils will be included in a Validation Report, as described in Section 4.3.

4.2.3 Validation of the chemical quality of imported soils for use in clean cover shall be obtained at a nominal rate of approximately one sample per 300 m^3. Acceptance criteria for imported soils are presented in Table 2 below.

4.2.4 The thickness of placed clean cover soils shall be confirmed at a rate of one hand-dug shallow trial hole per four garden plots.

Table 2: Acceptance Criteria for Imported Soils

Determinand	Units	Screening Level for Private Gardens	Screening Level for Communal Gardens/POS
pH		5*	5*
Arsenic	$mg.kg^{-1}$	37	79
Cadmium	$mg.kg^{-1}$	11	120
Chromium	$mg.kg^{-1}$	910	1500
Chromium (Hexavalent)	$mg.kg^{-1}$	6	7.7
Lead	$mg.kg^{-1}$	200	630
Mercury	$mg.kg^{-1}$	40	120
Nickel	$mg.kg^{-1}$	180	230
Selenium	$mg.kg^{-1}$	250	1100
Zinc	$mg.kg^{-1}$	3700	81000
Copper	$mg.kg^{-1}$	2400	12000
Boron	$mg.kg^{-1}$	290	21000
Cyanide (Total)	$mg.kg^{-1}$	27	27
Aliphatic C5-6	$mg.kg^{-1}$	42 [a]	570000 [a]
Aliphatic C>6-8	$mg.kg^{-1}$	100 [a]	600000 [a]
Aliphatic C>8-10	$mg.kg^{-1}$	27[a]	13000 [a]
Aliphatic C>10-12	$mg.kg^{-1}$	130 [a]	13000 [a]
Aliphatic C>12-16	$mg.kg^{-1}$	1100 [a]	13000 [a]
Aliphatic C>16-35	$mg.kg^{-1}$	65000 [a]	250000 [a]
Aliphatic C>35-44	$mg.kg^{-1}$	65000 [a]	250000 [a]
Aromatic C5-7	$mg.kg^{-1}$	70 [a]	56000 [a]
Aromatic C>7-8	$mg.kg^{-1}$	130 [a]	56000 [a]
Aromatic C>8-10	$mg.kg^{-1}$	34 [a]	5000 [a]
Aromatic C>10-12	$mg.kg^{-1}$	74 [a]	5000 [a]
Aromatic C>12-16	$mg.kg^{-1}$	140 [a]	51000 [a]
Aromatic C>16-21	$mg.kg^{-1}$	260 [a]	3800 [a]
Aromatic C>21-35	$mg.kg^{-1}$	1100 [a]	3800 [a]
Aromatic C>34-44	$mg.kg^{-1}$	1100 [a]	3800 [a]
Acenaphthene	$mg.kg^{-1}$	210 [a]	15000 [a]
Acenaphthylene	$mg.kg^{-1}$	170 [a]	15000 [a]
Anthracene	$mg.kg^{-1}$	2400 [a]	74000 [a]
Benzo(a)anthracene	$mg.kg^{-1}$	7.2 [a]	29 [a]
Benzo(a)pyrene	$mg.kg^{-1}$	2.2 [a]	5.7 [a]
Benzo(b)fluoranthene	$mg.kg^{-1}$	2.6 [a]	7.1 [a]
Benzo(k)fluoranthene	$mg.kg^{-1}$	320 [a]	640 [a]

Determinand	Units	Screening Level for Private Gardens	Screening Level for Communal Gardens/POS
Benzo(g,h,i)perylene	$mg.kg^{-1}$	77 [a]	190 [a]
Chrysene	$mg.kg^{-1}$	15 [a]	57 [a]
Dibenzo(a,h)anthracene	$mg.kg^{-1}$	0.24 [a]	0.57 [a]
Fluoranthene	$mg.kg^{-1}$	280 [a]	3100 [a]
Fluorene	$mg.kg^{-1}$	170 [a]	9900 [a]
Indeno(1,2,3-c,d)pyrene	$mg.kg^{-1}$	27 [a]	82 [a]
Naphthalene	$mg.kg^{-1}$	2.3 [a]	4900 [a]
Phenanthrene	$mg.kg^{-1}$	95 [a]	3100 [a]
Pyrene	$mg.kg^{-1}$	620 [a]	7400 [a]
Phenol - Monohydric	$mg.kg^{-1}$	120 [a]	440 [a]
Asbestos screen		Detected	detected

Notes: * Minimum value applies (i.e. most acid); a Based on the soil organic matter content, SOM (1%). All values based on Land Quality Management/Chartered Institute of Environmental Health - Suitable 4 Use Levels for Human Health Risk Assessment (2015) where appropriate.

4.2.5 In the event of imported soils being used for general fill in areas not proposed for private or communal gardens/POS, the acceptance criteria above may be used as a guide to acceptable quality for these general soils. In such cases, it is proposed that testing will take place at a rate of one sample per 500 m3. The identification of exceedances by a given volume of material does not necessarily mean it should be rejected as general fill; instead, Merebrook shall be consulted regarding its suitability.

4.3 REPORTING

4.3.1 In relation to the provision of clean imported materials used to finish soft areas, these materials should be validated prior to placement in order to ensure suitability. An assessment of both the provenance of the material supported by chemical data of the source soils together with validation of the emplaced soils should be undertaken. Chemical data should include both organic and inorganic contaminants. This will be carried out in order to comply with the Essex Contaminated Land Consortium document Technical Guidance for Developers.

4.3.2 A validation report will present the above data for both site won and any imported soils, including provenance, chemical quality and depths placed. The report will also provide a commentary on the relevant actions described in section 3 above. The validation report will be provided to CBC and the EA upon completion of the development.

SECTION 5 ENVIRONMENTAL CONTROL

5.1 The remedial works shall involve the excavation, removal and replacement of soils. As with any construction project, heavy machinery may be employed during the remediation and vehicle movements to and from site may increase.

5.2 Working hours shall be restricted to those imposed by the local Planning Department to minimise the nuisance to local residents.

5.3 Every precaution shall be taken to avoid interference with, or damage to public utilities, buildings and other services, in or near the site and also prevent the interruption or pollution of any adjoining watercourses, drains and ditches.

5.4 All Contractors shall be instructed to comply with all relevant Planning Conditions with respect to the execution of the works. These conditions are expected to relate mainly to environmental control issues and may take the form of, but not be limited to, the following:

5.4.1 Nuisance from Noise

5.4.1.1 Every precaution deemed sensible and practical to prevent nuisance to neighbouring properties due to noise shall be undertaken. Such precautions shall include the fitting of efficient silencers suitable for residential areas to the exhausts of the engines of all mechanical plant employed on the site.

5.4.2 Nuisance from Dust

5.4.2.1 A potential for 'nuisance' dust generation affecting adjacent properties off-site is also recognised, irrespective of contaminants levels. It is recommended that dust suppression measures are employed during demolition, groundworks and any other potentially dust-generating activities. Consideration should be given to dust monitoring at the site boundary, which can serve as a check that on-site dust minimisation measures are working successfully.

5.4.2.2 A Competent Person (the Site Manager) shall be nominated on site to ensure dust is monitored and/or suppressed by damping down, and to ensure any complaints of nuisance made are logged and measures reviewed accordingly.

5.4.3 Nuisance from Vapours/Odours

5.4.3.1 All reasonable measures for controlling vapours and odours arising from the works in order to prevent a nuisance to neighbouring properties shall be employed as necessary. A Competent Person (the Site Manager) shall be nominated on site to ensure odours at the site boundary are monitored, and to ensure any complaints of nuisance made are logged and measures reviewed accordingly. Remedial excavations for the removal of hydrocarbon-impacted soils will be inspected by Merebrook, and the arisings from such excavations shall be removed from site without delay to minimise the release of vapours/odours from such soils. If short-

term stockpiling of hydrocarbon-impacted soils is unavoidable prior to its removal from site, such soils shall be placed on and covered by impermeable sheets and stockpiled as described below.

5.4.4 Stockpiled Materials

5.4.4.1 Stockpiled materials shall be stored to prevent sediment laden or contaminated run-off entering surface waters. Excavated and segregated contaminated soils destined either for off-site disposal or re-use shall be stockpiled separately, labelled and fenced.

5.4.5 Storage of Oils, Fuels and Chemicals

5.4.5.1 For the duration of the works, any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The capacity of each bund compound shall be at least equivalent to, and capable of withholding, 110 % of the capacity of the largest single (individual or interconnected) tanked volume held within that bund compound. All filling points, vents, gauges and sight glasses shall be located within each bund. The drainage system of each bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into each bund.

5.4.6 Burning

5.4.6.1 The Contractor shall be instructed not to dispose of any materials on site by burning.

5.4.7 Fitting of Suppressors

5.4.7.1 All vehicles, excavators and other plant which operate on or near the site shall be fitted with adequate electrical suppressors so that no interference is caused by them to television or radio reception in the neighbourhood.

5.4.8 Wheel Cleansing/Public Highways

5.4.8.1 A wheel cleansing facility shall be provided for the duration of the works. A Competent Person (the Site Manager) shall be nominated on site to ensure all vehicles entering the public highway from the site have been inspected and all mud and debris removed from the undercarriage and wheels prior to leaving the site. A road sweeper shall be made available and deployed to clear dust, mud and debris from the public highway when necessary.

5.4.8.2 For the duration of the works, vehicles travelling within the site shall, as far as practicable, run on properly prepared haul roads.

5.4.8.3 No machinery used on site during the execution of the works shall be operated outside the limits of the site other than when travelling on public roads.

5.4.8.4 All vehicles carrying materials from site shall be fully sheeted before leaving the site and loaded in such a way that no loose material can fall onto any highway.

5.4.8.5 Public highways shall not be used for the storage of materials or plant.

SECTION 6 GENERAL SITE PRACTICES

6.1 Materials including clean waste soils, inter alia those from excavations for services and foundations, which are not to be retained or re-used should be removed and disposed of in accordance with all relevant statutes including the Environmental Protection Act 1990, the Environmental Protection Act (Duty of Care) Regulations 1991, Code of Practice on the Duty of Care Regulations, the Waste Management Licensing Regulations 1994, The Landfill Regulations 2002 (as Amended) and The Waste Management Licensing (England and Wales) (Amendment and Related Provisions) Regulations 2005.

6.2 It is generally considered that WAC analysis results to date indicate the made ground below the site may have varied waste classifications which should be considered when excavating and storing materials. The results suggest that natural soils could be classified as inert. Further testing may be necessary of arisings from the localised areas of more significant contamination.

6.3 Potential risks to construction workers have been identified and the adoption of appropriate Health and Safety procedures will ensure that risks to operatives from hazardous materials at the site are minimised. Provided that dust levels are kept within statutory limits (e.g. by damping down in dry conditions) the levels of contamination in the soils in most areas do not indicate potential for the existence of respiratory hazards. However, loose asbestos fibres were identified in localised areas and works in these areas must be governed by a specific method statement provided by the contractor.

6.4 Operatives should not be allowed to eat, drink or smoke on site except in designated areas and should be required to wash all exposed skin at the end of each shift. Operatives should be informed of the potential hazards at the site and should be required to report any observations of suspect materials.

6.5 The developer will confirm with the local utility provider which materials will be acceptable for potable water pipes and pipe trench backfill.

6.6 Obstructions may need to be removed during the course of demolition and/or groundworks.

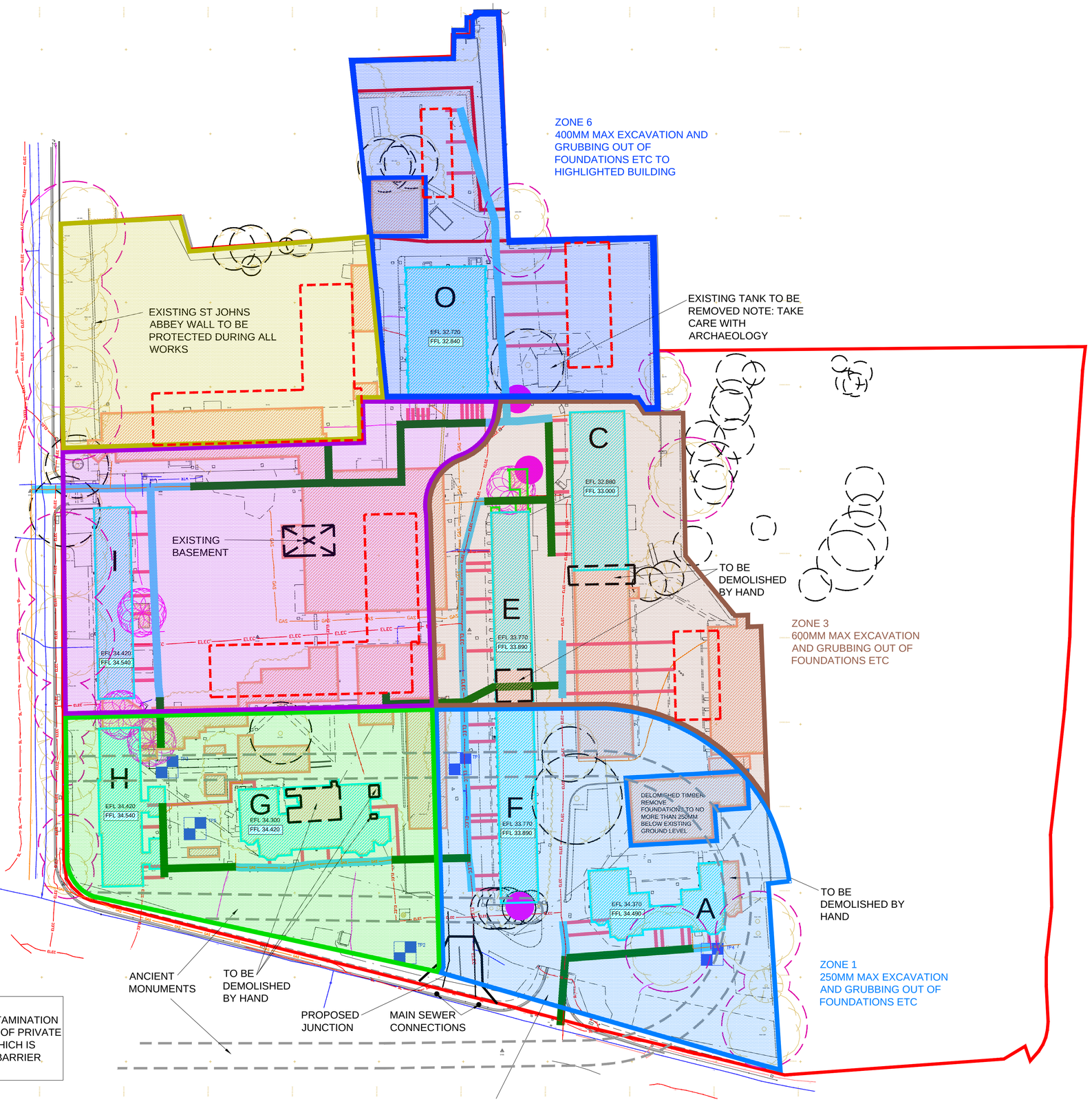
6.7 As with any sampling exercise, it is possible that groundworks will discover conditions or soils different from those found to date. Construction managers and supervisors should be aware that further remediation measures may be required if such conditions are found.

6.8 Any observations of ground conditions potentially atypical of those described above shall be reported to Merebrook for assessment. Where, upon initial inspection, it is confirmed that potential new contamination has been encountered then the works will cease and Merebrook will prepare and submit a Method Statement for assessing and dealing with the suspected contamination. This may include additional risk assessment and/or removal of contaminated material if this is deemed necessary. Additional contamination encountered shall be reported to CBC and ensuing mitigation measures agreed in writing.

6.9 All works will be carried out to the satisfaction of CBC and the EA.

APPENDIX 1

- Drawings:
- 16831-304-001 Rev A
- Archaeology Constraints Plan
- Proposed Site Layout Plan



ZONE 5
500MM - 650MM MAX EXCAVATION AND GRUBBING OUT OF FOUNDATIONS ETC

ZONE 4
500MM MAX EXCAVATION AND GRUBBING OUT OF FOUNDATIONS ETC (EXCLUDING EXISTING BASEMENT)

ZONE 2
250MM MAX EXCAVATION AND GRUBBING OUT OF FOUNDATIONS ETC

NOTE:-
SOIL REMEDIATION FOR CONTAMINATION MAX 250mm WITH EXCEPTION OF PRIVATE GARDENS TO NB 1, 2 AND 3 WHICH IS 400mm, BOTH WITH ANTI DIG BARRIER UNDER.

DEMOLITION PLAN, IMPORTANT NOTES & LEGEND

EXISTING SERVICE TRENCHES TO BE RETAINED

ALL BRICKS & SLATES CHECKED FOR SALVAGING

ALL METALWORK & STAIRCASES TO BE DISMANTLED BY HAND

NO INTRUSIVE DIG BELOW 400MM WITHOUT PRIOR APPROVAL BY TW AND/OR ENGLISH HERITAGE DUE TO 2NOS SCHEDULED ANCIENT MONUMENTS ON THIS SITE

- STONEWORKS TO BE RETAINED
- KNOWN BASEMENT / BOILER ROOM
- TO BE DEMOLISHED
- TO BE RETAINED
- ACCESS GATES
- TREE TO BE REMOVED
- AREA TO BE DEMOLISHED BY HAND
- TREE ROOT PROTECTION IN STRICT ACCORDANCE WITH ARBORICULTURAL REPORT
- TP2 DENOTES TRIAL PITS
- NEW COMBINED MAINS
- EXISTING SERVICES
- BOUNDARY TO NEW BUILD BLOCKS

NOTE:

ALL GROUND WORKS MUST ONLY BE UNDERTAKEN UNDER THE SUPERVISION OF AN ARCHAEOLOGICAL WATCHING BRIEF SEE WSI DATED JULY 2014

NOTE:

ANY REUSABLE MATERIALS SUCH AS BRICKS AND SLATE ROOF TILES TO BE RETAINED AND CAREFULLY STORED TO BE USED AT A LATER DATE FOR REFURBISHMENT WORKS

NOTE:

THIS ENTIRE SITE IS PART OF THE CONSERVATION AREA AND ALL BUILDINGS ARE LOCALLY LISTED. ANY DOUBT TO PROPOSED WORKS MUST BE CLARIFIED BY TAYLOR WIMPEY BEFORE COMMENCEMENT.

NOTE:

ALL TREES TO BE REMOVED BY SPECIALIST WITH ALL STUMPS GROUND DOWN TO BELOW GROUND LEVEL BUT NOT INTO ARCHEOLOGY.

NOTE:

REFER TO ARBORICULTURAL SPECIALIST DRAWING FOR CONFIRMED TREE ROOT PROTECTION AREAS. THIS DRAWING IS BASED ON THAT DRAWING FROM HAYDEN'S ARBORICULTURAL CONSULTANTS.

NOTE:

REFER TO RICHARD JACKSON SERVICES/ HIGHWAYS REPORTS

NOTE:

PLANNING APPLICATION No. 131935 & 131936

Revisions

P5	23-03-15	Contamination / remediation amended and NB blocks added
P4	16-03-15	Contamination / remediation note added
P3	06-03-15	Zone boundaries adjusted
P2	25-02-15	Client for comments added
P1	08-01-15	Issued to Client for comments/further instructions.

project

Area B1b, Colchester Garrison, Colchester, Essex

PRELIMINARY

client

Taylor Wimpey

Kings House
101 -135 Kings Road
Brentwood
Essex
CM14 4DR
Tel:- 01277 236900
Fax:- 01277 236834

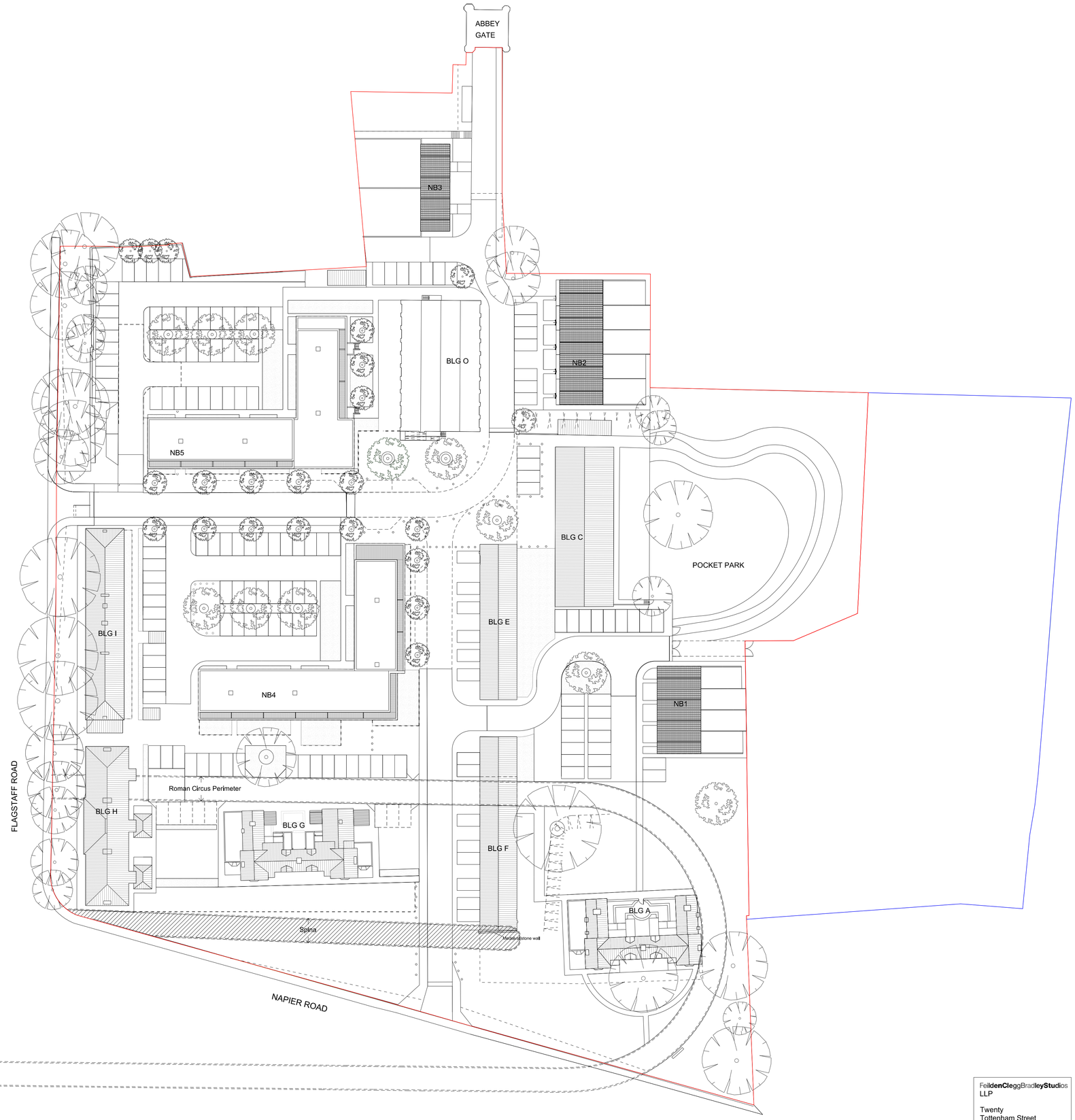
title

Constraints Site Plan

scale	date	drawn	job no.	rev.
1:200 @ A1	Dec 2014	CA	1367 : 108	P5

CHARTERED ARCHITECTS
57 CROWN STREET
BRENTWOOD, ESSEX, CM14 4BD
tel: 01277 261293 fax: 01277 262624
e-mail : office@traerclark.ltd.uk
web : www.traerclark.ltd.uk

TRAER CLARK



KEY

Existing Tree

Proposed Tree

PL.8	20.05.14
PL.7	08.04.14
PL.6	10.03.14
PL.5	21.02.14
PL.4	11.02.14
PL.3 Various amendments.	31.01.14
PL.2 Redline Amended	17.09.13
PL1. PLANNING ISSUE	08.13
C. Bins / bikes update. NB3 Moved east - RM	22.08.13
B. Parking updated - RM	24.07.13
A. Roof Plans updated. Parking updated. - RM	15.07.13

Amendment Date

FeildenCleggBradleyStudios LLP

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Tottenham Street
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W1T 4RF

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f 020 73235720
e london@fcbstudios.com

COLCHESTER GARRISON B1b

Job/Drawing No 1683/P/80

Amendment PL8

Site Layout

Scale 1:500 @ A1 (1:1000 @ A3)

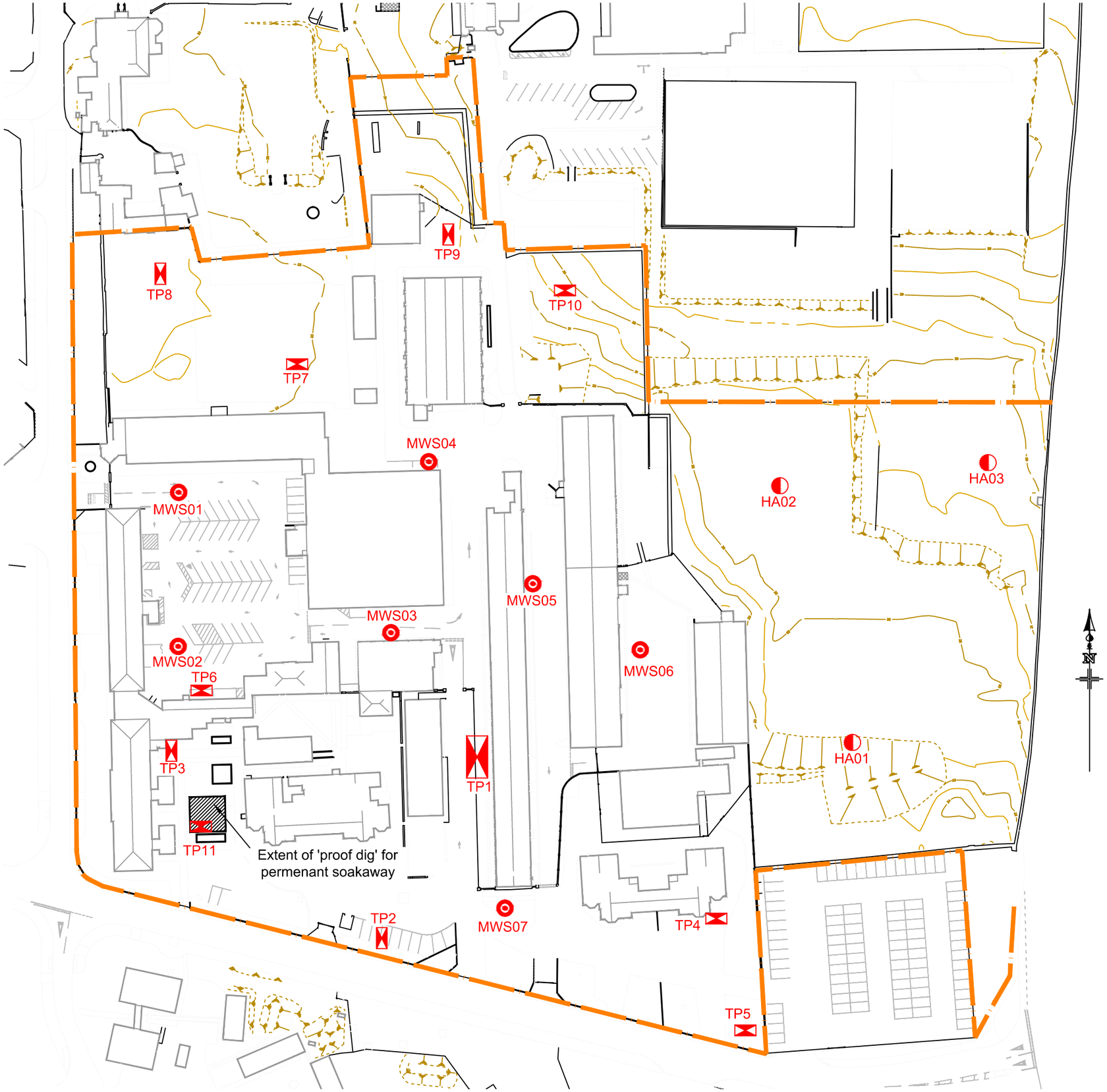
Date August 2013

Drawn Studio 26

Do not scale

All dimensions to be checked on site

Original printed at A1



Legend

- Approximate Site Boundary
- MWSref — Window sample Probehole location with reference
- TPref — Trial pit location with reference
- HAref — Hand auger pit location with reference

Notes:

- Circus wall remains found in TP1 and TP3.
- All trial pits, with the exception of TP8, TP11 and 'proof dug area for permanent soakaway' encountered archaeology. Typically the presence of archaeological features resulted in termination of trail pits.
- Unmarked services noted in MWS03, TP1 and TP5.
- Two brick built soakaways found in th position of TP4 and in the 'proof dug area for permanent soakaway.'

Revision Details	Dwn	Chd	App'd
Proposed MWS Locations replaced by sited locations	D.M.S.	M.L.	R.G. (25/09/13 Rev A)
First Issue	D.M.S.	M.L.	R.G. (13/09/13 -)

Client/Project

Taylor Wimpey
B1B,
Colchester Garrison

Dwg Title

B1B Investigation Location Plan

Job No.	Dwg No.	Revision
16831	16831-304-001	Rev A
Scale: N.T.S.	Date: Sept 2013	Frame Dimensions mm: (A3) 400 x 280
Drawn: D.M.S.	Checked: M.L.	Approved: R.G.

London
Kent
Derby
Cardiff

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APPENDIX 2 ▪ Letter from Site Archaeologist

14 Cornhill, London EC3V 3ND
T +44 (0)20 7280 3200 **F** +44 (0)20 7283 9248 **E** rpslp@rpsgroup.com **W** rpsgroup.com

Our Ref: **JLH0150** **E-mail:** **masefieldr@rpsgroup.com**
Your Ref: **Colchester area B1b** **Date:** **20 March 2015**

Rob Glavin
Merebrook Ltd
Leonard Place
Westerham Road
Keston
Kent
BH2 6HQ

Dear Rob,

AREA B1B PROPOSED REMEDIATION IN RELATION TO ARCHAEOLOGICAL CONSTRIANTS

Please accept this letter as confirmation of the archaeological constraints. The existing Scheduled Monument Consent includes that no more than 250mm can be removed as a general rule for the Roman circus. Similar levels constraints apply to the Abbey Scheduled Monument (with some specified local exceptions to enable construction).

Ground impact depths will be observed in terms of future use of the site following development (due to Scheduled Monument status) so EH (now Historic England) would not allow excavations to exceed 250mm in the circus or 400mm in private gardens in normal circumstances.

Therefore if possible remediation should not ideally exceed 250mm within the Scheduled areas and 400mm within private gardens.

Please do not hesitate to contact me should you require further information.

Yours sincerely,

ROB MASEFIELD BSc, MA, CMIfA, FSA
Director of Archaeology
.

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APPENDIX 6

CURRENT AMENDMENTS TO THE SMC

RPS - 1 December 2014

RE: Amendment to SMC EH Ref S 00089498 (Roman circus 200m south of Abbey Green, Colchester Essex) and SMC EH Ref 00089493 (St John's Abbey).

The attached plan shows proposed locations of road surfacing bored cores at 20m centres. The purpose is to determine whether the surfaces can be retained in situ during the development as a buffer above archaeology.

The depth of coring will be limited the bound layers and sub-base to determine the construction thicknesses of each layer. Extreme care will be taken to ensure the coring stops at the base of the exiting road construction.

No archaeological impact is envisaged from the minor intrusions within modern surfacing only but the known wall lines of the circus have been avoided as an additional precaution.

RPS – 4th February 2015

RE: SMC Amendment 2 to SMC EH Ref 00089498 (Roman circus 200m south of Abbey Green, Colchester Essex).

This amendment relates to two aspects; test pits at Building F and stairwell foundations for Buildings A and G.

Building F ('Wagon shed')

The attached Building F plan (Feilden Clegg Brackley Studios Dwg. 'Building F Proposed Floor Plans 1683/P/F/100 amend. PL1') is marked up to show locations of three 1x1m trial pits. These are designed to establish the current depth of foundations/pads associated with the retained building. Two are located over the locations of required new cross floor walls required to facilitate the cut through on the line of the circus cavea. These will be undertaken by the works contractor under the close control of CAT to ensure that the level of the circus foundations and geology is understood. The northern test pit may encounter the outer cavea wall or associated construction/demolition spread while the southern test pit is between the inner and outer cavea walls.

The third test pit is designed to establish the current foundation depth and suitability of existing pads to support a new retaining wall fronting the west-facing elevation. The test pit will be undertaken with CAT in attendance as above.

All works would be undertaken in accordance with the processes set out in the WSI (RPS 2014) for the SMC.

Buildings A and G

These two retained 19th century villas within the circus each have paired stairwells that will require deeper foundations for stability purposes (TW Drawings 'Building A – proposed Ground Floor Plan 1367: 251 rev. P2' and 'Building G – proposed Ground Floor Plan 1367: 151 rev. P2'). As the excavations are likely to reach geology (commensurate with the level of the circus track) the associated foundation cut will be monitored by CAT such that any archaeological remains encountered are fully recorded as per the SMC and WSI (RPS 2014) document.

SURFACING LEGEND

▨	EXISTING HARD–STANDING AREAS
▨	PROPOSED HARD–STANDING AREAS
▩	AREAS OF HARD–STANDING OVERLAP
◐	CORE LOCATION. CORING TO PENETRATE TO THE BASE OF THE ROAD CONSTRUCTION ONLY

PL.5
PL.4
PL.3 Var
PL.2 Rec
PL1. PLA
C. Bins / I
B. Parking
A. Roof P

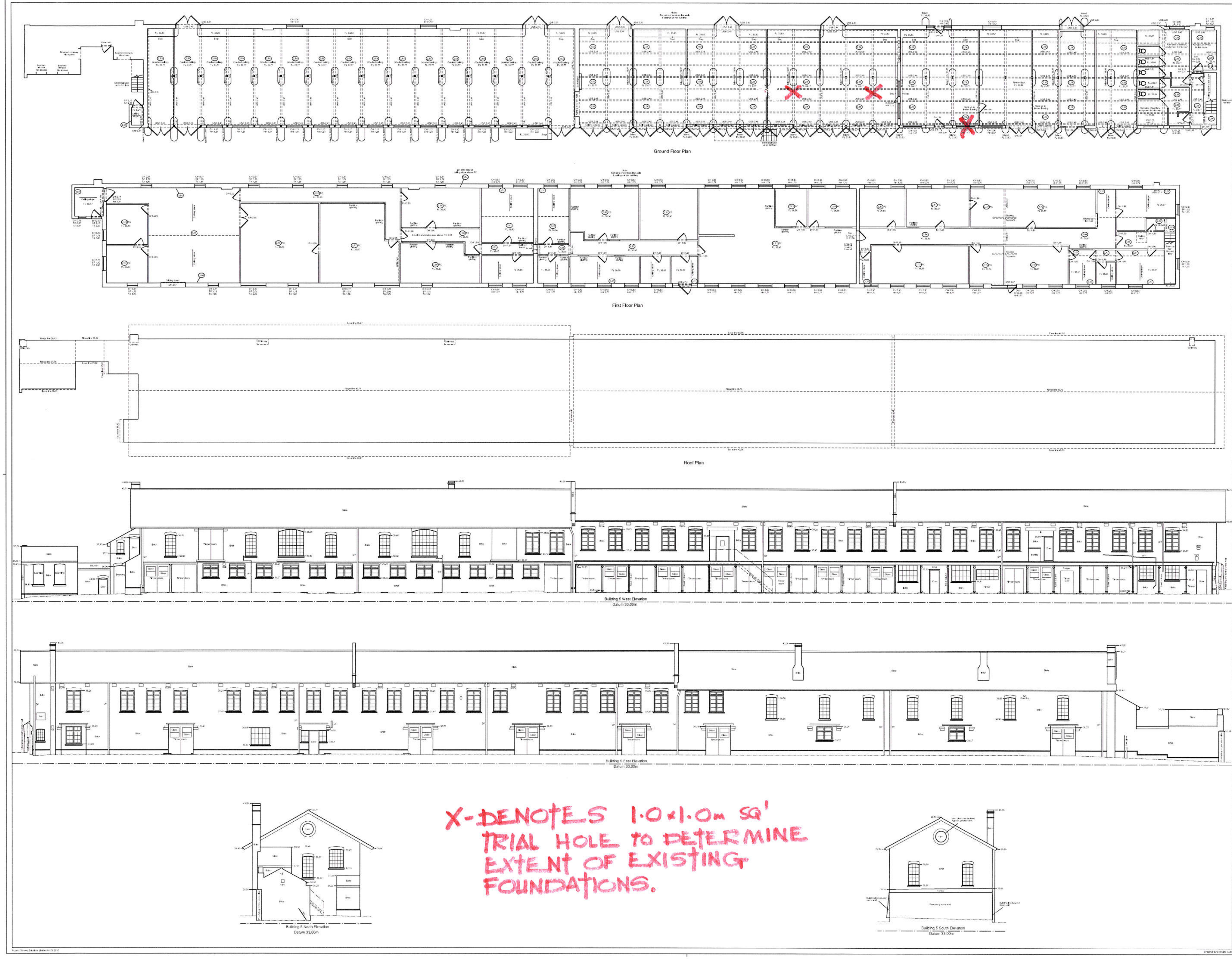
Amendme

FeildenCleggBradleyStudios
LLP

Twenty
Tottenham Street
London
W1T 4RF

COLCHE

Site Layo



TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

AH	Arch Head Height	FH	Fire Hydrant	RSJ	Rolled Steel Joist
AR	Assumed Route	FBD	Floor Board Direction	SI	Sign Post
AV	Air Valve	FH	Fire Hydrant	SP	Arch Spring Point Height
BS	Belisha Beacon	FL	Floor Level	SV	Stop Valve
BH	Bore Hole	FP	Flag Pole	SW	Surface Water
BL	Bed Level	FW	Foul Water	ST	Stay
BO	Bollard	GG	Gully Grate	Tac	Tactile Paving
B/P	Brace Post	GV	Gas Valve	TC	Telecom Cover
BS	Bus Stop	HH	Head Height	TH	Trial Pit
Bu	Bush	IC	Inspection Cover	THL	Threshold Level
B/W	Barbed Wire Fence	IL	Invert Level	TL	Traffic Light
BX	Box (Utilities)	IR	Iron Railings	ToW	Top of Wall
C/B	Close Board Fence	KO	Kerb Outlet	TP	Telegraph Pole
CH	Cill Height	LP	Lamp Post	TV	Cable TV Cover
CL	Cover Level	MH	Manhole	UB	Universal Beam
C/L	Chain Link Fence	MP	Marker Post	UC	Unknown Cover
CeLev	Ceiling Level	NB	Name Board	UK	Unknown Tree
Col	Column	OHL	Overhead Line (approx)	USB	Under Side Beam
C/P	Chestnut Paling Fence	Pan	Panel Fence	UTL	Unable To Lift
CR	Cable Riser	PB	Post Box	VP	Vent Pipe
DC	Drainage Channel	PM	Parking Meter	WB	Waste Bin
DH	Door Head Height	PO	Post	WH	Weep Hole
DP	Down Pipe	P/R	Post & Rail Fence	WL	Water Level
DR	Drain	P/W	Post & Wire Fence	WM	Water Meter
EL	Eaves Level	P/Wall	Partition Wall	WO	Wash Out
EP	Electric Pole	RE	Rodding Eye	(symbol)	Floor to Ceiling height
ER	Earth Rod	RL	Ridge Level	(symbol) FC	Floor to False Ceiling H
ET	EP+Transformer	RP	Reflector Post		
FB	Flower Bed	RS	Road Sign		
FBD	Floor Board Direction	RSD	Roller Shutter Door	(symbol)	Survey Control Station

DRAWING NOTE

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

Cill heights are measured as floor to the cill and head heights are measured from cill to the top of window.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

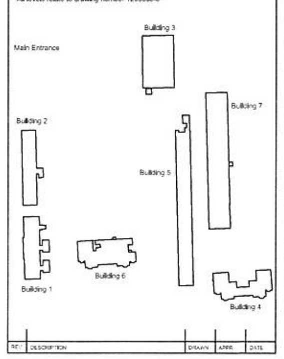
The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

Do not scale from this drawing.

CONTROL CO-ORDINATES

STATION	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION

All levels relate to drawing number 12050se-01



REV	DESCRIPTION	DRAWN	APPR	DATE

SURVEY SOLUTIONS

Ipswich Coventry Yeovil Norwich Perth Nottingham Brentwood

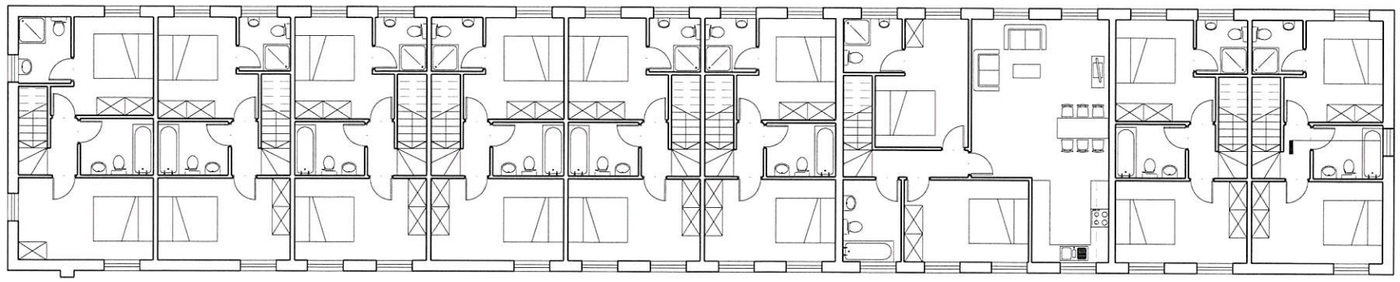
Tel No: 0845 0405 969 Fax No: 0845 0405 970
www.survey-solutions.co.uk enquiries@survey-solutions.co.uk

LAND SURVEYING BUILDING SURVEYING UNDERGROUND SURVEYING

PROJECT TITLE: COLCHESTER GARRISON, NAPIER ROAD, COLCHESTER, ESSEX, CO2 7EZ.				
DRAWING DETAIL: MEASURED BUILDING SURVEY BUILDING 5				
CLIENT: TAYLOR WIMPEY EAST LONDON				SCALE: 1:100
SURVEYOR: BTC	SURVEY DATE: 10.12.2012	CHECKED BY: JLH	APPROVED BY: PJR	DWG STATUS: FINAL
DRAWING NUMBER: 12050se-06			REVISION:	ISSUE DATE: 17.12.2012

Original Sheet Size: A0H

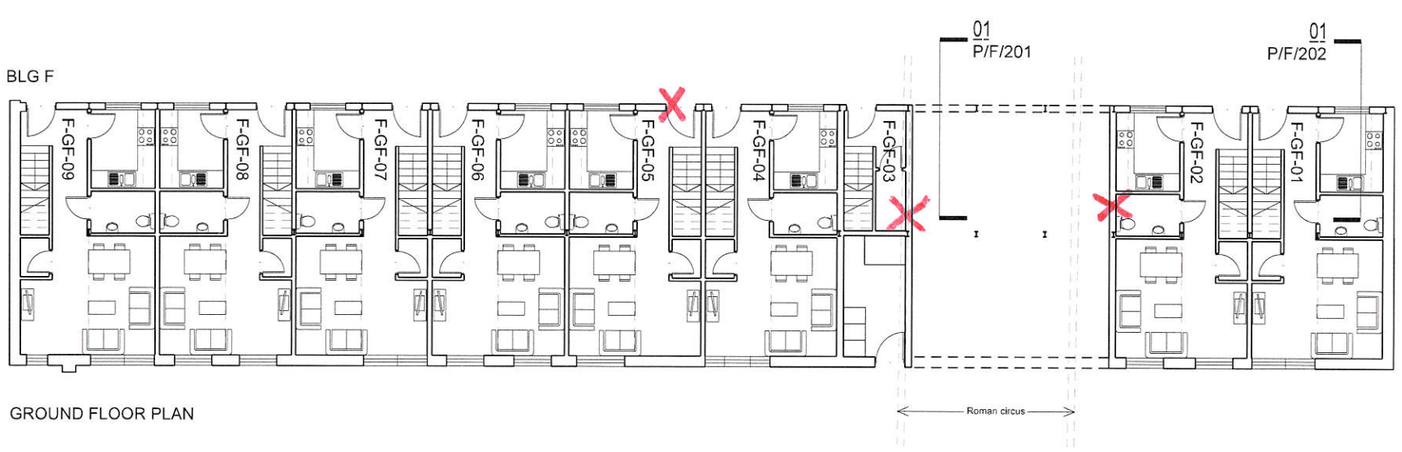
BLG F



P/F/210
01

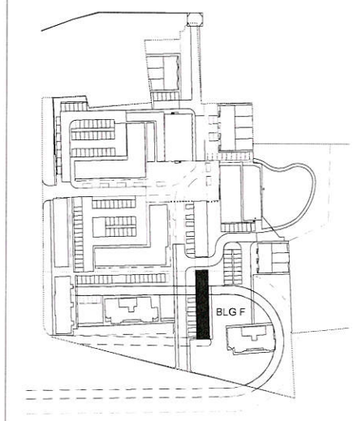
FIRST FLOOR PLAN

BLG F



GROUND FLOOR PLAN

SITE KEY



PLAN KEY

BLG F | BLG E

Amendment	Date
PL1. PLANNING ISSUE	.08.13
A. Plot ID's added - RM	12.07.13

FeildenCleggBradleyStudios LLP

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e london@fcbstudios.com

COLCHESTER GARRISON B1b
ESSEX

BUILDING F
Proposed Floor Plans

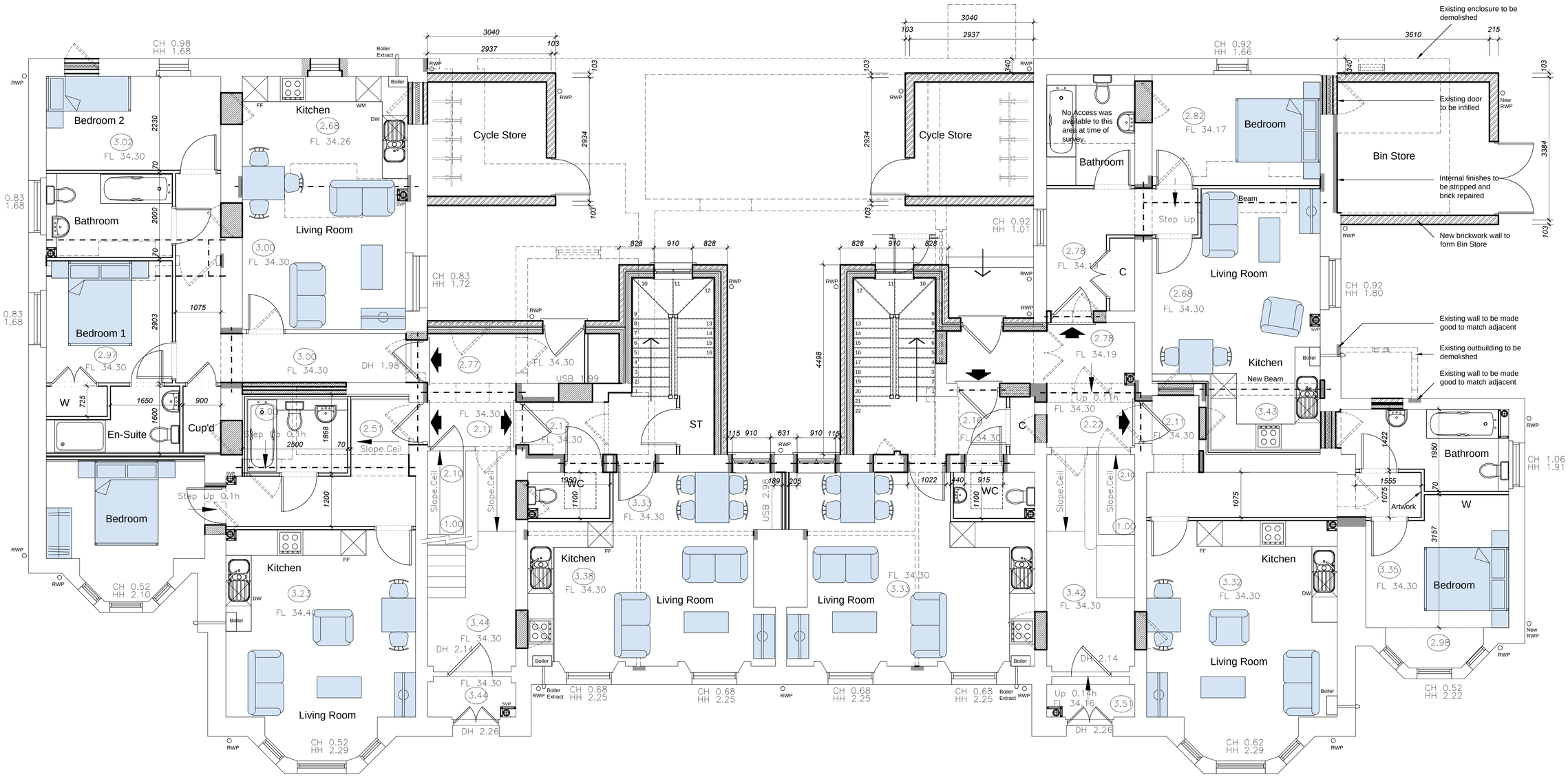
Job/Drawing No Amendment
1683/P/F/100 PL1

Scale 1:100 @ A1 (1:200 @ A3)
Date August 2013
Drawn Studio 26

Do not scale

All dimensions to be checked on site

Original printed at A1



Ground Floor

PRELIMINARY

Revisions		
P2	22-01-15	Revised to client Comments
P1	19-01-15	PRELIMINARY WORK IN PROGRESS / FOR REVIEW

project

Area B1b, Colchester Garrison, Colchester, Essex

client

Taylor Wimpey

Kings House
101 -135 Kings Road
Brentwood
Essex
CM14 4DR
Tel:- 01277 236800
Fax:- 01277 236834

title

Building G - Proposed Ground Floor Plan

scale	date	drawn	job no.	rev.
1:50 @ A1	Dec 2014	ADS	1367 : 151	P2

CHARTERED ARCHITECTS
57 CROWN STREET
BRENTWOOD, ESSEX, CM14 4BD
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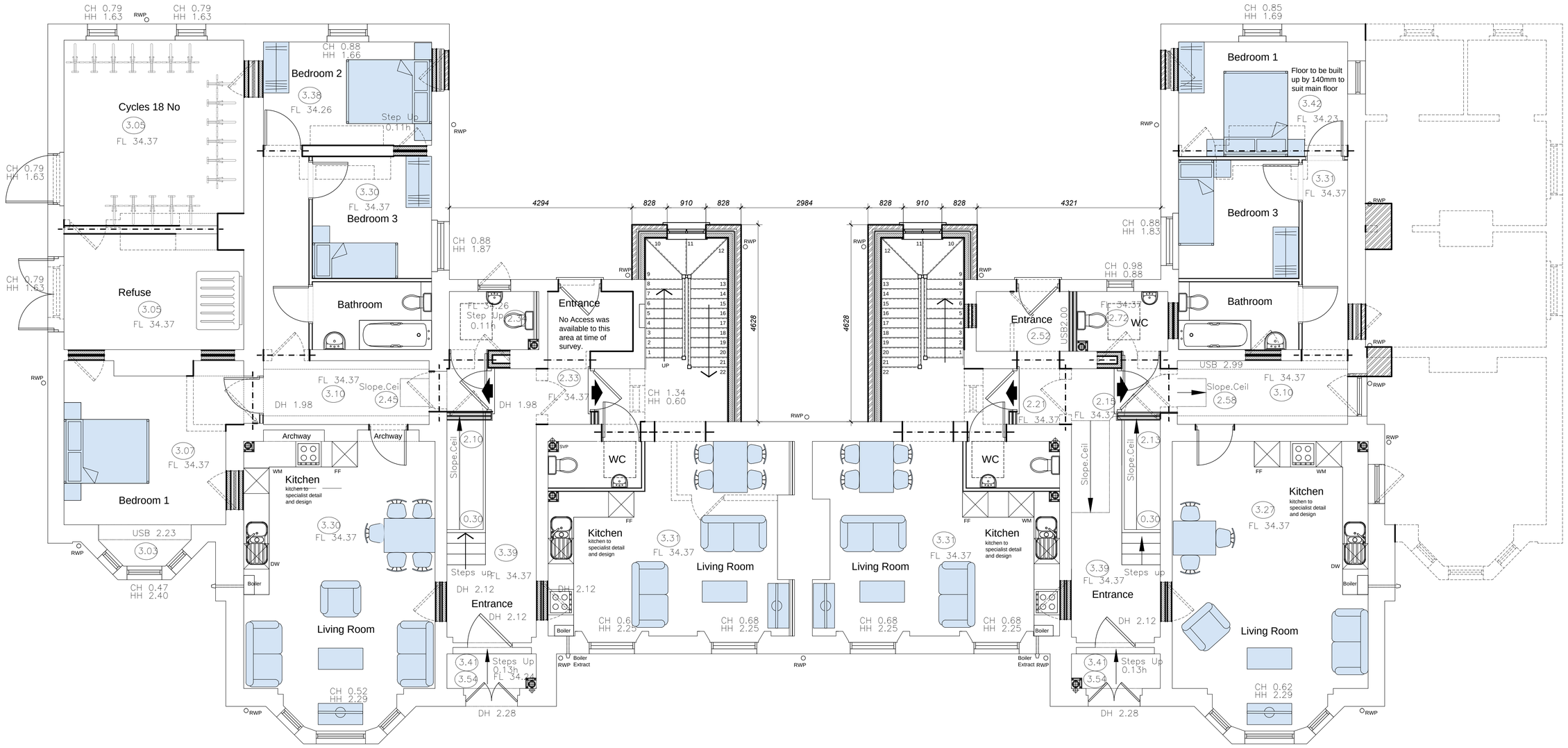
e-mail : office@traerclark.ltd.uk
web : www.traerclark.ltd.uk

TRAER CLARK



Ground Floor

PRELIMINARY

Revisions		
P2	22-01-15	Revised to client Comments
P1	19-01-15	PRELIMINARY WORK IN PROGRESS / FOR REVIEW

project

Area B1b, Colchester Garrison, Colchester, Essex

client

Taylor Wimpey

Kings House
101 -135 Kings Road
Brentwood
Essex
CM14 4DR
Tel:- 01277 236800
Fax:- 01277 236834

title

Building A - Proposed Ground Floor Plan

scale	date	drawn	job no.	rev.
1:50 @ A1	Dec 2014	ADS	1367 : 251	P2

CHARTERED ARCHITECTS
57 CROWN STREET
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TRAER CLARK

RPS – 31st January 2015

RE: SMC Amendment 2 to SMC EH Ref 00089493 (St John's Abbey).

The attached plan (Richard Jackson dwg. No. 44599/C/100) shows details of proposed drainage within archaeology Zone 5 (RPS WSI 2014) and car park levels.

The notes confirm general adherence to the WSI principles with the exception of the hatched drainage services runs which may impact archaeological levels.

For example the catch pit west of the northern wing of the new building NB5 has a FL of 1m depth, whilst the manhole at the north-west corner of the east-west wing is to 1.38m depth. Archaeology is generally c.800mmm deep in this area and therefore archaeological pre-excavation to formation level in accordance with the methods set out in the WSI would be required.

DO NOT SCALE

GENERAL DRAINAGE NOTES

1) UNLESS OTHERWISE SHOWN ALL PIPEWORK SHALL BE 100mm INTERNAL DIAMETER AND LAID TO A GRADIENT NOT FLATTER THAN 1in100 FOR SURFACE WATER AND 1in40 FOR FOUL WATER.

2) PIPEWORK OTHER THAN THAT COVERED IN NOTE 1 ABOVE SHALL BE IDENTIFIED THUS:

150/125

- SHOWS AN APPROXIMATE GRADIENT eg. 1in125
- SHOWS INTERNAL DIAMETER OF PIPE IN mm.

3) AT MANHOLES AND INSPECTION CHAMBERS:

- CL 99.99 = APPROXIMATE COVER LEVEL
- IL 99.999 = INVERT LEVEL
- BL 99.999 = BASE LEVEL (SUMP)
- FL 99.999 = FORMATION LEVEL
- (1050mmø) = INTERNAL DIAMETER

KEY

SURFACE WATER

- SURFACE WATER DRAIN/SEWER
- PRIVATE MANHOLE (1200x675mm)
- SILT TRAP CHAMBER (450mmø)
- RWP — RAINWATER DOWNPIPE LOCATION
- RG — ROAD GULLY (150mmø PIPEWORK)
- YG — YARD GULLY (100mmø PIPEWORK)
- CHANNEL DRAIN WITH TRAPPED SUMP
- RE — RODDING EYE
- DENOTES EXTENT OF EXCAVATION EXCEEDING THE GUIDELINES STATED WITHIN THE REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION AND WATCHING BRIEF, AREA B1B COLCHESTER GARRISON, PRODUCED BY RPS, REF. JLH0150.

EXTERNAL WORKS LEGEND

x 99.99	PROPOSED EXTERNAL GROUND LEVEL
+ 99.99	EXISTING EXTERNAL GROUND LEVEL
HB2	HALF BATTERED KERB (100mm UPSTAND)
BN	BULL NOSED KERB (25mm UPSTAND)
DK	DROPPER KERB

ALL EXCAVATIONS WORKS ARE SUBJECT TO ARCHAEOLOGICAL MONITORING AS STATED WITHIN THE REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION AND WATCHING BRIEF, AREA B1B COLCHESTER GARRISON, PRODUCED BY RPS, REF. JLH0150.

WHILST EVERY PRECAUTION HAS BEEN TAKEN TO ACCORD WITH THE RECOMMENDATIONS STATED WITHIN THE REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION AND WATCHING BRIEF, AREA B1B COLCHESTER GARRISON, PRODUCED BY RPS, REF. JLH0150. IT HAS NOT BEEN POSSIBLE TO ACHIEVE ALL THE CRITERIA SET OUT IN THE AFOREMENTIONED. THEREFORE A MORE ONEROUS ARCHAEOLOGICAL MONITORING EXERCISE IS TO BE EXPECTED TO THE HATCHED ZONES INDICATED, WHICH DENOTES THE APPROXIMATE EXTENT OF EXCAVATION EXCEEDING THAT RECOMMENDED WITHIN THE AFOREMENTIONED DOCUMENT. EXACT ROUTE OF DRAINAGE IN THIS REGION TO BE AGREED ON SITE FOLLOWING ARCHAEOLOGICAL FINDINGS.

SOFT LANDSCAPE AREA TO BE GRADED TO MEET PROPOSED HARDSTANDING AREA.

ACO 'ROADDRAIN' CHANNEL DRAIN (REF.PD100 F 40.1) WITH CONSTANT INVERT LEVEL AND 150mmø OUTLET ENDCAP.

ACO 'ROADDRAIN' CHANNEL DRAIN (REF.PD100 F 30.1) WITH CONSTANT INVERT LEVEL AND 150mmø OUTLET ENDCAP.

SOFT LANDSCAPE AREA TO BE GRADED TO MEET PROPOSED HARDSTANDING AREA.

ACO 'ROADDRAIN' CHANNEL DRAIN (REF.PD100 F 20.1) WITH CONSTANT INVERT LEVEL AND 150mmø OUTLET ENDCAP.

ACO 'ROADDRAIN' CHANNEL DRAIN (REF.PD100 F 20.1) WITH CONSTANT INVERT LEVEL AND 150mmø OUTLET ENDCAP.

SOFT LANDSCAPE AREA TO BE LOCALLY PROFILED TO ACHIEVE A MINIMUM COVER OF 500mm FROM SOFFIT OF PIPE.

SILT TRAP CL.33.60 IL.33.165 BL.33.015 FL.32.915 (450mmø)

SILT TRAP CL.34.00 IL.33.570 BL.33.420 FL.33.320 (450mmø)

CATCHPIT MH CL.33.66 IL.32.935 BL.32.785 FL.32.685 (1200x675mm)

CL.33.80 IL.32.865 FL.32.765 (1200x675mm)

CL.34.00 IL.32.727 FL.32.627 (1200x675mm)

CL.34.00 IL.32.649 FL.32.549 (1200x675mm)

33.83(EX)

GROUND PREVIOUSLY DISTURBED TO ACCOMMODATE EXISTING STRUCTURE

EXISTING SURFACE WATER MANHOLE TO BE MODIFIED TO SUIT NEW DRAINAGE CONNECTION.

INVERT LEVEL OF EXISTING MANHOLE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO UNDERTAKING ANY DRAINAGE WORKS, INFORM ENGINEER OF RESULTS.

NOTES

1. THE PROPOSED LAYOUT INDICATED IS BASED ON THE SITE LAYOUT PRODUCED BY FEILDEN CLEGG BRADLEY STUDIOS LLP, DRAWING NUMBER 1683/P/80 REV PL11 DATED 05.12.14. FINAL LAYOUT IDENTIFYING DRAINAGE SERVING STRUCTURE TO BE CONFIRMED BY ARCHITECT.
2. ATTENUATION PROPOSALS ARE SUBJECT TO THE AGREEMENT FROM ANGLIAN WATER AND THEIR ACCEPTANCE OF THE PROPOSED DISCHARGE RATES.
3. EXCAVATION NEAR TREES TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS OF ARBORICULTURIST.
4. ALL STATUTORY SERVICE SUPPLIERS PLANT IS TO BE LOCATED AND PROTECTED BY THE CONTRACTOR PRIOR TO COMMENCEMENT.
5. ANY UNIDENTIFIED HAZARDS DISCOVERED DURING THE PROGRESS OF WORKS ARE TO BE REPORTED IMMEDIATELY TO THE ENGINEER
6. ALL EXTERNAL DRAINAGE WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PART H OF THE CURRENT BUILDING REGULATIONS.
8. ALL PIPES TO BE 100mmø UNLESS STATED OTHERWISE. MINIMUM GRADIENT WITHOUT W.C. TO BE 1:40 MINIMUM GRADIENT WITH W.C. TO BE 1:80
9. PIPES SHALL BE BEDDED ON CLASS 'S' BEDDING UNLESS COVER IS LESS THAN 1.2m IN TRAFFICKED AREAS, THEN CLASS '2' BEDDING.
10. BACKFILL TO TRENCHES MAY BE SUITABLE EXCAVATED MATERIAL IN LANDSCAPED AREAS. TYPE 1 GRANULAR MATERIAL TO BE USED UNDER HARD STANDINGS AND ROADS.
11. MANHOLE COVERS WITHIN BLOCK PAVED AREAS SHALL BE RECESSED.
12. THE CONTRACTOR IS TO PROTECT EXISTING BURIED PIPES (PARTICULARLY SHALLOW PIPES) AND TREE ROOTS FROM DAMAGE IMPOSED BY LOADS AND CONSTRUCTION PLANT.

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISION

Title
ZONE 5
SITE COMPOUND
EXTERNAL WORKS AND DRAINAGE
GENERAL ARRANGEMENT

Client
Taylor Wimpey

Taylor Wimpey East London
Kings House,
101 - 135 Kings Road,
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CM14 4DR
Tel: 01277 236800
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Scale	Drawn	Date
1:200 @ A1	ANS	DEC 2014
Job Manager	Checked	Approved
M. WORTH	MJW	

richardjackson engineering consultants
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Suite 409, 1 Ale Street, London E1 8DE Tel: 020 7448 9910
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No. 44599/C/100

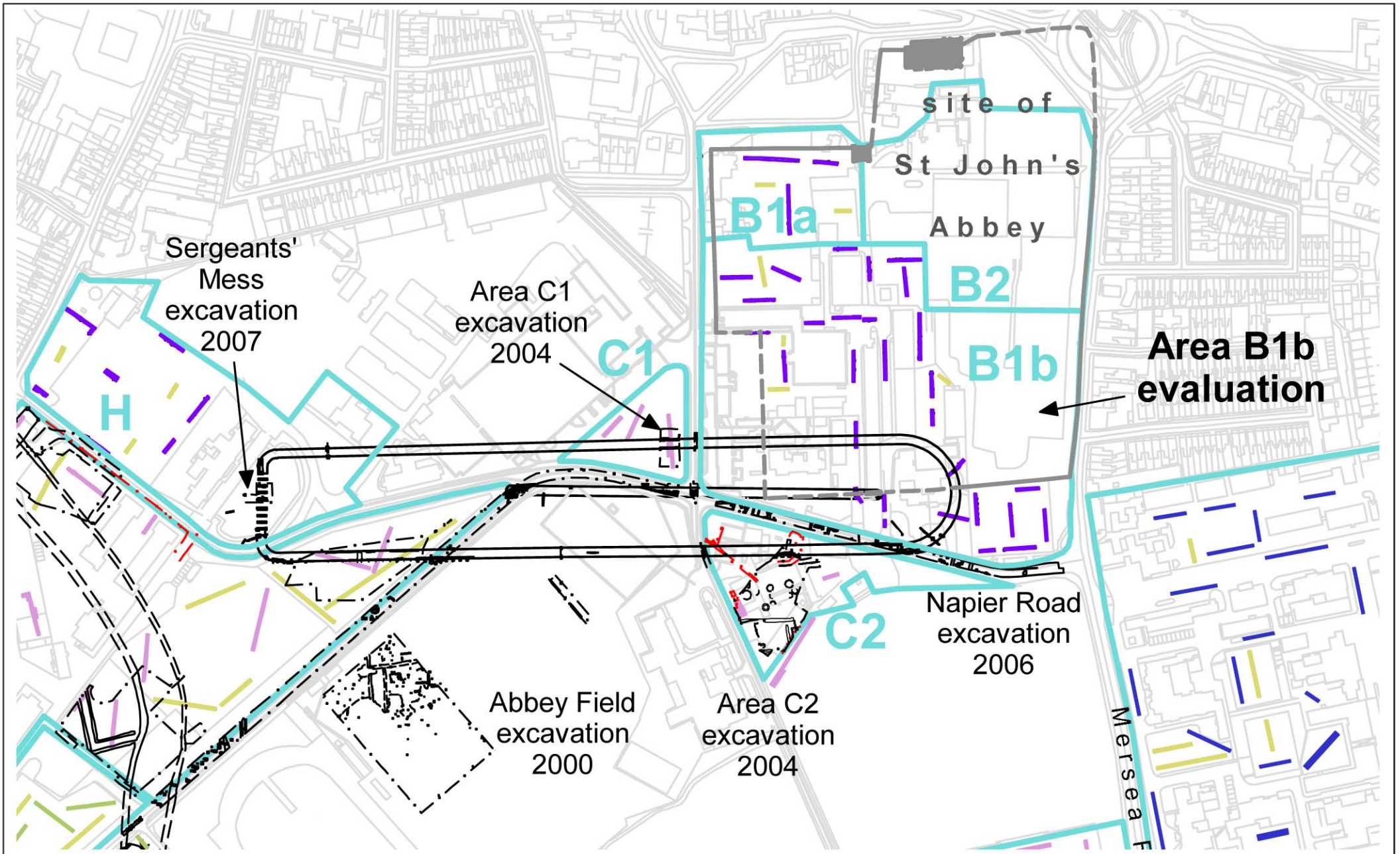
Revision

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

FIGURE 1

AREA LOCATION PLAN



RPS

Date:	07.10.08	Scale:	NTS	Rev:	A
Job No:	JLH0150	Drawn:	JW	Checked:	RM

Project: B1b Mitigation WSI

Title: Area Location Plan

Figure No: 1

www.rpsgroup.com

Drawing Ref: JLH0150/RO17/Fig 1

FIGURE 2A

AREA B1B 2002 AND 2007 TRIAL TRENCH LOCATIONS SHOWING ROMAN CIRCUS AND INTERPRETATIVE ANNOTATIONS

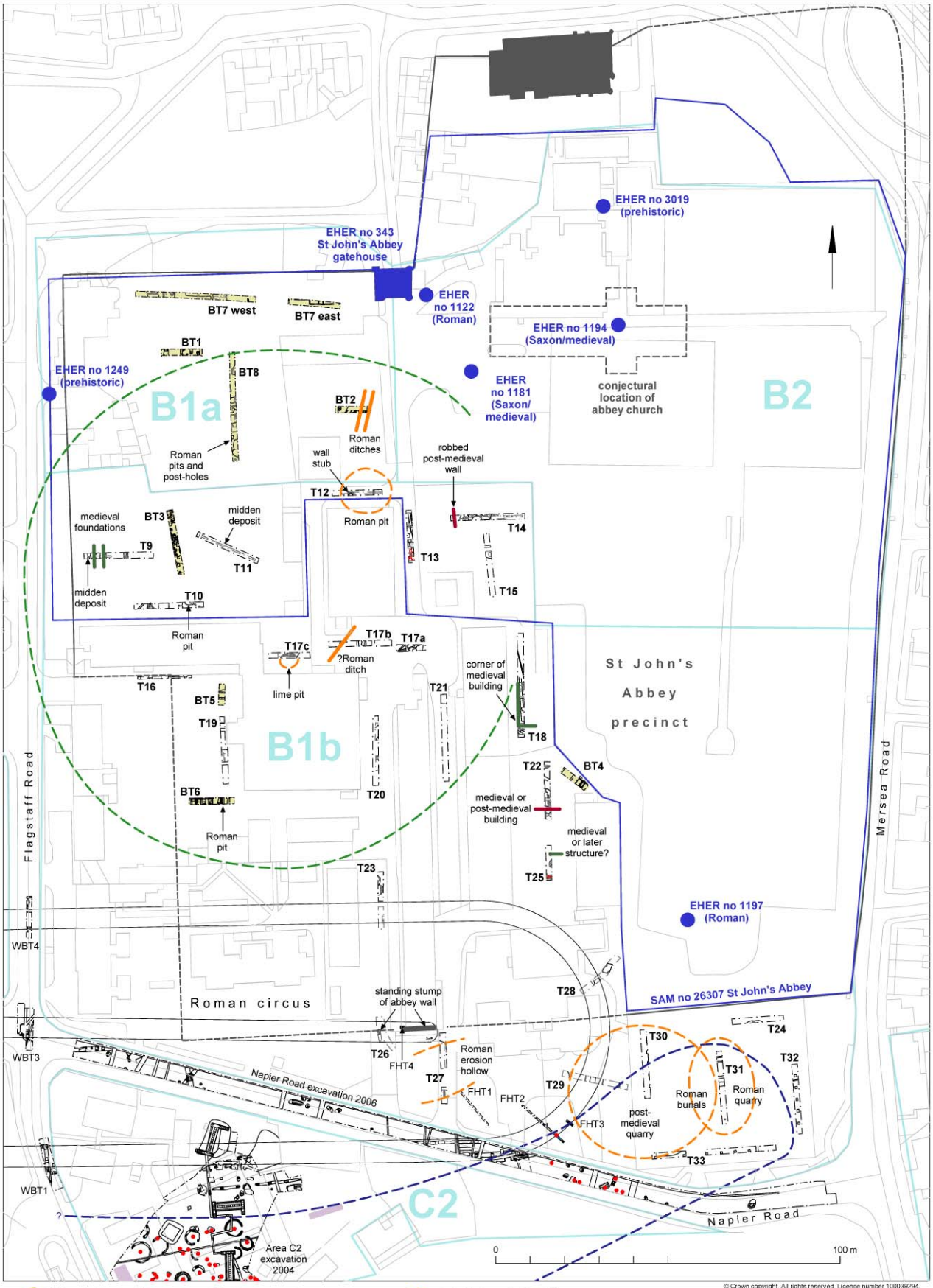


Fig 21 Area B1b: interpretative plan.

RPS

After: CAT Report 438, Fig 21

Project: B1b Mitigation WSI

Title: Area B1b 2002 and 2007 Trial Trench Locations Showing Roman Circus and Interpretative Annotations

Figure No: 2

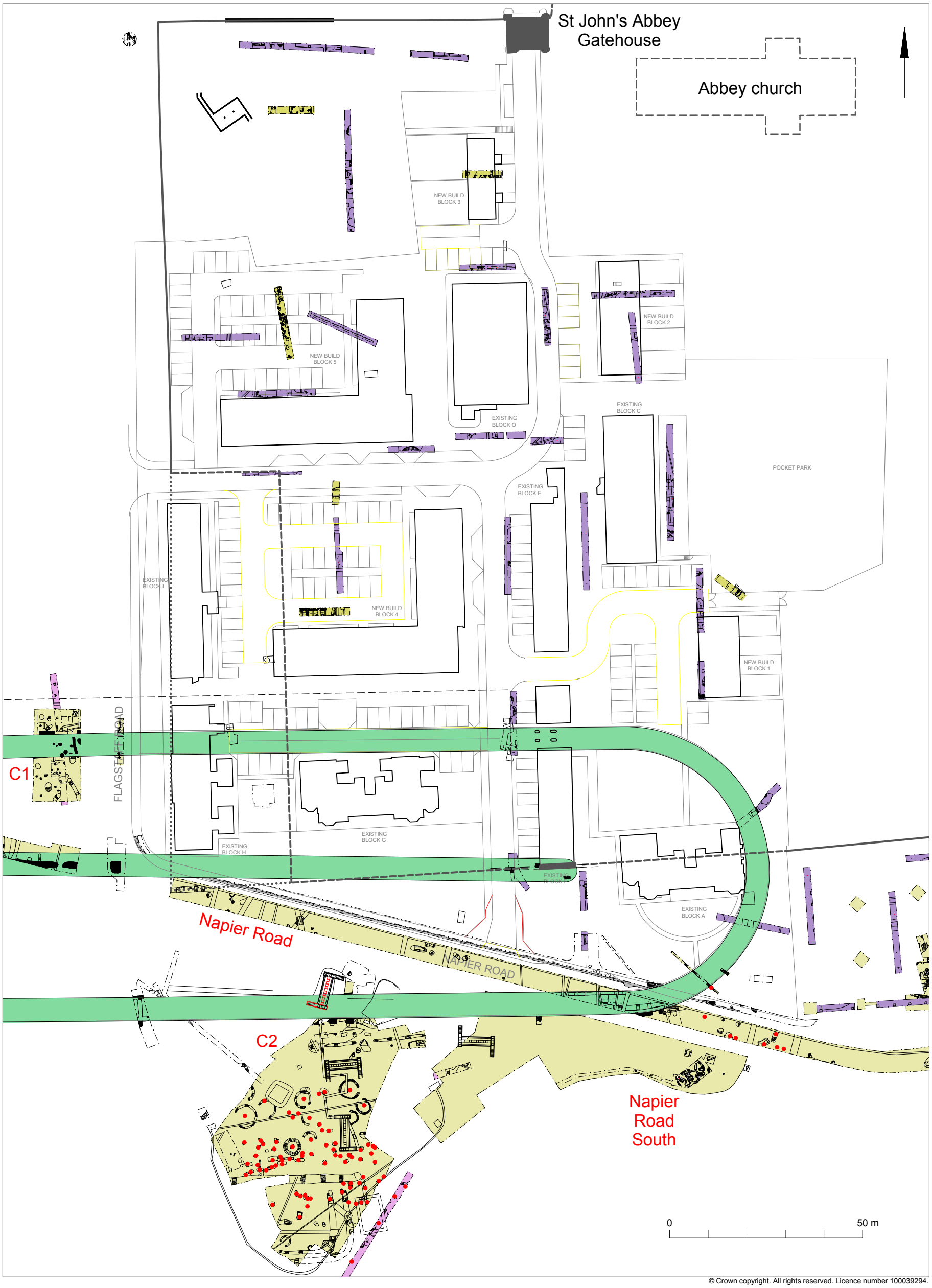
Date:	07.10.08	Scale:	N.T.S.	Rev:	A
Job No	JLH0150	Drawn:	JW	Checked:	RM

www.rpsgroup.com

Drawing Ref: JLH0150/RO17/Fig 2

FIGURE 2B

PLAN OF FLAGSTAFF B1B SHOWING THE PROPOSED DEVELOPMENT IN RELATION TO PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS



Plan of Flagstaff B1b showing the proposed development in relation to previous archaeological investigations; for clarity the Ordnance Survey base layer has been omitted.

2002 evaluation

2004 evaluation

2007 evaluation

FIGURE 3

HIGHWAY DEVELOPMENT STRATEGY 1 OF 2 (SHOWING DEVELOPMENT ZONES)

DO NOT SCALE

ZONE 4

ZONE 3

ZONE 2

ZONE 1

REFER TO 44599/P/SK07 FOR CONTINUATION

REFER TO 44599/P/SK07 FOR CONTINUATION

PROPOSED RETAINING WALL APPROX. 0.75m MAX RETAINED HEIGHT

FFL.34.540

FFL.34.090

FFL.34.100

FFL.34.250

FFL.33.920

FFL.33.740

FFL.34.340

FFL.34.345

FFL.34.300

FFL.34.420

FFL.33.920

FFL.34.370

FFL.34.490

BOLD LINE DENOTES APPROXIMATE EXTENT OF ARCHAEOLOGY ZONES

PROPOSED LEVELS TO TIE BACK INTO EXISTING

Napier Road

N

A1

NOTES

1. CONSTRUCTION THICKNESS BASED ON AN ASSUMED CBR VALUE OF 2% AS RECOMMENDED IN THE CONTAMINATION LAND ASSESSMENT PRODUCED BY MEREBROOK CONSULTING LTD.
2. HARDSTANDINGS WHERE THERE IS NO VEHICLE OVERRUN SHALL HAVE AN APPROX. CONSTRUCTION THICKNESS OF 250mm.
3. ADOPTABLE HIGHWAY CONSTRUCTION SUBJECT TO AGREEMENT WITH HIGHWAY AUTHORITY.

FINISHED FLOOR LEVELS OF NEW BUILDS ARE SET TO MINIMISE AMOUNT OF EXCAVATION WORK REQUIRED WHILST STILL ACHIEVING SUITABLE GRADIENTS TO PROPOSED GROUND LEVELS WHERE INDICATED AND EXISTING GROUND / FLOOR LEVELS OF RETAINED BUILDINGS

KEY

- ADOPTABLE ROAD CONTRUCTION APPROX. 515mm THICK
- ADOPTABLE ROAD CONTRUCTION APPROX. 525mm THICK
- ADOPTABLE PERMEABLE ROAD CONSTRUCTION APPROX. 655mm THICK
- PRIVATE PARKING AISLE CONSTRUCTION APPROX. 440mm THICK
- PRIVATE PARKING BAY CONSTRUCTION APPROX. 350mm THICK
- PRIVATE PERMEABLE PAVING CONSTRUCTION FOUNDED APPROX. 700mm THICK.
- TEMPORARY COMPOUND CONSTRUCTION APPROX. 430mm THICK.
- PRIVATE PARKING AISLE CONSTRUCTION APPROX. 480mm THICK

31.43 — DENOTES FORMATION LEVEL OF PROPOSED SURFACING (m).

-/+0.15 — INDICATES MAXIMUM DIG/BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION. (m).

REV	DATE	DESCRIPTION	DRAWN	CHKD
A	15.03.15	HIGHWAY STRATEGY AMENDED TO ACCORD WITH ARCHITECTS REVISED SITE PLAN.	ANS	MJW

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISON

Title
HIGHWAY DEVELOPMENT STRATEGY
1 OF 2

WSI FIGURE 3

Client
TAYLOR WIMPEY
EAST LONDON

Scale	Drawn	Date
1:250 @ A1	S.CAIN	23.08.13
Job Manager	Checked	Approved
R.LONG	S.HOLDER	R.LONG

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intelligent engineering
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Suite 409, 1 Ale Street, London E1 8DE Tel: 020 7448 9910
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314796
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070
Email Address: mail@rj-ie.co.uk Web Site: http://www.richardjackson.uk.com

Drawing No.	Revision
44599/P/SK06	A

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

FIGURE 4

HIGHWAY DEVELOPMENT STRATEGY 2 OF 2 (SHOWING DEVELOPMENT ZONES)

DO NOT SCALE

KEY

- ADOPTABLE ROAD CONTRUCTION APPROX. 515mm THICK
- ADOPTABLE ROAD CONTRUCTION APPROX. 525mm THICK
- ADOPTABLE PERMEABLE ROAD CONSTRUCTION APPROX. 655mm THICK
- PRIVATE PARKING AISLE CONSTRUCTION APPROX. 440mm THICK
- PRIVATE PARKING BAY CONSTRUCTION APPROX. 350mm THICK
- PRIVATE PERMEABLE PAVING CONSTRUCTION FOUNDED APPROX. 700mm THICK.
- TEMPORARY COMPOUND CONSTRUCTION APPROX. 430mm THICK.
- PRIVATE PARKING AISLE CONSTRUCTION APPROX. 480mm THICK

31.43 DENOTES FORMATION LEVEL OF PROPOSED SURFACING (m).

-/+0.15 INDICATES MAXIMUM DIG/BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION. (m).

ZONE 6

ZONE 5

BOLD LINE DENOTES APPROXIMATE EXTENT OF ARCHAEOLOGY ZONES

SLOPE DOWN TO TIE IN WITH EXG LEVELS AT MAX GRADIENT OF 1:3

PROPOSED RETAINING WALL APPROX. 1.0m MAX RETAINED HEIGHT

PROPOSED LEVELS TO TIE BACK INTO EXG

PROPOSED RETAINING WALL APPROX. 0.75m MAX RETAINED HEIGHT

CAR PARK LEVELS HERE TO BE APPROX. 0-20mm ABOVE EXG

PROPOSED LEVELS TO TIE BACK INTO EXISTING

FFL.31.300

FFL.31.600

FFL.33.470

FFL.34.000

FFL.33.625

FFL.33.950

FFL.31.000

FFL.29.950

FFL.31.375

FFL.30.325

FFL.31.750

FFL.30.700

FFL.32.125

FFL.31.075

FFL.32.500

FFL.31.450

FFL.33.000

FFL.33.000

REFER TO 44599/P/SK06 FOR CONTINUATION

REFER TO 44599/P/SK06 FOR CONTINUATION

N

NOTES

1. CONSTRUCTION THICKNESS BASED ON AN ASSUMED CBR VALUE OF 2% AS RECOMMENDED IN THE CONTAMINATION LAND ASSESSMENT PRODUCED BY MEREBROOK CONSULTING LTD.
2. HARDSTANDINGS WHERE THERE IS NO VEHICLE OVERRUN SHALL HAVE AN APPROX. CONSTRUCTION THICKNESS OF 250mm.
3. ADOPTABLE HIGHWAY CONSTRUCTION SUBJECT TO AGREEMENT WITH HIGHWAY AUTHORITY.

FINISHED FLOOR LEVELS OF NEW BUILDS ARE SET TO MINIMISE AMOUNT OF EXCAVATION WORK REQUIRED WHILST STILL ACHIEVING SUITABLE GRADIENTS TO PROPOSED GROUND LEVELS WHERE INDICATED AND EXISTING GROUND / FLOOR LEVELS OF RETAINED BUILDINGS

REV	DATE	DESCRIPTION	DRAWN	CHKD
A	15.03.15	HIGHWAY STRATEGY AMENDED TO ACCORD WITH ARCHITECTS REVISED SITE PLAN.	ANS	MJW

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISON

Title
HIGHWAY DEVELOPMENT STRATEGY
2 OF 2

WSI FIGURE 4

Client
TAYLOR WIMPEY
EAST LONDON

Scale	Drawn	Date
1:250 @ A1	S.CAIN	23.08.13
Job Manager	Checked	Approved
R.LONG	S.HOLDER	R.LONG

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intelligent engineering
26 High Street, Hadleigh, Ipswich, Suffolk IP7 5AP Tel: 01473 825300
Suite 409, 1 Ale Street, London E1 8DE Tel: 020 7448 9910
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070
Email Address: mail@rj-ie.co.uk Web Site: http://www.richardjackson.uk.com

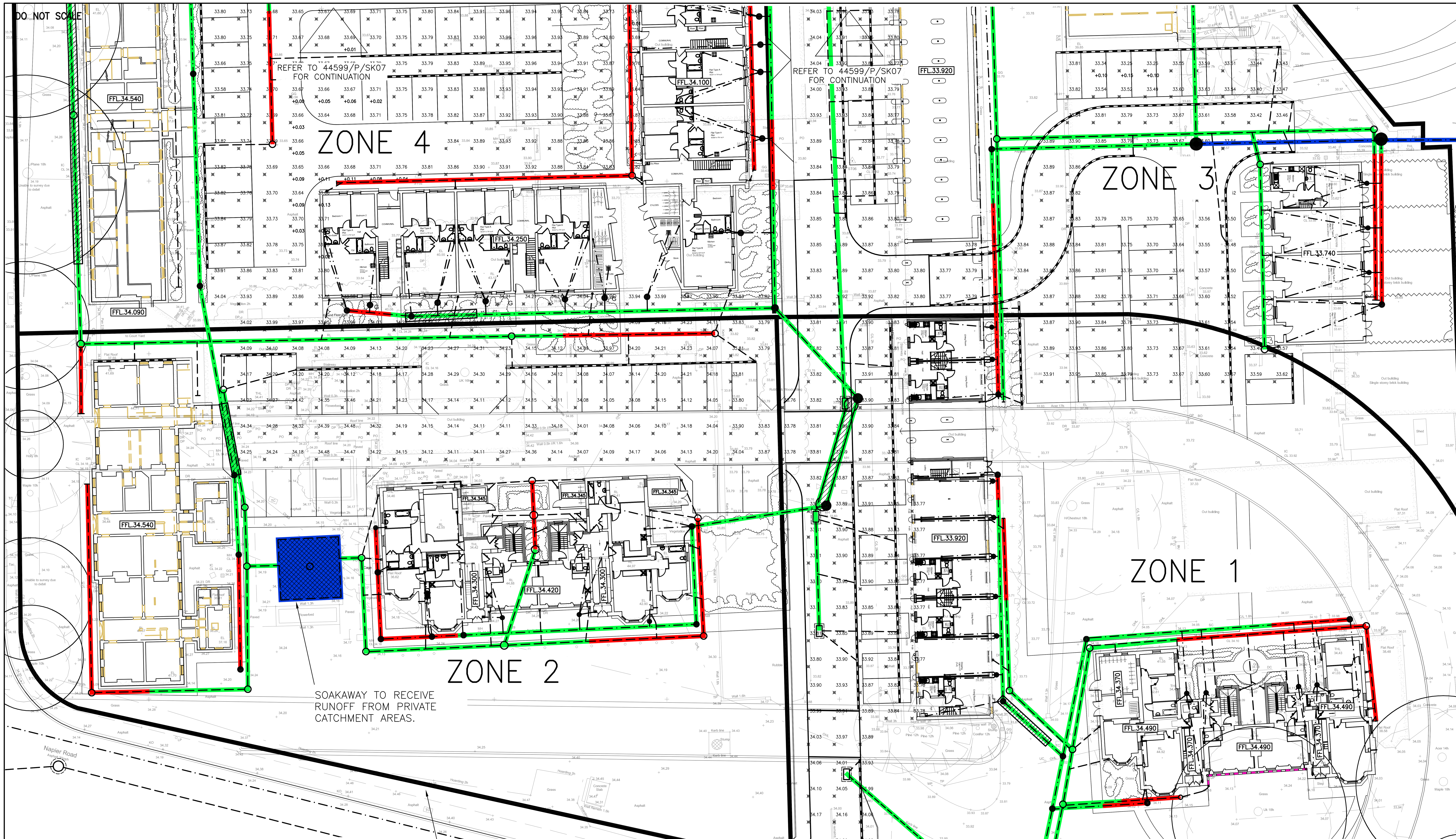
Drawing No. 44599/P/SK07 | Revision A

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

FIGURE 5

INDICATIVE DRAINAGE STRATEGY 1 OF 2



GENERAL DRAINAGE NOTES

1) UNLESS OTHERWISE SHOWN ALL PIPEWORK SHALL BE 100mm INTERNAL DIAMETER AND LAID TO A GRADIENT NOT FLATTER THAN 1in100 FOR SURFACE WATER AND 1in40 FOR FOUL WATER (OR Min. 1in80 WHERE Min. OF 1 W.C. IS CONNECTED). FOUL WATER SEWERS ARE TO BE 150mm ø LAID TO A GRADIENT OF Min. 1in150 WHERE 10 W.C.'S ARE CONNECTED. SEWER / DRAIN PIPE DIAMETERS ARE SUBJECT TO FULL DETAIL DRAINAGE DESIGN.

2) LATERAL DRAINAGE CONNECTIONS ADJACENT TO EXISTING BUILDINGS ARE SUBJECT TO FURTHER INVESTIGATION. SHOULD ADEQUATE EXISTING ROUTES BE DETERMINED, NEW LATERAL DRAINAGE ROUTES ARE LIKELY NOT REQUIRED AND NEW DRAINS CAN REPLACE EXISTING ALONG THESE ROUTES.

3) FOUL SEWAGE CONNECTION ON AND OFF–SITE IS SUBJECT TO FURTHER DISCUSSIONS WITH ANGLIAN WATER.

4) ALL PRIVATE CAR PARKS TO BE DRAINED USING SHALLOW DRAINAGE I.E. ACO DRAINS, CELLULAR STORAGE ETC.

5) WHERE POSSIBLE, THE DRAINAGE RUNS HAVE BEEN TAKEN ALONG EXISTING ROUTES TO AVOID EXCAVATION ACROSS THE SITE.

6) SOAKAWAY SIZE IS SUBJECT TO THE FULL SITE INVESTIGATION TO DETERMINE INFILTRATION RATES.

KEY

FOUL WATER

- FOUL WATER DRAIN/SEWER
- ADOPTABLE MANHOLE
- PRIVATE MANHOLE
- MEDIUM/DEEP INSPECTION CHAMBER (MINIMUM 450mmø)
- BACKDROP
- AREA OF PROPOSED DRAINAGE AT / OR ABOVE LEVELS OF EXISTING DRAINS TO BE REPLACED.

SURFACE WATER

- SURFACE WATER DRAIN/SEWER
- RISING SURFACE WATER DRAIN/SEWER
- ADOPTABLE MANHOLE
- PRIVATE MANHOLE
- MEDIUM/DEEP INSPECTION CHAMBER (MINIMUM 450mmø)
- BACKDROP
- RE RODDING EYE
- CHANNEL DRAIN
- AREA OF PROPOSED DRAINAGE AT / OR ABOVE LEVELS OF EXISTING DRAINS TO BE REPLACED.

N

ADOPTABLE HIGHWAY DRAINAGE SUBJECT TO AGREEMENT WITH HIGHWAY AUTHORITY, HOWEVER WILL UTILISE SHALLOW DRAINAGE TECHNIQUES.

FINISHED FLOOR LEVELS OF NEW BUILDS ARE SET TO MINIMISE AMOUNT OF EXCAVATION WORK REQUIRED WHILST STILL ACHIEVING SUITABLE GRADIENTS TO PROPOSED GROUND LEVELS WHERE INDICATED AND EXISTING GROUND / FLOOR LEVELS

LEGEND

99.99 ⊗	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050se, DATED 02.12.12.
+ 99.99	DENOTES TOPOGRAPHICAL SURVEY LEVEL.
(red)	IDENTIFIES EXTENT AND DEPTH OF EXCAVATION FOR PROPOSED MAIN CARRIER SEWERS BELOW EXISTING GROUND LEVEL (0 – 800mm)
(green)	IDENTIFIES EXTENT AND DEPTH OF EXCAVATION FOR PROPOSED MAIN CARRIER SEWERS BELOW EXISTING GROUND LEVEL (800 – 1600mm)
(blue)	IDENTIFIES EXTENT AND DEPTH OF EXCAVATION FOR PROPOSED MAIN CARRIER SEWERS BELOW EXISTING GROUND LEVEL (>1600mm)

REV	DATE	DESCRIPTION	DRAWN	CHKD
C	18.05.15	DRAWING UPDATED TO INCORPORATE ARCHITECTS REVISED SITE PLAN, DRAINAGE STRATEGY GENERALLY UPDATED ACCORDINGLY.	ANS	MJW
B	23.05.14	AMENDED FOUL SEWER POSITION. AMENDED SURFACE WATER POSITION	SAC	RNL
A	04.09.13	AMENDED DRAIN POSITION NR BUILDING A AMENDED PROPOSED GROUND LEVELS	RNL	MJD

REVISIONS

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nqa. ISO 9001 Registered — UKAS QUALITY MANAGEMENT 015

Project
AREA B1b
COLCHESTER GARRISON

Title
INDICATIVE DRAINAGE STRATEGY
1 OF 2

WSI FIGURE 5

Client
TAYLOR WIMPEY
EAST LONDON

Scale	Drawn	Date
1:250 @ A1	ANS	MAY 2015
Job Manager	Checked	Approved
M. WORTH	MJW	

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6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☒
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Drawing No. 44599/P/SK04 — Revision C

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

FIGURE 6

INDICATIVE DRAINAGE STRATEGY 2 OF 2

DO NOT SCALE

GENERAL DRAINAGE NOTES

1) UNLESS OTHERWISE SHOWN ALL PIPEWORK SHALL BE 100mm INTERNAL DIAMETER AND LAID TO A GRADIENT NOT FLATTER THAN 1in100 FOR SURFACE WATER AND 1in40 FOR FOUL WATER (OR Min. 1in80 WHERE Min. OF 1 W.C. IS CONNECTED). FOUL WATER SEWERS ARE TO BE 150mm ø LAID TO A GRADIENT OF Min. 1in150 WHERE 10 W.C.'S ARE CONNECTED. SEWER / DRAIN PIPE DIAMETERS ARE SUBJECT TO FULL DETAIL DRAINAGE DESIGN.

2) LATERAL DRAINAGE CONNECTIONS ADJACENT TO EXISTING BUILDINGS ARE SUBJECT TO FURTHER INVESTIGATION. SHOULD ADEQUATE EXISTING ROUTES BE DETERMINED, NEW LATERAL DRAINAGE ROUTES ARE LIKELY NOT REQUIRED AND NEW DRAINS CAN REPLACE EXISTING ALONG THESE ROUTES.

3) FOUL SEWAGE CONNECTION ON AND OFF–SITE IS SUBJECT TO FURTHER DISCUSSIONS WITH ANGLIAN WATER.

4) ALL PRIVATE CAR PARKS TO BE DRAINED USING SHALLOW DRAINAGE I.E. ACO DRAINS, CELLULAR STORAGE ETC.

5) WHERE POSSIBLE, THE DRAINAGE RUNS HAVE BEEN TAKEN ALONG EXISTING ROUTES TO AVOID EXCAVATION ACROSS THE SITE.

6) SOAKAWAY SIZE IS SUBJECT TO THE FULL SITE INVESTIGATION TO DETERMINE INFILTRATION RATES.

KEY

FOUL WATER

- FOUL WATER DRAIN/SEWER
- ADOPTABLE MANHOLE
- PRIVATE MANHOLE
- MEDIUM/DEEP INSPECTION CHAMBER (MINIMUM 450mmø)
- BACKDROP
- AREA OF PROPOSED DRAINAGE AT / OR ABOVE LEVELS OF EXISTING DRAINS TO BE REPLACED.

SURFACE WATER

- SURFACE WATER DRAIN/SEWER
- RISING SURFACE WATER DRAIN/SEWER
- ADOPTABLE MANHOLE
- PRIVATE MANHOLE
- MEDIUM/DEEP INSPECTION CHAMBER (MINIMUM 450mmø)
- BACKDROP
- RE RODDING EYE
- CHANNEL DRAIN
- AREA OF PROPOSED DRAINAGE AT / OR ABOVE LEVELS OF EXISTING DRAINS TO BE REPLACED.

LEGEND

- 99.99 × DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050ee, DATED 02.12.12.
- + 99.99 DENOTES TOPOGRAPHICAL SURVEY LEVEL.
- IDENTIFIES EXTENT AND DEPTH OF EXCAVATION FOR PROPOSED MAIN CARRIER SEWERS BELOW EXISTING GROUND LEVEL (0 – 800mm)
- IDENTIFIES EXTENT AND DEPTH OF EXCAVATION FOR PROPOSED MAIN CARRIER SEWERS BELOW EXISTING GROUND LEVEL (800 – 1600mm)
- IDENTIFIES EXTENT AND DEPTH OF EXCAVATION FOR PROPOSED MAIN CARRIER SEWERS BELOW EXISTING GROUND LEVEL (>1600mm)

N

ADOPTABLE HIGHWAY DRAINAGE SUBJECT TO AGREEMENT WITH HIGHWAY AUTHORITY, HOWEVER WILL UTILISE SHALLOW DRAINAGE TECHNIQUES.

FINISHED FLOOR LEVELS OF NEW BUILDS ARE SET TO MINIMISE AMOUNT OF EXCAVATION WORK REQUIRED WHILST STILL ACHIEVING SUITABLE GRADIENTS TO PROPOSED GROUND LEVELS WHERE INDICATED AND EXISTING GROUND / FLOOR LEVELS

SOAKAWAY TO TAKE ADOPTED ROAD SURFACE WATER.

BOLD LINE DENOTES APPROXIMATE EXTENT OF ARCHAEOLOGY ZONES

SOAKAWAYS TO RECEIVE RUNOFF FROM PRIVATE CATCHMENT AREAS.

PROPOSED LEVELS TO TIE BACK INTO EXG

REFER TO DRAWINGS 44599/P/SK07 (WSI FIGURE 4) FOR EXTENT OF PERMEABLE PAVING

SURFACE WATER FOR BUILDING G TO BE DIRECTED TO EXISTING MANHOLE AT ABBEY GATE

ZONE 6

ZONE 5

CAR PARK LEVELS HERE TO BE APPROX. 0–20mm ABOVE EXG.

FFL.31.300

FFL.33.470

FFL.34.000

FFL.33.625

FFL.33.950

FFL.31.000

FFL.29.950

FFL.31.375

FFL.30.325

FFL.31.750

FFL.30.700

FFL.32.125

FFL.31.075

FFL.32.500

FFL.31.450

FFL.33.000

4500

3750B

SOAKAWAYS TO RECEIVE RUNOFF FROM PRIVATE CATCHMENT AREAS.

REFER TO 44599/P/SK06 FOR CONTINUATION

REFER TO 44599/P/SK06 FOR CONTINUATION

REV	DATE	DESCRIPTION	DRAWN	CHKD
C	18.05.15	DRAWING UPDATED TO INCORPORATE ARCHITECTS REVISED SITE PLAN, DRAINAGE STRATEGY GENERALLY UPDATED ACCORDINGLY.	ANS	MJW
B	23.05.14	AMENDED FOUL SEWER POSITION. AMENDED SURFACE WATER POSITION	SAC	RNL
A	04.09.13	AMENDED DRAIN POSITION NR BUILDING A AMENDED PROPOSED GROUND LEVELS	RNL	MJD

REVISIONS

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Project
AREA B1b
COLCHESTER GARRISON

Title
DRAINAGE EXCAVATION STRATEGY
2 OF 2

WSI FIGURE 6

Client
TAYLOR WIMPEY
EAST LONDON

Scale	Drawn	Date
1:250 @ A1	ANS	MAY 2015
Job Manager	Checked	Approved
M. WORTH	MJW	

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York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794 ☐
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☐
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070 ☐
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Drawing No. 44599/P/SK05
Revision C

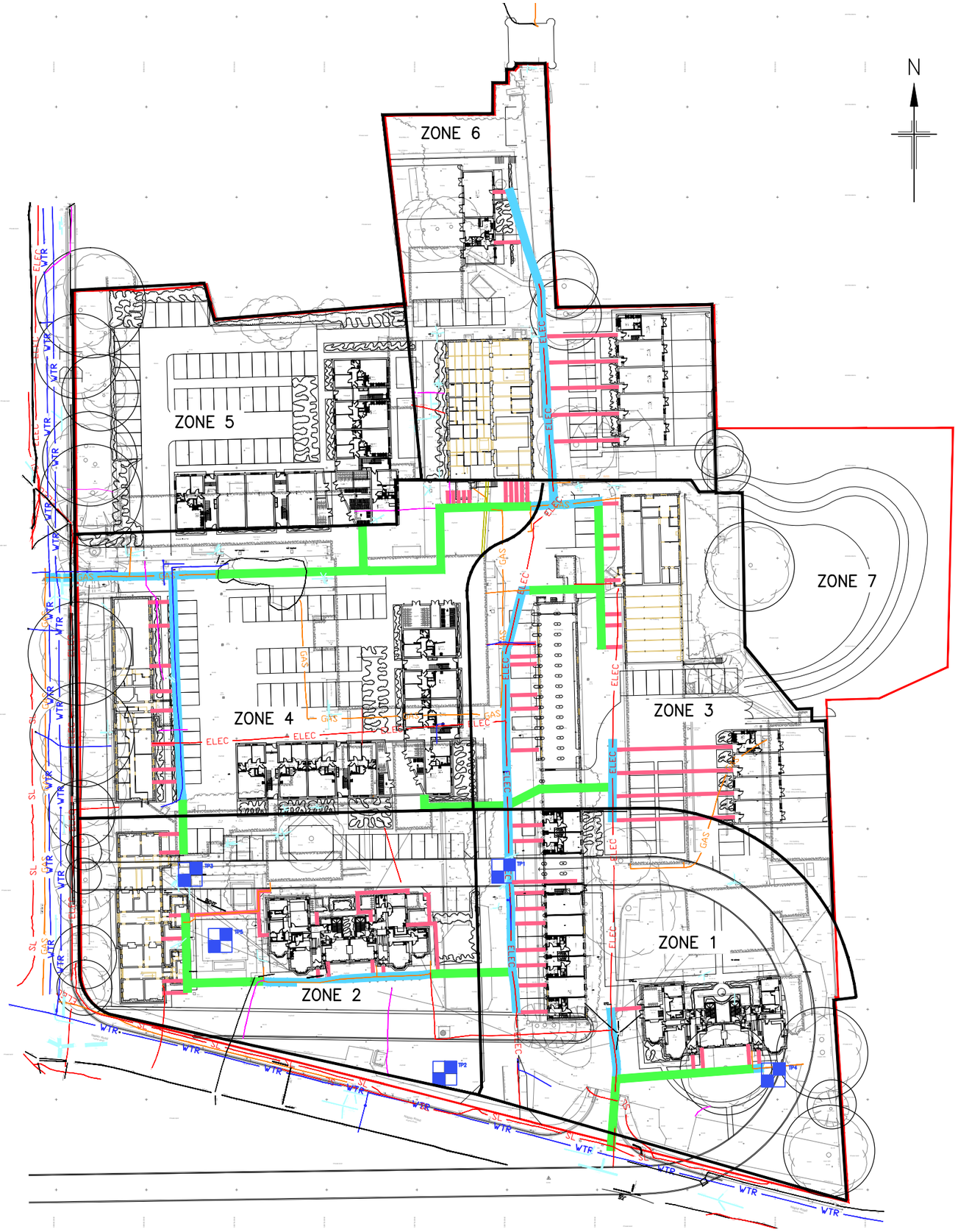
Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

FIGURE 7

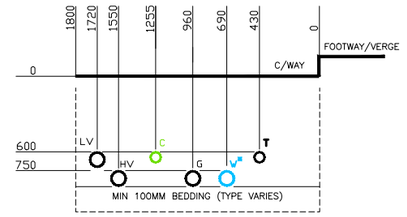
SERVICES TRENCHING STRATEGY

DO NOT SCALE

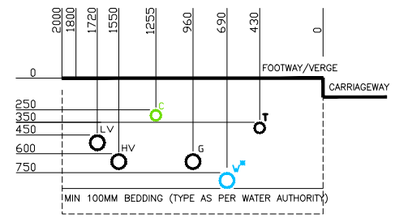


KEY

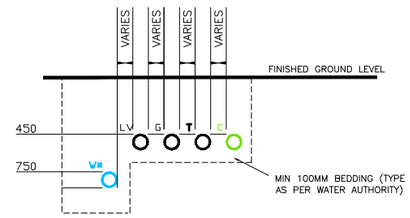
- EXISTING MAINS TRENCH (AS CUBE SURVEYS) TO BE WIDENED TO MIN 1.8M WIDE BY 975MM DEEP (COMBINED MAINS TRENCH). REFER TO NOTE 1
- NEW COMBINED MAINS TRENCH (WIDTH AND DEPTH AS ABOVE)
- NEW TRENCH FOR SERVICE PIPES, TUBES AND DUCTS (POSITION AND NUMBER DEPENDENT ON METER POSITION AND METER STRATEGY). REFER TO INDICATIVE TRENCH ARRANGEMENT DETAIL
- POSSIBILITY OF UNITS BEING SERVICED FROM MAINS IN FLAGSTAFF ROAD
- TP1 — SUGGESTED TRIAL PIT LOCATION
- ELEC — ALL SERVICES INDICATED AS SUCH (ELECTRIC SHOWN AS EXAMPLE) TO BE DISCONNECTED / REMOVED AS REQUIRED. ALL NEW SERVICES TO BE LAID IN TRENCHES INDICATED.



Recommended NJUG arrangement for mains to be laid in a beneath carriageway service strip, with the exception of water (see Notes 1–3)



Recommended NJUG arrangement for mains to be laid in a 1.8–2m wide footway or verge, with the exception of water (see Notes 1–3)



Indicative trench arrangement for service pipes, tubes and ducts. Horizontal positioning varies. Typical depths as shown

NOTES

1. THE COMBINED MAINS TRENCH DEPTH IS BASED ON THE LOWEST MAIN TO BE LAID IN THE TRENCH AS PER NJUG (WHICH IS WATER) AND AN INDICATIVE MAXIMUM WATER MAINS DIA OF 125MM (ACTUAL MAINS DIA TO BE CONFIRMED ON FORMAL APPLICATION).
2. PAUL LANCASTER FROM ANGLIAN WATER HAS ADVISED THAT THEY WOULD ALLOW A RELAXATION TO NJUG IN LIGHT OF THE PRESENCE OF ARCHEOLOGY. MAINS MAY BE LAID TO A FINISHED DEPTH OF 750MM COVER (IN THE PUBLIC HIGHWAY INCLUDING LAND TO BE ADOPTED OR DEVELOPED).
3. WATER MAINS TO HAVE A MINIMUM 100MM BEDDING TO THE BASE OF THE PIPE.
4. IF ROAD CROSSING DUCTS ARE TO BE INSTALLED TO ALLOW HIGHWAY WORKS TO PROGRESS IN ADVANCE OF UTILITIES INSTALLATION, NOTE THAT DUCTS WILL OF COURSE BE A LARGER DIA THAN THE PIPE.
5. BUILDING ENTRY POINTS FOR THE NEW BUILD FLATS MAY NEED TO BE DUCTED. TBC.
6. FOR SEWERAGE REFER TO DRAWINGS 44599/P/SK04–05

REV	DATE	DESCRIPTION	DRAWN	CHKD
B	19.05.15	UPDATED SITE LAYOUT AND SERVICE ROUTES.	MJW	AS
A	06.09.13	ADDED ARCHEOLOGICAL ZONES. AMENDED NEW TRENCH RUNS & KEY.	SN	RNL

REVISIONS

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Project
AREA B1B
COLCHESTER GARRISON

Title
SERVICES TRENCHING STRATEGY

WSI FIGURE 7

Client
TAYLOR WIMPEY EAST LONDON

Scale	Drawn	Date
1:500 @ A1	SC	AUGUST 13
Job Manager	Checked	Approved
RL	SN	RL

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2 Malvern House, Meridian Gate, 199 Marsh Wall, London E14 9YT Tel: 020 7448 9910
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794
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Drawing No.	Revision
44599/P/SK03	B

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

FIGURES 8-11

FOUNDATIONS DRAWINGS

DO NOT SCALE

FOR ENLARGED PLANS AND SECTIONS
REFER TO DRAWINGS 44599–S–02 TO 05

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5. All dimensions are in millimetres unless noted otherwise. All levels are in metres.
6. Items marked * are subject to confirmation.
7. All dimensions are given to structural surfaces unless noted otherwise.
8. Holes smaller than 225 x 225mm through slabs are not necessarily shown on the Engineers drawings.
9. For size and location of all services refer to the Service Engineers and Architects drawings.
10. All drawing specifications are given in accordance with NBS (National Building Specification) e.g. E10/130 which refers to NBS Section E10, Clause 130.
11. Abbreviations:
    S.S.L. – Structural Slab Level.
    U.N.O. – Unless Noted Otherwise
    T.O.C. – Top Of Concrete.
    E.G.L. – Existing Ground Level.

GROUND BEAM AND PILE GENERAL ARRANGEMENT FOR ALL AREA B1b PLOTS

SCALE 1:100

REV	DATE	DESCRIPTION	DRAWN	CHKD
P1	22.05.15	PILING PERCENTAGES ADDED	AS	
–	08.05.15	FOR INFORMATION ONLY	VM	

REVISIONS

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Project
AREA B1b
COLCHESTER GARRISON

Title
FOUNDATION PLANS SHEET 1 OF 4

WSI FIGURE 8

Client
TAXLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
See Drawing @ A1	M HOUSE	MAY 2015
Job Manager	Checked	Approved
M. WORTH		

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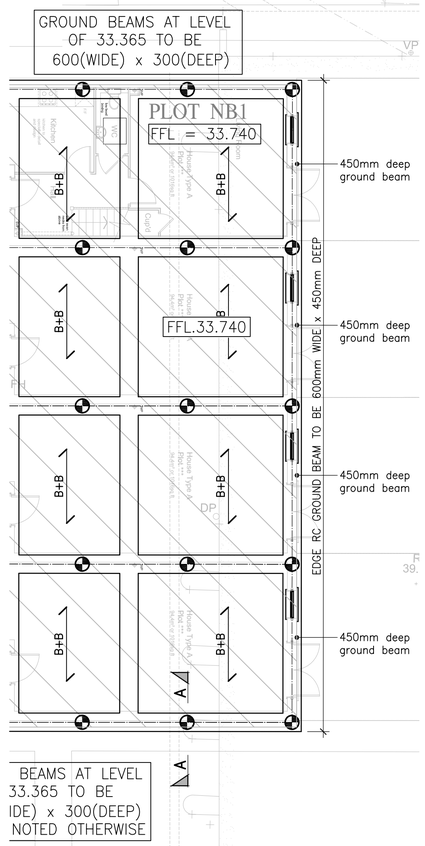
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No. 44599–S–001
Revision P1

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

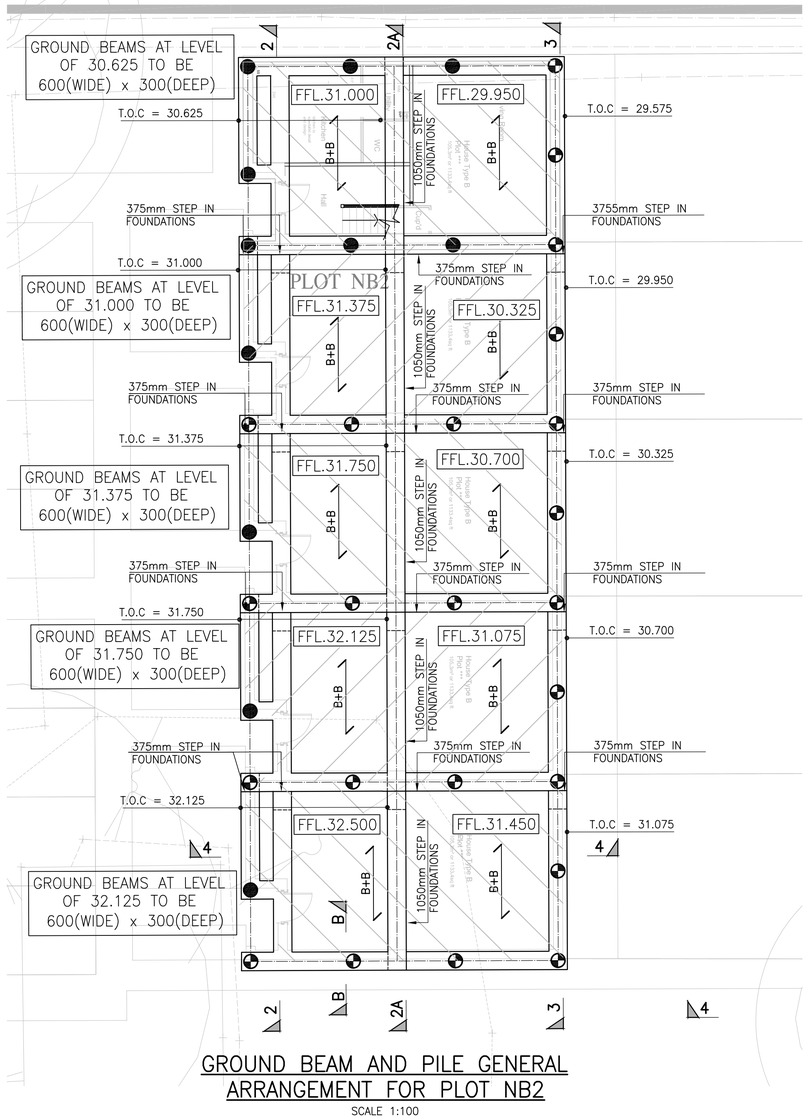
A1



BEAMS AT LEVEL
33.365 TO BE
IDE) x 300(DEEP)
NOTED OTHERWISE

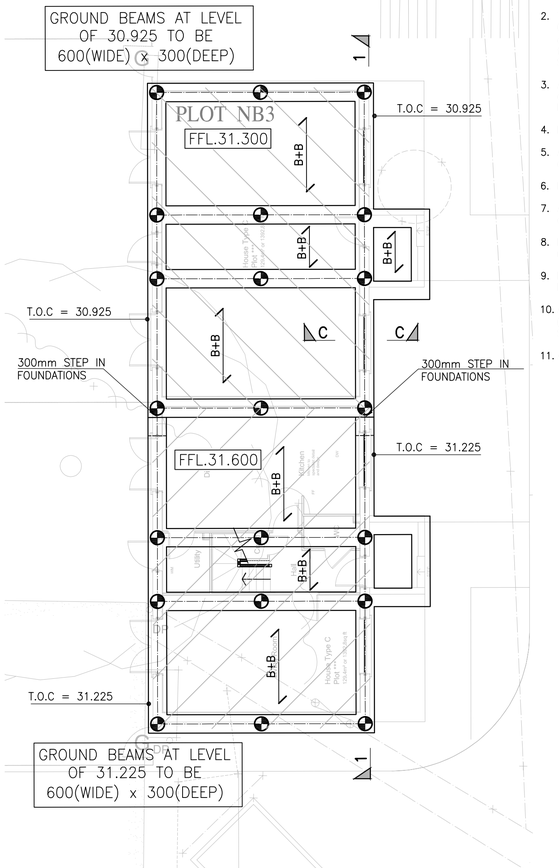
ND BEAM AND PILE GENERAL RANGEMENT FOR PLOT NB1

SCALE 1:100



GROUND BEAM AND PILE GENERAL ARRANGEMENT FOR PLOT NB2

SCALE 1:100



GROUND BEAM AND PILE GENERAL ARRANGEMENT FOR PLOT NB3

SCALE 1:100

FOR SECTIONS REFER TO DRAWINGS
44599-S-05

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5. All dimensions are in millimetres unless noted otherwise. All levels are in metres.
6. Items marked * are subject to confirmation.
7. All dimensions are given to structural surfaces unless noted otherwise.
8. Holes smaller than 225 x 225mm through slabs are not necessarily shown on the Engineers drawings.
9. For size and location of all services refer to the Service Engineers and Architects drawings.
10. All drawing specifications are given in accordance with NBS (National Building Specification) e.g. E10/130 which refers to NBS Section E10, Clause 130.
11. Abbreviations:
    S.S.L. – Structural Slab Level.
    U.N.O. – Unless Noted Otherwise
    T.O.C. – Top Of Concrete.
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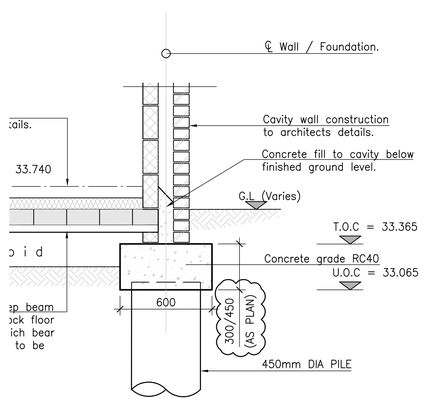
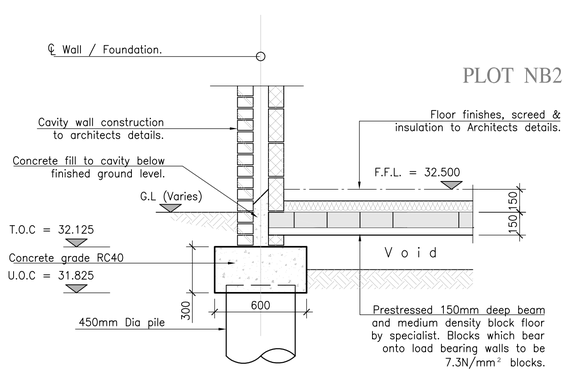


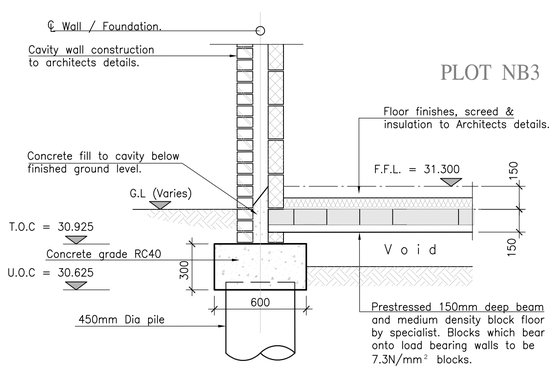
TYPICAL SECTION A–A

SCALE 1:20



TYPICAL SECTION B–B

SCALE 1:20



TYPICAL SECTION C–C

SCALE 1:20

REV	DATE	DESCRIPTION	DRAWN	CHKD
P1	26.05.15	NB1, NB2 AND NB3 FOUNDS AMENDED TO LEVELS/ ARCHITECT'S AMENDMENTS	VM	
–	08.05.15	FOR INFORMATION ONLY	VM	
A	06.09.13	AMENDED NOTE.	MH	RNL

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISON

Title
FOUNDATION PLANS SHEET 2 OF 4

WSI FIGURE 9

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
See Drawing @ A1	M HOUSE	MAY 2015
Job Manager	Checked	Approved
M. WORTH		

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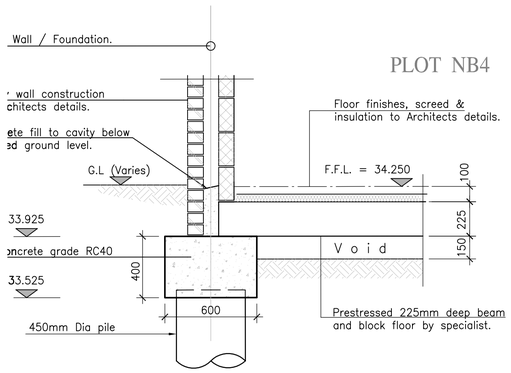
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240
The Wheelhouse, Bonds Mill, Stonehouses, Gloucestershire GL10 3RF Tel: 01172 020070
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

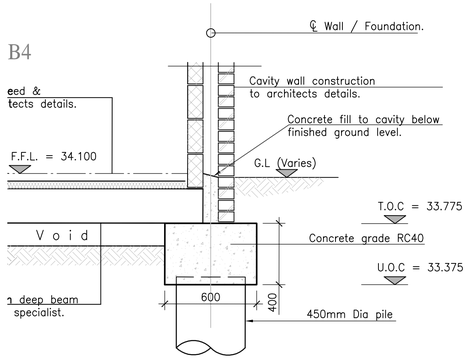
Drawing No. 44599-S-002
Revision P1

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED



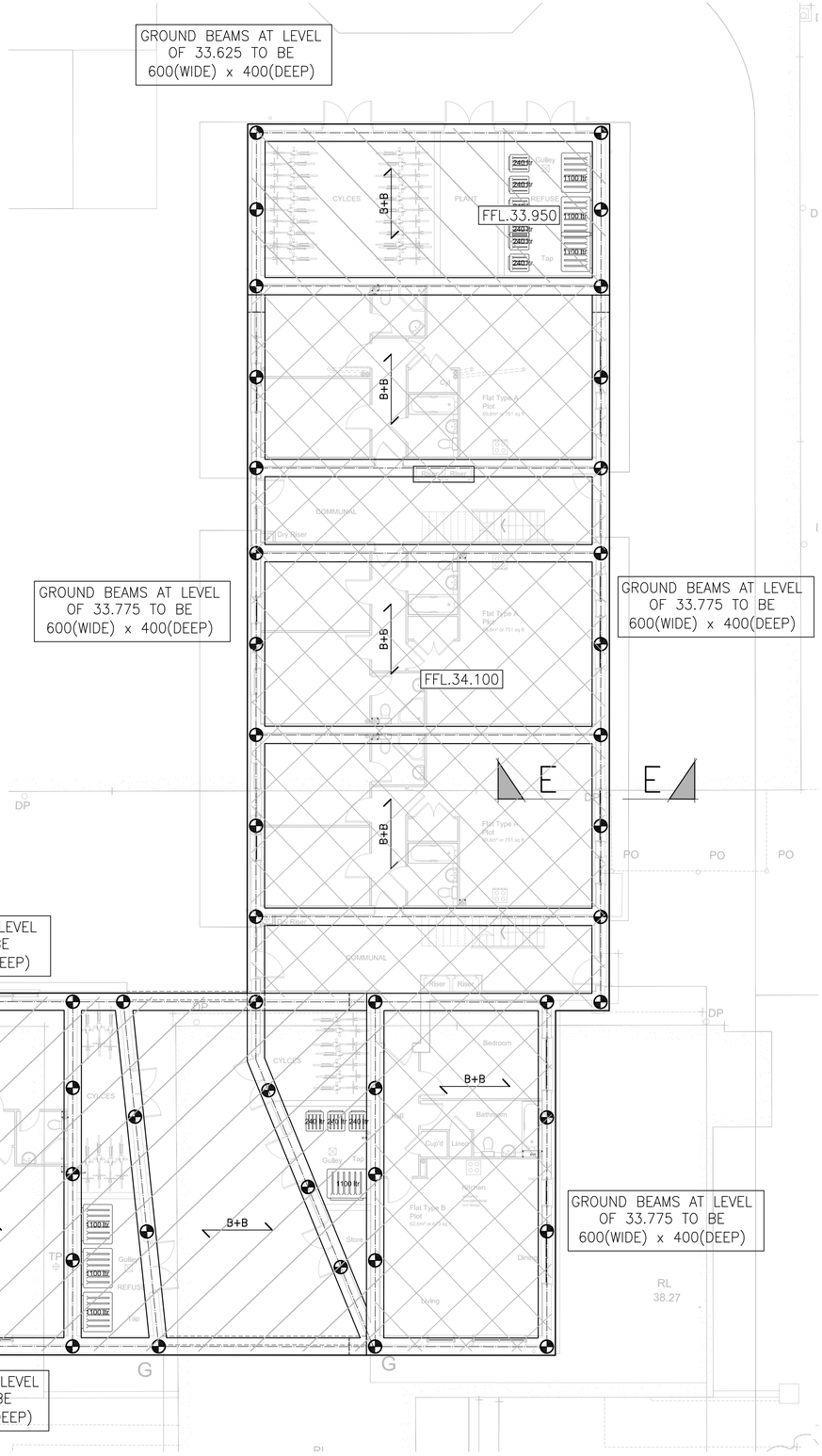
TYPICAL SECTION D–D

SCALE 1:20



TYPICAL SECTION E–E

SCALE 1:20



GROUND BEAM AND PILE GENERAL ARRANGEMENT FOR PLOT NB4

SCALE 1:100

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3. Any discrepancies between the information given by the Engineer, and that provided by others, must be referred to the Engineer before the affected works proceed.
4. Dimensions must not be scaled from the Engineers drawings.
5. All dimensions are in millimetres unless noted otherwise. All levels are in metres.
6. Items marked * are subject to confirmation.
7. All dimensions are given to structural surfaces unless noted otherwise.
8. Holes smaller than 225 x 225mm through slabs are not necessarily shown on the Engineers drawings.
9. For size and location of all services refer to the Service Engineers and Architects drawings.
10. All drawing specifications are given in accordance with NBS (National Building Specification) e.g. E10/130 which refers to NBS Section E10, Clause 130.
11. Abbreviations:
    S.S.L. – Structural Slab Level.
    U.N.O. – Unless Noted Otherwise
    T.O.C. – Top Of Concrete.
    E.G.L – Existing Ground Level.

REV	DATE	DESCRIPTION	DRAWN	CHKD
P1	26.05.15	SITE PLAN AMENDED	VM	
–	08.05.15	FOR INFORMATION ONLY	VM	
A	06.09.13	AMENDED NOTE.	MH	RNL

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISON

Title
FOUNDATION PLANS SHEET 3 OF 4

WSI FIGURE 10

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
See Drawing @ A1	M HOUSE	MAY 2015
Job Manager	Checked	Approved
M. WORTH		

richardjackson engineering consultants

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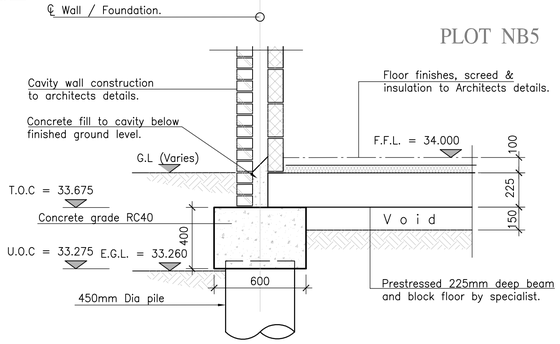
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794 ☐
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☒
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070 ☐
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No.	Revision
44599–S–003	P1

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

DO NOT SCALE

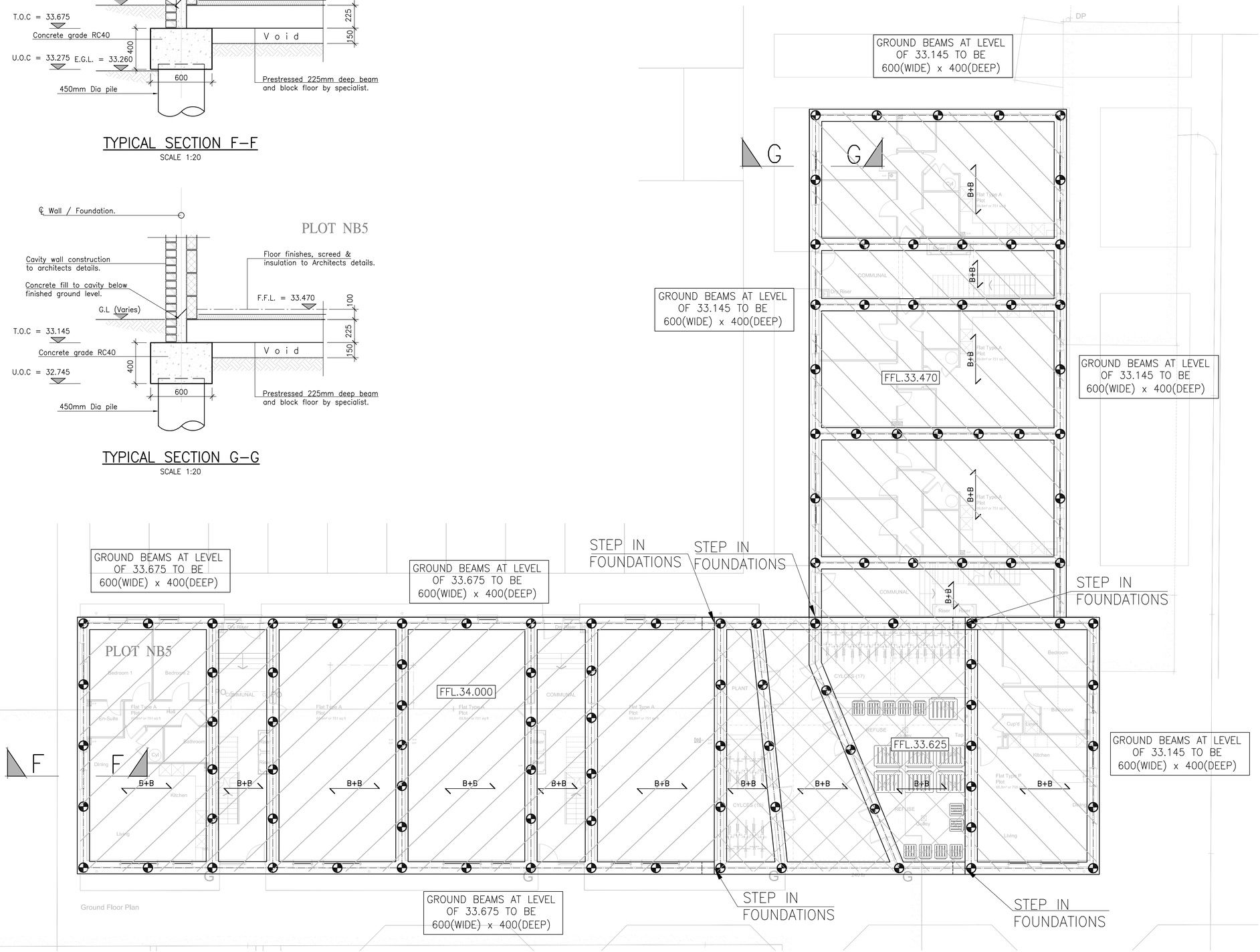


TYPICAL SECTION F–F

SCALE 1:20

TYPICAL SECTION G–G

SCALE 1:20



GROUND BEAM AND PILE GENERAL ARRANGEMENT FOR PLOT NB5

SCALE 1:100

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5. All dimensions are in millimetres unless noted otherwise. All levels are in metres.
6. Items marked * are subject to confirmation.
7. All dimensions are given to structural surfaces unless noted otherwise.
8. Holes smaller than 225 x 225mm through slabs are not necessarily shown on the Engineers drawings.
9. For size and location of all services refer to the Service Engineers and Architects drawings.
10. All drawing specifications are given in accordance with NBS (National Building Specification) e.g. E10/130 which refers to NBS Section E10, Clause 130.
11. Abbreviations:
    S.S.L. – Structural Slab Level.
    U.N.O. – Unless Noted Otherwise
    T.O.C. – Top Of Concrete.
    E.G.L – Existing Ground Level.

REV	DATE	DESCRIPTION	DRAWN	CHKD
P1	26.05.15	SITE PLAN AMENDED	VM	
–	08.05.15	FOR INFORMATION ONLY	VM	

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISON

Title
FOUNDATION PLANS SHEET 4 OF 4

WSI FIGURE 11

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
See Drawing @ A1	M HOUSE	MAY 2015
Job Manager	Checked	Approved
M. WORTH		

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6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☒
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070 ☐
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No.	Revision
44599–S–004	P1

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

FIGURES 12-17

RELATIONSHIP BETWEEN EXISTING GROUND LEVEL AND PROPOSED FORMATION LEVEL

DO NOT SCALE

N

LEVEL LEGEND

32.24	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050se, DATED 02.12.12.
31.43	DENOTES FORMATION LEVEL OF PROPOSED SURFACING.
−0.81	INDICATES MAXIMUM DIG INTO EXISTING GROUND TO FORMATION LEVEL OF PROPOSED SURFACING.
+0.15	INDICATES BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION.

LIGHT SHADED AREA DENOTES PROPOSED EXTENT OF PRE COMMENCEMENT DIG. ALL EXCAVATIONS WORKS ARE SUBJECT TO ARCHAEOLOGICAL MONITORING AS STATED WITHIN THE REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION AND WATCHING BRIEF, AREA B1B COLCHESTER GARRISON, PRODUCED BY RPS, REF. JLH0150.

TRENCH 3
10.0x1.8m
(18.0m²)

HATCHED ZONES INDICATE THUS DENOTES EXTENT OF INFILTRATION TECHNIQUES TO BE UTILISED SUCH AS PERMEABLE PAVING AND SOAKAWAYS. FURTHER GROUND INVESTIGATIVE WORKS IN THE FORM OF EXPLORATORY TRIAL PITS AND INFILTRATION TESTING ARE TO BE UNDERTAKEN IN STRICT ACCORDANCE WITH THE BRE DIGEST 365, TO DETERMINE THE SUITABILITY OF THE SUB SOIL FOR INFILTRATION DRAINAGE TECHNIQUES AS INDICATED.

LIGHT SHADED AREA DENOTES PROPOSED EXTENT OF PRE COMMENCEMENT DIG. ALL EXCAVATIONS WORKS ARE SUBJECT TO ARCHAEOLOGICAL MONITORING AS STATED WITHIN THE REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION AND WATCHING BRIEF, AREA B1B COLCHESTER GARRISON, PRODUCED BY RPS, REF. JLH0150.

Ex. C
(620.0m²)

FFL.31.300

FFL.31.600

FFL.33.470

FFL.34.000

FFL 33.625

GENERAL NOTES

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2. LAYOUT AND PROPOSED LEVELS BASED ON THE TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS, REF.12050se, DATED 02.12.12.

3. REFER TO RICHARD JACKSON LTD DRAWING NUMBERS 44599/S/001 – 004 FOR FOUNDATION GENERAL ARRANGEMENT.

44599/C/220	44599/C/221
44599/C/222	44599/C/223
445599/C/224	44599/C/225

SHEET LAYOUT
NTS

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA B1b
COLCHESTER GARRISON

Title
RELATIONSHIP BETWEEN EXISTING GROUND LEVEL AND PROPOSED FORMATION LEVEL
WSI FIGURE 12

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
1:200 @ A1	ANS	05/2015
Job Manager	Checked	Approved
M. WORTH		

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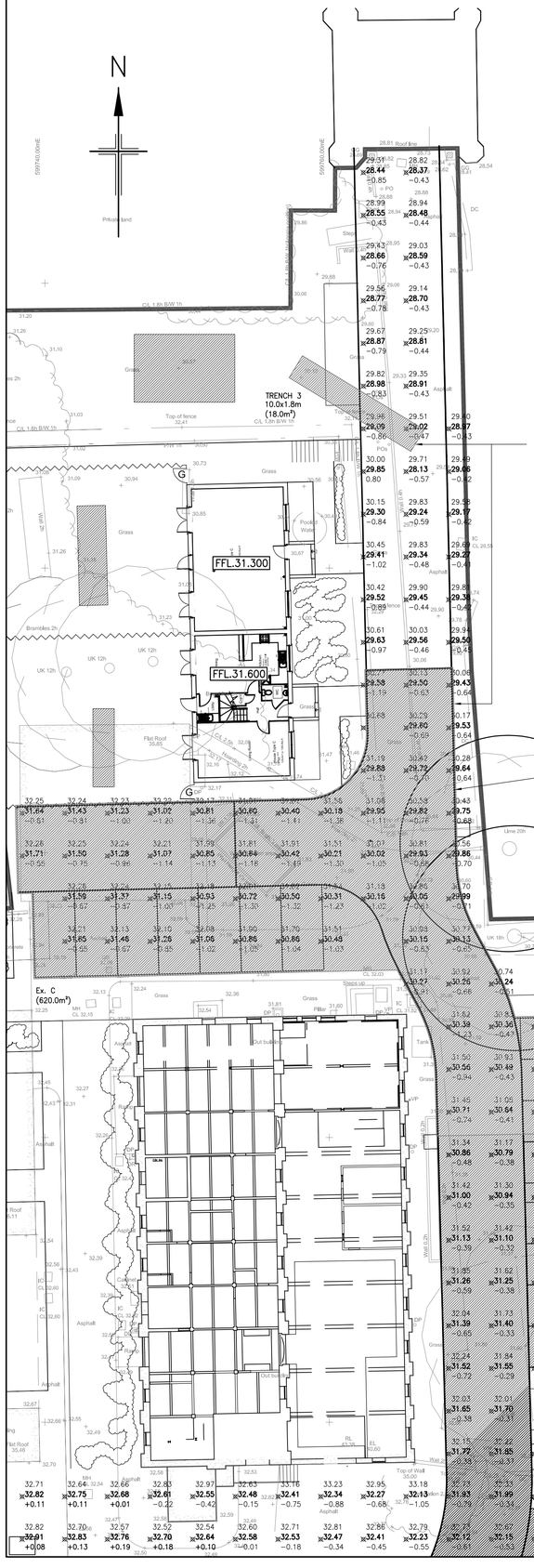
Suite 409, 1 Alie Street, London E1 8DE Tel: 020 7448 9910
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070
Email Address: mail@rjuk.com Web Site: http://www.richardjackson.uk.com

Drawing No. 44599/C/220

Revision

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1



DO NOT SCALE

LIGHT SHADED AREA DENOTES PROPOSED EXTENT OF PRE COMMENCEMENT DIG.
ALL EXCAVATIONS WORKS ARE SUBJECT TO ARCHAEOLOGICAL MONITORING AS STATED WITHIN THE REVISED WRITTEN SCHEME OF INVESTIGATION (WSI) FOR STAGES 2 & 3 ARCHAEOLOGICAL MITIGATION AND WATCHING BRIEF, AREA B1B COLCHESTER GARRISON, PRODUCED BY RPS, REF. JLH0150.

HATCHED ZONES INDICATE THUS DENOTES EXTENT OF INFILTRATION TECHNIQUES TO BE UTILISED SUCH AS PERMEABLE PAVING AND SOAKAWAYS.
FURTHER GROUND INVESTIGATIVE WORKS IN THE FORM OF EXPLORATORY TRIAL PITS AND INFILTRATION TESTING ARE TO BE UNDERTAKEN IN STRICT ACCORDANCE WITH THE BRE DIGEST 365, TO DETERMINE THE SUITABILITY OF THE SUB SOIL FOR INFILTRATION DRAINAGE TECHNIQUES AS INDICATED.

LEVEL LEGEND

32.24	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050se, DATED 02.12.12.
⊗**31.43**	DENOTES FORMATION LEVEL OF PROPOSED SURFACING.
−0.81	INDICATES MAXIMUM DIG INTO EXISTING GROUND TO FORMATION LEVEL OF PROPOSED SURFACING.
+0.15	INDICATES BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION.

GENERAL NOTES

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SHEET LAYOUT

NTS

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

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Project

AREA Blb
COLCHESTER GARRISON

Title

RELATIONSHIP BETWEEN EXISTING
GROUND LEVEL AND PROPOSED
FORMATION LEVEL
WSI FIGURE 13

Client

TAYLOR WIMPEY LTD
(EAST LONDON)

Scale 1:200 @ A1	Drawn ANS	Date 05/2015
Job Manager M. WORTH	Checked	Approved

richardjackson
engineering consultants

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Suite 409, 1 Alie Street, London E1 8DE Tel: 020 7448 9910 ☐
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6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☐
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070 ☐
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

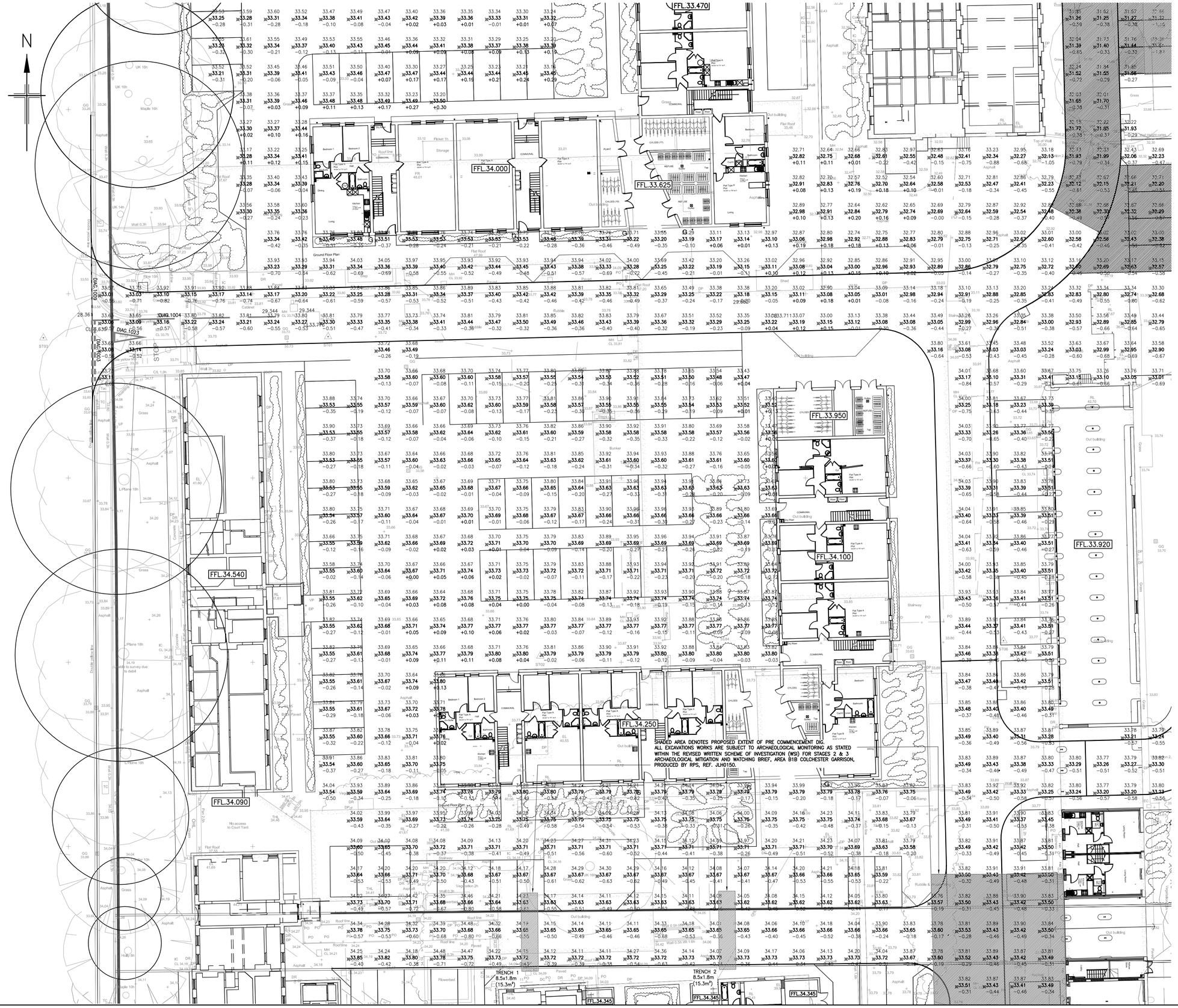
Drawing No.
44599/C/221

Revision

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

DO NOT SCALE



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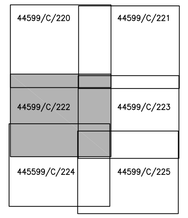
2. LAYOUT AND PROPOSED LEVELS BASED ON THE TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS, REF.12050se, DATED 02.12.12.

3. REFER TO RICHARD JACKSON LTD DRAWING NUMBERS 44599/S/001 – 004 FOR FOUNDATION GENERAL ARRANGEMENT.

LEVEL LEGEND

32.24	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050se, DATED 02.12.12.
31.43	DENOTES FORMATION LEVEL OF PROPOSED SURFACING.
–0.81	INDICATES MAXIMUM DIG INTO EXISTING GROUND TO FORMATION LEVEL OF PROPOSED SURFACING.
+0.15	INDICATES BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION.



SHEET LAYOUT
NTS

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

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Project
AREA BIb
COLCHESTER GARRISON

Title
RELATIONSHIP BETWEEN EXISTING GROUND LEVEL AND PROPOSED FORMATION LEVEL
WSI FIGURE 14

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
1:200 @ A1	ANS	05/2015
Job Manager	Checked	Approved
M. WORTH		

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6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☐
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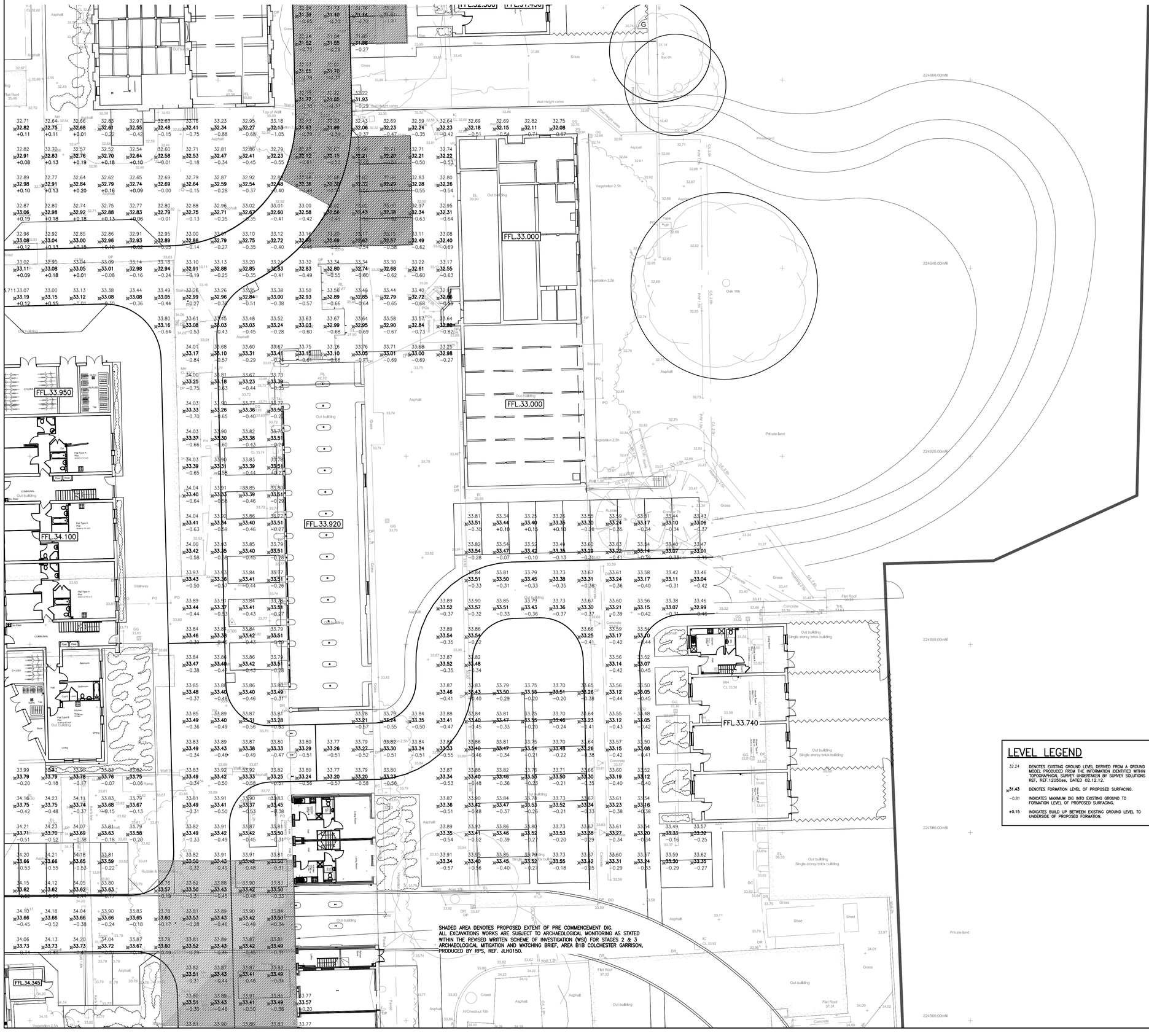
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No. 44599/C/222 | Revision

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

DO NOT SCALE



SHADED AREA DENOTES PROPOSED EXTENT OF PRE COMMENCEMENT DIG.
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LEVEL LEGEND

32.24	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050se, DATED 02.12.12.
31.43	DENOTES FORMATION LEVEL OF PROPOSED SURFACING.
−0.81	INDICATES MAXIMUM DIG INTO EXISTING GROUND TO FORMATION LEVEL OF PROPOSED SURFACING.
+0.15	INDICATES BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION.

GENERAL NOTES

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3. REFER TO RICHARD JACKSON LTD DRAWING NUMBERS 44599/S/001 – 004 FOR FOUNDATION GENERAL ARRANGEMENT.

N

44599/C/220		44599/C/221
44599/C/222		44599/C/223
445599/C/224		44599/C/225

SHEET LAYOUT
NTS

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

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Project
AREA BIb
COLCHESTER GARRISON

Title
RELATIONSHIP BETWEEN EXISTING GROUND LEVEL AND PROPOSED FORMATION LEVEL
WSI FIGURE 15

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
1:200 @ A1	ANS	05/2015
Job Manager	Checked	Approved
M. WORTH		

richardjackson engineering consultants

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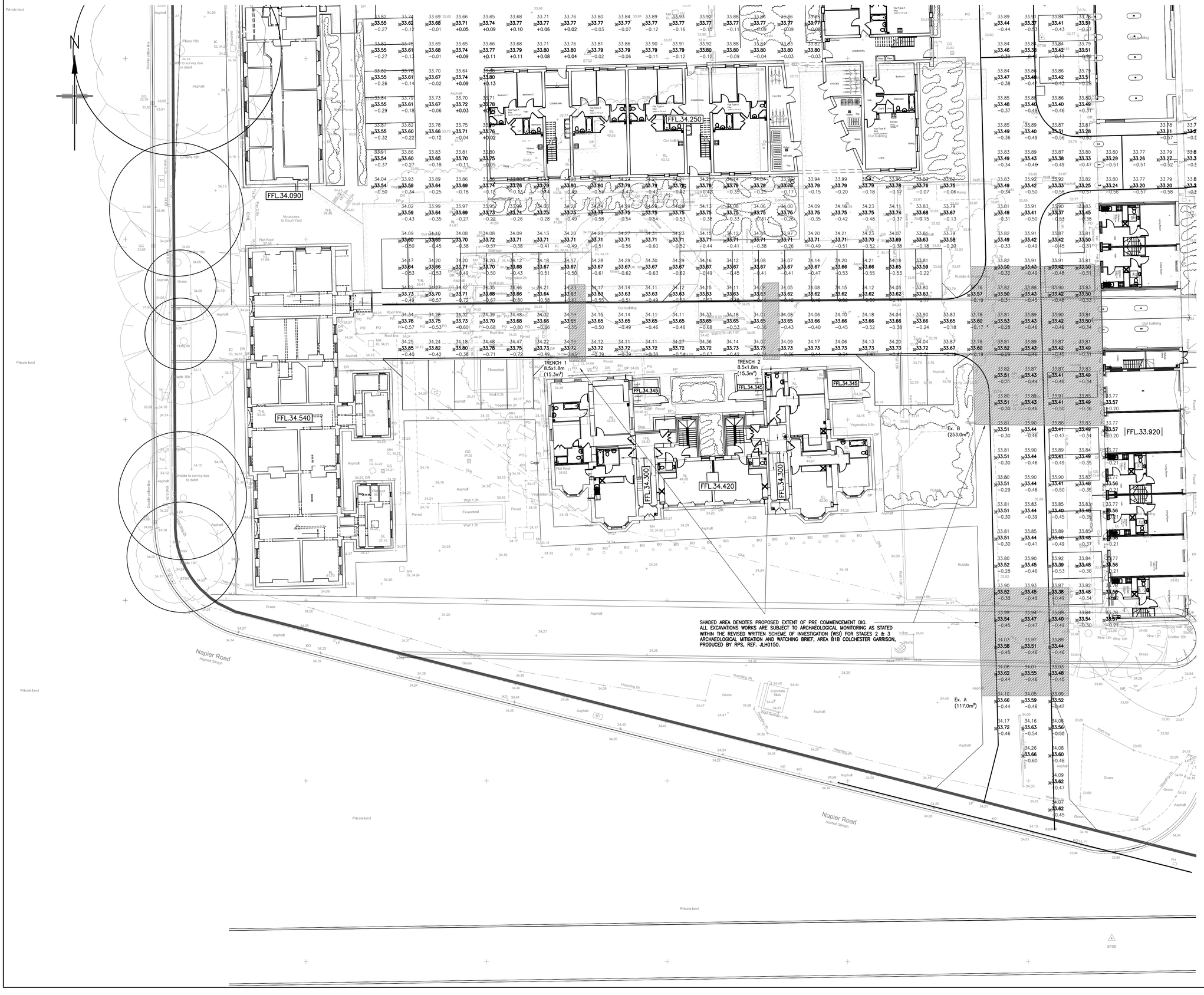
Suite 409, 1 Ale Street, London E1 8DE Tel: 020 7448 9910 ☐
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794 ☐
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☐
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070 ☐
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No. 44599/C/223 Revision

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

DO NOT SCALE



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2. LAYOUT AND PROPOSED LEVELS BASED ON THE TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS, REF.12050se, DATED 02.12.12.

3. REFER TO RICHARD JACKSON LTD DRAWING NUMBERS 44599/S/001 – 004 FOR FOUNDATION GENERAL ARRANGEMENT.

LEVEL LEGEND

32.24	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF, REF.12050se, DATED 02.12.12.
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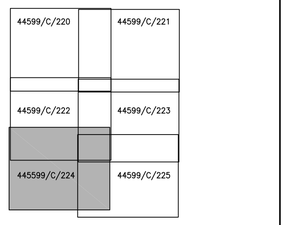
-0.81	INDICATES MAXIMUM DIG INTO EXISTING GROUND TO FORMATION LEVEL OF PROPOSED SURFACING.
+0.15	INDICATES BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION.



SHEET LAYOUT
NTS

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

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Project
AREA B1b
COLCHESTER GARRISON

Title
RELATIONSHIP BETWEEN EXISTING GROUND LEVEL AND PROPOSED FORMATION LEVEL
WSI FIGURE 16

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
1:200 @ A1	ANS	05/2015
Job Manager	Checked	Approved
M. WORTH		

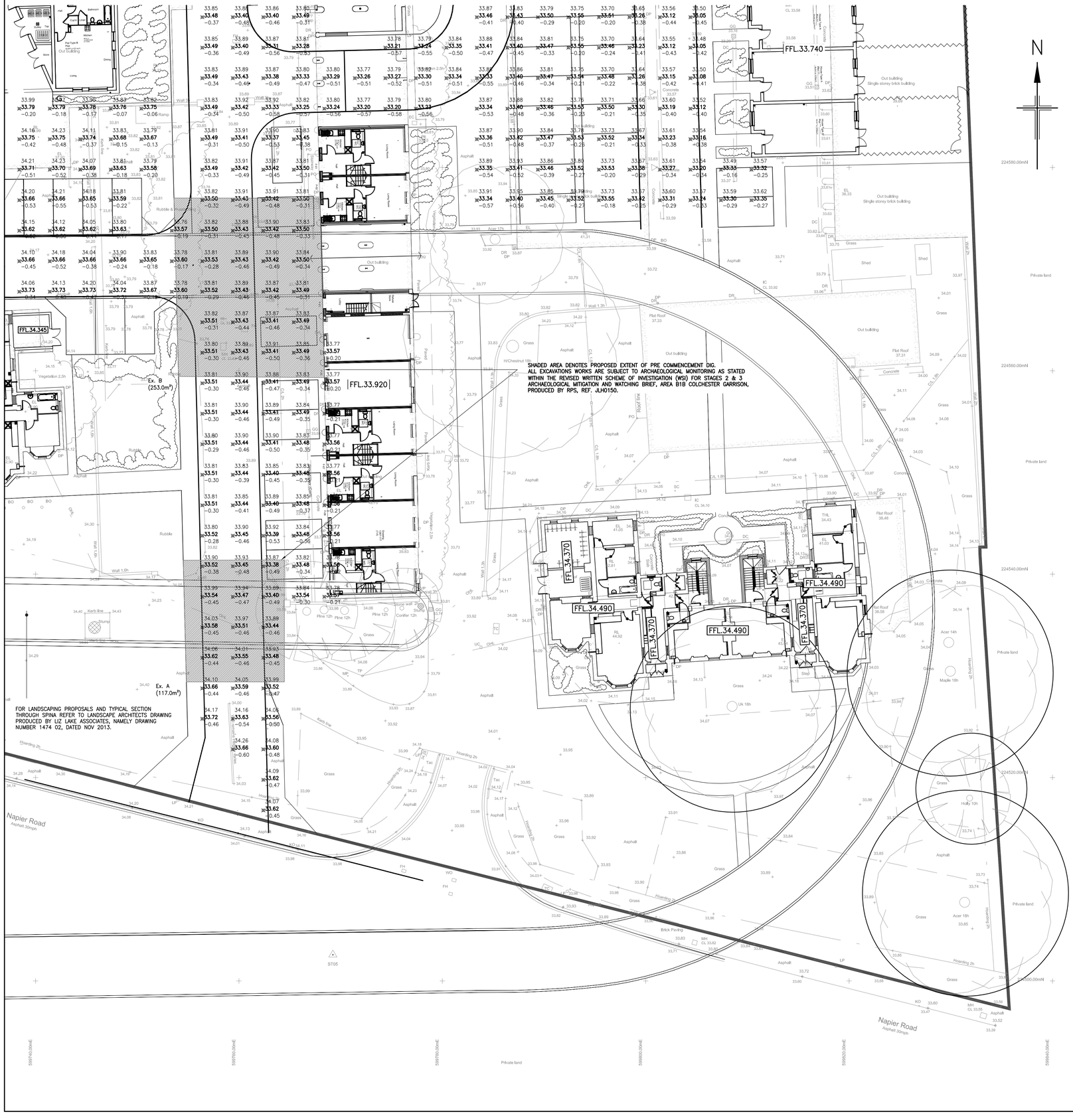
richardjackson engineering consultants
26 High Street, Hadleigh, Ipswich, Suffolk IP7 5AP Tel: 01473 825300 ☒
Suite 409, 1 Ale Street, London E1 8DE Tel: 020 7448 9910 ☐
York House, 3 Station Court, Station Rd, Great Shelford, Cambs CB22 5NE Tel: 01223 314794 ☐
6 The Old Church, St. Matthews Road, Norwich, Norfolk NR1 1SP Tel: 01603 230240 ☐
The Wheelhouse, Bonds Mill, Stonehouse, Gloucestershire GL10 3RF Tel: 01172 020070 ☐
Email Address: mail@rj.uk.com Web Site: http://www.richardjackson.uk.com

Drawing No. 44599/C/224 | Revision

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1

DO NOT SCALE



N

GENERAL NOTES

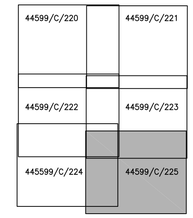
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELATED RICHARD JACKSON LTD, ARCHITECTS & SUB-CONTRACTORS DRAWINGS. IN THE CASE OF DISCREPANCIES BETWEEN DRAWINGS REFER TO RJLTD FOR CLARIFICATION.

2. LAYOUT AND PROPOSED LEVELS BASED ON THE TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS, REF.12050se, DATED 02.12.12.

3. REFER TO RICHARD JACKSON LTD DRAWING NUMBERS 44599/S/001 – 004 FOR FOUNDATION GENERAL ARRANGEMENT.

LEVEL LEGEND

32.24	DENOTES EXISTING GROUND LEVEL DERIVED FROM A GROUND MODEL PRODUCED FROM THE INFORMATION IDENTIFIED WITHIN TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY SOLUTIONS REF. REF.12050se, DATED 02.12.12.
31.43	DENOTES FORMATION LEVEL OF PROPOSED SURFACING.
−0.81	INDICATES MAXIMUM DIG INTO EXISTING GROUND TO FORMATION LEVEL OF PROPOSED SURFACING.
+0.15	INDICATES BUILD UP BETWEEN EXISTING GROUND LEVEL TO UNDERSIDE OF PROPOSED FORMATION.



SHEET LAYOUT
NTS

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
AREA BIb
COLCHESTER GARRISON

Title
RELATIONSHIP BETWEEN EXISTING GROUND LEVEL AND PROPOSED FORMATION LEVEL
WSI FIGURE 17

Client
TAYLOR WIMPEY LTD
(EAST LONDON)

Scale	Drawn	Date
1:200 @ A1	ANS	05/2015
Job Manager	Checked	Approved
M. WORTH		

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Drawing No.	Revision
44599/C/225	

Drawing Status
☒ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED

A1