Thameside West

Environmental Statement Letter of Conformity

June 2020

PREAMBLE

Silvertown Homes Limited (SHL) and Greater London Authority Land and Property (GLAP) have submitted a hybrid planning application to the London Borough of Newham (LBN) for the redevelopment of the Thameside West site, accessed off Dock Road in Newham (the Site).

SHL is a property development company and joint land owners of the Site. SHL has over 65 years combined experience at delivering high quality regeneration projects across London. GLAP is a subsidiary corporation of the Greater London Authority (GLA) and took over assets and liabilities from the London Development Agency (LDA) in 2012. GLAP is primarily focused on delivering genuinely affordable homes and jobs for London.

The proposal is to construct a new high-quality residential-led mixed-use development comprising new homes, new industrial floorspace, a new local centre, a new primary school and nursery school, new community facilities, a new public park (with associated outdoor play facilities), enhanced SINC and over 800m of new riverside walk along the River Thames with ecological / biodiversity enhancements. This development has been designed to focus its community hub around the delivery of a new Dockland Light Rail (DLR) station that is proposed to be constructed on the Site by Transport for London's (TfL) in 2023.

The proposals have been designed by Foster & Partners, John McAslan & Partners, Patel Taylor and the wider project team (listed, right) taking into account comments provided by local residents during summer and public exhibition events and comments provided during pre-application discussions with a variety of statutory and non-statutory interests, including LBN and its Design Review Panel (DRP), the Greater London Authority (GLA), Transport for London (TfL), Environment Agency (EA), Port of London Authority (PLA) and London City Airport (LCA).

This document is one of a suite of planning application documents submitted to LBN, including an Environmental Statement. The planning application is available to review at LBN's office or using LBN's online services:

Search for planning application reference number 18/03557/OUT at: https://pa.newham.gov.uk/online-applications/search.do?action=simple

The planning application can also be viewed on the GLA's website at: https://www.london.gov.uk/what-we-do/planning/planning-applications-and-decisions/public-hearings

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BURO HAPPOLD

18 June 2020

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For the attention of Martin Jones

RE: UPDATE TO THE AFFORDABLE HOUSING DWELLING MIX - LETTER OF CONFORMITY FOR THE MAY 2020 ENVIRONMENTAL STATEMENT ADDENDUM
HYBRID PLANNING APPLICATION FOR LAND AT THAMESIDE WEST, DOCK ROAD, LONDON, E16 (PLANNING APPLICATION REFERENCE 18/03557/OUT)
GLA REFERENCE: 4039c

Dear Mr Jones

We write with respect to the above hybrid planning application submitted to the London Brough of Newham (LBN) on 13th December 2018 by Silvertown Homes Ltd (SHL) and Greater London Authority Land and Property Ltd (GLAP) (the "Applicants") in respect of the phased redevelopment of Thameside West, London E16 (the "Site").

As you are aware, the Greater London Authority (GLA) is now the determining authority for the application. After further discussions with the GLA, an addendum to the application (and associated environmental statement) was submitted to the GLA on 15th May 2020.

This letter is to address the recent (June 2020) changes to the affordable housing dwelling mix proposed by the applicant. Appendix A to this letter shows the updated dwelling mix by phase and by block for the proposed development. A summary table of the updated proposed dwelling mix is included below.

Unit Type	Submitted (May 2020)	Proposed	Difference
Studio	56	0	- 56
1 Bed	283	241	- 42
2 Bed	701	755	+ 54
3 Bed	522	666	+ 144
4 Bed	138	38	- 100

The Environmental Statement (ES) Addendum (May 2020) has been reviewed in regard to the proposed changes and as such, two chapters/assessments from the ES have been reviewed accordingly. These are:

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- Chapter 10: Waste Management and;
- Chapter 14: Population and Human Health

Waste Management

Chapter 10 of the ES Addendum provided an updated assessment for waste management in light of the proposed development amendments in May 2020.

Referring to Appendix A to this letter, operational waste generation quantities have been re-estimated in order to align with the updated affordable housing dwelling mix. This has resulted in the following changes (chapter references correlate to those within the May 2020 ES addendum chapter):

Operational Effects

- 10.5.15: It is anticipated that 603 tonnes of recyclables and 3,158 tonnes of residual (and organic) waste will be generated from the operational elements of the masterplan in the 2025 slice year. This is in comparison to the 598 tonnes of recyclables and 3,125 tonnes of residual (and organic) waste in the May 2020 ES Addendum. The updated quantities differ only very slightly from those in the May 2020 ES Addendum and will have a negligible impact on municipal solid waste (MSW) generation in the Borough (the effect remains unchanged).

- 10.5.17: It is anticipated that 983 tonnes of recyclables and 5,187 tonnes of residual (and organic) waste will be generated from the operational elements of the masterplan in the 2028 slice year. This is in comparison to the 983 tonnes of recyclables and 5,182 tonnes of residual (and organic) waste in the May 2020 ES Addendum. These quantities differ only very slightly from those in the May 2020 ES Addendum and will have a negligible impact on MSW generation in the Borough (the effect remains unchanged).

- 10.5.21: In the future baseline year (2031), it is anticipated that the proposed development will generate a total of 9,719 tonnes of MSW, of which 7,962 tonnes will be residual waste and organic waste. This compares to 9,692 tonnes of MSW in the May 2020 ES Addendum, 7,939 tonnes of which was residual and organic waste.

- 10.5.22: As in the May 2020 ES Addendum, this represents only a small proportion of the 211,573 tonnes of residual waste that the London Plan (2016) forecasts will be generated in the London Borough of Newham (LBN) in the future baseline year. For the future baseline year, this represents an increase of less than 5%. The magnitude of change/impact is therefore considered to be negligible.

- 10.5.25: It is estimated that the proposed development will generate a total of 1,757 tonnes of recyclables in the future baseline year. This compares to 1,753 tonnes of recyclables in the May 2020 ES Addendum. This represents less than 5% of the 35,427 tonnes of recyclables that the London Plan (2016) predicts will be generated in LBN in the future baseline year. As in the May 2020 ES Addendum, the magnitude of change/impact is considered to be negligible.

The conclusions from the May 2020 ES Addendum remain unchanged. When the magnitude of change/impact is combined with receptor sensitivity, there will be negligible operational effects relating to the generation and management of MSW.

The Operational Waste Management Strategy (Appendix 10-A of the May 2020 ES addendum) has been updated and will supersede the previously submitted version. Specifically, Section 6 Waste Generation and Storage (Outline Component) has been updated to align with the amended affordable housing dwelling mix.

Population and Human Health

Chapter 14 of the ES Addendum provided an updated assessment for population and human health in light of the proposed development amendments in May 2020.

Referring to Appendix A to this letter, the updated affordable housing dwelling mix has resulted in an update of operational effects section and calculations, in relation to Early Years Childcare Provision, Primary Education and Secondary Education.

Operational Effects

Early Years Childcare Provision

Table 14-11 of the May 2020 ES Addendum identified that the proposed development would yield between 690 and 830 early years children according to the Wandsworth Population Yield Calculator and 1,207 early years children according to the GLA Population Calculator.

Table 1 (below) replicates Table 14-11 of the May 2020 ES Addendum but updating the analysis to reflect the yields arising from each method using the updated affordable housing dwelling mix.

Table 1 Yield of Early Years children (aged 0-4 years)

Phase	Number of units	Wandsworth Calculator		GLA Calculator
		Initial	Over-time	
1	401	51	63	82
2	473	117	140	213
3	471	27	44	44
4	320	19	30	30
5	361	59	75	107
6	412	54	71	107
7	524	61	74	121
8	542	32	51	50
9	498	99	119	186
10	575	74	94	132
11	423	105	120	176
Total	**5000**	**698**	**881**	**1248**

Source: Wandsworth Population Yield Calculator and GLA Population Yield Calculator

Re-assessing early years child yield to take account of the updated affordable housing dwelling mix increases the initial early years child yield from the Wandsworth model from 690 to 698 children and the over-time early years child yield from 830 to 881 children. Early years child yield from the GLA calculator increases from 1,207 to 1,248. The increase in child yield is as a result of the increase in larger, affordable housing units provided by the proposed development.

Baseline conditions presented in the May 2020 ES Addendum identified that there are approximately 600 places for under-fives in the Study Area which would not meet the demand arising from the proposed development set out in Table 1. The proposed development is providing a nursery which will provide a further 104 pre-school places. Therefore, the existing early years provision in combination with the proposed development's nursery, would continue to meet the demand arising from the proposed development based on the updated yields from the Wandsworth Calculator but continues not to meet the demand based on the updated yields from the GLA Population Calculator.

Nonetheless, given that early years education can be provided in a number of ways including at local authority maintained nursery schools, children's centres or primary schools with nursery classes, or privately through independent nursery schools, playgroups, child-minders or creches it is considered that the effect of the proposed development on early years education will remain negligible for which mitigation is not required. This conclusion remains unchanged from the May 2020 ES Addendum.

Primary Education

Table 14-12 of the May 2020 ES Addendum identified that the proposed development would yield between 402 and 457 primary aged children according to the Wandsworth Population Yield Calculator; 956 primary aged children according to the GLA Population Calculator; and 860 primary aged children through application of the LBN Multipliers.

Table 2 (below) replicates Table 14-12 of the May 2020 ES Addendum but updating the analysis to reflect the primary child yields arising from each method using the updated affordable housing dwelling mix.

Table 2 Yield of primary aged children (aged 5-10 years)

Phase	Number of units	Wandsworth Calculator		GLA Calculator	LBN Multipliers
		Initial	Over-time		
1	401	23	26	59	69
2	473	67	67	164	81
3	471	12	16	29	81
4	320	8	11	20	55
5	361	32	35	83	62
6	412	29	33	90	71
7	524	47	37	104	90
8	542	13	18	33	93
9	498	60	58	152	86
10	575	47	45	104	99
11	423	54	54	132	73
Total	**5000**	**392**	**400**	**970**	**860**

Source: Wandsworth Population Yield Calculator, GLA Population Yield Calculator and LBN Multipliers

Re-assessing primary aged child yield to take account of the updated affordable housing dwelling mix reduces the initial primary aged child yield from the Wandsworth model from 457 to 392 children and the over-time primary aged child yield from 402 to 400 children. Primary aged child yield from the GLA calculator increases from 956 to 970. Primary aged child yield using the LBN multipliers remains unchanged.

Baseline conditions presented in the May 2020 ES Addendum identified that there are approximately 165 primary school places available currently in the CTCH PSPA with forecasts indicating that the number of available places within the CTCH PSPA will decrease to a deficit of 129 primary places by 2023/24. Therefore, the number of places available in the existing provision continues to remain insufficient to accommodate the updated demand for primary school places arising from the proposed development.

However, given that the proposed development will be providing a 4 FE primary school, this will provide a further 840 primary school places in the local area assuming 1 FE is equivalent to 210 places. This will continue meet the additional need for primary school places according to the Wandsworth model but continues to fall short of meeting the additional need according to the LBN multipliers and the GLA Population Yield Calculator. As a result, the proposed development continues to have a minor adverse effect on primary education which will require mitigation. This conclusion remains unchanged from the May 2020 ES Addendum.

Whilst the proposed 4FE primary school will meet a large proportion of the need for additional primary school places arising from the proposed development, further mitigation in the form of a financial contribution will be required to mitigate the shortfall in primary school places. The May 2020 ES Addendum identified the shortfall as 20 places based on the LBN multipliers and 116 places based on the GLA Population Yield Calculator. Taking account of the updated affordable housing dwelling mix, the shortfall remains 20 places based on the LBN multipliers but increases to 130 places based on the GLA Population Yield Calculator.

After financial contributions have been made to address the shortfall in primary school places, the residual effect of the proposed development on primary education will be negligible. This conclusion remains unchanged from the May 2020 ES Addendum.

Secondary Education

Table 14-13 of the May 2020 ES Addendum identified that the proposed development would yield between 207 and 440 secondary aged children according to the Wandsworth Population Yield Calculator; 480 secondary aged children according to the GLA Population Calculator; and 450 secondary aged children through application of the LBN Multipliers.

Table 3 (below) replicates Table 14-13 of the May 2020 ES Addendum but updating the analysis to reflect the secondary child yields arising from each method using the updated affordable housing dwelling mix.

Table 3 Yield of secondary aged children (aged 11-15 years)

Phase	Number of units	Wandsworth Calculator		GLA Calculator	LBN Multipliers
		Initial	Over-time		
1	401	9	25	22	36
2	473	28	83	76	43
3	471	3	6	7	43
4	320	2	4	5	29
5	361	13	37	39	32
6	412	11	29	52	37
7	524	22	41	62	47
8	542	4	7	8	49
9	498	26	66	82	27
10	575	20	45	51	52
11	423	23	68	57	56
Total	**5000**	**161**	**411**	**461**	**450**

Source: Wandsworth Population Yield Calculator, GLA Population Yield Calculator and LBN Multipliers

Re-assessing secondary aged child yield to take account of the updated affordable housing dwelling mix reduces the initial secondary aged child yield from the Wandsworth model from 207 to 161 children and the over-time primary aged child yield from 440 to 411 children. Secondary aged child yield from the GLA calculator reduces from 480 to 461. Secondary aged child yield using the LBN multipliers remains unchanged.

Baseline conditions presented in the May 2020 ES Addendum identified that there that there are approximately 1,666 secondary school places available currently in the Canning Town and Custom House Primary School Planning Area which is in excess of the demand for secondary school places arising from the proposed development. However, DfE forecasts indicate that the surplus of secondary places will turn to a deficit of 390 places by 2025/26. Despite the updated affordable housing dwelling mix reducing the yield of secondary school aged children, the forecast number of secondary places available in 2025/26 remains insufficient to accommodate the updated demand for additional

secondary school places arising from the proposed development and therefore the effect on secondary education remains minor adverse for which mitigation is required.

The 2018 ES and subsequent addenda (May 2019, June 2019 and May 2020) identified that mitigation through the form a financial contribution was required to mitigate against the adverse effect on secondary education. The requirement for this form of mitigation remains appropriate, based on the updated affordable housing mix. After financial contributions have been made, the residual effect on secondary education will be negligible. This conclusion remains unchanged from the from the 2018 ES and subsequent addenda.

Conclusion

In summary, the significance of the effects and conclusions remain unchanged for both chapters in the May 2020 ES addendum. This letter of conformity concludes that the proposed amendments to the affordable housing dwelling mix (June 2020) do not change any of the environmental effects or conclusions previously identified within the May 2020 ES addendum.

Yours sincerely
on behalf of Buro Happold Limited

HClement

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Appendices

- Appendix A – Updated Affordable Housing Dwelling Mix (June 2020)

APPENDIX A

Development Phase	Studio	1 Bed	2 Bed	3 Bed	4 Bed	TOTALS
Phase 1 – Private	1	80	85	36	4	206
Phase 1 – Affordable LAR	0	32	27	12	0	71
Phase 1 – Affordable LSO	0	72	44	8	0	124
TOTALS (Buildings A&B)	***1***	***184***	***156***	***56***	***4***	***401***
Phase 2 – Private	26	45	55	0	0	126
Phase 2 – Affordable LAR	0	0	33	81	0	114
Phase 2 – Affordable LSO	0	0	195	38	0	233
TOTALS (Buildings D&E)	***26***	***45***	***283***	***119***	***0***	***473***
Phase 3 – Private	47	142	212	70	0	471
TOTALS (Buildings C&F)	***47***	***142***	***212***	***70***	***0***	***471***
Phase 4 – Private	32	96	144	48	0	320
TOTALS (Buildings G)	***32***	***96***	***144***	***48***	***0***	***320***
Phase 5 – Private	21	66	99	32	0	218
Phase 5 – Affordable LAR	0	0	82	61	0	143
Phase 5 – Affordable LSO	0	0	0	0	0	0
TOTALS (Buildings H&J)	***21***	***95***	***158***	***78***	***0***	***361***
Phase 6 – Private	23	89	135	62	0	309
Phase 6 – Affordable LAR	0	0	0	103	0	103
Phase 6 – Affordable LSO	0	0	0	0	0	0
TOTALS (Buildings M&K)	***23***	***89***	***135***	***154***	***11***	***412***
Phase 7 – Private	46	108	216	49	0	419
Phase 7 – Affordable LAR	0	0	0	84	21	105
Phase 7 – Affordable LSO	0	0	0	0	0	0
TOTALS (Buildings L&N)	***46***	***108***	***216***	***97***	***21***	***524***
Phase 8 – Private	84	122	260	76	0	542
TOTALS (Building R)	***84***	***122***	***260***	***76***	***0***	***542***
Phase 9 – Private	26	20	166	43	0	255
Phase 9 – Affordable LAR	0	0	0	45	0	45
Phase 9 – Affordable LSO	0	0	98	93	7	198
TOTALS (Buildings P,Q&U)	***26***	***33***	***272***	***155***	***7***	***498***
Phase 10 – Private	56	90	222	66	0	434
Phase 10 – Affordable LAR	0	0	0	0	0	0
Phase 10 – Affordable LSO	0	0	67	64	10	141
TOTALS (Building S)	***56***	***90***	***289***	***130***	***10***	***575***
Phase 11 – Affordable LAR	0	137	209	77	0	423
Phase 11 – Affordable LSO	0	0	0	0	0	0
TOTALS (Building T)	***0***	***137***	***209***	***77***	***0***	***423***
GRAND TOTAL	**362**	**1,099**	**2,349**	**1,148**	**42**	***5,000***

Affordable Areas - Block by Block 1,700

	Total Units	LAR	LSO	Studio	1 Bed	2 Bed 3p	2 Bed 4p	3 Bed 5p	3 Bed 6p	4 Bed	LAR	LSO	NIA (m2)
Block A	124	0	124	-	72	-	44	-	8	-		124	9,425
Block A	71	71	0	-	32		27		12		71		4,349
Block D	103	0	103	-	-	40	52	-	-	-		92	6,080
Block D	103	103		-	-	28	5	43	38	-	114		9,366
Block E	141	0	141	-	-	79	24	28	10	-		141	9,857
Block H	143	143	0	-	-	82	-	61	-	-	143		10,248
Block K	103	103	0	-	-	-	-	34	69	-	103		9,479
Block K	-	0	0	-	-	-	-	-	-	-		-	-
Block L	105	105	0	-	-	-	-	23	61	21	105		9,873
Block L	-	0	0	-	-	-	-	-	-	-		-	-
Block P	83	0	83	-	-	49	6	27	-	1		83	5,831
Block Q	33	0	33	-	-	-	1	12	14	6		33	3,032
Block S	141	0	141	-	-	2	65	-	64	10		141	11,752
Block T	423	423	0	-	137	209	-	77	-	-	423		26,221
Block U	95		95	-	-	12	30	40	-	-		82	6,272
Block U	32	32						45	-	-	45		3,870
TOTALS	1,700	980	720	-	241	501	254	390	276	38	1004	696	125,655

BUROHAPPOLD ENGINEERING

Thameside West

Operational Waste Management Strategy

035668

11 June 2020

Revision 04

Revision	Description	Issued by	Date	Checked
00	Draft	EW	22.11.2018	JS
01	Final	EW	13.12.2018	JS
02	May 2019 Submission	EW	17.05.2019	JS
03	May 2020 Submission	EW	14.05.2020	JS
04	June 2020 Update	EW	11.06.2020	JS

author	**Edward Wilkins**
date	**11.06.2020**
approved	**Jose Sorribes**
signature	
date	**11.06.2020**

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Contents

1 Introduction **9**

2 Waste Management Policy and Guidance **10**

2.1 Introduction 10

2.2 National Context 10

2.3 Regional Context 10

2.4 Local Context 10

2.5 Other Relevant Waste Guidance 10

2.6 Consultation with LBN 10

3 Waste Movement and Collection (Detailed Component) **11**

3.1 Introduction 11

3.2 Residential Units (C3) 11

3.3 Non-Residential Uses (A1-A4, B1b, B1c, B2 (restricted), B8) 13

4 Waste Movement and Collection (Outline Component) **16**

4.1 Introduction 16

4.2 Residential Units (C3) 16

4.3 Non-Residential Uses (A1-A4, B1b, B1c, B2, B8, D1 and D2) 18

5 Waste Generation and Storage (Detailed Component) **19**

5.1 Introduction 19

5.2 Residential Units (C3) 19

5.3 Non-Residential Uses (A1-A4, B1b, B1c, B2 (restricted), B8) 20

6 Waste Generation and Storage (Outline Component) **21**

6.1 Introduction 21

6.2 Residential Units (C3) 21

6.3 Non-Residential Uses (A1-A4, B1c, B2, B8, D1 and D2) 23

7 Conclusions **26**

7.1 Summary 26

7.2 Circular Economy Statement 26

Table of Tables

Table 5-1 Phase 1 frozen residential unit mix **19**

Table 5-2 Total estimated residential waste generation for Phase 1 **19**

Table 5-3 Total indicative bin numbers per residential block **19**

Table 5-4 Indicative bin numbers per FoH residential waste room **19**

Table 5-5 Indicative bin numbers per BoH bin store 20

Table 5-6 Total estimated commercial waste generation for Phase 1 20

Table 5-7 Indicative bin numbers for Phase 1 industrial units 20

Table 6-1 Indicative outline residential unit mix 21

Table 6-2 Estimated weekly waste generation per residential plot 21

Table 6-3 Indicative bin numbers per residential plot ('hybrid' collection option) 22

Table 6-4 Indicative compactor requirements (Thameside Crescent, The Quays and Riverside Quarter) 23

Table 6-5 Outline parameters for non-residential elements 23

Table 6-6 Estimated weekly waste generation for non-residential elements of outline masterplan 24

Table 6-7 Indicative bin numbers for non-residential elements of outline masterplan 25

Table of Figures

Figure 1-1 Indicative masterplan layout 9

Figure 3-1 Phase 1 residential core names 11

Figure 3-2 Illustration of Phase 1 residential waste strategy 11

Figure 3-3 Examples of kitchen waste segregation units 11

Figure 3-4 Indicative location of residential waste rooms 12

Figure 3-5 Indicative FM team waste movement routes for temporary waste management solution 13

Figure 3-6 Indicative waste collection points and refuse vehicle movement routes 13

Figure 3-7 Indicative location of Phase 1 commercial units 14

Figure 3-8 Illustration of waste strategy for industrial uses 14

Figure 3-9 Indicative bin movement and waste collection point for industrial units 14

Figure 4-1 Illustration of proposed residential waste strategy for outline masterplan 16

Figure 4-2 Indicative masterplan layout with plot names 16

Figure 4-3 Indicative residential waste collection points and movement routes for outline masterplan 17

Glossary

Term	Definition
BoH	Back-of-House
DT	Design Team
ELWA	East London Waste Authority
ES	Environmental Statement
FM	Facilities Management
FoH	Front-of-House
GEA	Gross External Area
GLAP	GLA Land and Property
JWDP	Joint Waste Development Plan
LBN	London Borough of Newham
MSW	Municipal Solid Waste
OWMS	Operational Waste Management Strategy
SHL	Silvertown Homes Limited
SINC	Site of Importance for Nature Conservation

1 Introduction

This Operational Waste Management Strategy (OWMS) has been prepared by BuroHappold Engineering to accompany an Environmental Statement (ES) Addendum for the proposed Thameside West development in the London Borough of Newham (LBN). The planning application is being carried forward by Silvertown Homes Limited (SHL) and GLA Land and Property (GLAP) (the applicant).

The applicant intends to submit a hybrid planning application comprising:

1. Detailed planning application for Phase 1 with works to include: The proposed demolition of existing buildings and structures, the erection of buildings, including tall buildings, comprising: 401 residential Units (Use Class C3), 3,608 sqm (GEA) of flexible employment floorspace (Use Classes B1c and B8); 230 sqm (GEA) of flexible retail floorspace (Use Classes A1-A4); a new/altered access road from Dock Road/North Woolwich Road; new streets, open spaces, landscaping and public realm; car, motorcycle and bicycle parking spaces and servicing spaces; and other works incidental to the proposed development.

2. Outline planning application (all matters reserved) for the phased delivery of the balance of the site for the proposed demolition of existing buildings and structures; the erection of buildings, including tall buildings, comprising: a new local centre; a primary school (Use Class D1); residential and older person units (Use Class C3); flexible employment floorspace (Use Classes B1c, B2 and B8); flexible retail floorspace (Use Classes A1-A4); community and leisure floorspace (Use Classes D1 and D2); the construction of a new flood defence wall and delivery of ecological habitat adjacent to the River Thames and associated infrastructure; streets, open spaces, landscaping and public realm (including new park and SINC improvements); car, motorcycle and bicycle parking spaces and servicing spaces; utilities including energy centre and electricity substations; and other works incidental to the proposed development.

Figure 1-1 shows an indicative masterplan layout of the proposed development. The location and extent of Phase 1 within the wider masterplan have been marked in blue.

SHL, GLAP and the design team (DT) acknowledge that the management of solid waste is an important element to consider when buildings are designed. Planning for future operational waste management ensures that buildings will be able to operate efficiently and sustainably, while minimising impacts on design requirements and building performance. Waste management operations need to be safe, discreet, and efficient in order to minimise the impacts on the buildings' users and those responsible for the collection and onward treatment of waste.

The key aims of this OWMS are as follows:

- To provide outline estimations on the anticipated residential and non-residential waste generation within the proposed development;
- To provide a strategy for the management of the anticipated waste generation within the development, from the point where waste is generated to the point where it is collected;
- To provide outline guidance on waste management to ensure that adequate spatial provision for the clean and efficient storage and collection of waste is incorporated into the design;
- To allow waste to be disposed of easily, and be stored and collected in an efficient and discreet manner; and
- To ensure that national and local targets, as well as all of the applicant's waste management aims and aspirations, are met.

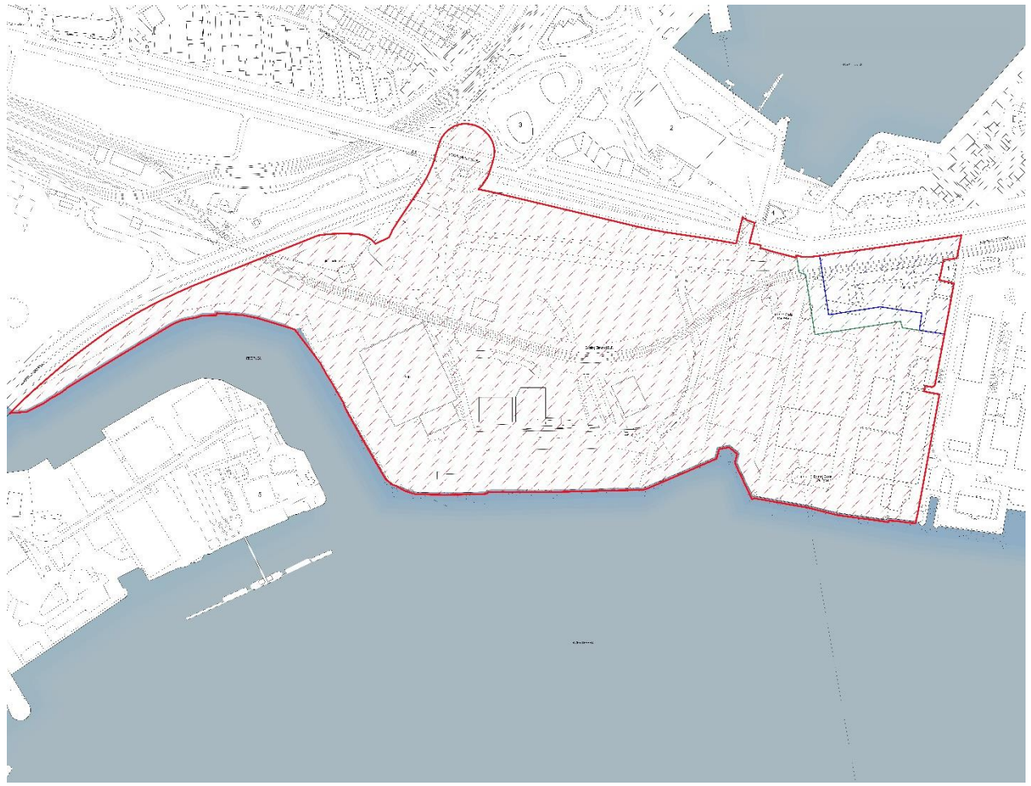


Figure 1-1 Indicative masterplan layout

The OWMS submitted at this stage covers Phase 1 in detail (including internal layouts, waste movement through the buildings and the sizing of waste storage rooms) and the wider site in outline. The OWMS should be updated at subsequent reserved matters stages for the components currently covered in outline to ensure that adequate waste storage is provided for each phase of the development.

2 Waste Management Policy and Guidance

2.1 Introduction

This section provides a summary of the most relevant national, regional and local policies and guidance relating to the management of waste in the proposed development. A more detailed review of the relevant policy and guidance is included in Appendix A.

2.2 National Context

- National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019);
- National Planning Policy for Waste (Ministry of Housing, Communities and Local Government, 2014);
- Government Review of Waste Policy in England (Department for Environment, Food and Rural Affairs, 2011);
- Waste Management Plan for England (Department for Environment, Food and Rural Affairs, 2013); and
- Our Waste, Our Resources: A Strategy for England (Department for Environment, Food and Rural Affairs, 2018).

2.3 Regional Context

- The Mayor's Municipal Waste Management Strategy (GLA, 2011);
- The Mayor's Business Waste Management Strategy (GLA, 2011);
- London Plan (consolidated with alterations since 2011) (GLA, 2016); and
- The Intend to Publish London Plan (GLA, 2019).

2.4 Local Context

- Joint Waste Development Plan for the East London Waste Authority Boroughs (2012);
- LBN Waste Management Guidelines for Architects and Property Developers (LBN, 2014); and
- Newham Local Plan 2018: A 15 Year Plan Looking Ahead to 2033 (LBN, 2018).

2.5 Other Relevant Waste Guidance

- Making Space for Waste, A Practical Guide for Developers and Local Authorities (Association of Directors of Environment, Economy, Planning and Transport (ADEPT), 2010); and
- Building Regulations 2010 Part H6; and
- British Standards BS 5906:2005 Waste management in buildings – Code of practice.

2.6 Consultation with LBN

As part of the design process, BuroHappold regularly consulted LBN's Waste and Public Space Commissioner via telephone and e-mail. The proposed waste management strategy was also presented to LBN's Waste and Public Space Commissioner at a meeting held on 17th October 2018. The meeting minutes are included in Appendix B. During the meeting, it was agreed in principle that the residential units in Phases 1, 2 and 3 and the affordable units in the remaining phases would be served by the 'traditional' local authority collection option.

In order to reduce the space required for bin storage and collection, BuroHappold proposed that waste from the market units in the later phases would be compacted. While LBN expressed concern over the proposed collection of compactors by a private contractor, all parties present acknowledged that the waste management policy landscape would have evolved by the time the later phases are constructed, and that there are a number of potential waste management options available for these areas of the site. It was agreed in principle that while compacting areas would be shown in the outline planning submission, there will be scope to adapt the waste management strategy at reserved matters stages, if required.

3 Waste Movement and Collection (Detailed Component)

3.1 Introduction

This section describes the proposed strategy to store, move and collect all residential and non-residential waste generated by Phase 1 of the proposed development. This phase will provide a total of 401 residential units split across four cores, which are shown in Figure 3-1.

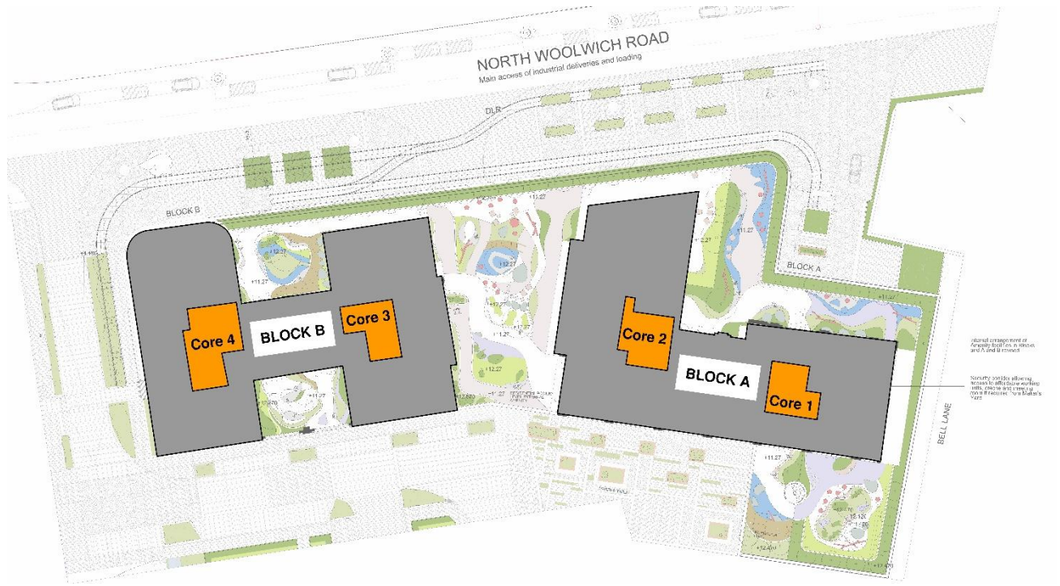


Figure 3-1 Phase 1 residential core names

Supporting facilities, including a crèche, community space and gym have been incorporated on a first floor podium, while at ground floor, two flexible employment units (assumed industrial use) have been provided. Two small flexible retail units have also been incorporated at mezzanine level in Block B.

3.2 Residential Units (C3)

Both the affordable and market units in Phase 1 will be served by the 'traditional' local authority collection option, as is illustrated schematically in Figure 3-2. In brief, waste will be stored in 1,100 litre containers and collected on a weekly basis by LBN's operatives.

*If waste room is further than 10 metres from collection point. Otherwise, LBN collection crew can access waste room directly.

Figure 3-2 Illustration of Phase 1 residential waste strategy

Internal Storage

To ensure that recyclables are collected separately from general refuse, adequate internal storage should be provided in all units for the separation of recyclable materials from other waste. The internal storage could take the form of a ventilated cupboard or drawer, typically located within the kitchen. Examples of internal waste storage systems are shown in Figure 3-3.

Figure 3-3 Examples of kitchen waste segregation units

Residential Waste Movement

LBN guidance states that residents should be required to walk no further than 30 metres horizontal distance when carrying refuse and recycling. To satisfy this requirement, four designated front-of-house (FoH) waste rooms have been incorporated, one for each residential core. Residents in Block A and Block B will move their bagged segregated waste via lifts or stairs down to their nearest FoH waste room. Full bins from Core 1 and Core 4 will then be swapped by an on-site facilities management (FM) team with empties from larger back-of-house (BoH) stores, where bins can be stacked to save space.

It has not been deemed possible to bring Core 2 and Core 3 in each block down to ground level, as the brief to the architects from the applicant has been to maximise the footprint of the industrial units in this space. As such, the FoH waste rooms for these two cores will be located at first floor podium level, while the FoH waste rooms for Core 1 and Core 4 will be located at ground level, as is shown in Figure 3-4. Meanwhile, the BoH bin store for Block A will be located at ground level adjacent to Core 1 and the BoH store for Block B adjacent to Core 4.

In line with LBN guidance, sufficient space has been provided across the FoH and BoH bin rooms to store waste generated over a period of one week, with residual waste and mixed recyclables stored in large 1,100 litre bins.

All waste storage rooms will be designed to comply with the recommendations set out in BS 5906:2005[1]. For safety reasons, the waste rooms should be constructed within a fire compartment structure and fire extinguishers will be deployed in each room.

To ensure that recyclables are collected separately from general refuse, it is also recommended that appropriate signage on waste segregation is displayed in all FoH waste rooms and that residents receive a waste and recycling information pack when they move into their new home.

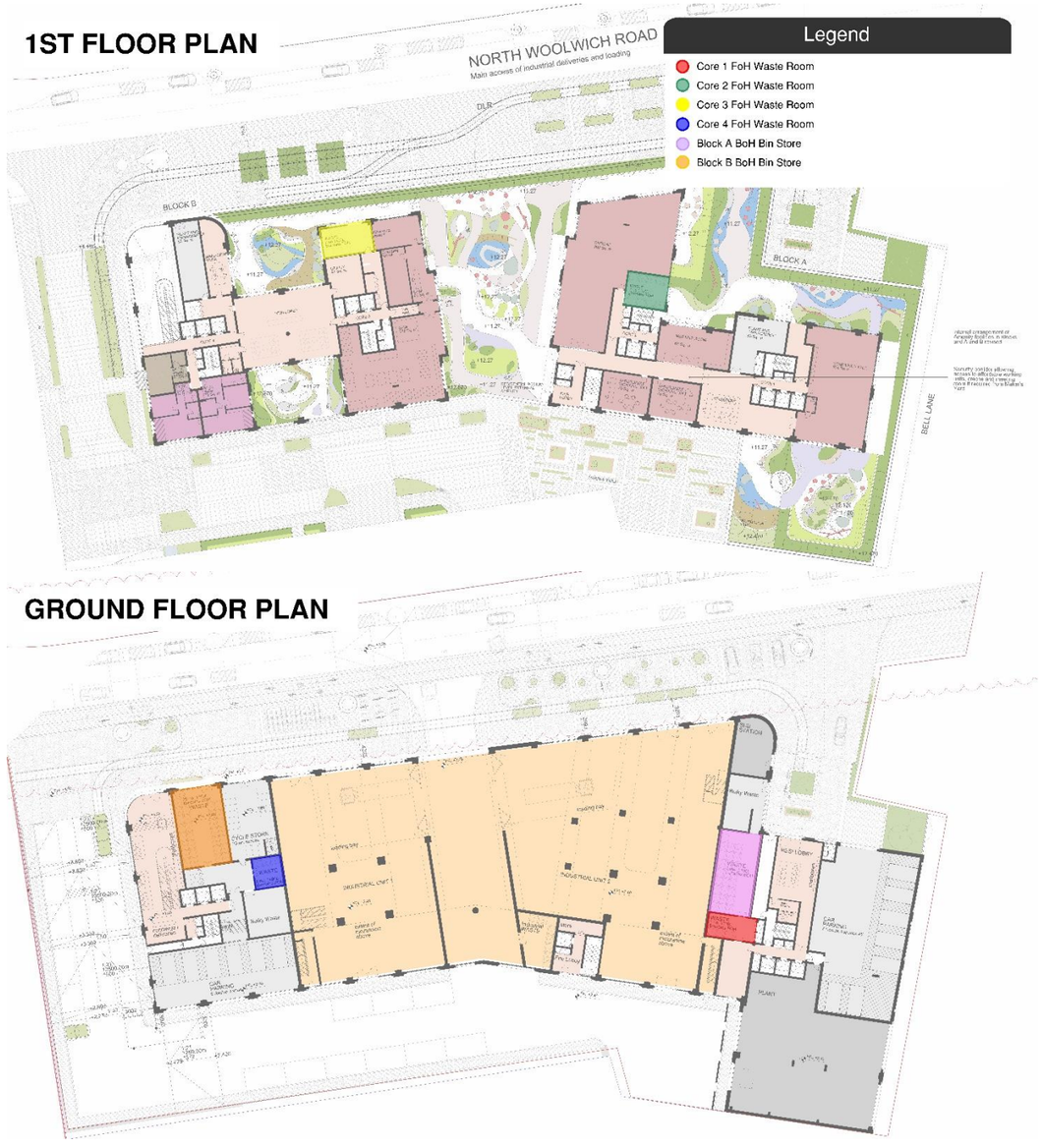


Figure 3-4 Indicative location of residential waste rooms

FM Team Waste Movement

An on-site FM team will manage residential waste generated in Phase 1. One of the FM team's responsibilities will be to regularly inspect the FoH waste rooms and, when bins in the FoH areas are full, exchange them with empty bins from the BoH stores. The FoH waste rooms have been sized to provide sufficient space to store waste generated over a period of at least two days, although they could be emptied on a more frequent basis, if desired.

[1] British Standard BS 5906:2005 Waste management in buildings. Code of practice.

The other key role of the FM team will be to help move full bins to the designated collection points prior to collection. It is recommended that a pedestrian-controlled type tug is used for these operations. Space has been incorporated in the BoH waste rooms so that this piece of equipment can be stored.

The FM team should ensure that when bins are moved to the collection point, there is always at least one empty bin for residual waste and one empty bin for mixed recyclables left in each FoH bin room. In line with LBN guidance, this will ensure that residents attempting to dispose of non-recyclable refuse are able to do so without contaminating a recycling container.

FM Team Waste Movement (Core 2 and Core 3)

The FoH bin rooms for Core 2 and Core 3 are located at podium level and, as such, the FM team will not be able to move bins to the BoH rooms along an external route.

It is therefore proposed that the FM team move waste from the Core 2 and Core 3 FoH waste rooms to the BoH bin stores along the indicative routes shown in Figure 3-5. A separate BoH corridor has been incorporated in Block A to ensure that the FM team are not required to move waste through residential lobby areas. In Block B, waste will have to be moved a short distance through the residential lobby area. However, to ensure minimal disruption, these operations will be scheduled 'out-of-hours', when the lobby is used less frequently by residents.

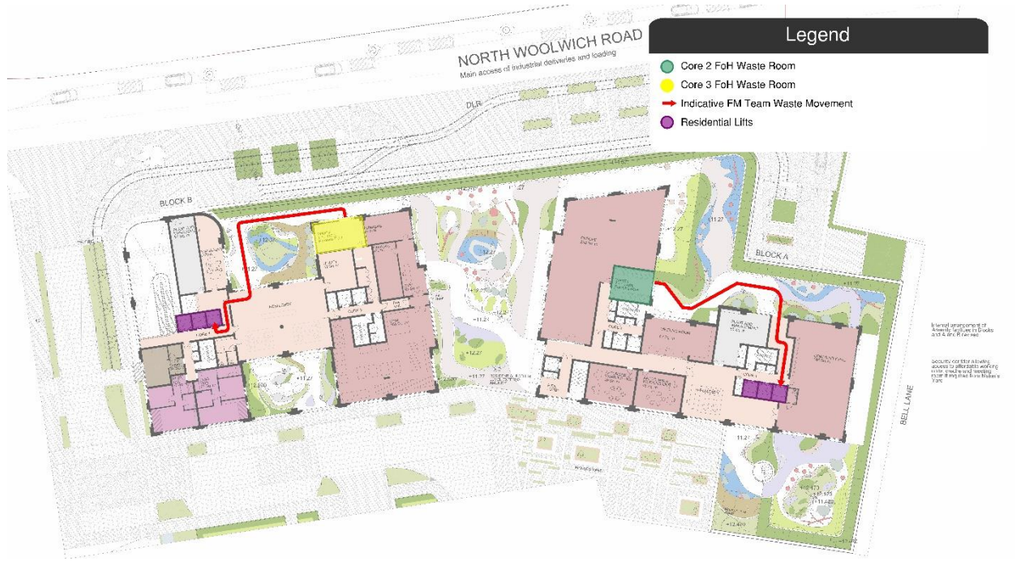


Figure 3-5 Indicative FM team waste movement routes for temporary waste management solution

It should be noted that the residential lifts are not designed for the movement of full 1,100 litre bins. As such, it is advised that the FM team move bagged waste to the BoH bin stores using waste trolleys instead. It is proposed that drop-front 1,100 litre bins are provided in the Core 2 and Core 3 FoH stores. The FM team will regularly remove bagged waste from these bins and trolley waste to LBN 1,100 litre bins in the BoH bin stores. While the drop-front bins would need to be rented (independently of LBN), the bins collected by LBN's operatives would still be those specified in their guidance. Going forward, there is potential to explore a number of alternative waste movement options for these cores.

Supporting Residential Facilities

It is expected that minimal quantities of waste will be generated in the supporting residential facilities, such as the gym, crèche and community space. Waste will be segregated into two streams (residual waste and mixed recyclables) and stored locally in small bins within these areas. The unit operators will collect bagged waste at the end of each day and transfer it to bins in the waste rooms at ground level, via the residential lifts.

Waste Collection

The local authority offers a weekly waste collection service for its residents. In line with this, residential waste from Phase 1 will be collected on a weekly basis by the LBN waste collection crew. For the purposes of this report, the refuse vehicle specified in their 2014 guidance (10.564 m (L) x 2.524 m (W) x 3.552 m (H), with 4.5 m operating height) has been tested. Residential bins from both blocks will be collected from the slip road adjacent to the building.

LBN guidance states that their operatives should not be required to move full bins any further than 10 metres from the waste room/designated collection area to the loading position at the back of the vehicle. It is proposed that, if required, the FM team will assist LBN's operatives with moving bins from the Block A BoH store, so that the collection crew are not required to move full bins over their specified distances. It is recommended that a keypad or code is used for gaining access to the Block A and Block B bin rooms and through the residential gate, with the code shared with collection staff and all arrangements agreed with LBN prior to installation.

The proposed waste collection arrangements for Block A and Block B have been illustrated schematically in Figure 3-6. Refuse vehicle swept paths for Phase 1 are included in Appendix C.

Figure 3-6 Indicative waste collection points and refuse vehicle movement routes

Bulky Waste

Dedicated storage areas for bulky waste have been provided at ground level. If residents have unwanted bulky waste items, they will notify the FM team who will then collect the items from the residential apartments and move them to the nearest bulky waste storage area. If necessary, the FM team could make use of an electric towing vehicle (equipped with a small trailer or similar) to assist with the movement of bulky items. When there are sufficient items in the bulky waste store, the FM team will arrange a collection with a private waste contractor. During the meeting held on 17th October 2018, LBN's Waste and Public Space Commissioner agreed to this approach in principle.

3.3 Non-Residential Uses (A1-A4, B1b, B1c, B2 (restricted), B8)

In addition to residential uses, Phase 1 also comprises up to 3,608 m^2 (GEA) of flexible employment floorspace and 230 m^2 (GEA) of flexible retail floorspace.

Figure 3-7 shows the location of the commercial units in Block A and Block B. Flexible employment floorspace has been incorporated at ground floor and mezzanine level and two flexible retail units have been provided in Block B at mezzanine level.

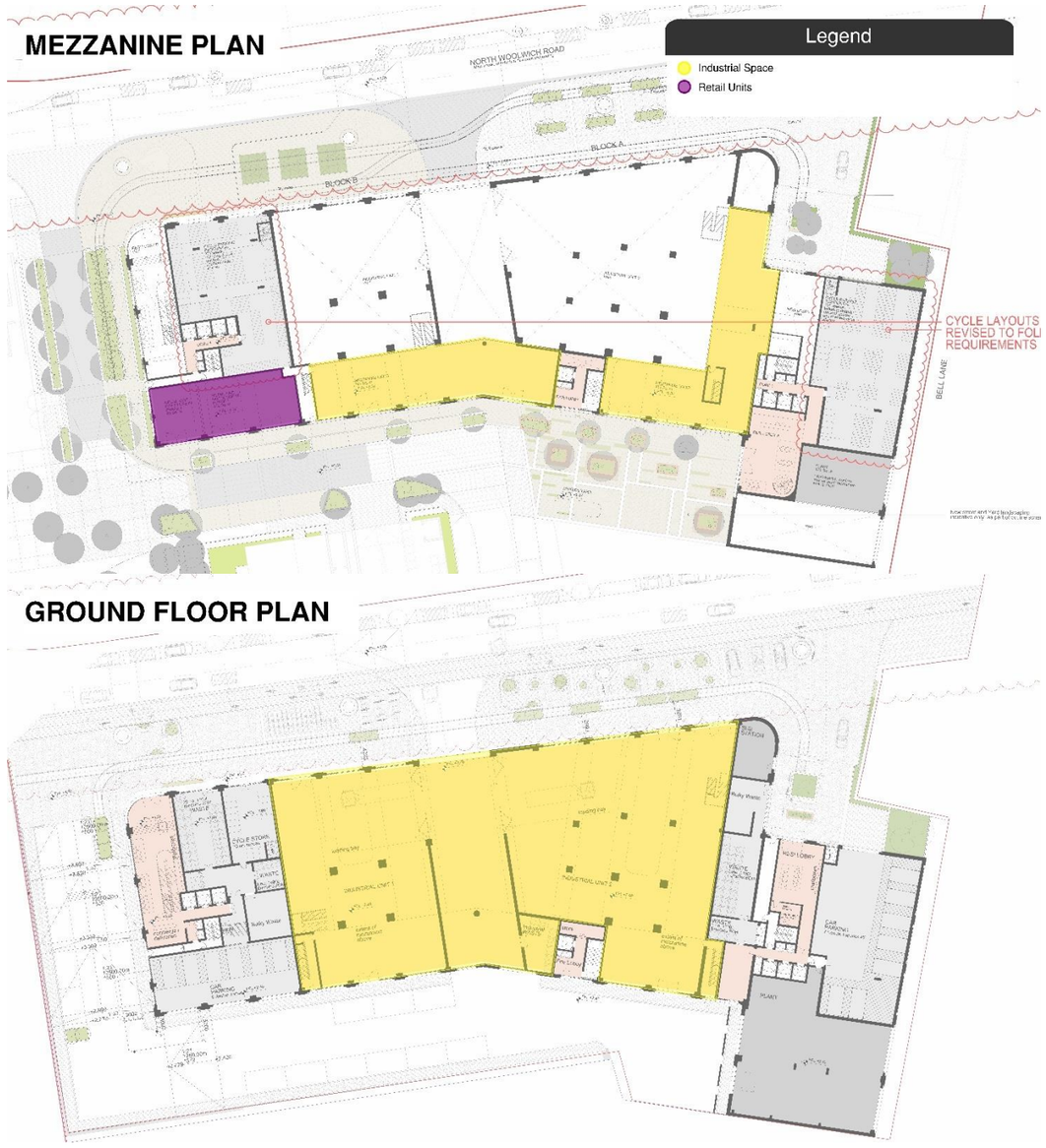


Figure 3-7 Indicative location of Phase 1 commercial units

Flexible Employment Floorspace

The waste strategy for the flexible employment floorspace is summarised in Figure 3-8. For the purposes of conservative assessment, it has been assumed that the two flexible employment units will be industrial land use.

Figure 3-8 Illustration of waste strategy for industrial uses

Space for the temporary storage of waste will be provided internally within the footprint of each industrial unit. It is proposed that, as a minimum, waste from these units will be segregated into residual waste and mixed recyclables. Tenants will dispose of waste into small bins and, at appropriate times during the day, will be responsible for moving bagged segregated waste to 1,100 litre bins in a centralised waste storage area in Block A. Sufficient space has been provided to contain the estimated volume of mixed recyclables and residual waste arising between collections in large 1,100 litre bins. At this stage, it has been assumed that bins from the industrial units will be collected three times each week by a private contractor.

It is also recommended that space is incorporated in the waste room for the storage of special wastes (e.g. hazardous wastes) that may be generated depending on the tenants that occupy each of the units. A small secure cabinet for hazardous waste could be incorporated in the store. Industrial tenants would need to make their own arrangements for managing any non-standard types of waste.

Prior to collection, the private waste contractor will access the waste store and will wheel bins to a space adjacent to the Block A loading bays, from where they will be collected by a small, rear-end loader refuse vehicle. The waste contractor will then return empty bins back to the waste store. Figure 3-9 illustrates the bin movement operations and proposed collection point for the industrial uses.

Figure 3-9 Indicative bin movement and waste collection point for industrial units

Retail

Two flexible retail units will be incorporated at mezzanine level in Block B. It is proposed that small bins are included within each of the units and that, as a minimum, two-stream segregation (residual waste and mixed recyclables) is provided for. Due to their small size, it is expected that waste arisings from the retail units will be minimal. A small BoH area should be incorporated within each of the units with some space set aside for waste storage. Tenants will move their bagged segregated waste from the BoH area to a designated collection point on-street to allow for collection from the front of the units. It is recommended that bags are stored in a small shed or similar, so as to keep waste management operations as discreet as possible. A collection frequency of three times per week is recommended, although this could be reviewed depending on the tenants that occupy each of the units.

4 Waste Movement and Collection (Outline Component)

4.1 Introduction

This section describes the waste management strategy for the remaining residential and non-residential elements of the outline masterplan.

4.2 Residential Units (C3)

In order to save space and improve the efficiency of waste management operations, a 'hybrid' waste management strategy has been proposed as the preferred waste management option for the residential dwellings across the site. This strategy is illustrated schematically in Figure 4-1.

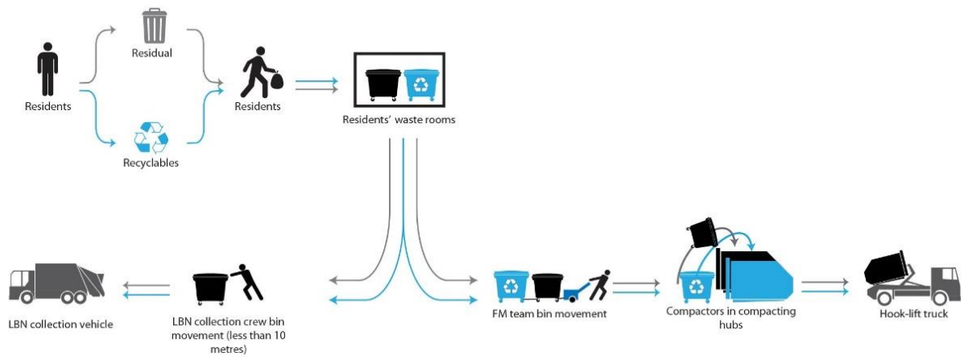


Figure 4-1 Illustration of proposed residential waste strategy for outline masterplan

In brief, waste from the 2,497 market units in Thameside Crescent, The Quays and Riverside Quarter will be compacted, while the remaining units across the scheme will be served by LBN's 'traditional' collection service, with all of their waste stored (and collected) in 1,100 litre bins.

For reference, The Landings is comprised of plots A, B and D, Parkside of plots C, E and F, The Quays of plots G, J, M and N, the Central Spine of plots H, K, L and P and Riverside Quarter of plots Q, R, S, T and U (see Figure 4-2).

While the hybrid strategy is the preferred waste management option for the site, it should be noted that this option is dependent on LBN being able to offer a compactor collection service in future. During the meeting with LBN's Waste and Public Space Commissioner, held on 17th October 2018, it was agreed that while LBN do not currently offer a compactor collection service, the waste management policy landscape will have evolved by the time The Quays and Riverside Quarter are constructed, meaning that there is potential for LBN to be able to collect compactors in future. As such, compacting areas have been shown in the outline planning submission. However, the design also provides adequate scope to adapt the waste management strategy at reserved matters stages, if required.

Figure 4-2 Indicative masterplan layout with plot names

Internal Storage

As in the detailed strategy for Phase 1, adequate internal storage will be provided in all residential units across the masterplan to facilitate the segregation of recyclable materials and other waste.

Residential Waste Movement

Residents in all blocks will move their bagged segregated waste via stairs or lifts to dedicated waste storage rooms at either basement or ground floor level. In line with LBN guidance, residents will not be required to move waste any further than 30 metres horizontal distance. One potential means of facilitating this is to incorporate FoH waste rooms and BoH bin stores, as has been done in Phase 1. This option will be explored further at reserved matters stages.

FM Team Waste Movement

An on-site FM team will manage residential waste across the site. One of their main responsibilities will be to regularly move waste from the market unit bin rooms in Thameside Crescent, The Quays and Riverside Quarter to portable compactors, which will be located at strategic points across the site. The waste rooms for these units will be emptied three times per week by the FM team, and have been sized to provide sufficient capacity to cater for this collection frequency.

The FM team will move bins to the appropriate compacting hub using an electric towing vehicle or similar. Bins will then be returned to the waste rooms once they have been emptied into the compactors. If desired, spare bins can be accommodated in the waste rooms to ensure that residents will always have somewhere to dispose of their waste.

Two compacting hubs have been incorporated within the outline masterplan, one in Thameside Crescent, the other in Riverside Quarter. Waste from the market unit bin rooms in Thameside Crescent and The Quays will be moved to the compacting hub in Thameside Crescent. Waste from the market units in Riverside Quarter will be moved to the compacting hub in Riverside Quarter, as is illustrated schematically in Figure 4-3.

In each of the compacting hubs, two portable compactors will be provided (one for mixed recyclables; one for residual waste). In order to reduce the number of servicing vehicle trips required each week, it has been advised that both mixed recyclables and residual waste are stored in large roll-on roll-off compactors, rather than in smaller skip-lift compactors. For the purposes of calculations, an approximate compactor capacity of 22 m^3 has been assumed (see Section 6.2).

In addition to moving bins to/from the compacting hubs, the FM team will also be responsible for moving bins from the remaining waste rooms to designated collection areas across the site, as is elaborated further in the following section.

Waste Collection

The portable compactors will be collected by a hook-lift vehicle. The approximate dimensions of this vehicle are as follows: 8.658 m (L) x 2.500 m (W) x 3.474 m (H) (with compactor), with 5.5 m operating height clearance. Sufficient head clearance has been provided above all compactors to ensure that compactor loading operations can take place. Further details on compactor collection frequency are outlined in Section 6.2.

Meanwhile, all units in The Landings and Parkside, as well as the affordable units in Thameside Crescent and Riverside Quarter, will be served by the 'traditional' collection option and have their waste collected by LBN's operatives using a rear-loader vehicle. Where it is practicable (i.e. plots D, E and F), LBN's operatives will access residents' waste rooms directly and wheel bins a short distance to the collection vehicle before returning them.

In locations where it is not practicable to provide full access to the waste rooms, separate designated collection points have been provided. In line with LBN guidance, immediate access for waste collection vehicles will be facilitated, without the need for the crew to know an entry code, use a swipe card, or carry any fob/key.

Prior to collection, the on-site FM team will tow bins from the waste rooms to one of the designated collection areas. Due to the large number of bins that need collecting from these blocks, it is proposed that the designated collection areas are located in close proximity to the compactors, as there is space for temporary bin storage available here.

It is proposed that bins are collected from one of the compactor bays. To facilitate bin loading, 2 m clearance has been provided behind the stationary LBN refuse vehicle, as is illustrated in the refuse vehicle swept paths for the outline masterplan (see Appendix D). It should also be noted that sufficient head clearance has been provided in all designated collection areas to enable bin lifting operations.

The proposed collection points are shown indicatively in Figure 4-3.

Figure 4-3 Indicative residential waste collection points and movement routes for outline masterplan

Bulky Waste

As in the Phase 1 detailed strategy, if residents have unwanted bulky waste items, they will notify the FM team who will then collect the items from the residential apartments and move them to the nearest bulky waste storage area, where they will then be collected by a private waste contractor. In line with LBN guidance, the outline masterplan has been designed so that 10 m^2 of bulky waste storage is provided per 50 households.

During the meeting with LBN's Waste and Public Space Commissioner, held on 17th October 2018, the potential for using some of the space currently allocated for bulky waste to store bins instead was discussed. LBN's waste management division agreed to this proposal in principle and suggested that, if required, it was one option that could be explored at reserved matters stages.

4.3 Non-Residential Uses (A1-A4, B1b, B1c, B2, B8, D1 and D2)

The outline masterplan will also comprise a range of non-residential land uses, including a new local centre, a primary school (Use Class D1), flexible employment floorspace (Use Classes B1c, B2 and B8), flexible retail floorspace (Use Classes A1-A4) and community and leisure floorspace (Use Classes D1 and D2).

Space for the temporary storage of waste will be provided internally within the footprint of each non-residential unit, with tenants disposing of waste into small bins. As a minimum, the non-residential units will segregate residual waste and mixed recyclables, although, where appropriate, additional streams (e.g. organics, paper/card and glass) will also be segregated. Further details on segregation for each of the non-residential uses are provided in Section 6.3.

Tenants will then be responsible for moving waste from the small bins to larger bins in dedicated waste storage rooms within each unit. The location of these rooms will ensure that the distance tenants are required to move waste is kept to a minimum. The waste storage rooms will be designed to provide sufficient capacity to store the estimated volume of residual waste, mixed recyclables and – if required – glass, organics and paper/card arising between collections. It is anticipated that residual waste, mixed recyclables and paper/card will be stored in large 1,100 litre Eurobins, with glass stored in 360 litre Eurobins and organics in 240 litre Eurobins.

Prior to collection, tenants will need to move full bins to a centralised waste storage area. It is recommended that an electric towing vehicle or similar is used for these operations. All non-residential waste will be collected by private waste contractors using small, rear-end loader refuse vehicles. At this stage, it is anticipated that non-residential waste will be collected three times per week, although this collection frequency can be revised at reserved matters stages, if desired. Following collection, tenants will need to ensure that bins are moved back to the appropriate waste storage room.

Once the development is fully operational, it is proposed that waste from the non-residential uses in The Landings and Parkside will be collected from one of the designated servicing areas in this portion of the site. Meanwhile, commercial waste from The Quays and Riverside Quarter will be moved to the Riverside Quarter servicing area for collection. Bins will be stored here in the area adjacent to the residential compactors. In line with LBN guidance, this area will be split at reserved matters such that domestic and commercial waste bins are in separate secured areas. Meanwhile, waste from the industrial lozenge will be collected from a servicing area provided internally within this unit.

5 Waste Generation and Storage (Detailed Component)

5.1 Introduction

This section of the OWMS sets out the estimated waste generation and storage requirements for both the residential and commercial uses forming part of Phase 1.

5.2 Residential Units (C3)

Phase 1 of the proposed development will be comprised of two buildings (Block A and Block B), providing a total of 401 residential units. These units will be served by four cores, as is shown in Figure 3-1. The frozen residential unit mix for Phase 1 is shown in Table 5-1.

Table 5-1 Phase 1 frozen residential unit mix

Building	Number of Market Units						Number of Affordable Units					
	Studio	1 Bed	2 Bed	3 Bed	4 Bed	Total	Studio	1 Bed	2 Bed	3 Bed	4 Bed	Total
The Landings												
Plot A (Core 1)	0	0	0	0	0	**0**	0	40	20	0	0	**60**
Plot A (Core 2)	0	0	0	0	0	**0**	0	64	51	20	0	**135**
Plot B (Core 3)	0	42	47	21	1	**111**	0	0	0	0	0	**0**
Plot B (Core 4)	1	38	38	15	3	**95**	0	0	0	0	0	**0**
Total	**1**	**80**	**85**	**36**	**4**	**206**	**0**	**104**	**71**	**20**	**0**	**195**

LBN (2014) provides guidance on how to estimate weekly residential waste generation in their *Waste Management Guidelines for Architects and Developers*. As the average number of bedrooms in the dwellings is less than two, the BS 5906:2005 formula for calculating waste storage capacity has been used:

> Volume of waste (l/week) = number of units x {(volume arising per bedroom [70 l] x average number of bedrooms) + 30}

In line with LBN guidance, this equation has been used to determine the capacity for residual waste, with recycling allocated as an additional 25-30% capacity on top of this.

Table 5-2 details the weekly waste generation for Phase 1 per residential core, as well as the compositional breakdown according to the LBN (2014) guidance.

Table 5-2 Total estimated residential waste generation for Phase 1

Building	Core	Number of units	Estimated waste generation (litres per week)		
			Residual waste	Recyclables	Total
Block A	1	60	7,400	2,220	9,620
	2	135	19,870	5,961	25,831
Block B	3	111	17,540	5,262	22,802
	4	95	14,890	4,467	19,357
	TOTAL	**401**	**59,700**	**17,910**	**77,610**

In line with LBN guidance, sufficient space has been provided across the FoH and BoH bin rooms to store a week's worth of waste, with residual waste and mixed recyclables stored in large 1,100 litre bins. Table 5-3 shows the total indicative bin numbers required per block.

Table 5-3 Total indicative bin numbers per residential block

Building	Core	Indicative bin numbers per week*		
		Residual waste (1,100 litre)	Recyclables (1,100 litre)	Total
Block A	1 and 2	25	8	33
Block B	3 and 4	30	9	39
	TOTAL	**55**	**17**	**72**

*Bin numbers have been rounded up if the decimal exceeds 0.2

As explained in Section 3, all residents in Phase 1 will dispose of their waste in FoH waste rooms. Four FoH waste rooms have been provided, one for each residential core. Sufficient space has been provided in these rooms to accommodate the expected waste generated by the residential uses over a two day period. In line with LBN guidance, 150 mm clearance has been provided around and between each bin. 2 metres clearance has also been provided in front of each bin to enable it to be accessed and safely moved without needing to move any of the other containers. Table 5-4 shows the total indicative bin numbers required in each FoH waste room.

Table 5-4 Indicative bin numbers per FoH residential waste room

Building	Core	Indicative bin numbers required*		
		Residual waste (1,100 litre)	Recyclables (1,100 litre)	Total
Block A	1	2	1	3
	2	5	2	7
Block B	3	5	2	7
	4	4	1	5
	TOTAL	**16**	**6**	**22**

*Bin numbers have been rounded up if the decimal exceeds 0.2

Waste from the FoH rooms will be regularly moved to the BoH bin stores, two of which have been incorporated, one adjacent to Core 1, the other adjacent to Core 4. Sufficient space will be provided in these BoH bin stores to accommodate the remaining bins required to store a week's worth of waste. Table 5-5 shows the total indicative bin numbers required per week in each BoH bin store. The BoH stores will also need to accommodate the bin numbers shown in Table 5-4. Sufficient space has been incorporated in the BoH bin stores to ensure that this is the case.

Table 5-5 Indicative bin numbers per BoH bin store

		Indicative bin numbers per week*		
Building	**Core**	**Residual waste** (1,100 litre)	**Recyclables** (1,100 litre)	**Total**
Block A	1 and 2	18	5	23
Block B	3 and 4	21	6	27
	TOTAL	**39**	**11**	**50**

* Bin numbers have been rounded up if the decimal exceeds 0.2

Bulky Waste

In addition, designated storage space should be provided for bulky waste. In line with LBN guidance, separate bulky waste storage areas have been incorporated from those containing normal refuse and recycling bins. LBN guidance states that the total floor area provided for storage of bulky waste should equate to 10 m^2 per 50 households. 80 m^2 would therefore be needed for bulky waste storage. This requirement has been met in the frozen design.

5.3 Non-Residential Uses (A1-A4, B1b, B1c, B2 (restricted), B8)

In addition to the 401 residential units, Phase 1 will also comprise flexible employment floorspace (Use Classes B1c and B8) and flexible retail floorspace (Use Classes A1-A4).

In the current plans, the flexible employment floorspace is shown to be industrial land use. For the purposes of conservative assessment, this use has been assumed in the calculations. Waste volumes for the industrial units have been based on the following assumptions:

- A waste generation rate of 5 litres per m^2 gross floor space per week;
- A minimum of two stream segregation: residual waste and mixed recyclables;
- A split of 70% residual waste and 30% recyclables; and
- A standard waste collection frequency of three times per week for all streams.

The final use of the flexible retail floorspace is still to be confirmed. However, due to the small size of the units, it has been assumed that restaurant land use is unlikely. It has therefore been assumed that the units will incorporate retail (A1) use.

The waste volumes for the flexible retail floorspace have been based on the following assumptions:

- A waste generation rate of 10 litres per m^2 gross floor space per week;
- A minimum of two stream segregation: residual waste and mixed recyclables; and
- A split of 50% residual waste and 50% recyclables.

Table 5-6 details the weekly waste generation for each of the commercial units in Phase 1.

Table 5-6 Total estimated commercial waste generation for Phase 1

			Estimated waste generation (litres per week)		
Commercial unit	**Building**	**GIA (m^2)**	**Residual waste**	**Mixed recyclables**	**Total**
Industrial unit 1	Block A	1,789	6,262	2,684	8,945
Industrial unit 2	Block B	1,561	5,464	2,342	7,805
Retail units	Block B	198	985	985	1,970

It is proposed that 1,100 litre Eurobins are used to store waste generated by the industrial units. For the purpose of conservative assessment, it has been assumed that the industrial space will be let out to multiple tenants (one tenant for industrial unit 1; one tenant for industrial unit 2). Each tenant will have its own clearly labelled bins, which will be stored in a shared bin room at ground level in Block A. In line with LBN guidance, commercial bins will be stored in a separate secured area from residential bins.

Sufficient space has been provided in this room to store the waste generated by the Phase 1 industrial units between collections. Table 5-7 shows the total indicative number of bins required for the Phase 1 industrial units. The numbers are based on the assumption that bins are collected three times per week.

Table 5-7 Indicative bin numbers for Phase 1 industrial units

	Indicative bin numbers (assuming bins are collected three times per week) *		
Commercial unit	**Residual waste** (1,100 litre bin)	**Recyclables** (1,100 litre bin)	**Total number of bins**
Industrial unit 1	2	1	3
Industrial unit 2	2	1	3

* Bin numbers have been rounded up if the decimal exceeds 0.2

As described in Section 3.3, weekly waste arisings from the flexible retail units are expected to be minimal. It is therefore proposed that waste will be stored internally within each of the units in small bins, with bags stored in an internal BoH area and collected on-street by a private contractor. A collection frequency of three times per week is recommended, although this can be altered, depending on the tenants that come to occupy these units.

6 Waste Generation and Storage (Outline Component)

6.1 Introduction

The proposed outline masterplan will comprise a number of buildings, which will provide up to 5,000 residential units, along with a new local centre, a primary school (Use Class D1), flexible employment floorspace (Use Classes B1c, B2 and B8), flexible retail floorspace (Use Classes A1-A4), and community and leisure floorspace (Use Classes D1 and D2).

In order to determine outline spatial requirements for the storage and collection of waste, estimated waste generation for both residential and non-residential uses has been calculated.

6.2 Residential Units (C3)

As outlined in Section 5.2, the BS 5906:2005 formula for calculating waste storage capacity has been used, as the average number of bedrooms across the scheme is less than two.

In line with LBN guidance, this calculation has been used to determine the capacity for residual waste, with recycling allocated as an additional 25-30% capacity on top of this. The indicative residential unit mix for the outline component is detailed in Table 6-1. It should be noted that the units from Phase 1 have also been included in Table 6.1.

Table 6-1 Indicative outline residential unit mix

Building	Number of Market Units						Number of Affordable Units					
	Studio	1 Bed	2 Bed	3 Bed	4 Bed	**Total**	Studio	1 Bed	2 Bed	3 Bed	4 Bed	**Total**
The Landings												
Plot A	0	0	0	0	0	**0**	0	104	71	20	0	**195**
Plot B	1	80	85	36	4	**206**	0	0	0	0	0	**0**
Plot D	0	0	0	0	0	**0**	0	0	125	81	0	**206**
Parkside												
Plot C	15	44	66	20	0	**145**	0	0	0	0	0	**0**
Plot E	26	45	55	0	0	**126**	0	0	103	38	0	**141**
Plot F	32	98	146	50	0	**326**	0	0	0	0	0	**0**
The Quays												
Plot G	32	96	144	48	0	**320**	0	0	0	0	0	**0**
Plot J	21	66	99	32	0	**218**	0	0	0	0	0	**0**
Plot M	23	59	96	27	0	**205**	0	0	0	0	0	**0**
Plot N	46	75	143	49	0	**313**	0	0	0	0	0	**0**
Thameside Crescent												
Plot H	0	0	0	0	0	**0**	0	0	82	61	0	**143**
Plot K	0	30	39	35	0	**104**	0	0	0	103	0	**103**
Plot L	0	33	73	0	0	**106**	0	0	0	84	21	**105**
Plot P	0	0	0	0	0	**0**	0	0	55	27	1	**83**
Riverside Quarter												
Plot Q	11	10	121	43	0	**185**	0	0	1	26	6	**33**
Plot R	84	122	260	76	0	**542**	0	0	0	0	0	**0**
Plot S	56	90	222	66	0	**434**	0	0	67	64	10	**141**
Plot T	0	0	0	0	0	**0**	0	137	209	77	0	**423**
Plot U	15	10	45	0	0	**70**	0	0	42	85	0	**127**
Total	**362**	**858**	**1,594**	**482**	**4**	**3,300**	**0**	**241**	**755**	**666**	**38**	**1,700**

Waste Generation

Table 6-2 shows the weekly waste generation for each residential plot, as well as the compositional breakdown according to the LBN (2014) guidance.

Table 6-2 Estimated weekly waste generation per residential plot

Residential Waste		Waste generation and composition		
Plot	**Total no. of units**	**Residual waste (litres per week)**	**Mixed recyclables (litres per week)**	**Total waste to be stored in bin room(s) (litres per week)**
The Landings				
Plot A	195	27,270	8,181	35,451
Plot B	206	32,430	9,729	42,159
Plot D	206	40,690	12,207	52,897
Parkside				
Plot C	145	21,920	6,576	28,496
Plot E	267	43,080	12,924	56,004
Plot F	326	49,820	14,946	64,766
The Quays				
Plot G	320	48,800	14,640	63,440
Plot J	218	33,210	9,963	43,173
Plot M	205	31,000	9,300	40,300

Plot N	313	48,170	14,451	62,621
Thameside Crescent				
Plot H	143	28,580	8,574	37,154
Plot K	207	42,750	12,825	55,575
Plot L	211	42,380	12,714	55,094
Plot P	83	16,140	4,842	20,982
Riverside Quarter				
Plot Q	218	41,260	12,378	53,638
Plot R	542	83,040	24,912	107,952
Plot S	575	98,030	29,409	127,439
Plot T	423	67,710	20,313	88,023
Plot U	197	37,690	11,307	48,997
TOTAL	**5,000**	**833,970**	**250,191**	**1,084,161**

Bin Numbers

As explained in Section 3.2, a 'hybrid' collection strategy is the preferred waste management option for the proposed development.

In the 'hybrid' collection option, waste from the 2,497 market units in Thameside Crescent, The Quays and Riverside Quarter would be compacted. This would greatly reduce the amount of space required for waste storage. Residents from these units would still dispose of their waste in waste rooms. However, these rooms would be emptied three times per week by the on-site FM team, with bins emptied into compactors.

The remaining 2,503 units (all dwellings in The Landings and Parkside, and the affordable dwellings in Thameside Crescent and Riverside Quarter) would still be served by the traditional local authority collection option.

Table 6-3 shows the total indicative bin numbers required in the residents' waste rooms per residential plot for the 'hybrid' strategy.

Table 6-3 Indicative bin numbers per residential plot ('hybrid' collection option)

	Waste generation and composition				
Plot	**Type of bin room(s)**	**Residual waste to be stored in waste rooms (litres per week)**	**Mixed recyclables to be stored in waste rooms (litres per week)**	**Total bins for residual waste (rounded)***	**Total bins for mixed recyclables (rounded)***
				1,100 litres	**1,100 litres**
The Landings					
Plot A	Shared	27,270	8,181	25	8
Plot B	Shared	32,430	9,729	30	9
Plot D	Shared	40,690	12,207	37	11
Parkside					
Plot C	Shared	21,920	6,576	20	6
Plot E	Shared	43,080	12,924	39	12
Plot F	Shared	49,820	14,946	46	14
The Quays					
Plot G	Market units	48,800	14,640	15	5
Plot J	Market units	33,210	9,963	10	3
Plot M	Market units	31,000	9,300	10	3
Plot N	Market units	48,170	14,451	15	5
Thameside Crescent					
Plot H	Affordable units	28,580	8,574	26	8
Plot K	Market units	18,030	5,409	6	2
	Affordable units	24,720	7,416	23	7
Plot L	Market units	15,710	4,713	5	2
	Affordable units	26,670	8,001	25	8
Plot P	Affordable units	16,140	4,842	15	5
Riverside Quarter					
Plot Q	Market units	32,990	9,897	10	3
	Affordable units	8,270	2,481	8	3
Plot R	Market units	83,040	24,912	25	8
Plot S	Market units	68,180	20,454	21	6
	Affordable units	29,850	8,955	27	8
Plot T	Affordable units	67,710	20,313	62	19
Plot U	Market units	10,150	3,045	3	1
	Affordable units	27,540	8,262	25	8
	TOTAL	**833,970**	**250,191**	**528**	**164**

*assuming bins in Thameside Crescent, The Quays and Riverside Quarter market unit waste rooms are emptied into compactors three times per week. Bin numbers have been rounded up if the decimal exceeds 0.2.

This 'hybrid' option would require storage space being provided for approximately 692 x 1,100 litre Eurobins. This would save storage space for approximately 133 x 1,100 litre bins compared to if an all 'traditional' collection option were implemented.

In addition, compaction would greatly reduce the time and resources required by LBN to service the site. LBN would need to collect approximately 534 x 1,100 litre Eurobins per week, as they would not collect the bins from the market units in Thameside Crescent, The Quays and Riverside Quarter. This option would therefore save LBN collecting approximately 291 x 1,100 litre bins each week.

Compactor Requirements

Two compacting hubs have been incorporated within the outline masterplan, one located in Thameside Crescent, the other in Riverside Quarter. Waste from the market unit bin rooms in Thameside Crescent and The Quays will be moved to the compacting hub in Thameside Crescent. Waste from the market units in Riverside Quarter will be moved to the compacting hub in Riverside Quarter.

In each of the compacting hubs, two portable compactors (one for mixed recyclables; one for residual waste) have been provided. In order to reduce the number of servicing vehicle trips required each week, it has been assumed that both mixed recyclables and residual waste will be stored in large 22 m^3 roll-on roll-off compactors, rather than in smaller skip-lift compactors.

The compaction ratios for both waste streams have been based on correspondence with portable compactor suppliers. A number of suppliers reported a compaction ratio for residual waste up to 6:1. However, to account for the fact that the residual waste stream will consist of organic waste and glass (both of which are dense materials), a lower compaction ratio has been assumed (4:1). A compaction ratio of 3:1 has been assumed for mixed recyclables, as a higher compaction ratio would spoil the quality of the recyclate.

Table 6-4 details the compactor requirements for the scheme, based on the assumptions above.

Table 6-4 Indicative compactor requirements (Thameside Crescent, The Quays and Riverside Quarter)

Compactor Requirements							
Waste generation and composition (market units only)				Number of compactors		Number of collections per week*	
Number of market units served by compactors	Total waste to be stored in compactors (litres per week)	Residual waste (litres per week)	Mixed recyclables (litres per week)	Residual waste	Mixed recyclables	Residual waste	Mixed recyclables
				22,000 litres	22,000 litres		
Thameside Crescent Compacting Hub							
1,266	253,396	194,920	58,476	1	1	3	1
Riverside Quarter Compacting Hub							
1,231	252,668	194,360	58,308	1	1	3	1

Bulky Waste

In addition, designated storage space should be provided for bulky waste. In line with LBN guidance, the total floor area provided for the storage of bulky waste should equate to 10 m^2 per 50 households. 1,000 m^2 would therefore be needed for bulky waste storage. In the current design, space for bulky waste storage has been provided in line with this requirement.

6.3 Non-Residential Uses (A1-A4, B1c, B2, B8, D1 and D2)

Waste estimations for the non-residential elements of the outline masterplan have been based on the parameters shown in Table 6-5.

Table 6-5 Outline parameters for non-residential elements

	GIA (m^2)			
Plot	Retail	General industrial	B1, B2 (restricted), B8 industrial	Community benefit
The Landings				
Plot A	0	0	1,789	0
Plot B	198	0	1,561	0
Plot D	0	0	791	0
The Quays				
Plot G	1,185	0	0	0
Plot J	393	0	0	0
Plot N	434	0	0	0
Riverside Quarter				
Plot Q	500	0	0	1,700
Plot R	1,030	0	0	0
Plot S	2,057	0	0	0
Plot T	474	0	0	0
Plot U	708	0	0	0
Other				
Industrial site	0	14,250	0	0
Nursery	0	0	0	943
Four-form entry primary school	0	0	0	4,058

These outline parameters have been used to estimate weekly waste volumes for each non-residential use. Waste generation estimations have been informed by the following assumptions, which have been gleaned from industry experience:

Flexible Retail Floorspace (A1-A4)

- As outlined in Section 5.3, it is assumed that the flexible retail units in Phase 1 will incorporate retail (A1) land use;
- For the purposes of conservative assessment, it is assumed that 50% of the remaining flexible retail floorspace will be café/restaurant (A3) land use and 50% retail (A1) land use. This is to ensure that sufficient waste storage space is provided in the flexible retail units for any future uses, as A3 land use tends to produce the highest volumes of waste;
- A waste generation rate of 10 litres per m^2 gross floor space per week has been assumed for A1 land use;
- A composition split of 50% residual and 50% mixed recyclables has been assumed for A1 land use;
- For A3 land use, a waste generation rate of 31 litres per m^2 gross floor space per week has been assumed;
- For A3 land use, a composition split of 20% residual waste, 10% mixed recyclables, 20% glass, 20% organics and 30% paper/card has been assumed; and
- A standard waste collection frequency of three times per week for all streams.

General Industrial / Flexible Employment Floorspace (B1c, B2, B8) / Community and Leisure (D1, D2)

- A waste generation rate of 5 litres per m^2 gross floor space per week;
- A composition split of 70% residual and 30% mixed recyclables; and
- A standard waste collection frequency of three times per week for all streams.

Nursery and Primary School

- It has been estimated that the nursery and four-form entry primary school will accommodate a maximum of 944 pupils;
- A waste generation rate of 11.25 litres per pupil per week;
- A composition split of 70% residual and 30% mixed recyclables; and
- A standard waste collection frequency of three times per week for all streams.

Table 6-6 details the weekly waste generation for each of the non-residential elements coming forward as part of the outline masterplan.

Table 6-6 Estimated weekly waste generation for non-residential elements of outline masterplan

Waste generation (litres per week)					
Plot	**Residual waste**	**Mixed recyclables**	**Glass**	**Organics**	**Paper/card**
The Landings					
Plot A (flexible employment)	6,262	2,684	0	0	0
Plot B (retail – A1)	990	990	0	0	0
Plot B (flexible employment)	5,464	2,342	0	0	0
Plot D (flexible employment)	2,769	1,187	0	0	0
The Quays					
Plot G (retail – A1)	2,963	2,963	0	0	0
Plot G (retail – A3)	3,674	1,837	3,674	3,674	5,510
Plot J (retail – A1)	983	983	0	0	0
Plot J (retail – A3)	1,218	609	1,218	1,218	1,827
Plot N (retail – A1)	1,085	1,085	0	0	0
Plot N (retail – A3)	1,345	673	1,345	1,345	2,018
Riverside Quarter					
Plot Q (retail – A1)	1,250	1,250	0	0	0
Plot Q (retail – A3)	1,550	775	1,550	1,550	2,325
Plot Q (community and leisure)	5,950	2,550	0	0	0
Plot R (retail – A1)	2,575	2,575	0	0	0
Plot R (retail – A3)	3,193	1,597	3,193	3,193	4,790
Plot S (retail – A1)	5,143	5,143	0	0	0
Plot S (retail – A3)	6,377	3,188	6,377	6,377	9,565
Plot T (retail – A1)	1,185	1,185	0	0	0
Plot T (retail – A3)	1,469	735	1,469	1,469	2,204
Plot U (retail – A1)	1,770	1,770	0	0	0
Plot U (retail – A3)	2,195	1,097	2,195	2,195	3,292

Other					
Industrial site	49,875	21,375	0	0	0
School/nursery	7,434	3,186	0	0	0

It is proposed that 1,100 litre Eurobins are used to store residual waste, mixed recyclables and paper/card. Meanwhile, glass will be stored in 360 litre Eurobins and organics in 240 litre Eurobins. For the purpose of conservative assessment, it has been assumed that the commercial space will be let out to multiple tenants and that each tenant will have its own clearly labelled bins. The indicative bin numbers for each non-residential element are shown in Table 6-7.

Table 6-7 Indicative bin numbers for non-residential elements of outline masterplan

Bin numbers (assuming three collections per week)*					
Plot	**Residual waste (1,100 litre)**	**Mixed recyclables (1,100 litre)**	**Glass (360 litre)**	**Organics (240 litre)**	**Paper/card (1,100 litre)**
The Landings					
Plot A (flexible employment)	2	1	0	0	0
Plot B (retail – A1)	1	1	0	0	0
Plot B (flexible employment)	2	1	0	0	0
Plot D (flexible employment)	1	1	0	0	0
The Quays					
Plot G (retail – A1)	1	1	0	0	0
Plot G (retail – A3)	1	1	4	5	2
Plot J (retail – A1)	1	1	0	0	0
Plot J (retail – A3)	1	1	1	2	1
Plot N (retail – A1)	1	1	0	0	0
Plot N (retail – A3)	1	1	2	2	1
Riverside Quarter					
Plot Q (retail – A1)	1	1	0	0	0
Plot Q (retail – A3)	1	1	2	2	1
Plot Q (community and leisure)	2	1	0	0	0
Plot R (retail – A1)	1	1	0	0	0
Plot R (retail – A3)	1	1	3	5	2
Plot S (retail – A1)	2	2	0	0	0
Plot S (retail – A3)	2	1	6	9	3
Plot T (retail – A1)	1	1	0	0	0
Plot T (retail – A3)	1	1	2	2	1
Plot U (retail – A1)	1	1	0	0	0
Plot U (retail – A3)	1	1	2	3	1
Other					
Industrial site	15	7	0	0	0
School/nursery	3	1	0	0	0

*bin numbers have been rounded up if the decimal exceeds 0.2

7 Conclusions

7.1 Summary

This OWMS has described how waste generated from the proposed Thameside West development will be managed once the development becomes operational. The document submitted at this stage sets out a long-term strategy for both the detailed and outline components of the proposed development, although it should be noted that the OWMS will need to be updated at subsequent reserved matters stages for the components currently covered in outline to ensure that adequate waste storage is provided for each phase of the development.

In terms of residential waste generation, it has been estimated that, in total, approximately 1,084,161 litres of waste will be produced by residents across the outline scheme each week. All residential units will be provided with sufficient internal storage to ensure that their waste can be segregated into mixed recyclables and residual waste.

Residents will carry their bagged waste via stairs or lifts to a dedicated waste room at basement, ground, or – as is the case in Phase 1 – first floor podium level. In Phase 1, waste storage facilities have been partitioned into FoH and BoH areas, on the basis that this will save space and mean that residents are not required to carry waste over LBN specified distances. It is recommended that this option is explored at reserved matters stages when the subsequent phases come forward in detail.

An on-site FM team will manage residential waste across the site and will be responsible for moving bins from Thameside Crescent, The Quays and Riverside Quarter market units to one of two compacting hubs, along with moving bins from other areas of the site to the appropriate designated collection area. The waste rooms serving Thameside Crescent, The Quays and Riverside Quarter market units have been sized to provide sufficient capacity for a thrice-weekly collection. The waste rooms across the remainder of the scheme provide sufficient capacity for a weekly collection.

All residential waste will be collected by LBN, so that residents are not required to pay twice for their waste collection. The strategy is therefore dependent on LBN being able to offer a compactor collection service in future, although there is adequate flexibility in the design to explore other potential waste management options at reserved matters stages, if required. LBN's waste management division agreed to this approach in principle when they were consulted.

Substantial quantities of waste will also be generated by the non-residential elements of the scheme. Tenants in those units will be responsible for transferring waste to bins in dedicated waste storage rooms and for presenting bins at the appropriate centralised storage area, ready for collection by a private contractor.

As a conservative estimate, it has been assumed that waste from the non-residential elements of the scheme will be collected three times per week, although this collection frequency can be revised, if desired.

7.2 Circular Economy Statement

In line with Policy SI7 of the Intend to Publish London Plan, the following measures outlined in this OWMS will help promote circular economy outcomes:

- Residential waste across the proposed development will be managed by an FM team, who will ensure that residents are well informed about best recycling practices;
- All residential dwellings will be provided with a number of small receptacles to allow residents to segregate recyclable waste;
- Dedicated waste storage rooms have been incorporated across the site, with sufficient capacity provided for both residual waste and mixed recyclables; and
- Dedicated storage points for bulky waste have been accommodated across the scheme. These spaces provide an opportunity – if desired – for residents and the FM team to promote re-use initiatives. For example, residents wanting to donate a piece of furniture for re-use could communicate this to other residents through the FM team.

Appendix A Waste Management Policy and Guidance

A.1 National Context

National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019)

The National Planning Policy Framework (NPPF) notes that the purpose of the planning system is to contribute to the achievement of sustainable development. The document identifies three dimensions to sustainable development: economic, social and environmental. As part of its environmental role, the planning system should help to use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

The 2012 NPPF did not contain specific waste policies, since national waste planning policy was published as part of the National Waste Management Plan for England. Similarly, the revised NPPF should be read in conjunction with the government's separate planning policy for waste. Where waste is mentioned, there is little difference between what is said in the 2012 and revised versions of the Framework. Both documents note that efforts must be made to minimise waste generation and to facilitate the sustainable use of recycled materials and minerals.

National Planning Policy for Waste (Ministry of Housing, Communities and Local Government, 2014)

The National Planning Policy for Waste document states that non-waste planning applications should consider the impact on existing and planned waste infrastructure and that suitable provision should be made for managing waste within new developments.

Government Review of Waste Policy in England (Department for Environment, Food and Rural Affairs, 2011)

This document prioritises efforts to manage waste in line with the waste hierarchy and reduce the carbon effect of managing waste. The document also encourages waste prevention and reuse, supporting greater resource efficiency and initiatives which reward and recognise individuals who reduce, reuse and recycle their waste. It also sets out plans to work with councils to increase the frequency and quality of waste collections and to make it easier to recycle.

Waste Management Plan for England (Department for Environment, Food and Rural Affairs, 2013)

This plan explains the measures that are already in place, starting with the government's waste review in 2011. It details the continued Courtauld Commitment, which sets new targets to reduce waste from the grocery sector by 1.1 million tonnes by 2015, with potential savings to industry and consumers of £1.6 billion. It goes on to detail new packaging targets, such as the aim to increase the recycling of plastic packaging to 42% by 2017. It also details the aim to improve quality at the Materials Recovery Facilities (MRF) that deal with much of the waste we generate.

Our Waste, Our Resources: A Strategy for England (Department for Environment, Food and Rural Affairs, 2018)

This strategy sets out plans to double resource productivity and eliminate avoidable wastes of all kinds by 2050. It includes details of how waste will be minimised and managed to reduce damage to the environment. The strategy gives a policy direction in line with Defra's (2018) 25 Year Environment Plan, with a particular focus on moving away from a traditional linear economic model towards a more sustainable and efficient circular model.

Relevant targets from this document include the following:

- To work towards achieving a 65% recycling rate for municipal solid waste (MSW) by 2035;
- To work towards sending 10% or less of MSW to landfill by 2035; and
- To eliminate all avoidable waste by 2050.

A.2 Regional Context

The Mayor's Municipal Waste Management Strategy (Greater London Authority, 2011)

This document sets out the former Mayor's policies and proposals for reducing the amount of municipal waste produced and increasing the amount of waste that is reused, recycled or composted. Broadly, the key targets are for zero waste to landfill, a reduction in household waste generation rates of 20%, an increase in recycling rates to 60% and the generation of energy from waste, where appropriate.

The Mayor's Business Waste Management Strategy (Greater London Authority, 2011)

This document sets out a range of initiatives aimed at helping London's businesses (i.e. shops, restaurants, office buildings, manufacturers, construction companies, etc.) to save money and minimise their harmful impacts on the environment through improved waste management. Of particular relevance are the former Mayor's proposals to ensure that buildings provide suitable storage and access for effective waste management.

London Plan (consolidated with alterations since 2011) (Greater London Authority, 2016)

This document describes an integrated economic, social, environmental and transport framework for the development of London over the 20 to 25 years following the issue of the plan. The plan sets out to improve the environment and tackle climate change, in part by improving London's recycling performance and waste management. The plan provides guidance on designing out waste in buildings during the early stages of a project and on the importance of sufficient and well-designed storage for recyclables, organic and residual waste. The plan also recognises the importance of implementing the waste hierarchy.

The waste policies included in the plan seek to manage as much of London's waste within London as practicable, with the aim of managing the equivalent of 100% of London's waste (municipal and commercial/industrial waste) arisings in London by 2026.

Intend to Publish London Plan (GLA, 2019)

Consultation on a new draft London Plan ended on 2nd March 2018. Examination in Public opened in January 2019. The revised plan is being developed to provide a new approach to the sustainable, inclusive growth and future development of London. The primary aim of the new plan is to provide a coherent strategy to address the ongoing housing crisis in the city by re-balancing development towards more affordable housing to allow a greater number of working Londoners to buy and rent in London. The new plan also aims to deliver a more socially integrated, environmentally sustainable, and health/wellbeing conscious city.

The new London Plan places an emphasis on London's need to become more energy self-sufficient. Currently, 95% of energy is sourced from outside of the Greater London Authority's (GLA) boundaries. Amongst other energy sources, the Mayor of London aims to increase the use of energy from waste schemes in district heating networks. In addition, the plan provides guidance and targets for London boroughs to achieve improved adoption of the waste hierarchy through promotion of circular economy initiatives, encouraging the re-use and recycling of materials, and reducing the amount of waste going for disposal. Further waste related policies in the London Plan build on previous London Plans' guidance regarding the need to ensure sufficient and well-designed waste management and storage facilities on site and to safeguard waste sites to accommodate future requirements.

The Intend to Publish London Plan places an emphasis on the need for all London boroughs to move towards a circular economy model, with sustainable waste practices being one key part of this ambition. In line with this aspiration, Policy SI7 of the Intend to Publish London Plan requires that new schemes in London are designed in a way that supports the reduction, re-use and recycling of operational waste.

More specifically, Policy SI7 – B (parts 4 and 5) refers to the need to:

- Ensure that sufficient storage space is provided within the development to support recycling and re-use purposes; and
- Ensure that assessments have been carried out to estimate the operational waste arisings that the proposed development will produce, as well as identifying how this waste will be stored, moved and finally collected.

A.3 Local Context

Joint Waste Development Plan for the East London Waste Authority Boroughs (2012)

The Joint Waste Development Plan (JWDP) covers the four East London Waste Authority (ELWA) boroughs: Barking & Dagenham, Havering, Newham, and Redbridge. It provides a planning strategy for sustainable waste management up until 2021.

Policy W1 of the JWDP aims to drive waste management up the waste hierarchy by promoting waste minimisation, materials reuse, recycling and recovery of resources.

LBN Waste Management Guidelines for Architects and Property Developers (LBN, 2014)

This document provides guidance for architects and developers of new residential, commercial and mixed-use units in Newham, to ensure that the arrangements for storing, collecting and managing waste are appropriate. Of specific relevance are the following guidelines:

- LBN currently provides weekly refuse collection services for residents living in purpose-built flats;
- LBN recommends that developers provide a total of 0.25 m^3 (250 litres) of waste storage capacity per dwelling;
- However, for developments where the average number of bedrooms in the dwellings is less than two, developers may choose to follow the formula for calculating waste storage capacity as set out in BS 5906:2005;
- Where the BS 5906:2005 calculation is being used, it is recommended that this be used to determine the refuse capacity, with recycling allocated as an additional 25-30% capacity on top of this;
- For developments with more than six households, communal 1,100 litre Eurobin containers should be provided for both refuse and recycling;
- Communal bin storage areas must be located within the footprint of the development and ideally be at ground level;
- Bin storage areas should be easily accessible for the dwellings that they serve, with residents being required to walk no further than 30m from their front door;
- Operatives should not be required to move 1,100 litre bins any further than 10m, measured from the furthest point within the storage/collection area to the loading position at the back of the vehicle;
- Designated storage facilities must be provided for residents to deposit bulky waste items. The total floor area provided for storage of bulky waste must equate to 10m^2 per 50 households; and
- External storage areas for waste on mixed-use developments must be segregated, so that domestic and commercial waste bins are in separate secured areas.

Newham Local Plan 2018 (LBN, 2018)

This document sets out the development vision for the London Borough of Newham, based on an analysis of the challenges and opportunities faced by the borough. The document covers waste management at a high level. In line with the waste hierarchy, the borough is committed to maximising the resource value of waste products, prioritising reduction, reuse, recycling and energy recovery over disposing of residual waste in landfill.

Developments should ensure on-site handling and storage can meet the needs of the development and local collection arrangements without amenity impacts for occupiers or neighbours. This includes future-proofing through the facilitation of tri-separation and a separate food waste collection service.

A.4 Other Relevant Waste Guidance

Making Space for Waste, A Practical Guide for Developers and Local Authorities (Association of Directors of Environment, Economy, Planning and Transport (ADEPT), 2010)

This document has been prepared to allow developers to follow a step-by-step process when considering the design of waste facilities in new developments.

Building Regulations 2010 Part H6 and British Standards 5906:2005

These two documents set a number of recommendations based on best practice and efficiency principles. Of specific relevance are the following recommendations:

- Residents should not be required to carry waste more than 30 metres horizontally from the dwelling to designated waste disposal point;
- Commercial waste should be stored separately from residential waste in dedicated waste storage rooms and appropriate bins should be accommodated dependent on the nature of activities likely to take place;
- A minimum clear space of 150 mm should be provided between and around all bins in waste storage rooms;
- Adequate space must be provided for the easy and efficient movement of bins over smooth, continuous surfaces;
- For health and safety reasons, all waste storage rooms should only be accessible by the users, the facilities management (FM) team and the appointed waste collectors;
- Adequate lighting, drainage and ventilation conditions should be provided. A total ventilation area of minimum 0.2 m^2 of free air or six air changes per hour should be accommodated;
- A minimum of 2 m head clearance should be provided in waste storage rooms;
- Waste storage rooms should use double doors. Door width clearances should provide a minimum of 1.5 m of space. When appropriate, sliding doors may be used;
- Arrangements should be made in the waste storage room for washing down and draining the floor into a system suitable for receiving a polluted effluent; and

The walls and roofs of the waste storage rooms should be of non-combustible materials and have a fire resistance of one hour.

Appendix B LBN Waste Strategy Meeting Minutes

BUROHAPPOLD ENGINEERING

Minutes

Subject	Thameside West - Waste Strategy Meeting	Job no	035668
Place	London Borough of Newham	Date	17 October 2018
Present	Edward Wilkins (EW) (BuroHappold) Jose Sorribes (JS) (BuroHappld) Trevor Curson (TC) (BuroHappold) Giles Martin (GM) (Keystone) Helen Dennis (HD) (LBN) Claire Newitt (CN) (LBN)	Apologies	
Distribution	Charles Calverley (Keystone) Bethan James (GLA Land and Property) Emily Rix (Foster + Partners) Rachel Patel (Foster + Partners) Aidan Potter (John McAslan + Partners) Tatiana Vela (John McAslan + Partners) Justin Kenworthy (Barton Willmore) Sinéad Morrissey (Barton Willmore) Chris Mullett (BuroHappold) Clare Jones (BuroHappold) Nathaniel Gregory (Meinhardt) Erin Peek (Meinhardt)		

Objective of meeting: to discuss the proposed waste management strategy for Thameside West and to come to an agreed position for the planning submission.

Item			Action
1.0	**Proposed waste management strategy**		
	1.1	EW outlined the proposed waste management strategy for Thameside West, explaining that a 'hybrid' strategy (part traditional/part compactor) was the preferred option, as an all traditional option would require excessive space for bin storage and collection.	
	1.2	HD suggested that EW use the BS 5906:2005 generation rate in their calculations, as this would reduce the number of bins required across the site. EW to update waste generation calculations.	EW
	1.3	HD noted that 25-30% additional capacity for recycling should be added when using the BS 5906:2005 generation rate, in line with LBN guidance.	

Minutes taken by: Edward Wilkins

	1.4 HD expressed concern over the collection of compactors by a private contractor.	
	1.5 TC explained that the compacting issue would only arise in the later phases (The Quays and Riverside Quarter). Residential waste from the earlier phases will be stored in bins and collected by LBN.	
	1.6 GM explained that the scheme design was now frozen. While compacting areas will be shown in the outline planning submission, there will be scope to adapt the waste management strategy at reserved matters stages if required. HD agreed to this approach in principle and awaits confirmation from planning that they are happy this approach is acceptable.	
2.0	**Options for planning submission**	
	2.1 GM/TC/HD agreed that the waste management policy landscape will have evolved by the time The Quays and Riverside Quarter are constructed, and that there are a number of potential waste management options available for these areas of the site.	
	2.2 HD mentioned that LBN would be renewing the vehicle they use to collect underground bins.	
	2.3 HD explained that one potential option is to use a truck model with a demountable body and interchangeable system, which can also be used to collect waste compactors and roll-on roll-off containers. HD to send over details of the truck options that LBN are considering.	HD
	2.4 HD explained that purchasing a separate compactor collection truck might not be economical, due to the limited number of developments in Newham using compactors at present.	
	2.5 GM suggested that there was potential to assist with the purchase of a compactor collection truck for LBN.	
	2.6 HD stated that LBN would be happy to explore this as a potential option at reserved matters stages.	
	2.7 HD also suggested that LBN's operatives might be reluctant to collect compactors from the development more than once a week.	
	2.8 EW explained that more trucks/vehicle trips would likely be required for the all traditional bin collection option.	
	2.9 HD stated that LBN would be happy to explore increasing bin collection frequency as a potential option. HD explained that this would be preferred over using a private contractor to collect compactors.	
3.0	**Bulky waste storage**	
	3.1 EW asked if there was potential to use some space allocated for bulky waste storage to store bins instead. HD explained that this was a potential option that could be explored at reserved matters.	
	3.2 HD explained that residents typically have to arrange their own bulky waste collections.	
	3.3 GM stated that their preferred option would be for bulky waste collections to be arranged by site management. Site management can only manage bulky waste collections if the site opt to use a private contractor for these collections, rather than the LBN bulky waste chargeable service. HD agreed to this approach in principle.	

4.0 Phase 1A waste collection points		
4.1	EW explained the collection arrangements for Phase 1A.	
4.2	EW explained that the current proposal is for bins from Block B (previously known as Block A) to be wheeled by an FM team to an external collection point by site management and collected by LBN from the adjacent slip road. HD agreed to this approach in principle.	
4.3	HD stated that a tapered loading bay would need to be provided if bins from the external collection point were collected from North Woolwich Road. HD agreed to this arrangement in principle and explained that LBN would likely be able to restrict use of the loading bay so that it could only be used by refuse vehicles. Meinhardt to test vehicle access/egress.	Meinhardt
4.4	HD agreed in principle to the refuse vehicle manoeuvres shown for Block A (previously known as Block B) in Meinhardt's drawing 2303-C-SK021.	
4.5	GM suggested that the refuse vehicle follow the same manoeuvre as the fire tender in Meinhardt sketch 2303-C-SK021, reversing around the corner of Block A when making collections so that the rear of the vehicle is as close to the waste room as possible. HD agreed to this arrangement in principle. Meinhardt to test.	Meinhardt
5.0 AOB		
5.1	HD mentioned that LBN were using a different refuse collection vehicle to the one shown in their 2014 guidance.	
5.2	HD stated that this vehicle was likely to be slightly smaller than the previous model. HD to send details of new collection vehicle to EW. Note: there is no need to carry out swept paths with the new vehicle if it is smaller than the one shown in the 2014 guidance. Using the vehicle from the 2014 guidance provides a more conservative assessment.	HD

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.

Minutes taken by: Edward Wilkins

Appendix C Refuse Vehicle Swept Path Diagrams (Phase 1)

ISO A1 841mm x 594mm

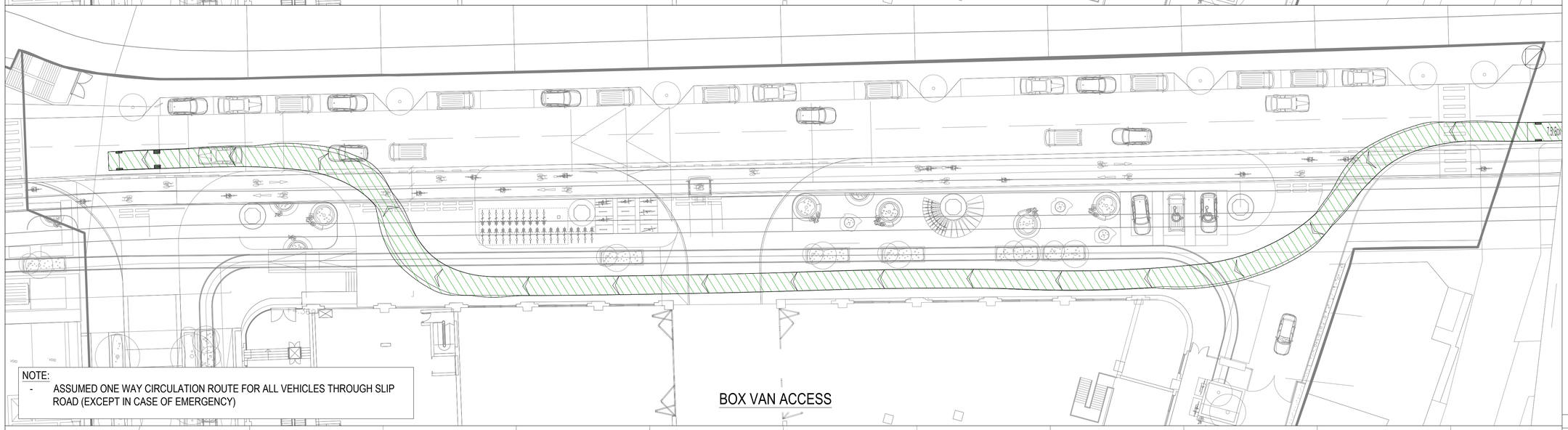
NOTE:
- TRACKING TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS. REQUIREMENT FOR ANY ADDITIONAL TRACKING FOR AN ALTERNATIVE FIRE TENDER/VEHICLE TO BE CONFIRMED.
- PROXIMITY OF LANDSCAPING PLANTERS TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS AND ADJUSTED BY LANDSCAPE ARCHITECT AS REQUIRED TO IMPROVE SERVICEABILITY.

NOTE:
- ALL JUNCTION INTERFACES WITH DOCK ROAD ARE TO BE CONFIRMED THROUGH DISCUSSIONS WITH TFL
- REFER TO MEINHARDT SKETCHES 2303-C-SK053 TO 2303-C-SK057 FOR MORE INFORMATION ABOUT PROPOSED JUNCTIONS WITH DOCK ROAD

NOTE:
- ASSUMED ONE WAY CIRCULATION ROUTE FOR ALL VEHICLES THROUGH SLIP ROAD (EXCEPT IN CASE OF EMERGENCY)
- DURING ONE WAY (EAST TO WEST) OPERATION THE REFUSE VEHICLE WILL EXIT DEVELOPMENT AS SHOWN. NOTE VEHICLE IS UNABLE TO COMPLETE A RIGHT TURN BACK ONTO NORTH WOOLWICH ROAD

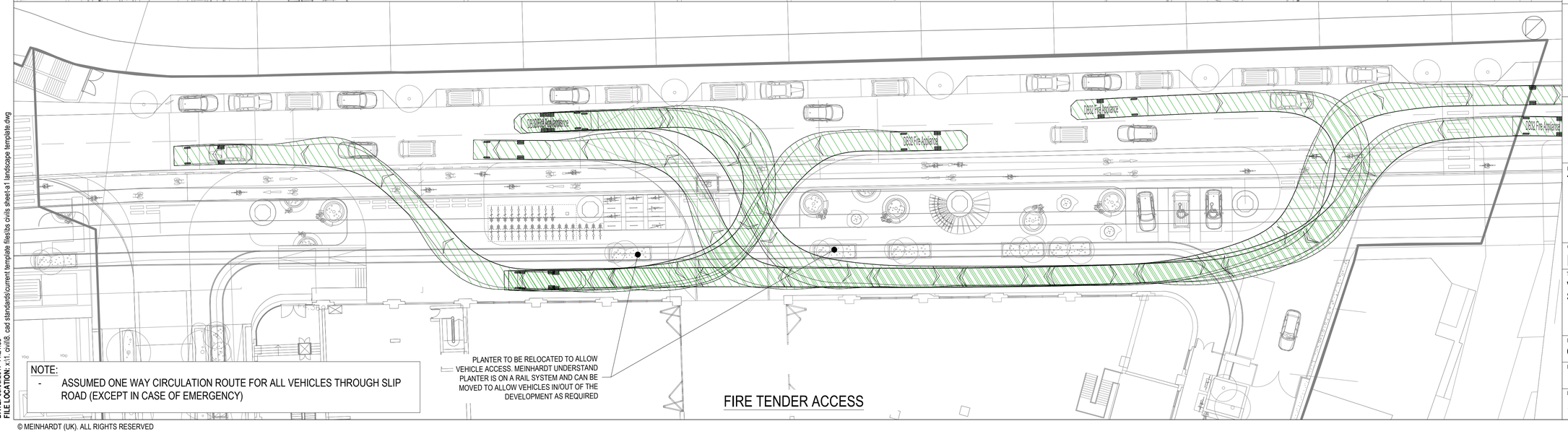
PLANTER TO BE RELOCATED TO ALLOW VEHICLE ACCESS. MEINHARDT UNDERSTAND PLANTER IS ON A RAIL SYSTEM AND CAN BE MOVED TO ALLOW VEHICLES IN/OUT OF THE DEVELOPMENT AS REQUIRED

REFUSE TENDER ACCESS



NOTE:
- ASSUMED ONE WAY CIRCULATION ROUTE FOR ALL VEHICLES THROUGH SLIP ROAD (EXCEPT IN CASE OF EMERGENCY)

BOX VAN ACCESS



NOTE:
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PLANTER TO BE RELOCATED TO ALLOW VEHICLE ACCESS. MEINHARDT UNDERSTAND PLANTER IS ON A RAIL SYSTEM AND CAN BE MOVED TO ALLOW VEHICLES IN/OUT OF THE DEVELOPMENT AS REQUIRED

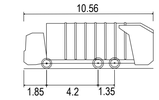
FIRE TENDER ACCESS

FOR INFORMATION

REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	EP	13.05.19
I02	REVISED ISSUE	EP	15.05.19
I03	REVISED ISSUE	BV	16.05.19
I04	REVISED TO SUIT LATEST LANDSCAPE ARCH LAYOUT	JD	12.02.20
I05	REVISED TO SUIT ALTERNATIVE REFUSE PROPOSAL	EP	18.02.2020
I06	REVISED TO SUIT UPDATED LAYOUT	JD	12.03.2020
I07	TRACKING UPDATED TO SUIT NEW LANDSCAPING LAYOUT	EP	27.04.20

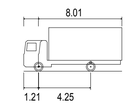
NOTES:

1. THIS DRAWING IS BASED ON:
   - PATEL TAYLOR PHASE 1 LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1013_S2-P09 RECEIVED 17 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph



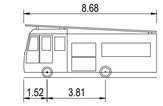
MERCEDES-BENZ ECONIC EURO 2692LL 6X2 REAR-STEER

OVERALL LENGTH	10.564m
OVERALL WIDTH	2.524m
OVERALL BODY HEIGHT	3.744m
MIN BODY GROUND CLEARANCE	0.296m
MAX TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	14.800m



7.5t BOX VAN

OVERALL LENGTH	8.010m
OVERALL WIDTH	2.100m
OVERALL BODY HEIGHT	3.556m
MIN BODY GROUND CLEARANCE	0.351m
TRACK WIDTH	2.064m
LOCK TO LOCK TIME	4.00 sec
KERB TO KERB TURNING RADIUS	7.400m



DB32 FIRE APPLIANCE

OVERALL LENGTH	8.680m
OVERALL WIDTH	2.180m
OVERALL BODY HEIGHT	3.452m
MIN BODY GROUND CLEARANCE	0.337m
MAX TRACK WIDTH	2.121m
LOCK TO LOCK TIME	6.00 sec
KERB TO KERB TURNING RADIUS	7.910m

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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PROJECT
THAMESIDE WEST

CLIENT
KEYSTONE PARTNERSHIP

TITLE
VEHICLE TRACKING
SLIP ROAD - UPDATED SERVICING OPTIONS

DISCIPLINE			SCALE @ A1
CIVILS DRAWING			NTS
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	NG	PH
DRAWING No			ISSUE
2303-C-SK044			I07

DATE: 03/08/2017 11:21:59
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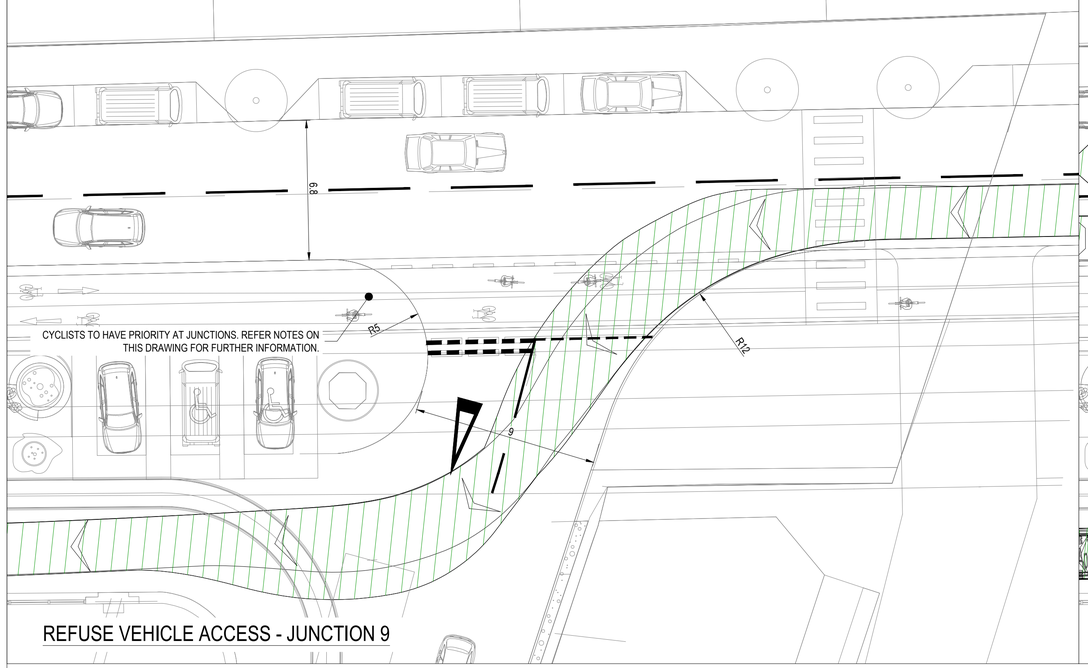
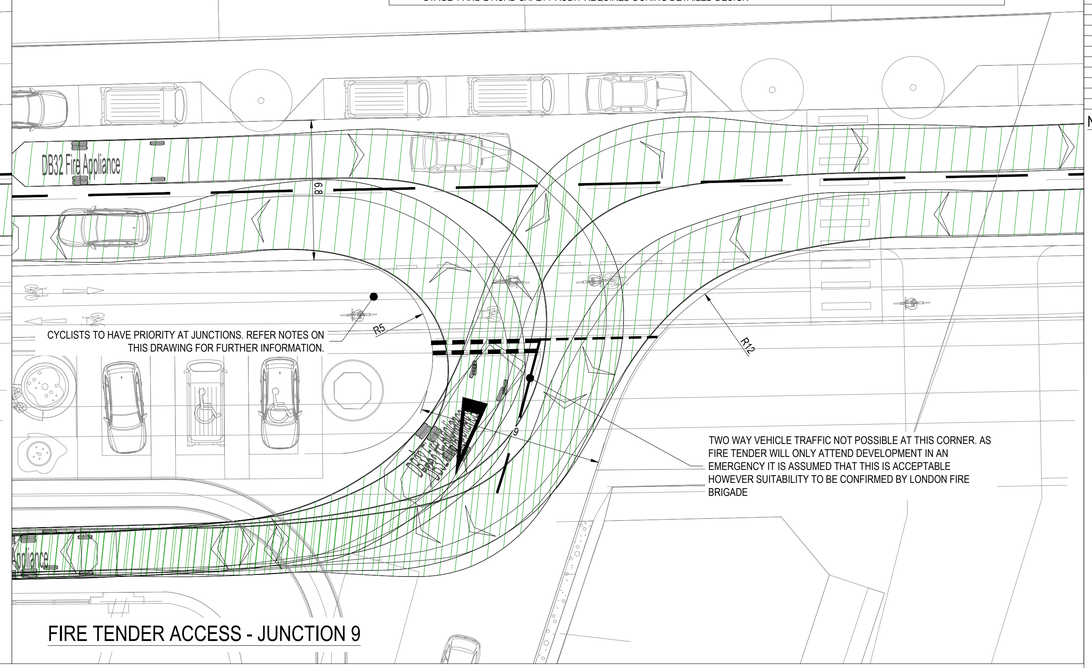
ISO A1 841mm x 594mm

NOTE:
- IT IS PROPOSED THAT THE PHASE 1 SLIP ROAD WILL OPERATE A ONE WAY IN/OUT SYSTEM
- DURING ONE WAY (EAST TO WEST) OPERATION THE REFUSE VEHICLE WILL ENTER THE DEVELOPMENT AS SHOWN
- AS DELIVERIES/SERVICE VEHICLES USING THIS SLIP ROAD WILL BE MANAGED IT IS ASSUMED THAT AT THE TIME OF A REFUSE PICKUP THE SLIP ROAD WILL BE CLEAR OF OTHER VEHICLES TO ALLOW FOR WASTE COLLECTION HOWEVER SUITABILITY OF THIS TO BE REVIEWED AND APPROVED BY LONDON BOROUGH OF NEWHAM



REFUSE VEHICLE ACCESS - JUNCTION 9

NOTE:
- VEHICLE TRACKING COMPLETED AS PART OF THIS SKETCH IS SUBJECT TO TfL'S REALIGNED DOCK ROAD DESIGN
- LINEMARKING SHOWN ON DOCK ROAD/NORTH WOOLWICH ROAD SUBJECT TO CONFIRMATION FROM TfL
- LINEMARKING SHOWN WITHIN SITE BOUNDARY INDICATIVE ONLY AND TO BE CONFIRMED DURING DETAILED DESIGN
- THE PURPOSE OF THIS SKETCH IS TO DEMONSTRATE DESIGN PRINCIPLES AND HIGH LEVEL FEASIBILITY OF EACH JUNCTION (WIDTH, GEOMETRY AND VEHICLE MOVEMENTS). FOR PEDESTRIAN AND/OR CYCLE ROUTES REFER TO PATEL TAYLOR OR BUROHAPPOLD RELEVANT INFORMATION
- TRACKING COMPLETED FOR LONDON BOROUGH OF NEWHAM REFUSE VEHICLE AND FIRE TENDER ONLY AS THESE ARE CONSIDERED THE WORST CASE DESIGN VEHICLES
- IT IS ASSUMED THE SPEED LIMIT ON THE REALIGNED DOCK ROAD WILL BE 30 MPH OR LESS
- ROAD DESIGN, JUNCTION GEOMETRY, VEHICLE TRACKING AND LINEMARKING IS SUBJECT TO FULL DETAILED DESIGN
- CYCLE LANES TO HAVE PRIORITY AT JUNCTIONS AS PER ADVICE FROM BUROHAPPOLD. MEINHARDT HAVE NOT BEEN PARTY TO ANY DISCUSSIONS WITH NEWHAM AND/OR TFL IN RELATION TO THIS PROPOSED STRATEGY
- TRACKING HAS BEEN COMPLETED BASED ON KERB RADII AS SHOWN ON PATEL TAYLOR'S LANDSCAPE LAYOUT
- STAGE 1 AND 2 ROAD SAFETY AUDIT REQUIRED DURING DETAILED DESIGN



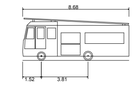
FIRE TENDER ACCESS - JUNCTION 9

FOR INFORMATION

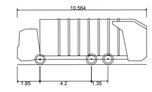
REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	EP	27.04.20

NOTES:

1. THIS DRAWING IS BASED ON:
   - PATEL TAYLOR PHASE 1 LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1013_S2-P09 RECEIVED 20 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph
3. TRACKING TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS. REQUIREMENT FOR ANY ADDITIONAL TRACKING FOR AN ALTERNATIVE FIRE TENDER/VEHICLE TO BE CONFIRMED.



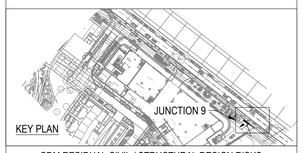
DB32 FIRE APPLIANCE	
OVERALL LENGTH	8.680m
OVERALL WIDTH	2.180m
OVERALL BODY HEIGHT	3.452m
MIN BODY GROUND CLEARANCE	0.337m
MAX TRACK WIDTH	2.121m
LOCK TO LOCK TIME	6.00 sec
KERB TO KERB TURNING RADIUS	7.910m



Mercedes-Benz Econic Euro 2692LL 6x2 Rear-Steer	
Overall Length	10.564m
Overall Width	2.524m
Overall Body Height	3.744m
Min Body Ground Clearance	0.296m
Max Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	14.800m

KEY:

PROPOSED KERB GEOMETRY (BASED ON LANDSCAPE PROPOSALS)



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PROJECT
THAMESIDE WEST

CLIENT
KEYSTONE PARTNERSHIP

TITLE
REVIEW OF JUNCTIONS WITH DOCK ROAD PHASE 1
SHEET 2

DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:150
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	CR	PH
DRAWING No			ISSUE
2303-C-SK057			I01

DATE: 09/08/2017 11:21:59
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ISO A1 841mm x 594mm

NOTE:
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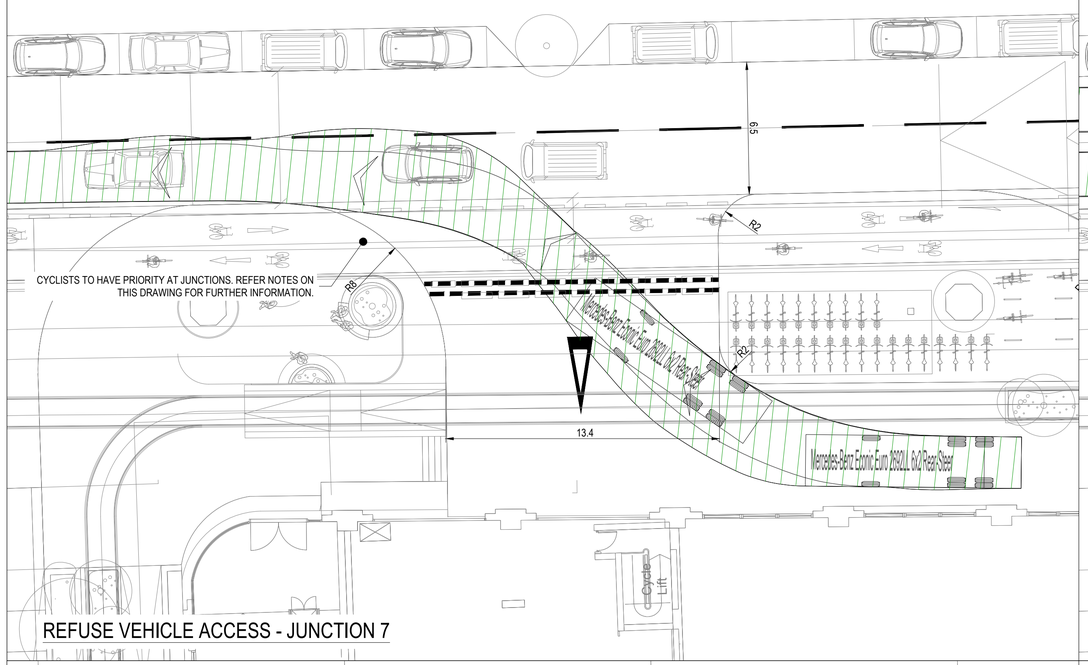
- DURING ONE WAY (EAST TO WEST) OPERATION THE REFUSE VEHICLE WILL EXIT DEVELOPMENT AS SHOWN. NOTE VEHICLE IS UNABLE TO COMPLETE A RIGHT TURN BACK ONTO NORTH WOOLWICH ROAD
- AS DELIVERIES/SERVICE VEHICLES USING THIS SLIP ROAD WILL BE MANAGED IT IS ASSUMED THAT AT THE TIME OF A REFUSE PICKUP THE SLIP ROAD WILL BE CLEAR OF OTHER VEHICLES TO ALLOW FOR WASTE COLLECTION HOWEVER SUITABILITY OF THIS TO BE REVIEWED AND APPROVED BY LONDON BOROUGH OF NEWHAM



REFUSE VEHICLE ACCESS - JUNCTION 7

NOTE:
- VEHICLE TRACKING COMPLETED AS PART OF THIS SKETCH IS SUBJECT TO TfL'S REALIGNED DOCK ROAD DESIGN
- LINEMARKING SHOWN ON DOCK ROAD/NORTH WOOLWICH ROAD SUBJECT TO CONFIRMATION FROM TfL
- LINEMARKING SHOWN WITHIN SITE BOUNDARY INDICATIVE ONLY AND TO BE CONFIRMED DURING DETAILED DESIGN
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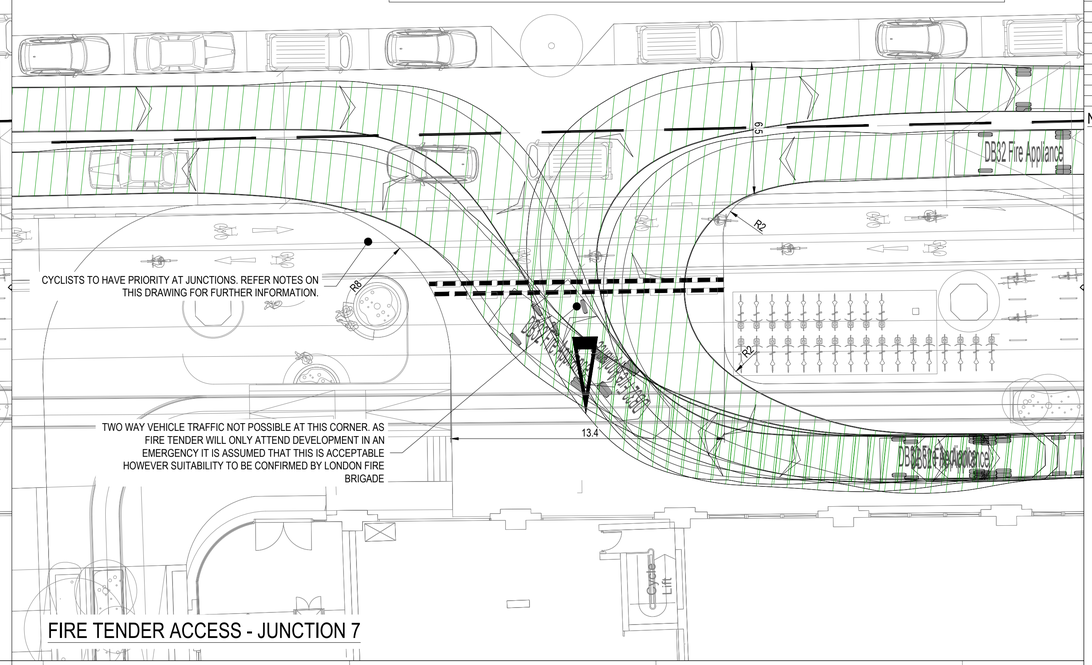
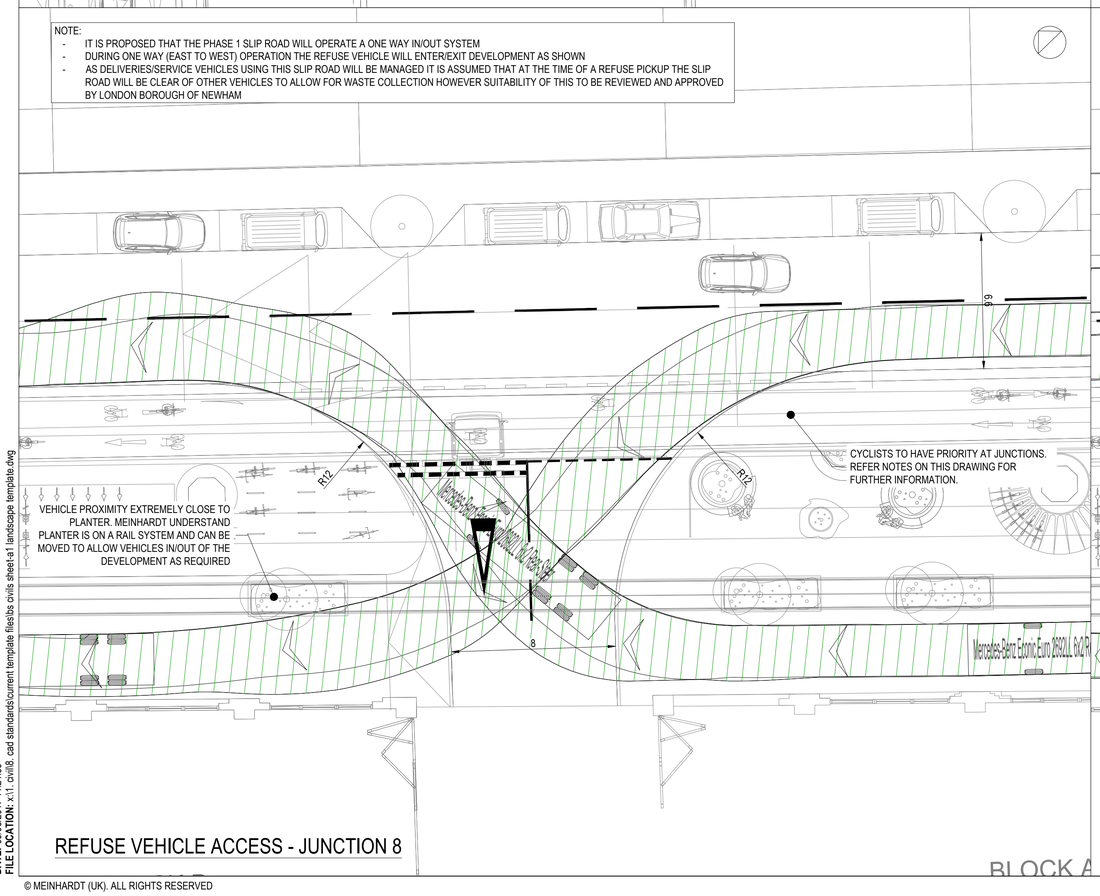
- TRACKING HAS BEEN COMPLETED BASED ON KERB RADII AS SHOWN ON PATEL TAYLOR'S LANDSCAPE LAYOUT
- STAGE 1 AND 2 ROAD SAFETY AUDIT REQUIRED DURING DETAILED DESIGN



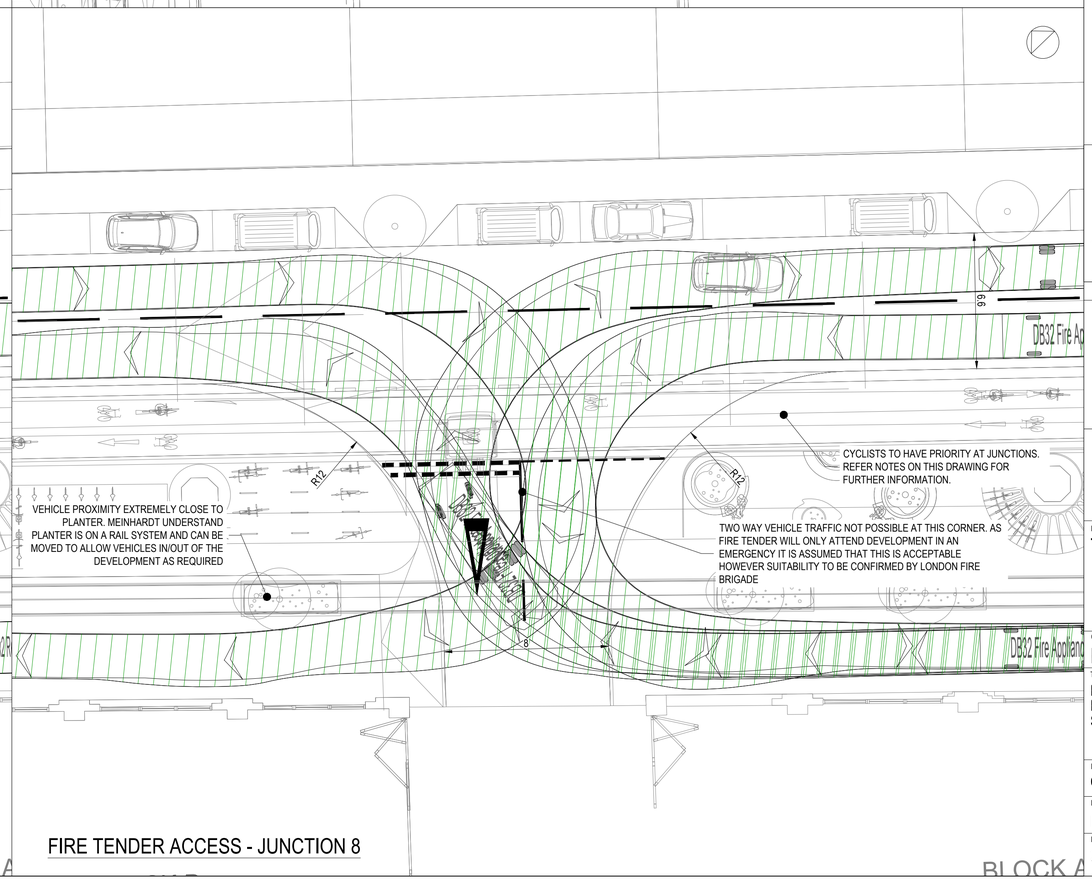
TWO WAY VEHICLE TRAFFIC NOT POSSIBLE AT THIS CORNER. AS FIRE TENDER WILL ONLY ATTEND DEVELOPMENT IN AN EMERGENCY IT IS ASSUMED THAT THIS IS ACCEPTABLE HOWEVER SUITABILITY TO BE CONFIRMED BY LONDON FIRE BRIGADE

FIRE TENDER ACCESS - JUNCTION 7

NOTE:
- IT IS PROPOSED THAT THE PHASE 1 SLIP ROAD WILL OPERATE A ONE WAY IN/OUT SYSTEM
- DURING ONE WAY (EAST TO WEST) OPERATION THE REFUSE VEHICLE WILL ENTER/EXIT DEVELOPMENT AS SHOWN
- AS DELIVERIES/SERVICE VEHICLES USING THIS SLIP ROAD WILL BE MANAGED IT IS ASSUMED THAT AT THE TIME OF A REFUSE PICKUP THE SLIP ROAD WILL BE CLEAR OF OTHER VEHICLES TO ALLOW FOR WASTE COLLECTION HOWEVER SUITABILITY OF THIS TO BE REVIEWED AND APPROVED BY LONDON BOROUGH OF NEWHAM



REFUSE VEHICLE ACCESS - JUNCTION 8



TWO WAY VEHICLE TRAFFIC NOT POSSIBLE AT THIS CORNER. AS FIRE TENDER WILL ONLY ATTEND DEVELOPMENT IN AN EMERGENCY IT IS ASSUMED THAT THIS IS ACCEPTABLE HOWEVER SUITABILITY TO BE CONFIRMED BY LONDON FIRE BRIGADE

FIRE TENDER ACCESS - JUNCTION 8

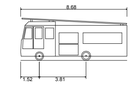
BLOCK A

FOR INFORMATION

REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	EP	27.04.20

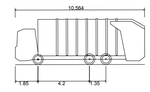
NOTES:

1. THIS DRAWING IS BASED ON:
   - PATEL TAYLOR PHASE 1 LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1013_S2-P09 RECEIVED 20 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph
3. TRACKING TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS. REQUIREMENT FOR ANY ADDITIONAL TRACKING FOR AN ALTERNATIVE FIRE TENDER/VEHICLE TO BE CONFIRMED.



DB32 FIRE APPLIANCE

OVERALL LENGTH	8.680m
OVERALL WIDTH	2.180m
OVERALL BODY HEIGHT	3.452m
MIN BODY GROUND CLEARANCE	0.337m
MAX TRACK WIDTH	2.121m
LOCK TO LOCK TIME	6.00 sec
KERB TO KERB TURNING RADIUS	7.910m

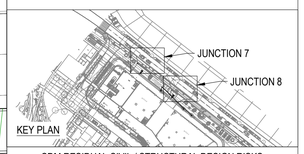


Mercedes-Benz Econic Euro 2692LL 6x2 Rear-Steer

Overall Length	10.564m
Overall Width	2.524m
Overall Body Height	3.744m
Min Body Ground Clearance	0.296m
Max Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	14.800m

KEY:

PROPOSED KERB GEOMETRY (BASED ON LANDSCAPE PROPOSALS)



CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

MEINHARDT
10 Aldersgate Street, London EC1A 4JU
Telephone: +44 (0)20 7831 7969
www.meinhardt.co.uk

PROJECT
THAMESIDE WEST

CLIENT
KEYSTONE PARTNERSHIP

TITLE
REVIEW OF JUNCTIONS WITH DOCK ROAD
PHASE 1
SHEET 1

DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:150
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	CR	PH
DRAWING No			ISSUE
2303-C-SK056			I01

DATE: 09/08/2017 11:21:59
FILE LOCATION: x:\1. civil\8. cad standards\current template files\0s civils sheet-a1 landscape template.dwg

Appendix D Refuse Vehicle Swept Path Diagrams (Masterplan)

ISO A1 841mm x 594mm

NOTE:
- ALL JUNCTION INTERFACES WITH DOCK ROAD ARE TO BE CONFIRMED THROUGH DISCUSSIONS WITH TFL
- REFER TO MEINHARDT SKETCHES 2303-C-SK053 TO 2303-C-SK057 FOR MORE INFORMATION ABOUT PROPOSED JUNCTIONS WITH DOCK ROAD

REFUSE ACCESS REQUIREMENTS/PROVISIONS FOR THE "LOZENGE" SITE TO BE CONFIRMED BY FOSTER AND PARTNERS/DESIGNER OF THIS SITE DURING DETAILED DESIGN

REFER TO MEINHARDT SKETCH 2303-C-SK025A FOR CONTINUATION OF TRACKING WITHIN BASEMENT

SUITABILITY OF VEHICLE TURNAROUND TO BE CONFIRMED BY LONDON BOROUGH OF NEWHAM AS TURNAROUND SHOWN REQUIRES MULTIPLE VEHICLE MANOEUVRES/DRY TURNS TO COMPLETE A TURNAROUND.

TWO WAY VEHICLE TRAFFIC NOT POSSIBLE AT THIS CORNER. IT IS ASSUMED THAT IT WILL BE UNLIKELY THAT TWO REFUSE VEHICLES WILL BE ON SITE COMPLETING COLLECTIONS TO CREATE THIS SITUATION HOWEVER SUITABILITY OF THIS TO BE REVIEWED AND APPROVED BY LONDON BOROUGH OF NEWHAM.

REFER TO MEINHARDT SKETCH 2303-C-SK023 FOR CONTINUATION OF TRACKING WITHIN BASEMENT

DESIGN OF CROSS-ROADS INCLUDING PRIORITY DIRECTION TO BE CONFIRMED DURING RESERVED MATTERS APPLICATION

FOR TRACKING OF REFUSE AROUND PLOTS D, E AND F REFER TO MEINHARDT SKETCH 2303-C-SK034

NO KERBLINE SHOWN IN THIS AREA. HOWEVER IT IS ASSUMED THE REFUSE VEHICLE TRACKING IS WITHIN THE EXTENT OF THE PROPOSED ROAD

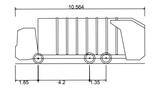
Bollards

FOR INFORMATION

REV.	DESCRIPTION	BY	DATE
I01	ORIGINAL ISSUE	EP	20.07.18
I02	UPDATED ARCHITECT LAYOUT	EP	30.08.18
I03	UPDATED LANDSCAPE LAYOUT	EP	18.10.18
I04	UPDATED ARCHITECT LAYOUT	EP	23.11.18
I05	REVISED TO SUIT UPDATED LANDSCAPE ARC LAYOUT	EP	12.03.20
I06	TRACKING UPDATED TO SUIT NEW LANDSCAPING LAYOUT	EP	27.04.20

NOTES:

1. THIS DRAWING IS BASED UPON:
   - PATEL TAYLOR MASTERPLAN LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1001_S2-P20 RECEIVED 17 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph
3. MEINHARDT HAVE NOT UNDERTAKEN ANY LIAISON WITH LBN WASTE OFFICER. ROUTES SHOWN ARE UNDERSTOOD TO BE APPROVED BY LBN WASTE OFFICER.



Mercedes-Benz Econic Euro 2692LL 6x2 Rear-Steer

Overall Length	10.564m
Overall Width	2.524m
Overall Body Height	3.744m
Min Body Ground Clearance	0.296m
Max Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	14.800m

KEY:

SITE BOUNDARY

DETAILED APPLICATION BOUNDARY

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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www.meinhardt.co.uk

PROJECT
THAMESIDE WEST

CLIENT
KEYSTONE PARTNERSHIP

TITLE
VEHICLE TRACKING
REFUSE VEHICLE
OVERALL PLAN

DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:1000
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	AOR	PH
DRAWING No			ISSUE
2303-C-SK004			I06

DATE: 09/08/2017 11:21:59
FILE LOCATION: x:\1. civil\8. cad standards\current template files\tts civils sheet-a1 landscape template.dwg

ISO A1 841mm x 594mm

TRACKING FOR RIGID VEHICLE

TWO WAY VEHICLE TRAFFIC NOT POSSIBLE AT THIS CORNER. IT IS ASSUMED THAT IT WILL BE UNLIKELY THAT TWO DELIVERY VEHICLES WILL BE ON SITE COMPLETING COLLECTIONS TO CREATE THIS SITUATION.

FOR TRACKING OF VEHICLE ENTERING/EXITING SERVICE BAY REFER TO INSET A

PROPOSED TURN ON SPOT FOR RIGID VEHICLE. 3-POINT TURN REQUIRED

INSET A

RIGID VEHICLE TO REVERSE INTO PROPOSED LOADING BAY

BANKSMAN REQUIRED WHILST VEHICLE COMPLETING REVERSE MANOEUVRE TO CONTROL ONCOMING TRAFFIC AND MOVEMENT OF PEDESTRIANS

TRACKING FOR REFUSE VEHICLE

NOTE:
- ALL JUNCTION INTERFACES WITH DOCK ROAD ARE TO BE CONFIRMED THROUGH DISCUSSIONS WITH TFL
- REFER TO MEINHARDT SKETCHES 2303-C-SK053 TO 2303-C-SK057 FOR MORE INFORMATION ABOUT PROPOSED JUNCTIONS WITH DOCK ROAD

REFUSE VEHICLE WILL PASS IN CLOSE PROXIMITY TO THE PROPOSED TREES. SUITABILITY OF THIS TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM

TWO WAY VEHICLE TRAFFIC NOT POSSIBLE AT THIS CORNER. IT IS ASSUMED THAT IT WILL BE UNLIKELY THAT TWO REFUSE VEHICLES WILL BE ON SITE COMPLETING COLLECTIONS TO CREATE THIS SITUATION HOWEVER SUITABILITY OF THIS TO BE REVIEWED AND APPROVED BY LONDON BOROUGH OF NEWHAM.

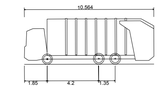
SUITABILITY OF VEHICLE TURNAROUND TO BE CONFIRMED BY LONDON BOROUGH OF NEWHAM AS TURNAROUND SHOWN REQUIRES SEVERAL MANOEUVRES TO COMPLETE TURN.

FOR INFORMATION

REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	BV	30.10.18
I02	FOR INFORMATION	BV	23.11.18
I03	FOR INFORMATION	CR	09.12.19
I04	UPDATED LANDSCAPE LAYOUT PHASE 1	EP	17.02.2020
I05	UPDATED MASTERPLAN LAYOUT	JD	12.03.2020
I06	TRACKING UPDATED TO SUIT NEW LANDSCAPING LAYOUT	EP	27.04.20

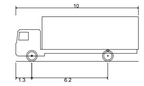
NOTES:

1. THIS DRAWING IS BASED UPON:
   - PATEL TAYLOR MASTERPLAN LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1001_S2-P20 RECEIVED 17 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph



Mercedes-Benz Econic Euro 2692LL 6x2 Rear-Steer

Overall Length	10.564m
Overall Width	2.524m
Overall Body Height	3.744m
Min Body Ground Clearance	0.296m
Max Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	14.800m



FTA DESIGN RIGID VEHICLE

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock-to-lock time	3.00 sec
Kerb to Kerb Turning Radius	11.000m

KEY:

SITE BOUNDARY

DETAILED APPLICATION BOUNDARY

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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www.meinhardt.co.uk

PROJECT
THAMESIDE WEST

CLIENT
KEYSTONE PARTNERSHIP

TITLE
VEHICLE TRACKING
REFUSE VEHICLE AND RIGID VEHICLE CIRCULATION AND TURNING CIRCLE

DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:500
DRAWN	DESIGNED	CHECKED	APPROVED
BV	BV	NG	PH
DRAWING No			ISSUE
2303-C-SK034			I06

DATE: 09/08/2017 11:21:59
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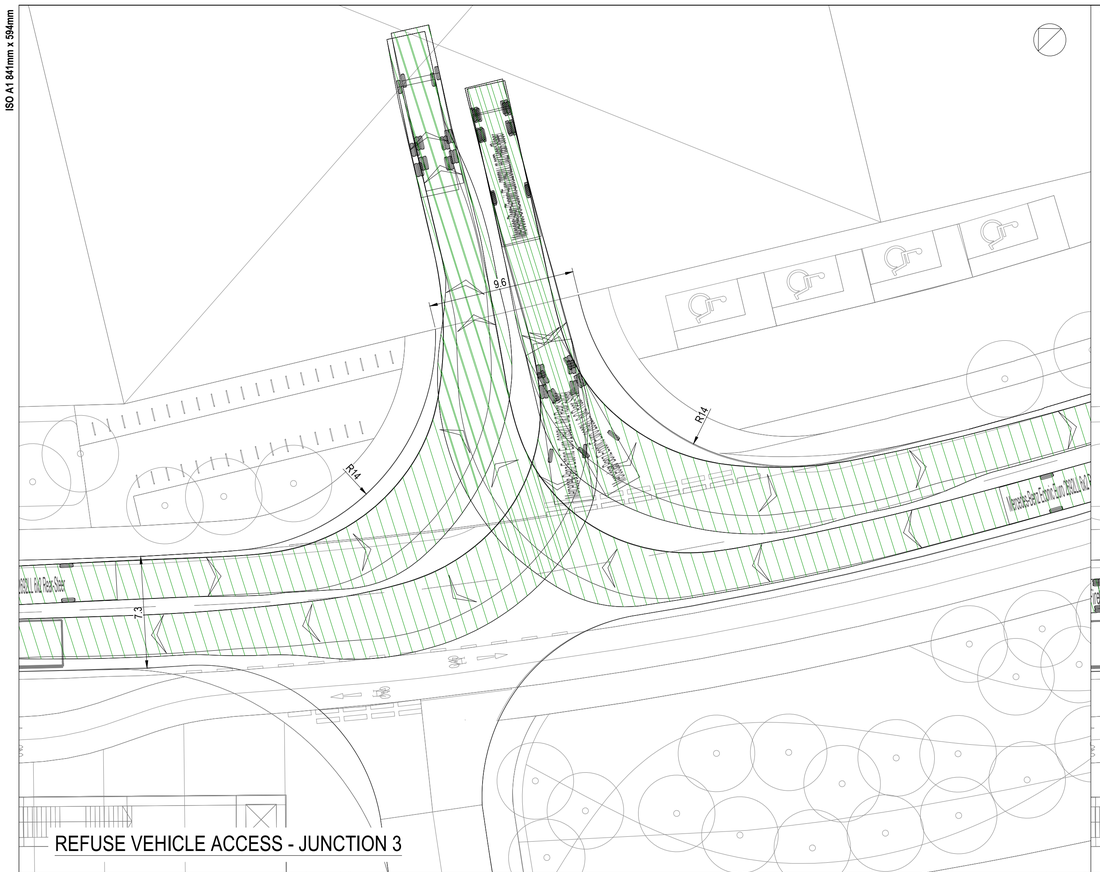
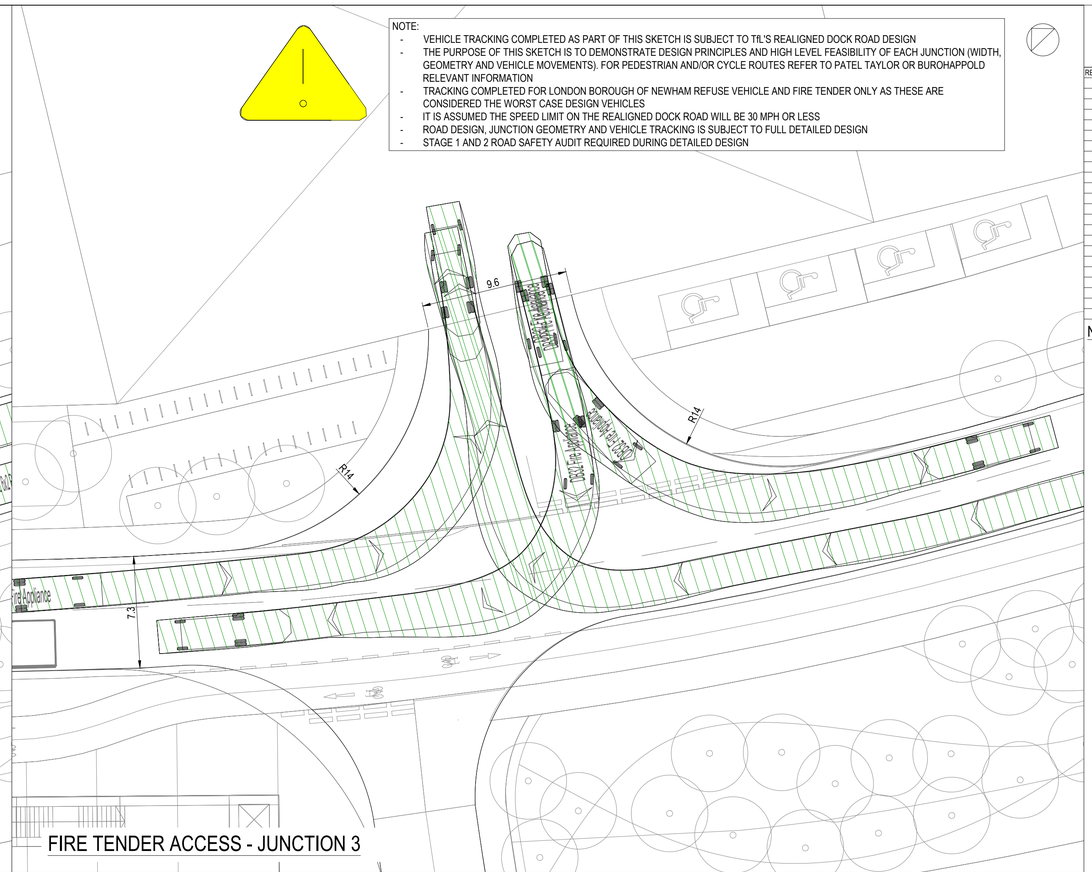
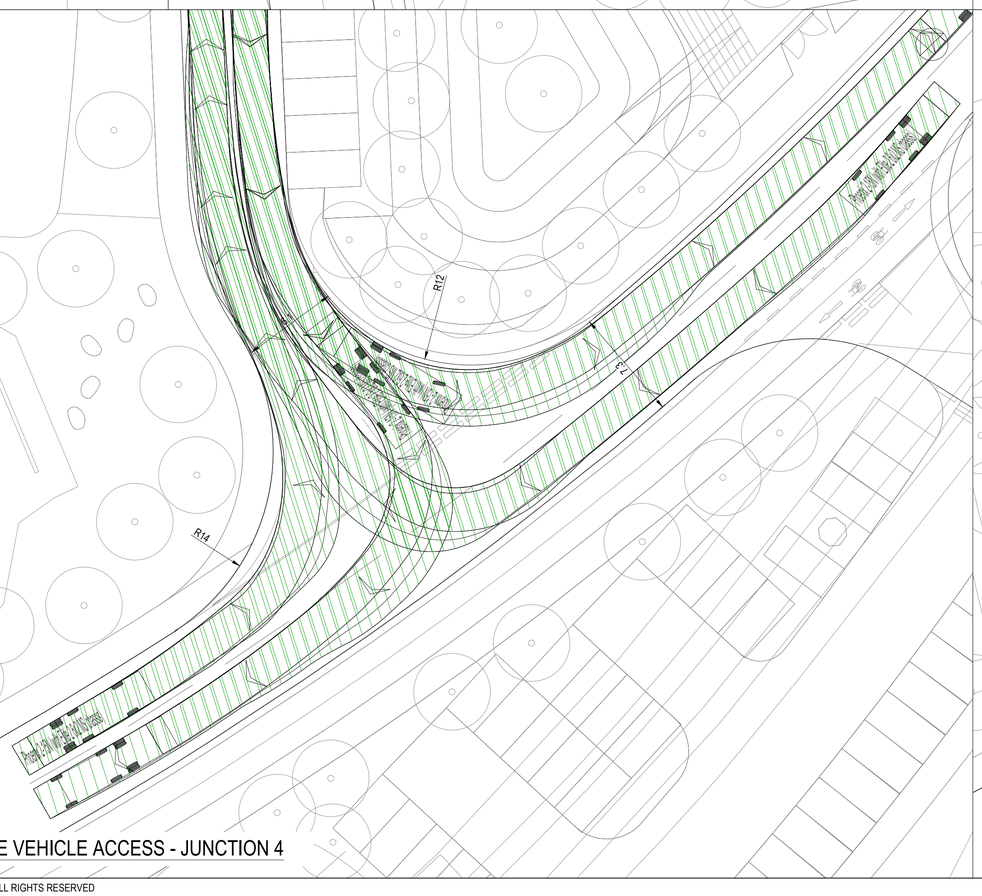
ISO A1 841mm x 594mm



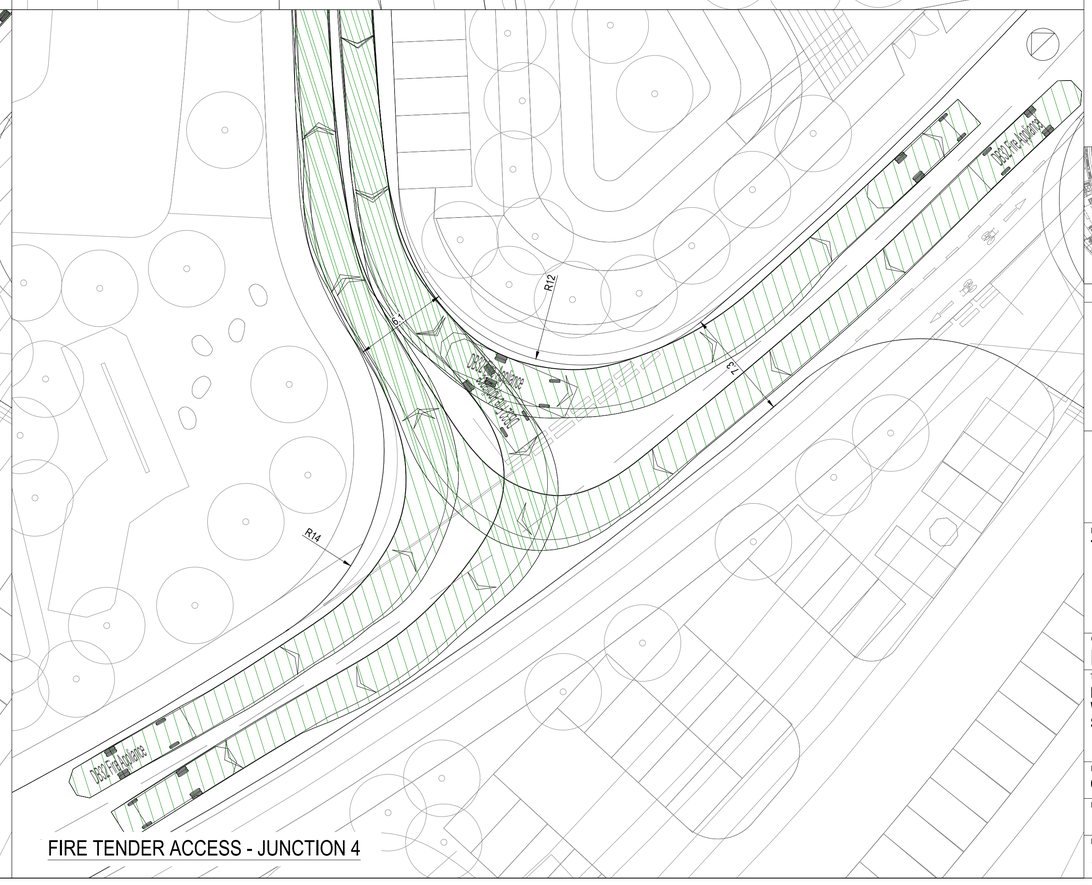
REFUSE VEHICLE ACCESS - JUNCTION 3



FIRE TENDER ACCESS - JUNCTION 3



REFUSE VEHICLE ACCESS - JUNCTION 4



FIRE TENDER ACCESS - JUNCTION 4

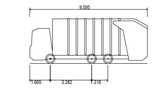
NOTE:
- VEHICLE TRACKING COMPLETED AS PART OF THIS SKETCH IS SUBJECT TO TfL'S REALIGNED DOCK ROAD DESIGN
- THE PURPOSE OF THIS SKETCH IS TO DEMONSTRATE DESIGN PRINCIPLES AND HIGH LEVEL FEASIBILITY OF EACH JUNCTION (WIDTH, GEOMETRY AND VEHICLE MOVEMENTS). FOR PEDESTRIAN AND/OR CYCLE ROUTES REFER TO PATEL TAYLOR OR BUROHAPPOLD RELEVANT INFORMATION
- TRACKING COMPLETED FOR LONDON BOROUGH OF NEWHAM REFUSE VEHICLE AND FIRE TENDER ONLY AS THESE ARE CONSIDERED THE WORST CASE DESIGN VEHICLES
- IT IS ASSUMED THE SPEED LIMIT ON THE REALIGNED DOCK ROAD WILL BE 30 MPH OR LESS
- ROAD DESIGN, JUNCTION GEOMETRY AND VEHICLE TRACKING IS SUBJECT TO FULL DETAILED DESIGN
- STAGE 1 AND 2 ROAD SAFETY AUDIT REQUIRED DURING DETAILED DESIGN

FOR INFORMATION

REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	EP	27.04.20

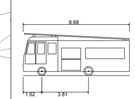
NOTES:

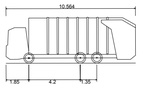
1. THIS DRAWING IS BASED ON:
   - PATEL TAYLOR MASTERPLAN LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1001_S2-P20 RECEIVED 17 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph
3. TRACKING TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS. REQUIREMENT FOR ANY ADDITIONAL TRACKING FOR AN ALTERNATIVE FIRE TENDER/VEHICLE TO BE CONFIRMED.



Phoenix 2-15N (with Elite 2 6x2 MS chassis)

Overall Length	9.595m
Overall Width	2.230m
Overall Body Height	3.699m
Min Body Ground Clearance	0.251m
Track Width	2.200m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.300m

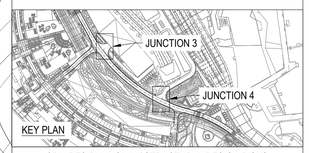




D832 FIRE APPLIANCE		Mercedes-Benz Econic Euro 2650LL 6x2 Rear-Steer	
OVERALL LENGTH	8.680m	Overall Length	10.564m
OVERALL WIDTH	2.180m	Overall Width	2.524m
OVERALL BODY HEIGHT	3.452m	Overall Body Height	3.744m
MIN BODY GROUND CLEARANCE	0.337m	Min Body Ground Clearance	0.296m
MAX TRACK WIDTH	2.121m	Max Track Width	2.500m
LOCK TO LOCK TIME	6.00 sec	Lock-to-lock time	4.00s
KERB TO KERB TURNING RADIUS	7.910m	Curb to Curb Turning Radius	14.800m

KEY:

PROPOSED KERB GEOMETRY (BASED ON LANDSCAPE PROPOSALS)



KEY PLAN

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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PROJECT
THAMESIDE WEST

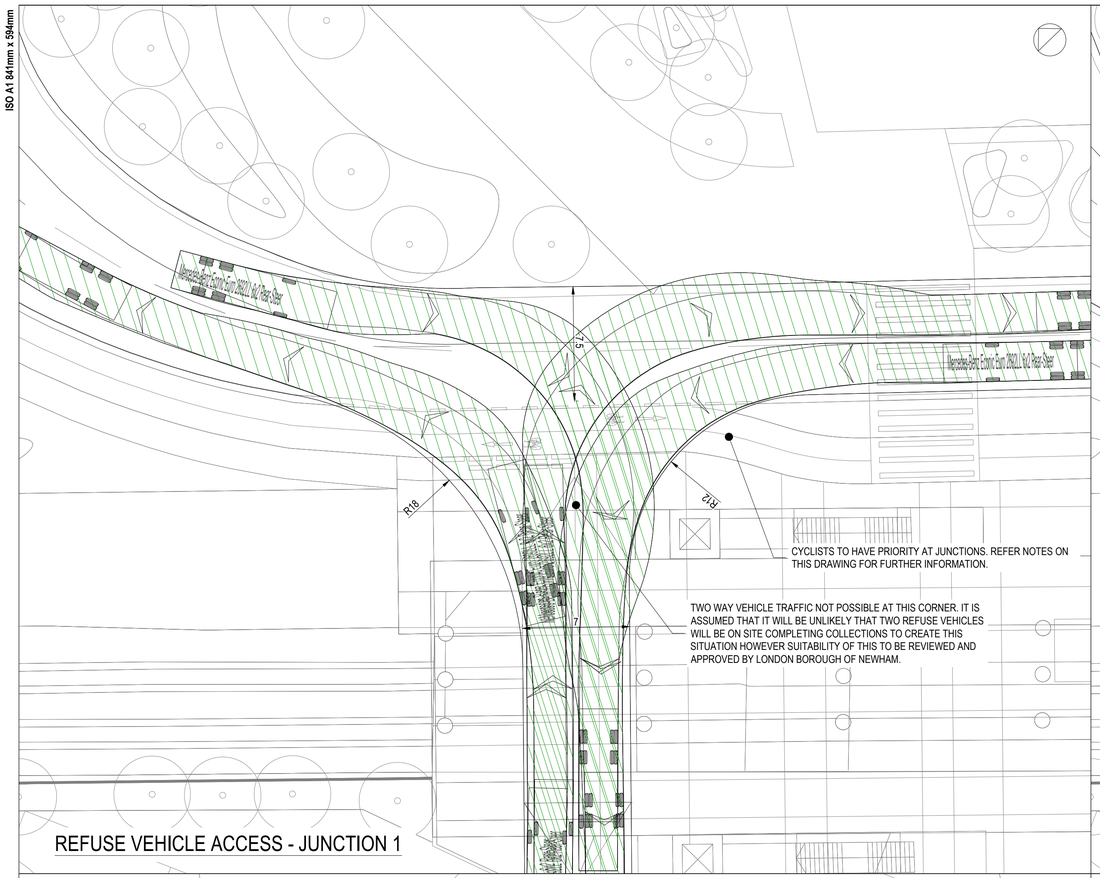
CLIENT
KEYSTONE PARTNERSHIP

TITLE
REVIEW OF JUNCTIONS WITH DOCK ROAD SHEET 2

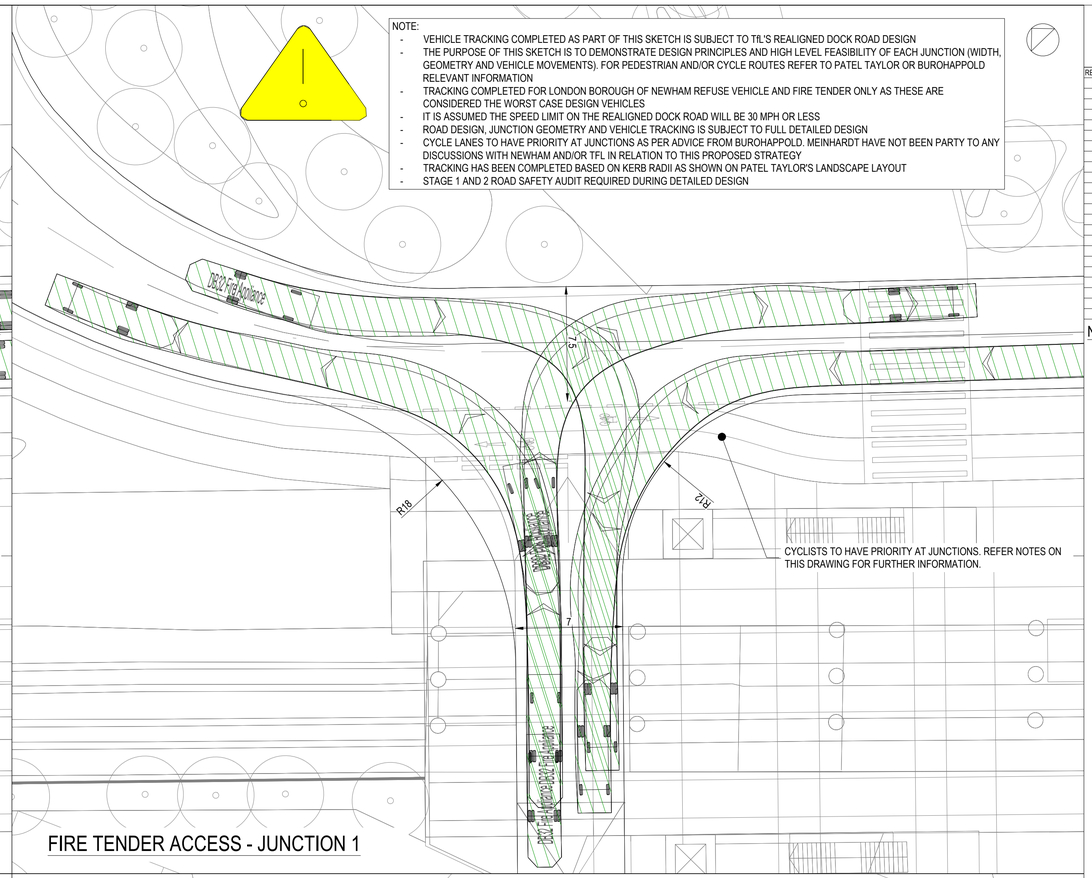
DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:200
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	CR	PH
DRAWING No			ISSUE
2303-C-SK054			I01

DATE: 09/08/2017 11:21:59
FILE LOCATION: x:\1. civil\8. cad standards\current template files\tbs civils sheet-a1 landscape template.dwg

ISO A1 841mm x 594mm

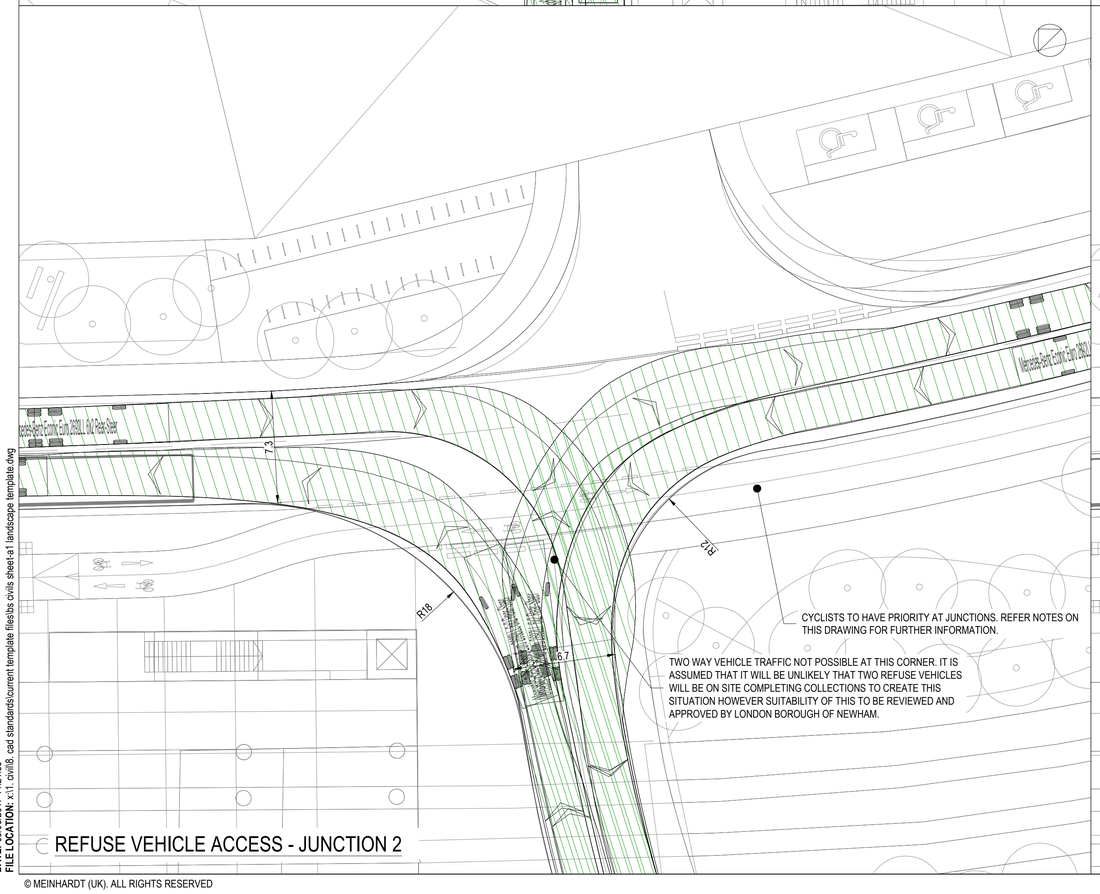


REFUSE VEHICLE ACCESS - JUNCTION 1

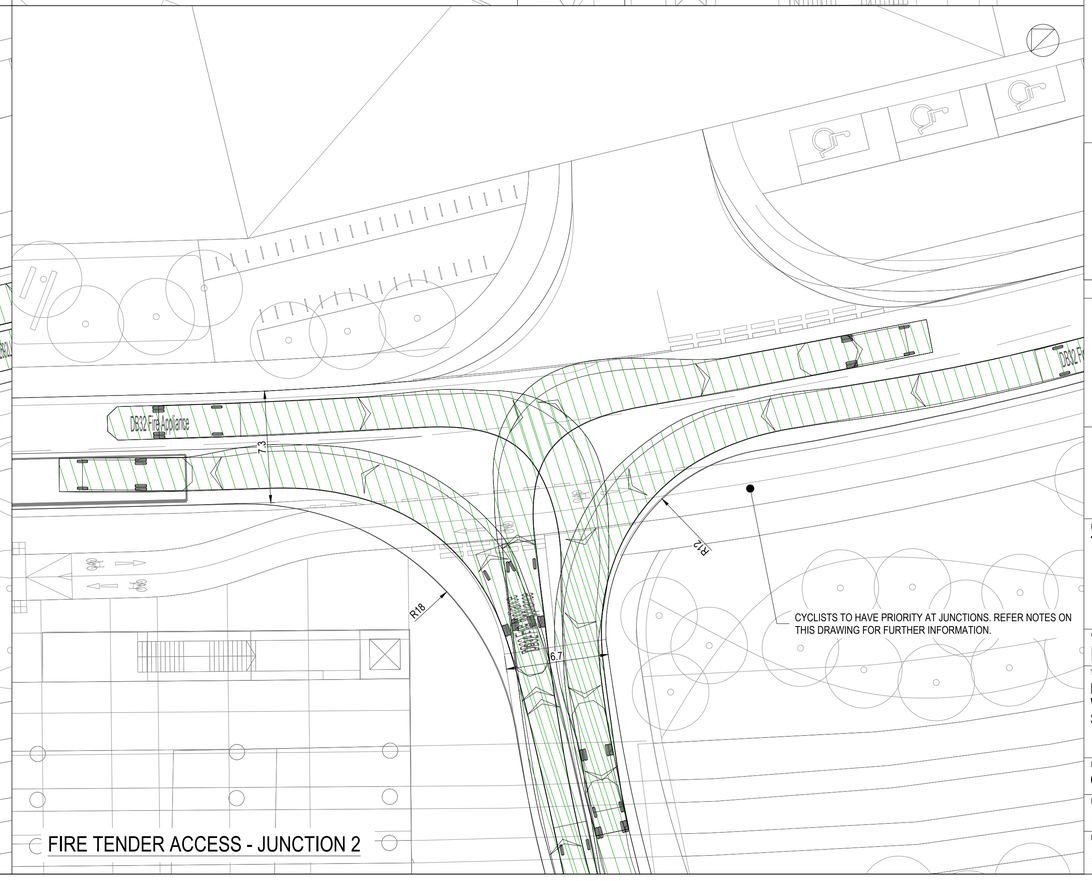


FIRE TENDER ACCESS - JUNCTION 1

NOTE:
- VEHICLE TRACKING COMPLETED AS PART OF THIS SKETCH IS SUBJECT TO TfL'S REALIGNED DOCK ROAD DESIGN
- THE PURPOSE OF THIS SKETCH IS TO DEMONSTRATE DESIGN PRINCIPLES AND HIGH LEVEL FEASIBILITY OF EACH JUNCTION (WIDTH, GEOMETRY AND VEHICLE MOVEMENTS). FOR PEDESTRIAN AND/OR CYCLE ROUTES REFER TO PATEL TAYLOR OR BUROHAPPOLD RELEVANT INFORMATION
- TRACKING COMPLETED FOR LONDON BOROUGH OF NEWHAM REFUSE VEHICLE AND FIRE TENDER ONLY AS THESE ARE CONSIDERED THE WORST CASE DESIGN VEHICLES
- IT IS ASSUMED THE SPEED LIMIT ON THE REALIGNED DOCK ROAD WILL BE 30 MPH OR LESS
- ROAD DESIGN, JUNCTION GEOMETRY AND VEHICLE TRACKING IS SUBJECT TO FULL DETAILED DESIGN
- CYCLE LANES TO HAVE PRIORITY AT JUNCTIONS AS PER ADVICE FROM BUROHAPPOLD. MEINHARDT HAVE NOT BEEN PARTY TO ANY DISCUSSIONS WITH NEWHAM AND/OR TFL IN RELATION TO THIS PROPOSED STRATEGY.
- TRACKING HAS BEEN COMPLETED BASED ON KERB RADII AS SHOWN ON PATEL TAYLOR'S LANDSCAPE LAYOUT
- STAGE 1 AND 2 ROAD SAFETY AUDIT REQUIRED DURING DETAILED DESIGN



REFUSE VEHICLE ACCESS - JUNCTION 2



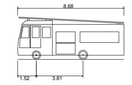
FIRE TENDER ACCESS - JUNCTION 2

FOR INFORMATION

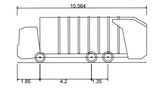
REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	EP	27.04.20

NOTES:

1. THIS DRAWING IS BASED ON:
   - PATEL TAYLOR MASTERPLAN LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1001_S2-P20 RECEIVED 17 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph
3. TRACKING TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS. REQUIREMENT FOR ANY ADDITIONAL TRACKING FOR AN ALTERNATIVE FIRE TENDER/VEHICLE TO BE CONFIRMED.



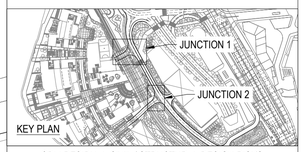
DB32 FIRE APPLIANCE	
OVERALL LENGTH	8.680m
OVERALL WIDTH	2.180m
OVERALL BODY HEIGHT	3.452m
MIN BODY GROUND CLEARANCE	0.337m
MAX TRACK WIDTH	2.121m
LOCK TO LOCK TIME	6.00 sec
KERB TO KERB TURNING RADIUS	7.910m



Mercedes-Benz Econic Euro 2692LL 6x2 Rear-Steer	
Overall Length	10.564m
Overall Width	2.524m
Overall Body Height	3.744m
Min Body Ground Clearance	0.296m
Max Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	14.800m

KEY:

PROPOSED KERB GEOMETRY (BASED ON LANDSCAPE PROPOSALS)



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PROJECT
THAMESIDE WEST

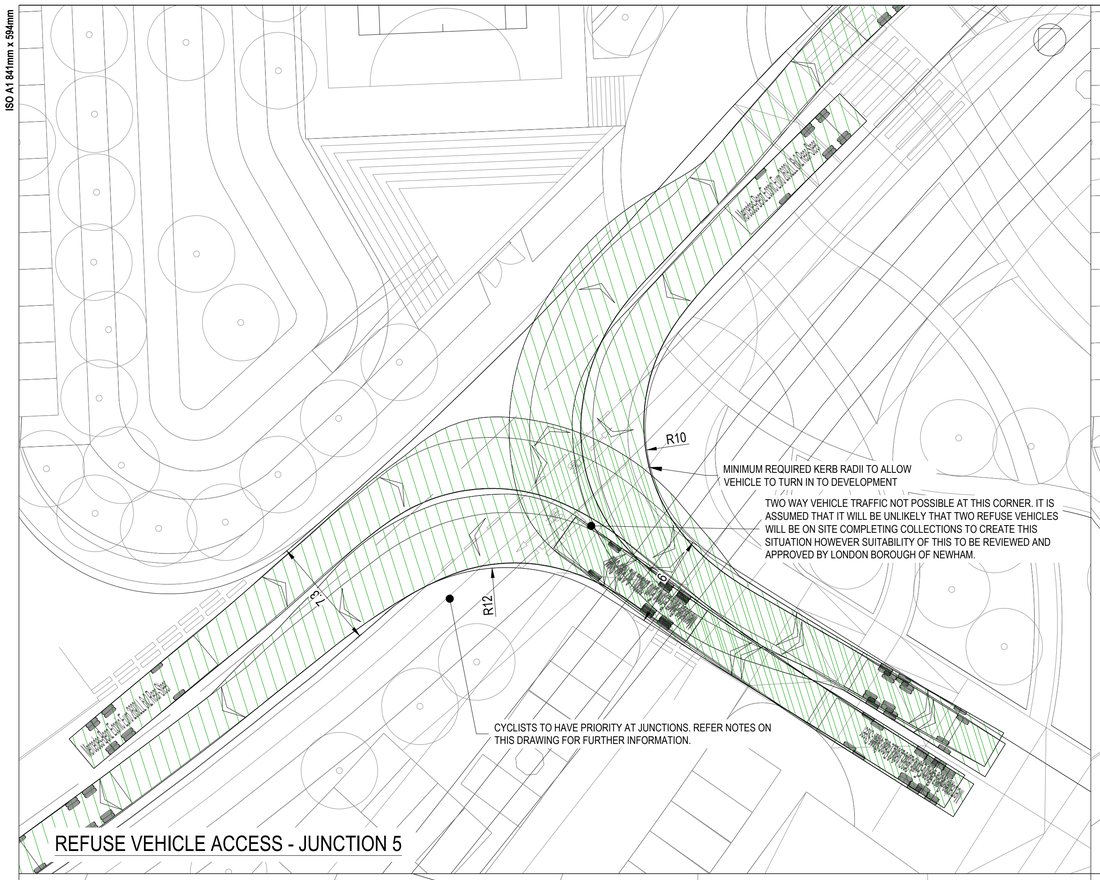
CLIENT
KEYSTONE PARTNERSHIP

TITLE
REVIEW OF JUNCTIONS WITH DOCK ROAD SHEET 1

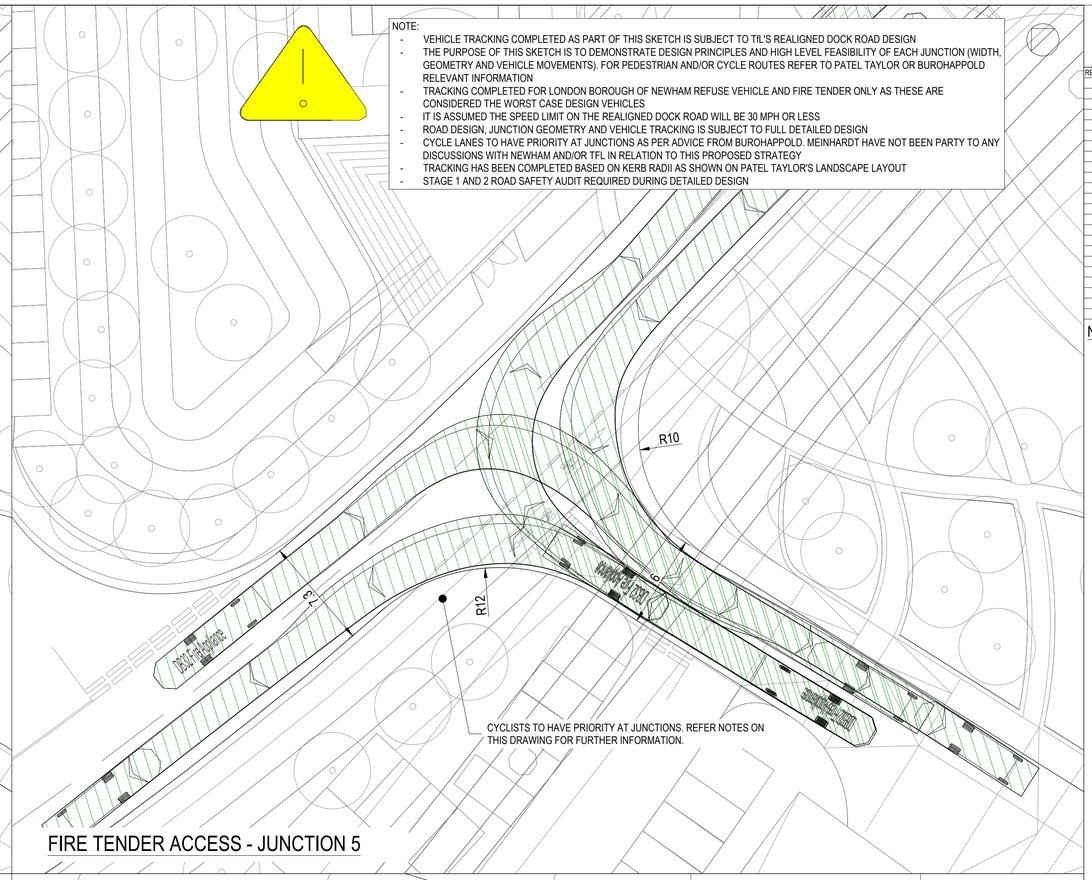
DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:200
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	CR	PH
DRAWING No			ISSUE
2303-C-SK053			I01

DATE: 09/08/2017 11:21:59
FILE LOCATION: x:\1. civil\3. cad standards\current template files\0s civils sheet-a1 landscape template.dwg

ISO A1 841mm x 594mm

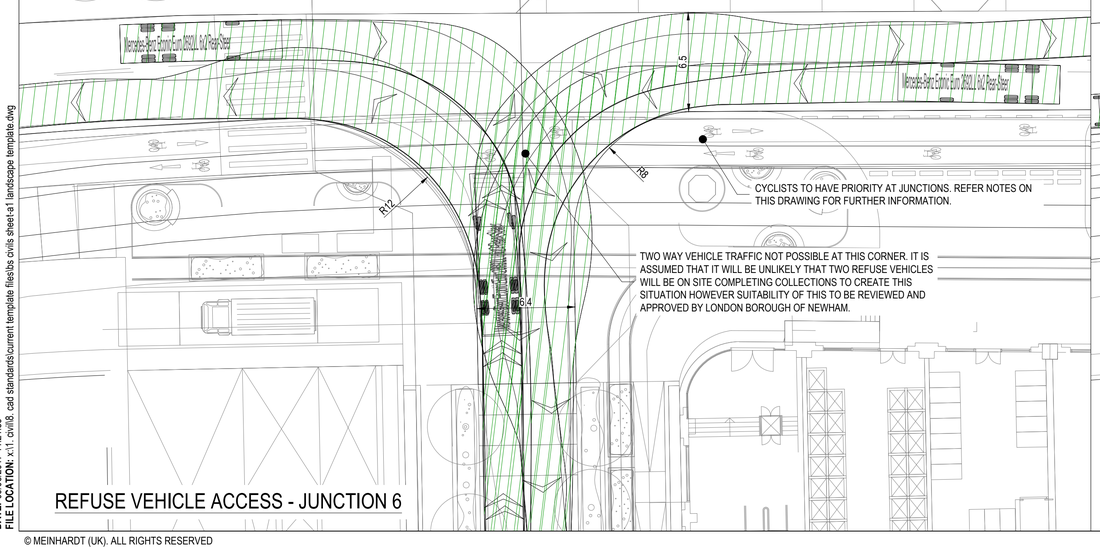


REFUSE VEHICLE ACCESS - JUNCTION 5

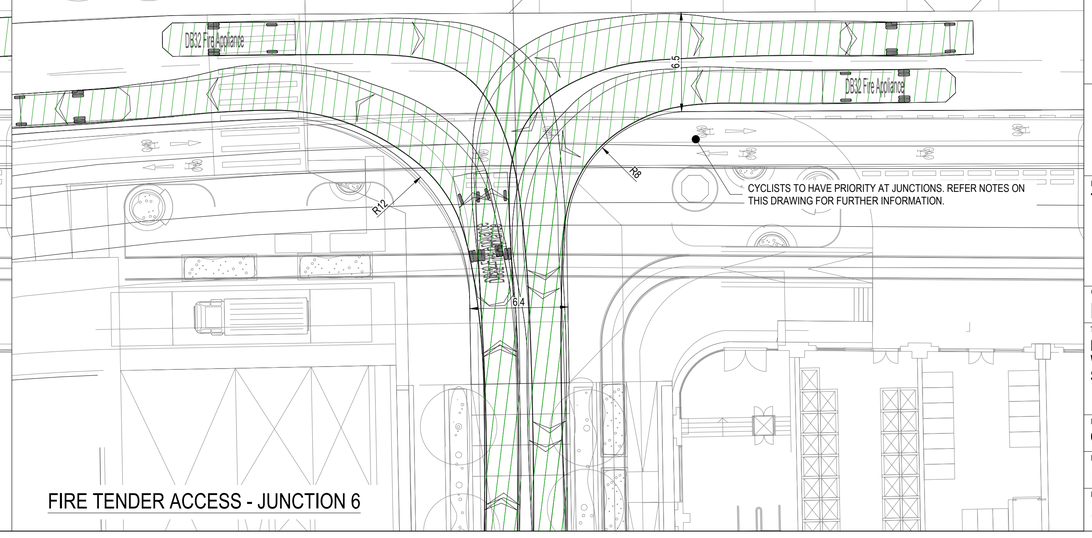


FIRE TENDER ACCESS - JUNCTION 5

NOTE:
- VEHICLE TRACKING COMPLETED AS PART OF THIS SKETCH IS SUBJECT TO TfL'S REALIGNED DOCK ROAD DESIGN
- THE PURPOSE OF THIS SKETCH IS TO DEMONSTRATE DESIGN PRINCIPLES AND HIGH LEVEL FEASIBILITY OF EACH JUNCTION (WIDTH, GEOMETRY AND VEHICLE MOVEMENTS). FOR PEDESTRIAN AND/OR CYCLE ROUTES REFER TO PATEL TAYLOR OR BUROHAPPOLD RELEVANT INFORMATION
- TRACKING COMPLETED FOR LONDON BOROUGH OF NEWHAM REFUSE VEHICLE AND FIRE TENDER ONLY AS THESE ARE CONSIDERED THE WORST CASE DESIGN VEHICLES
- IT IS ASSUMED THE SPEED LIMIT ON THE REALIGNED DOCK ROAD WILL BE 30 MPH OR LESS
- ROAD DESIGN, JUNCTION GEOMETRY AND VEHICLE TRACKING IS SUBJECT TO FULL DETAILED DESIGN
- CYCLE LANES TO HAVE PRIORITY AT JUNCTIONS AS PER ADVICE FROM BUROHAPPOLD. MEINHARDT HAVE NOT BEEN PARTY TO ANY DISCUSSIONS WITH NEWHAM AND/OR TFL IN RELATION TO THIS PROPOSED STRATEGY.
- TRACKING HAS BEEN COMPLETED BASED ON KERB RADII AS SHOWN ON PATEL TAYLOR'S LANDSCAPE LAYOUT
- STAGE 1 AND 2 ROAD SAFETY AUDIT REQUIRED DURING DETAILED DESIGN



REFUSE VEHICLE ACCESS - JUNCTION 6



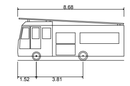
FIRE TENDER ACCESS - JUNCTION 6

FOR INFORMATION

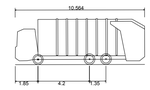
REV.	DESCRIPTION	BY	DATE
I01	FOR INFORMATION	EP	27.04.20

NOTES:

1. THIS DRAWING IS BASED ON:
   - PATEL TAYLOR MASTERPLAN LANDSCAPE LAYOUT 522-PT-MP-TYP-DR-L-PL-1001_S2-P20 RECEIVED 17 APRIL 2020
2. TRACKING BASED ON A FORWARDS DESIGN SPEED OF 10kph AND A REVERSE DESIGN SPEED OF 5kph
3. TRACKING TO BE REVIEWED BY LONDON BOROUGH OF NEWHAM/FIRE SAFETY OFFICERS. REQUIREMENT FOR ANY ADDITIONAL TRACKING FOR AN ALTERNATIVE FIRE TENDER/VEHICLE TO BE CONFIRMED.



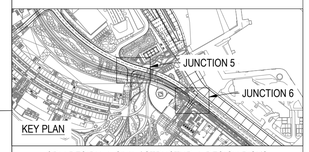
DB32 FIRE APPLIANCE	
OVERALL LENGTH	8.680m
OVERALL WIDTH	2.180m
OVERALL BODY HEIGHT	3.452m
MIN BODY GROUND CLEARANCE	0.337m
MAX TRACK WIDTH	2.121m
LOCK TO LOCK TIME	6.00 sec
KERB TO KERB TURNING RADIUS	7.910m



Mercedes-Benz Econic Euro 2692LL 6x2 Rear-Steer	
Overall Length	10.564m
Overall Width	2.524m
Overall Body Height	3.744m
Min Body Ground Clearance	0.296m
Max Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	14.800m

KEY:

PROPOSED KERB GEOMETRY (BASED ON LANDSCAPE PROPOSALS)



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PROJECT
THAMESIDE WEST

CLIENT
KEYSTONE PARTNERSHIP

TITLE
REVIEW OF JUNCTIONS WITH DOCK ROAD SHEET 3

DISCIPLINE			SCALE @ A1
CIVILS DRAWING			1:200
DRAWN	DESIGNED	CHECKED	APPROVED
EP	EP	CR	PH
DRAWING No			ISSUE
2303-C-SK055			I01

DATE: 09/08/2017 11:21:59
FILE LOCATION: x:\1. civil\8. cad standards\current template files\ds civils sheet-a1 landscape template.dwg

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