

## Ipswich Garden Suburb

Infrastructure Delivery Plan  
Stage 1 Cost Review Report

May 2016 (Baseline Q2 2015)

Ipswich Borough Council



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# 1 Introduction

## 1.1 Background

Mott MacDonald and Gerald Eve were appointed in mid-May 2015 by Ipswich Borough Council (IBC) to assist in the preparation and adoption of an Infrastructure Delivery Plan (IDP) for the Ipswich Garden Suburb (IGS) site. The site covers an area of 195 ha of predominantly agricultural land and the current review of the Core Strategy identifies the whole IGS area as a strategic allocation for the development of up to 3,500 new dwellings and makes specific allocations for an appropriate mix of housing and support infrastructure.

The level of support infrastructure for this development is modelled on ‘garden suburb’ principles which means generous provision of green space, a sustainable drainage system, a wide range of local facilities including shops, schools, allotments, community halls, health facilities, and a new country park.

The site is subject to multiple land ownerships which has broken this land area within the SPD into separate phases as set out in the table below.

Table 1.1: Ownership of Land

Owner	Area (ha)
Ipswich School	12.46
CBRE Investors	43.29
Crest Housing	45.40
Crest Country Park	24.47
Other (adjacent to Henley Road)	1.47
Other (adjacent to Lower Road)	5.84
Mersea Homes	53.2
Other (Redhouse)	6.08
Total	192.21
Road	6.73
Rail	7.34

(Source: Gerald Eve based on the Consortium (Mersea Homes for Road and Rail) – November 2015)

A Supplementary Planning Document (SPD) was prepared by David Lock Associates on behalf of IBC in September 2014. The Masterplan identified a number of strategic and neighbourhood infrastructure items and the following associated key issues and queries;

1. No agreement on how the strategic infrastructure will be delivered and the costs apportioned.
2. There are concerns surrounding the viability and deliverability of the proposals for infrastructure.
3. Point 2 is further compounded by the phasing of the strategic infrastructure which may need to be delivered on land within other neighbourhoods in advance of residential works taking place.
4. Scope and cost of strategic infrastructure.
5. The need to secure delivery of a well – prepared and logically sequenced development.

To address these recognised issues, IBC requested that the IDP Review be prepared through the following 3 identified key sequential stages of work;

1. Review Costs, Infrastructure phasing and other key inputs presented by PBA.
2. Viability Review.



### 3. Delivery options – drafting of the IDP.

IBC subsequently appointed Motts McDonald and Gerald Eve to undertake the first stage of work, and to undertake a review of the costs, value and other associated key inputs.

## 1.2 Purpose of this Report

The Stage 1 review has now been carried out and completed and the purpose of this report is to summarise the approach taken to complete this stage of work, to present the findings and to make subsequent recommendations in order to take the project forwards.

The Report is structured as follows;

- Section 2: Stage 1 Infrastructure Cost Review
- Section 3: Stage 1 Proposed Development Input
- Section 4: Stage 1 Recommendations and Next Steps

This Report seeks to offer a summary of the work carried out with the main findings presented in the accompanying reports which can be found in the appendices.

## 2 Stage 1 Infrastructure Cost Review

### 2.1 Our Approach

In undertaking the Stage 1 Infrastructure Cost Review, Mott MacDonald undertook two principal tasks. The first task was to undertake a review of the cost inputs and assumptions contained in an initial Viability Assessment prepared by Peter Brett Associates (PBA) in 2013, which was supported by a follow up report in 2015.

The second task was then to build upon this review of the PBA cost inputs and to subsequently generate a set of updated costs for the recognised infrastructure items that could be used in preparing a draft IDP.

In undertaking this review, Mott MacDonald worked alongside IBC, Suffolk County Council and the developers/landowners. Mott MacDonald was not however instructed to review or challenge the appropriateness of the agreed infrastructure items. Mott MacDonald agreed with IBC to base their review on the whole IGS site and in accordance with the level of detailed provided and assumed in the SPD.

### 2.2 Task 1: Cost Input Review of PBA Viability Report

PBA's costs were base dated 4Q 2012 and were split into two sections, Abnormal Works and S.106 Works.

To facilitate ease of analysis, initially, as highlighted in Appendix A, Mott MacDonald re-based PBA's allowances to Q2 2015 based upon BCIS Tender Price Indices (TPI). This is to enable comparison on a like for like basis, whilst also retaining the same items as described by PBA within the Abnormal and S.106 sections. Please note that inflation going forward is excluded until a programme detailing the requirements is provided.

Mott MacDonald also undertook a review and prepared high level designs and associated costing review for key items of infrastructure, especially the bridges. The corresponding design and cost review, that has been reflected in the overall cost review, can be found in Appendix B.

Formal requests were made to the appropriate electrical and gas utility companies and the resulting estimations can be found in Appendix C. In agreement with IBC, no request was made to the relevant water providers as this would have incurred a cost which was deemed inappropriate at this early stage in the design process.

All cost review exercises have benefitted from being additionally based upon benchmarking against recent and relevant Mott MacDonald projects.

For the purposes of this element of the cost review, Mott MacDonald based its review on the same groupings used by PBA.

#### Abnormal Cost Analysis

The abnormal works include a variety of infrastructure items, including, Enabling Works, Highway Works, Pedestrian / Cycle Routes, Surface / Foul Water Drainage, Utilities and project design team fee's.

### *Enabling Works:*

In the sum of £1.34m, considering the intention to retain the hedge rows where possible, this allowance is of an appropriate level, however it is recommended that the design is developed in future stages to confirm and refine the scope of enabling works in connection with the Infrastructure Works.

### *Highway Works / Pedestrian and Cycle Routes:*

Allowances are typically to cover the spine roads, including the main Primary and Secondary routes. The Cycle Routes and the Primary / Secondary routes were measured and priced (at current market conditions) in accordance with the indicative masterplan layout as outlined within the SPD.

Further design will be required in future stages to clarify and confirm the actual requirements, however at this stage, when combined, we estimate the allowance has increased by approximately £1.95m (in comparison to the PBA's allowances once uplifted to present day). To avoid any potential duplication with the pedestrian and cycle routes, the value of these elements were reviewed as a combined figure. The increase is largely due to the review of the highways specification and widths provided by SCC for the Primary and Secondary Routes, coupled by the extensive footpaths and upgrades to existing cycle paths as outlined in the SPD masterplan (approx. 14km).

Please refer to 1.3 & 1.4 of the Neighbourhood Infrastructure cost table Appendix D for the assumptions made and any further detail regarding the primary and secondary routes.

### *Surface / Foul water Drainage:*

The Surface Water allowance appears to be appropriate for the level of design provided, however based on the information available, we anticipate that the Foul Water Drainage is significantly higher than that estimated by PBA, £1.65m for the Rising Main to link the phases. As there is no indicative information available regarding the proposed Rising Main for the overall masterplan, we have utilised the planning drawings provided for phase 1 (measured and priced the Rising Main in accordance with the current market conditions) and pro-rata the extent across the three phases, assuming that a consistent, collaborative approach will be deployed.

We therefore strongly recommend that the design is progressed for the Foul Water Infrastructure to coordinate the masterplan and define the scope of works going forward to facilitate further cost analysis.

### *Utilities:*

The Utilities consist of the electrical infrastructure, gas infrastructure, incoming mains water and telecommunications & communications network. The cost breakdown of the utilities remains unclear within PBA's infrastructure delivery proposal and as such it is difficult to reconcile on an individual basis against our findings detailed below.

In summary, it's currently estimated that the utilities have increased by approximately £3m to achieve the collaborative infrastructure requirements set out within the Electrical, Gas, Mains Water and Telecommunications noted below. The uplift is largely due to the additional £5m required for the 11kV electrical infrastructure to be distributed throughout the development by UKPN (over and above the £7m upgrade works).

Electrical Infrastructure, estimates have been provided by UKPN to distribute 11kV infrastructure around the site, including associated sub-stations and the final connections to properties.

The electrical estimate as provided by UKPN totals approximately £12 million, £7m for the provision of the 11kV switchboard at Highfield Primary and installation of a dual circuit cable from the switchboard to site and a further £1,500 / dwelling (approx. £5m) to include for the 11kV infrastructure to be distributed throughout the development. The estimate excludes the associated on-site excavations, therefore we have estimated the extent and allowed for excavating and backfilling trenches separately below.

Gas Infrastructure, the National Grid have confirmed that the existing network has sufficient capacity to serve the proposed development. Connection will be via a medium pressure main (225mm PE) located in the A1214 Valley Road to the South of the proposed development. Falcrum Gas have subsequently provided an estimate of £492,000 to supply gas up to the Emergency Control Valve (ECV) and provide meter installation. The estimate excludes on-site excavations and any specialist works, such as works in connection with rail crossings.

In response to the exclusions throughout the electrical and gas estimates, utilising the extent of the proposed Foul Water Infrastructure, we have included an allowance of £1.54m for the on-site trenching & backfilling for the gas and electrical infrastructure spines across the masterplan, a further £150,000 for any works in connection with the railway line and an allowance of £350,000 for any off-site road closures / diversions.

Mains Water / Sewerage Infrastructure, it is recommended that pre-development enquiries for site potable water supply, foul water disposal and surface water disposal are submitted to the appropriate statutory undertakers to confirm assumptions made and if applicable, confirm any additional works that may be required.

For the purpose of Stage 1, an allowance of £1,000 / dwelling has been allocated for the mains water, assuming that the existing incoming mains water infrastructure has sufficient capacity and does not require any additional reinforcement works.

Telecommunications and Communications Networks, we recommend that an estimate is sought for the provision of telecommunications throughout the site. In the meantime utilising existing benchmarking data, an allowance of £500 / dwelling has been allocated for the infrastructure, assuming that the telecommunications provider installs their superfast fibre free of charge.

In summary, it's currently estimated that the utility works equate to approximately £ 3m over PBA's previous cost estimate.

#### *Project Design Team Fee's:*

Any allowances for infrastructure design have been omitted from the viability model, and an allowance of 12% has been applied to all infrastructure deliverable items, equating to £8.28m. Therefore the landscape, engineering, strategic planning and site investigations previously noted within the infrastructure costs have also been omitted, totalling £3.98m.

Summary of PBA's Abnormal Costs Review:

A summary of the Abnormal Cost findings is presented below.

Table 2.1: Summary of Abnormal Costs

INFRASTRUCTURE VIABILITY COST ANALYSIS					
for IPSWICH GARDEN SUBURB					
<b>Project Title:</b> Ipswich Garden Suburb <b>Project No:</b> 355949 <b>Date:</b> 19 Jun 2015		Variance Differential ± < 5% ± > 5% - 20% ± > 20%		<b>Revision:</b> - <b>Base Date:</b> 2Q 2015	
<b>1.0 Abnormals Cost Analysis Summary</b>		BCIS TPI Inflation: 4Q 2012 - 2Q 2015 116.96%			
Ref	Description	Budget Allowance			
		PBA	PBA Inflation Uplift 4Q 2012 - 2Q 2015	Mott MacDonald	Variance
<b>Abnormal Works</b>					
1	Enabling Works	1,145,969.00	1,340,374.46	1,340,374.46	-
2	Section 278 Highway Works	2,800,000.00	3,275,000.00	3,149,906.00	- 125,094.00
3	On-site Highway Works	4,937,634.00	5,775,268.34	5,666,296.00	- 108,972.34
4	On-Site Pedestrian / Cycle Routes	360,000.00	421,071.43	2,484,760.00	2,063,688.57
5	Strategic Surface Water Drainage	2,519,013.00	2,946,345.56	2,919,901.14	- 26,444.42
6	Foul Water Drainage	864,385.00	1,011,021.74	2,664,803.50	1,653,781.76
7	Utilities	16,066,301.00	18,791,834.21	21,910,482.14	3,118,647.94
8	Ecology Mitigation	455,000.00	532,187.50	532,187.50	-
9	Utilities in Connection with S.278	280,000.00	327,500.00	327,500.00	-
10	Site Preliminaries	Included	Included	Included	
11	Finance / Legals	325,000.00	380,133.93	380,133.93	-
12	Public Relations	150,000.00	175,446.43	175,446.43	-
13	Miscellaneous - Contamination	250,000.00	292,410.71	292,410.71	-
14	Strategic Planning and Masterplan	734,521.00	859,127.24	859,127.24	-
15	Site Investigation	838,345.00	980,564.24	-	- 980,564.24
16	Engineering Design	1,948,572.00	2,279,133.32	-	- 2,279,133.32
17	Landscape Design	614,796.00	719,091.75	-	- 719,091.75
18	Ecology	17,404.00	20,356.46	20,356.46	-
19	Site Supervision / General Design	Included	-	8,279,829.58	8,279,829.58
20	Project Management	Included	-	-	-
21	Cost Management	Included	-	-	-
22	Local Authority Fee's	4,225,947.00	4,942,848.72	4,942,848.72	-
		38,532,887.00	45,069,716.04	55,946,363.82	10,876,647.78

Source: Mott MacDonald – Revised April 2016 and based Q2 2015

### 2.3 S.106 Costs Analysis

IBC previously concluded a list of S.106 items; the items include various open spaces, primary and secondary schools, community facilities, two bridges, a range of off-site works and travel requirements.

Country Park, natural / formal open spaces:

Currently approximately £16.4m is allocated to the open spaces totalling circa 70ha, please refer to the cost tables in Appendix D for a detailed breakdown. Note the capital cost for the country park also includes for the small visitor centre.

Ipswich Parks and Gardens team have assisted in the provision of the capital and maintenance costs for the open spaces. Allocating approximately £6.9m for a 15 year maintenance period, whilst the remaining £9.5m is to cover the capital cost.

£16.4m equates to approximately £2.34m over PBA's allowances, largely due to an increase in the maintenance period requested by Ipswich Borough Council from 10 years to 15 years, coupled by capital cost confirmations from the Parks and Gardens team.

#### *Primary and Secondary Schools:*

The SPD sets out that 3nr 2 form of entry (2FE) primary schools' are required and a 1200 place secondary school. The secondary school requirement has previously been calculated on the basis of 0.22 pupils per dwelling, and therefore suggests that for the 3,500 dwellings, Ipswich Garden Suburb development will generate a need for an additional 770 secondary school places. The total cost of the 1200 place school has therefore been pro-rata'd to align with the 770 places required by the proposed development.

It's estimated that the 1200 place Secondary School will total approximately £19.3m, therefore when pro-rata'd, utilising the need for 770 places, it is proposed that £12.4m will be contributed by the developers to aid the development, equating to a reduction of approximately £1.7m in comparison to PBA's costs.

Further to discussions with Andrew Rowe of Concertus, and also utilising our in-house benchmarking data, we estimate that each of the 2FE primary schools will total approximately £6.6m, £19.8m in total. Therefore, it's currently estimated that the primary school costs will be approximately £3.9m higher than that allocated within PBA's allowances.

When combining the educational requirements, there is a net increase of £2.2m. This is largely due to a number of reasons which directly affect both the Primary and Secondary Schools. The design anticipated from Andrew regarding the delivery of other schools in the local area reflects recent expectations that we have experienced of other planning departments across the country, these elements have become best practice and as such, would not have been foreseen by PBA in 2012 / 2013.

The schools that are to be provided will typically be expected to meet BREEAM Excellent as a base aspiration and the provision of Sport England requirements will apply with regards to the play areas, including a 3G floodlit MUGA as standard. Other specifications which will be required as a minimum requirement from planning are, sprinkler systems, mechanical ventilation, biomass boilers, PV panels, 50% glazed façade to achieve natural daylighting aspirations (including rooflights), large extent of canopies to form covered play areas, shared 3G playing facilities, typically an enhanced cladding is also to be applied such as red cedar and green roofs implemented to minimise the impact aesthetically on the local environment.

It must also be noted that best practice for primary and secondary schools is evolving and as such, the requirements expected for those provided in phase 2 may be more stringent than what is currently anticipated, the risk of this should be mitigated through early engagement and liaising with the planning team as the project develops.

#### *Community Facilities:*

The community facilities comprise of an indoor swimming pool, library two community centres and a temporary community centre.

Swimming Pool, it is estimated within the Sport England planning application that 21.07m<sup>2</sup> of surface water is required per 815 dwellings, therefore to meet the demands of the proposed development, a total 90.48m<sup>2</sup> of surface water area is required. It is therefore recommended that the developers' should provide a contribution (pro-rata the on-site requirement) for a 4 lane swimming pool facility to be constructed off-site.

A 4 lane swimming pool comprises of a surface water area totalling 212.5m<sup>2</sup>, accommodating a maximum swimmer capacity or 'maximum bathing load' of 71 bathers. The overall swimming facility, including changing rooms, reception areas and the like is estimated by Sport England at approximately £2.84m. As the surface water area required is approximately 42.6% of a 4 lane pool facility, we therefore suggest that the developers contribute £1,211,082.00, towards the off-site provision.

Sport England also recommend that per 815 dwellings, 0.12 rinks of an indoor bowls facility is also to be provided at a cost of £30,784, and therefore totalling £132,202.00 for the 3,500 dwellings, however IBC have advised that insufficient demand in the local area, does not warrant any additional funding for these elements.

Sport England also note that per 815 dwellings, 0.57 courts (sports hall) and 0.06 pitches (artificial grass) are to be provided, it is anticipated that this provision will be provided within the local schools and shared to the public and therefore no additional contributions are deemed necessary.

In comparison to PBA, the above reflects an increase of £23k, due to the review of the swimming facilities.

Library, when re-based to current day, PBA previously had an allowance of £872,460 for a library, however the dimensions and requirements were not stated. Through design development, it has been concluded that a provision of 60m<sup>2</sup> of internal library space will be required on-site, estimated at £286k. It is anticipated that this will form part of the community centre, in addition to the 1,500m<sup>2</sup> noted below. The reduced on-site provision will therefore require additional off-site measures, in upgrading an existing Suffolk Library, estimated at £153k.

The revised allowance for the provision of Library facilities will therefore total £439k, equating to a saving of £433k in comparison to PBA.

Community Centres, the build-cost initially provided by PBA for the two community centres (totalling 1,500m<sup>2</sup>) is significantly lower than anticipated. We would recommend that the build-cost for the community centres' should be increased by approximately £750k.

In addition to this, an allowance for a 10 year maintenance period for the 1,500m<sup>2</sup> community facility has also been included, over and above PBA's allowances, totalling a further £875k.

With regards to a temporary community centre, PBA included a notional allowance; the scope of which including dimensions and period required is yet to be defined. We have therefore retained an allowance of £58k for the provision of a modular temporary structure, until further information becomes available.

#### *Bridges and Network Rail:*

There are currently two bridges within the infrastructure development, a pedestrian / cycle bridge and a highways bridge. At this stage in the design, it is currently considered that the allowance for the highways bridge is appropriate and that the pedestrian bridge allowance should be increased by approximately

£465k. The increase is largely due to the significant increase in ramp requirements to clear the height restrictions for the electrified line; 5m wide ramp x 4.8m rise at 1:20 gradient.

A further £2.1m has also been allocated over and above PBA's allowances for line closures. Line closures, £400k for the vehicular bridge (2nr days) and £200k for the pedestrian bridge (1nr days), also, as advised by SCC, £1.5m for commuted sums covering a 125 year period.

We recommend that the design is further investigated in future stages as there is potential for significant cost savings should the pedestrian crossing be re-located closer to the main bridge. Should re-location of the pedestrian bridge be considered, the raised bank would reduce the additional height required to clear the electrified line, minimising the extent of the ramps, simplifying construction.

#### *Off-Site Works:*

The off-site works include a variety of items such as cycle and pedestrian / road safety improvements, signage, toucan crossings and an allowance for improved cycle and parking provision at Westerfield station. The off-site works also include for level crossing improvements, improvements have been increased to £250,000 to allow for contributions towards new barriers / improving the safety around the station. It is anticipated that further contributions may be provided by Network Rail and / or Greater Anglia.


Allowances allocated are generally of an appropriate level, however it is recommended that the improvements items are further investigated in future stages when the design is further developed. A defined scope of works will avoid any potential duplication where junctions overlap with on-site works and on-going negotiations with Network Rail will further define the requirements regarding the associated level crossing improvements. The impact on the previous assessment is an uplift of approximately £181k in comparison to PBA, directly resulting from the increased scope of improvements to Westerfield Station.

#### *Summary of PBA's s.106 Cost:*

A summary of the s.106 Cost findings is presented below.



Table 2.2: Summary of S.106 Costs

INFRASTRUCTURE VIABILITY COST ANALYSIS for IPSWICH GARDEN SUBURB					
Project Title: Ipswich Garden Suburb Project No: 355949 Date: 19 Jun 2015		Variance Differential	± < 5% ± > 5% - 20% ± > 20%	Revision: - Base Date: 2Q 2015	
<b>2.0 S.106 Cost Analysis Summary</b>		BCIS TPI Inflation: 4Q 2012 - 2Q 2015 116.96%			
Ref	Description	Budget Allowance			Variance
		PBA	PBA Inflation Uplift 4Q 2012 - 2Q 2015	Mott MacDonald	
	<b>S.106</b>				
1	<b>Country Park, Natural / Formal Open Spaces</b>	12,052,736.00	14,097,396.57	16,438,391.00	2,340,994.43
2	<b>Schools</b>				-
2.1	3nr 2FE Primary Schools	13,568,571.00	15,870,382.15	19,800,000.00	3,929,617.85
2.2	Secondary School (1200 places)	12,050,000.00	14,094,196.43	12,400,000.00	(1,694,196.43)
3	<b>Community Facilities</b>				-
3.1	Indoor Swimming Pool / off-site contributions	1,015,571.00	1,187,855.37	1,211,082.00	23,226.63
3.2	1,000 sq m Community Centre	1,040,000.00	1,216,428.57	2,200,000.00	983,571.43
3.3	500 sq m Community Centre	520,000.00	608,214.29	1,250,000.00	641,785.71
3.4	Library	745,920.00	872,460.00	439,000.00	(433,460.00)
3.5	Other	300,000.00	350,892.86	358,482.14	7,589.29
4	<b>Bridges</b>				-
4.1	Rail crossing construction (Highway)	5,805,000.00	6,789,776.79	8,189,776.79	1,400,000.00
4.2	Pedestrian / Cycle Bridge	1,200,000.00	1,403,571.43	2,570,000.00	1,166,428.57
5	<b>Off-Site Works</b>	4,660,000.00	5,450,535.71	5,631,875.00	181,339.29
6	<b>Travel Requirements</b>	4,445,250.00	5,199,354.91	5,199,354.91	-
7	<b>Monitoring Costs / Bonds / Waste Transfer</b>	502,490.00	587,733.84	587,733.84	-
		57,905,538.00	67,728,798.91	76,275,695.68	8,546,896.77

Source: Mott MacDonald – Revised April 2016 and based Q2 2015

## Conclusions of the PBA Cost Review

In summary, our review of PBA's costs indicate that the present day costs are in the region of 37.1% higher than the original costs provided by PBA. Table 1.1 below also suggests that the increase equates to 17.2% in comparison to PBA's prices when re-based to 2Q 2015 using BCIS TPI.

Table 2.3: Stage 1 Infrastructure Cost Analysis - Summary

Description	PBA	PBA Inflation Uplift 4Q 2012 - 2Q 2015	Mott MacDonald	Variance (PBA Inflation Uplift - Mott MacDonald)
Abnormal Works	38,532,887.00	45,069,716.04	55,946,363.82	10,876,647.78
S.106 Works	57,905,538.00	67,728,798.91	76,275,695.68	8,546,896.77
<b>Total</b>	<b>96,438,425.00</b>	<b>112,798,514.95</b>	<b>132,222,059.50</b>	<b>19,423,544.55</b>

Source: Mott MacDonald – Revised April 2016 and based Q2 2015

Table 1.1 above denotes a cost uplift of approximately £19.4m (17.2%) over PBA's estimate when uplifted to current day, further investigation into elements of the design as noted below could be rationalised and many of the risks could be mitigated within the early stages of design development.

A number of areas could be rationalised through early feasibility studies, such as combining the community facilities (reducing the overall GIFA required) and also utilising the raised banks (closer to the vehicular crossing) for the pedestrian /cycle crossing over the railway (minimising the quantum of ramps required, simplifying the design and construction).

With regards to the primary & secondary schools, there could be potential to control costs through optimising an efficient design development process, whilst also negotiating with planners to reduce the design limitations. However, for the secondary school, it must be noted that the design development needs to mitigate the demand for phasing, minimising the risk of any abortive works.

Utilities, to mitigate the risk regarding the utilities and additional reinforcement works, we recommend that when the information is available, that it is provided to the relevant utility companies to enable production of an estimate for the mains water infrastructure and telecommunications infrastructure for the masterplan.

We also strongly recommend that the off-site works and foul water drainage is designed to define the scope of works going forward, enabling the facilitation of further cost analysis.

## 2.4 Task 2: Establishing an agreed set of Infrastructure Costs

Further to the Task 1 PBA Cost Review, Mott MacDonald has carried out its own independent assessment of the related infrastructure cost items. This builds upon, and is largely reflective of the costs presented in Appendix A, However these costs are presented as per the SPD and within the two recognised groups of Strategic and Neighbourhood infrastructure. This review clearly identifies Mott MacDonald's position with regards to the costs and assumptions.

The updated cost schedules can be found in Appendix D.

The schedules facilitate IBC to utilise the data in future stages by enabling adjustments to the assumptions as the design develops and / or further information becomes available.

To retain a consistent approach and commonality between the IDP and the SPD, the 'Infrastructure Theme' and 'Item' columns noted within the schedules are as stipulated by the SPD. A further sub-element 'Detail' has been incorporated to further define the costs, followed by a brief description elaborating on the assumptions.

Schedule 1 sets out the Strategic Infrastructure, 'Infrastructure Theme' including items such as:

- Access & Transport; Vehicular rail crossing / Westerfield station / Footpath improvements
- Education; 1200 place secondary school
- Open Space Recreation & Play; Country park / Off-site swimming pool contribution
- Community Facilities; Community centre / Community support officers
- Utilities; Incoming Electric, Gas, Potable Water / On-site foul & surface water attenuation

The Strategic Infrastructure costs total approximately £64.6m, the detail and assumptions of which are as Appendix D.

Schedule 2 sets out the Neighbourhood Infrastructure, to align with the masterplan and omit the risk of potential duplication, the table incorporates elements across the three neighbourhoods. The 'Infrastructure Theme' incorporates:

- Access & Transport; Off-site junctions / Traffic Management / On-site spine roads
- Education & Early Years; Primary & Nursery Schools
- Open Space, Recreation & Play; Sports pitches / Parks / Gardens
- Community Infrastructure; Temporary community centre / Electric charging points / Household waste facilities
- Other Items; Enabling works / Design / Legals etc.


The Neighbourhood Infrastructure costs total approximately £67.6m, the detail and assumptions of which are as Appendix D.

In summary, it's estimated that the Strategic / Neighbourhood Infrastructure total approximately £132.22m. However, it should be noted that further detail is required to define the final infrastructure items and to offer more clarity and cost certainty.

A summary of these costs is presented below.


Table 2.4: Summary of Mott MacDonald Infrastructure Cost Review

Strategic Infrastructure

<b>INFRASTRUCTURE VIABILITY COST ANALYSIS</b> for <b>IPSWICH GARDEN SUBURB</b>			 <b>Mott MacDonald</b>
<b>Project Title:</b> Ipswich Garden Suburb <b>Project No:</b> 355949 <b>Date:</b> 01 Mar 2016		<b>Revision:</b> - <b>Base Date:</b> 2Q 2015	
<b>1.1 Strategic Infrastructure</b>			
Ref	Infrastructure Theme (based on SPD tables)	Item	Mott MacDonald
1	Access & Transport	Vehicular Rail Crossing; Pedestrian Crossing; Bus Services; Town Centre Cycle Improvements etc	16,567,098.21
2	Education	1200 place secondary school, including sixth form facility, playing fields and recreational facilities secured for use by the community (proportionate contribution of school build cost)	12,400,000.00
3	Open space, recreation & play	Country Park with visitor centre for Henley Gate; Swimming Contribution off-site	5,639,551.00
4	Community facilities	District & Local Community Centres including community buildings with integrated library facilities & police office alongside new health centre & reserved sites for community use	4,189,000.00
5	Utilities	Strategic improvements to electricity, gas, potable water, sewerage and SUDS	25,827,686.79
<b>Total</b>			<b>64,623,336.00</b>

Source: Mott MacDonald – Revised April 2016 and based Q2 2015

Neighbourhood Infrastructure

<b>INFRASTRUCTURE VIABILITY COST ANALYSIS</b> for <b>IPSWICH GARDEN SUBURB</b>			 <b>Mott MacDonald</b>
<b>Project Title:</b> Ipswich Garden Suburb		<b>Revision:</b> -	
<b>Project No:</b> 355949		<b>Base Date:</b> 2Q 2015	
<b>Date:</b> 01 Mar 2016			
<b>1.2 Neighbourhood Infrastructure Requirements</b>			
Ref	Infrastructure Theme (based on SPD tables)	Item	Mott MacDonald
1	Access & Transport	Off-site junction improvements in surrounding road network; Connection to UTM; Travel Plan and Improvements to Fonnereau Way	16,328,995.48
2	Education & Early Years	3nr 2FE (forms of entry) primary schools & nursery	19,800,000.00
3	Open space, recreation & play	Neighbourhood parks, allotments & open spaces with equipped sports & play facilities as per SPD	12,542,109.50
4	Community Infrastructure	District Centre supporting infrastructure (CCTV, electric charging points, recycling facility, cycle parking etc.); Temporary Community Centre	91,232.14
5	Other Items	Design, Legals etc.	18,836,386.38
<b>Total</b>			<b>67,598,723.50</b>

Source: Mott MacDonald – Revised April 2016 and based Q2 2015

These costs are reflective of the current level of design detail and therefore will be subject to change as and when further detail is known and as the design evolves.

## 3 Stage 1 Initial Revenue and Construction Cost Review

### 3.1 Development Input Review of PBA Viability Report

Gerald Eve reviewed a number of PBA's key inputs including revenue, costs, funding, delivery phasing and cash-flow, land value and profit assumptions. This review would form a basis for any future viability work (Stage 2) in providing an accurate and up to date picture of the required infrastructure and investment needs.

The output of this exercise identifies whether the associated applied inputs within PBA's assessment are up to date and reasonable to assume for the proposed scheme. The assumptions summarise PBA's inputs together with what Gerald Eve considers to be reasonable and reflective of current market conditions. It was recognised however that there are a number of variables that need further analysis to understand how appropriate they are and how these variances impact viability.

Gerald Eve reviewed the following inputs as part of their review;

- Unit mix
- Affordable housing allocation
- Revenue assumption
  - Residential: private sale and affordable housing
  - Commercial: retail rents and yields
- Construction costs
- Funding assumptions
- Phasing and delivery
- Cash-flow assumptions
- Profit assumptions
- Land value Revenue and Initial Viability Review

Within their 2015 update, PBA concluded that their assumptions were reflective of the proposed scheme and the market conditions as of May 2015. It was considered that the associated costs of delivering the scheme grew at a higher rate than the revenue levels between the time in which PBA assessed the scheme from 2013 to 2015. Initially, PBA considered that the scheme could viably deliver 31.6% affordable housing but reduced this to 27.2% based on the 2015 update.

Gerald Eve has assessed the inputs applied by PBA to understand whether these reflect the current market conditions and whether there is potential to improve the delivery of the scheme.

Gerald Eve considered that PBA's initial assessment of revenue levels reflected sales evidence, although location/scheme factors may suggest higher values may be possible. Furthermore, regard was given to the development timeline and therefore GE also considered the impact of inflation the schemes viability.

GE assessed the affordable housing tenures and prices and considers that PBA's assessment needed to be revised. The applied rental value for the district centre was considered reasonable in the current market when compared to minimal market evidence. However, GE does not consider that the local centres would not achieve the rental values considered by PBA. GE therefore consider the lower end of the range within the PBA report to the local centre should be applied.

A summary of these revenue findings is presented below.

Table 3.1: Summary of Revenue Values

Item	PBA	GE
Base Rate Residential Sales Values	£2,415 per sq m	£2,367 per sq m
Affordable Rent (80%)	£1,184 per sq m	£1,212 per sq m*
Intermediate Rent (20%)	£1,399 per sq m	£1,432 per sq m*
District Centre	£129 per sq m	£129 per sq m
Local Centres	£129 per sq m	£77 per sq m
Commercial Yield	8%	8%

\*dependent on unit mix

Source: PBA / Gerald Eve – July 2015

BCIS data indicates construction costs have increased at a greater rate than sales values over the last two years. In addition to assessing current day costs, GE has also had regard to BCIS Build Cost Indices over the development period (20 years).

GE has updated PBA's base rate construction cost which is now reflective of July 2015 Build Cost Information Services ("BCIS") levels for both residential and retail uses to reflect the district and local centres which have been rebased to Ipswich.

A summary of these construction cost findings is presented below.

Table 3.2: Summary of Construction Costs

Item	PBA	GE
Base Rate Residential	£905 per sq m	£922 per sq m
Residential External Works	12%	12%
CfSh L4	£2,000 per dwelling	£2,000 per dwelling
Base Rate District/Local Centres	£619 per sq m	£780 per sq m
Abnormal Costs	7.5%	£1,500 per dwelling
Contingencies	5%	5%
District/Local Centres External Works	15%	15%

Source: Gerald Eve – July 2015

A summary of the unit size / mix findings is presented below.

Table 3.3: Summary of Unit Size and Unit Mix

Item	PBA	GE
Total Units	3,318	3,266
Total Private Units	2,416 (72.8%)	TBC
Total Affordable Units	902 (27.2%)	TBC
Average Private Residential Unit Sizes	98 sq m	102 sq m
Average Affordable Residential Unit Sizes	84 sq m	70 sq m
District Centre	3,395 sq m GIA (3,632 sq m NIA)	
Local Centre	1,329 sq m GIA (1,208 sq m NIA)	

Source: Gerald Eve based on PBS and the Consortium – November 2015

In addition to key inputs on cost revenues, Gerald Eve considers that there are a number of potential areas that could improve the scheme. The most important factor is the cash-flow for the scheme.

Timing has a significant impact on the return and deliverability of the scheme. It is important to understand where variations could be applied to understand how to deliver the best scheme whilst complying with the council's policy requirements. Timing of the acquisition of the land, payment of the infrastructure costs and S.106 obligations and distribution and delivery of the units could all significantly impact the viability of the scheme.

Gerald Eve also considers that there may be an opportunity to improve upon the density of the scheme to meet the SPDs allowance of providing up to 3,500 dwellings with a density of 30-35 dwellings per hectare. This in turn will also impact upon the deliverability and viability of the scheme. Gerald Eve has amended the average unit size to reflect the IGS SPD.

### 3.2 Conclusions of Revenue Input and Construction Cost Review

Market updates suggest that there are a number of differences that have been highlighted in both cost and revenue assumptions. Further assessment on this matter is therefore needed. Furthermore, additional consideration is required for changes in cashflow/cost/revenue distribution and the impact of growth/inflation on Scheme over its lifetime.



# 4 Stage 1 Recommendations and Next Steps

## 4.1 Recommendation

The findings from the Stage 1 cost, revenue and viability review demonstrates the need to further refine the cost and value inputs through undertaking an updated viability review. It is Gerald Eve's opinion at this stage that viability of the IGS scheme could be improved through further finer grain analysis of the proposed development.

IBC is subsequently recommended to proceed to Stage 2 of the commission and to undertake a detailed viability assessment.

# Appendices

Appendix A.	Infrastructure Viability Cost Analysis
Appendix B.	Initial Infrastructure Design Review
Appendix C.	Utilities Statement
Appendix D.	Mott MacDonald Infrastructure Cost Review

# Appendix A. Infrastructure Viability Cost Analysis

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



<b>Project Title:</b> Ipswich Garden Suburb <b>Project No:</b> 355949 <b>Date:</b> 19 Jun 2015	Variance Differential	± < 5%	<b>Revision:</b> - <b>Base Date:</b> 2Q 2015
		± > 5% - 20%	
		± > 20%	

<b>2.0 S.106 Cost Analysis Summary</b>	BCIS TPI Inflation: 4Q 2012 - 2Q 2015 116.96%
--	--

Ref	Description	Budget Allowance			
		PBA	PBA Inflation Uplift 4Q 2012 - 2Q 2015	Mott MacDonald	Variance
	<b>S.106</b>				
1	<b>Country Park, Natural / Formal Open Spaces</b>	12,052,736.00	14,097,396.57	16,438,391.00	2,340,994.43
2	<b>Schools</b>				-
2.1	3nr 2FE Primary Schools	13,568,571.00	15,870,382.15	19,800,000.00	3,929,617.85
2.2	Secondary School (1200 places)	12,050,000.00	14,094,196.43	12,400,000.00	(1,694,196.43)
3	<b>Community Facilities</b>				-
3.1	Indoor Swimming Pool / off-site contributions	1,015,571.00	1,187,855.37	1,211,082.00	23,226.63
3.2	1,000 sq m Community Centre	1,040,000.00	1,216,428.57	2,200,000.00	983,571.43
3.3	500 sq m Community Centre	520,000.00	608,214.29	1,250,000.00	641,785.71
3.4	Library	745,920.00	872,460.00	439,000.00	(433,460.00)
3.5	Other	300,000.00	350,892.86	358,482.14	7,589.29
4	<b>Bridges</b>				-
4.1	Rail crossing construction (Highway)	5,805,000.00	6,789,776.79	8,189,776.79	1,400,000.00
4.2	Pedestrian / Cycle Bridge	1,200,000.00	1,403,571.43	2,570,000.00	1,166,428.57
5	<b>Off-Site Works</b>	4,660,000.00	5,450,535.71	5,631,875.00	181,339.29
6	<b>Travel Requirements</b>	4,445,250.00	5,199,354.91	5,199,354.91	-
7	<b>Monitoring Costs / Bonds / Waste Transfer</b>	502,490.00	587,733.84	587,733.84	-
		57,905,538.00	67,728,798.91	76,275,695.68	8,546,896.77

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb  
**Project No:** 355949  
**Date:** 19 Jun 2015

Variance Differential  
± < 5%  
± > 5% - 20%  
± > 20%

**Revision:** -  
**Base Date:** 2Q 2015

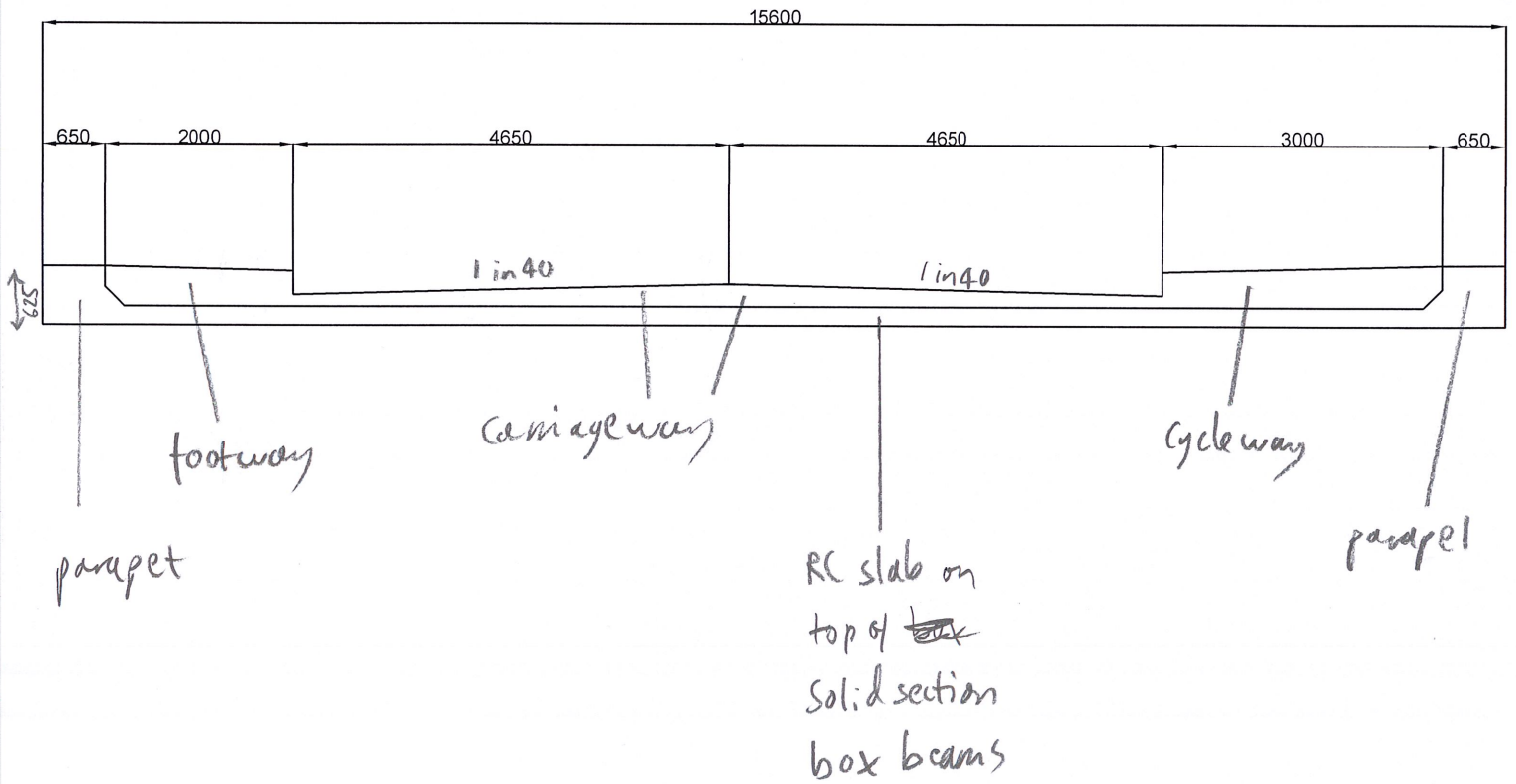
**1.0 Abnormals Cost Analysis Summary**

BCIS TPI Inflation:  
4Q 2012 - 2Q 2015 116.96%

Ref	Description	Budget Allowance			
		PBA	PBA Inflation Uplift 4Q 2012 - 2Q 2015	Mott MacDonald	Variance
	<b>Abnormal Works</b>				
1	Enabling Works	1,145,969.00	1,340,374.46	1,340,374.46	-
2	Section 278 Highway Works	2,800,000.00	3,275,000.00	3,149,906.00	- 125,094.00
3	On-site Highway Works	4,937,634.00	5,775,268.34	5,666,296.00	- 108,972.34
4	On-Site Pedestrian / Cycle Routes	360,000.00	421,071.43	2,484,760.00	2,063,688.57
5	Strategic Surface Water Drainage	2,519,013.00	2,946,345.56	2,919,901.14	- 26,444.42
6	Foul Water Drainage	864,385.00	1,011,021.74	2,664,803.50	1,653,781.76
7	Utilities	16,066,301.00	18,791,834.21	21,910,482.14	3,118,647.94
8	Ecology Mitigation	455,000.00	532,187.50	532,187.50	-
9	Utilities in Connection with S.278	280,000.00	327,500.00	327,500.00	-
10	Site Preliminaries	<i>Included</i>	Included	Included	
11	Finance / Legals	325,000.00	380,133.93	380,133.93	-
12	Public Relations	150,000.00	175,446.43	175,446.43	-
13	Miscellaneous - Contamination	250,000.00	292,410.71	292,410.71	-
14	Strategic Planning and Masterplan	734,521.00	859,127.24	859,127.24	-
15	Site Investigation	838,345.00	980,564.24	-	- 980,564.24
16	Engineering Design	1,948,572.00	2,279,133.32	-	- 2,279,133.32
17	Landscape Design	614,796.00	719,091.75	-	- 719,091.75
18	Ecology	17,404.00	20,356.46	20,356.46	-
19	Site Supervision / General Design	<i>Included</i>	-	8,279,829.58	8,279,829.58
20	Project Management	<i>Included</i>	-	-	-
21	Cost Management	<i>Included</i>	-	-	-
22	Local Authority Fee's	4,225,947.00	4,942,848.72	4,942,848.72	-
		38,532,887.00	45,069,716.04	55,946,363.82	10,876,647.78

# Appendix B. Initial Infrastructure Design Review

## Cross section of Road on Bridge



① 200x200x10 mm SHS for all beams

② 10 mm thick deck plate

③ All connections welded

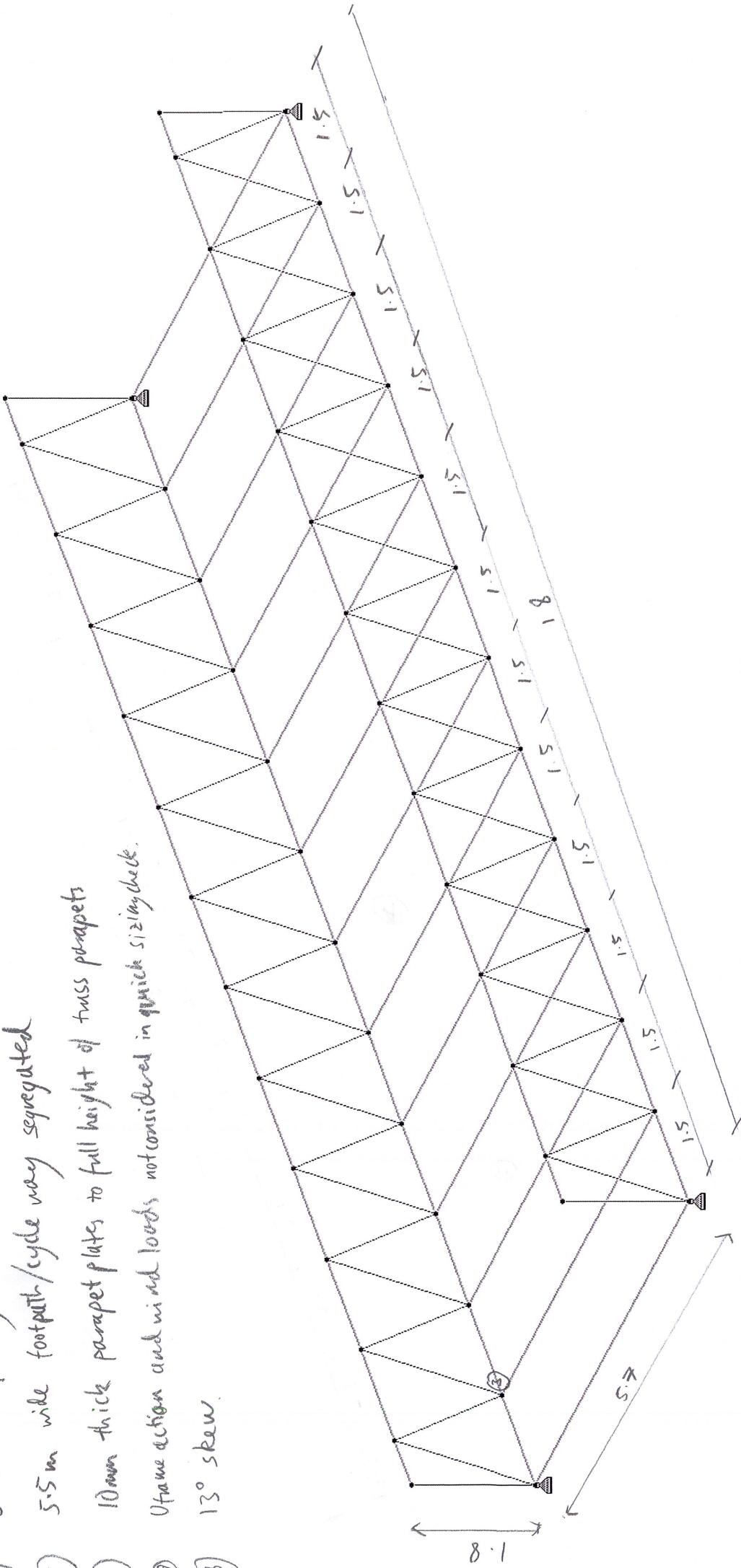
④ 20 mm surfacing on deck

⑤ 5.5 m wide footpath/cycle way segregated

⑥ 10 mm thick parapet plates to full height of truss parapets

⑦ Utame action and wind loads not considered in quick sizing check.

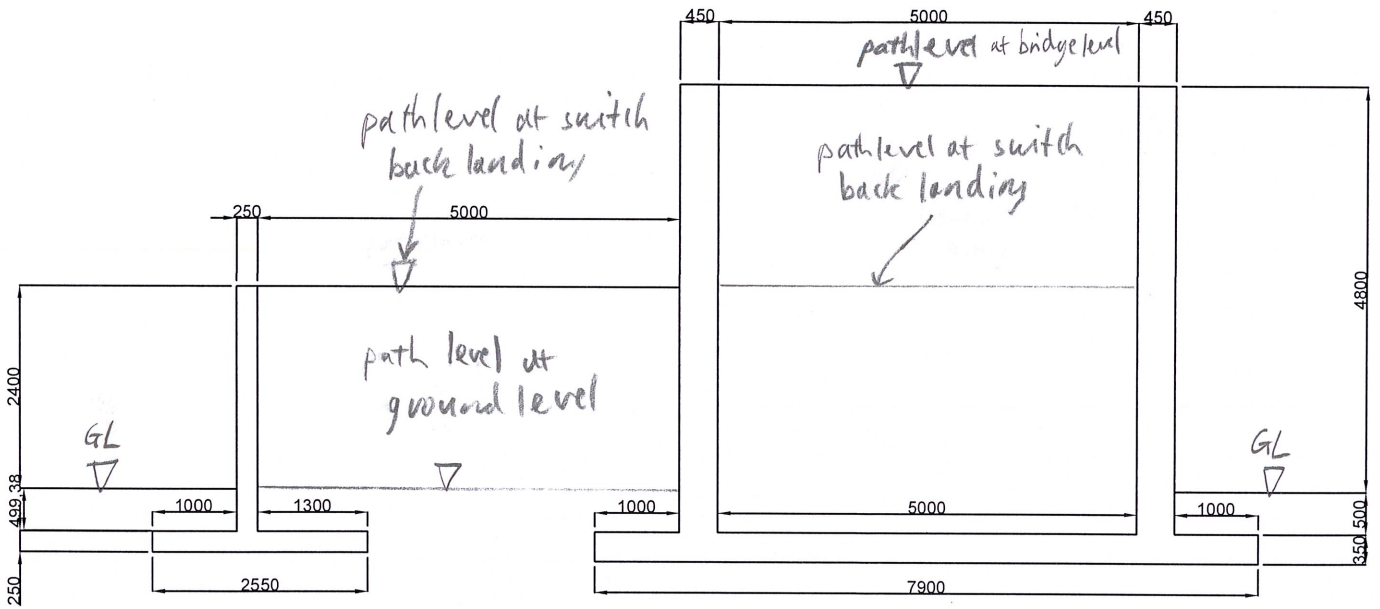
⑧ 13° skew.



All dimensions in metres



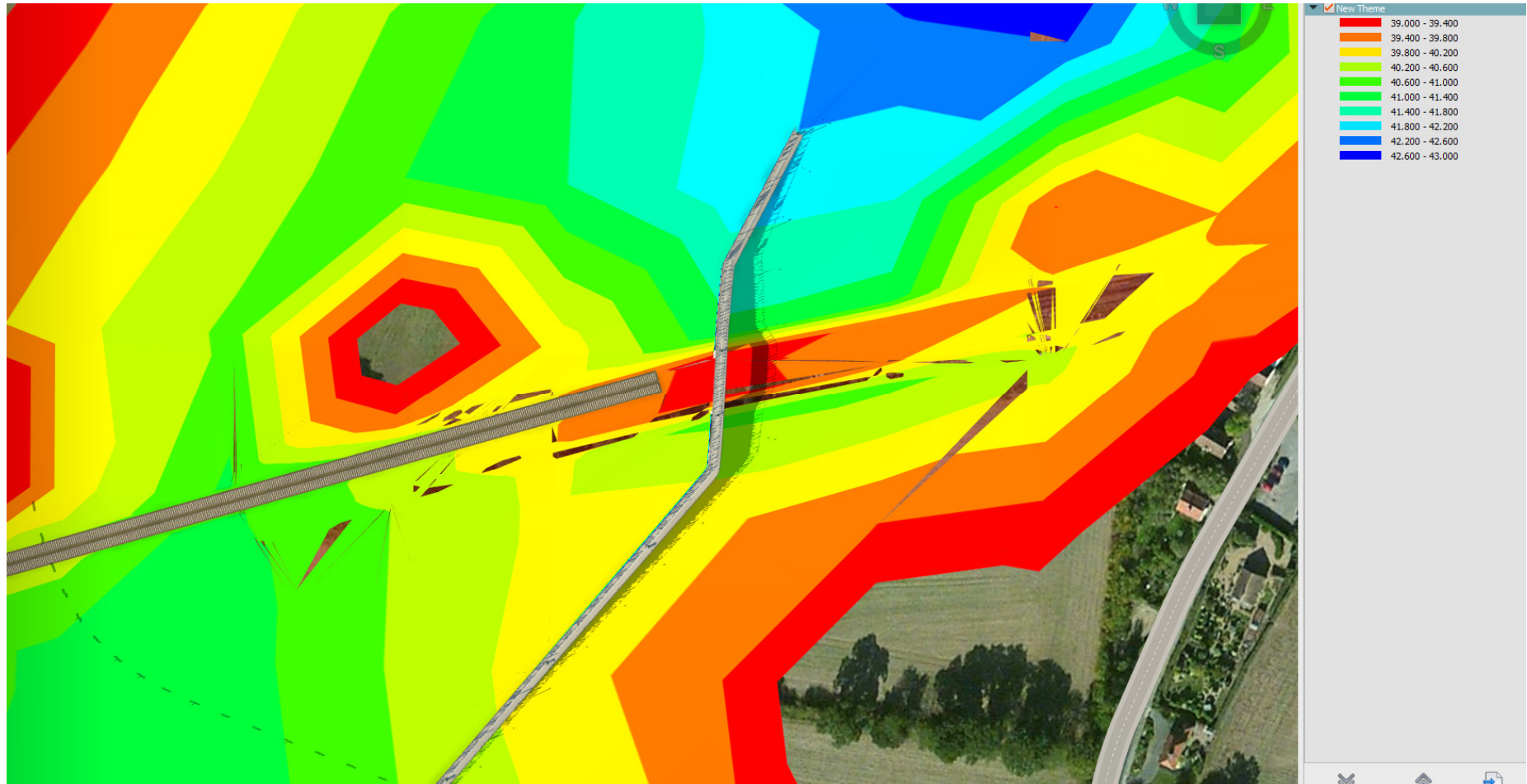
Switch back ramp retaining walls  
for foot bridge



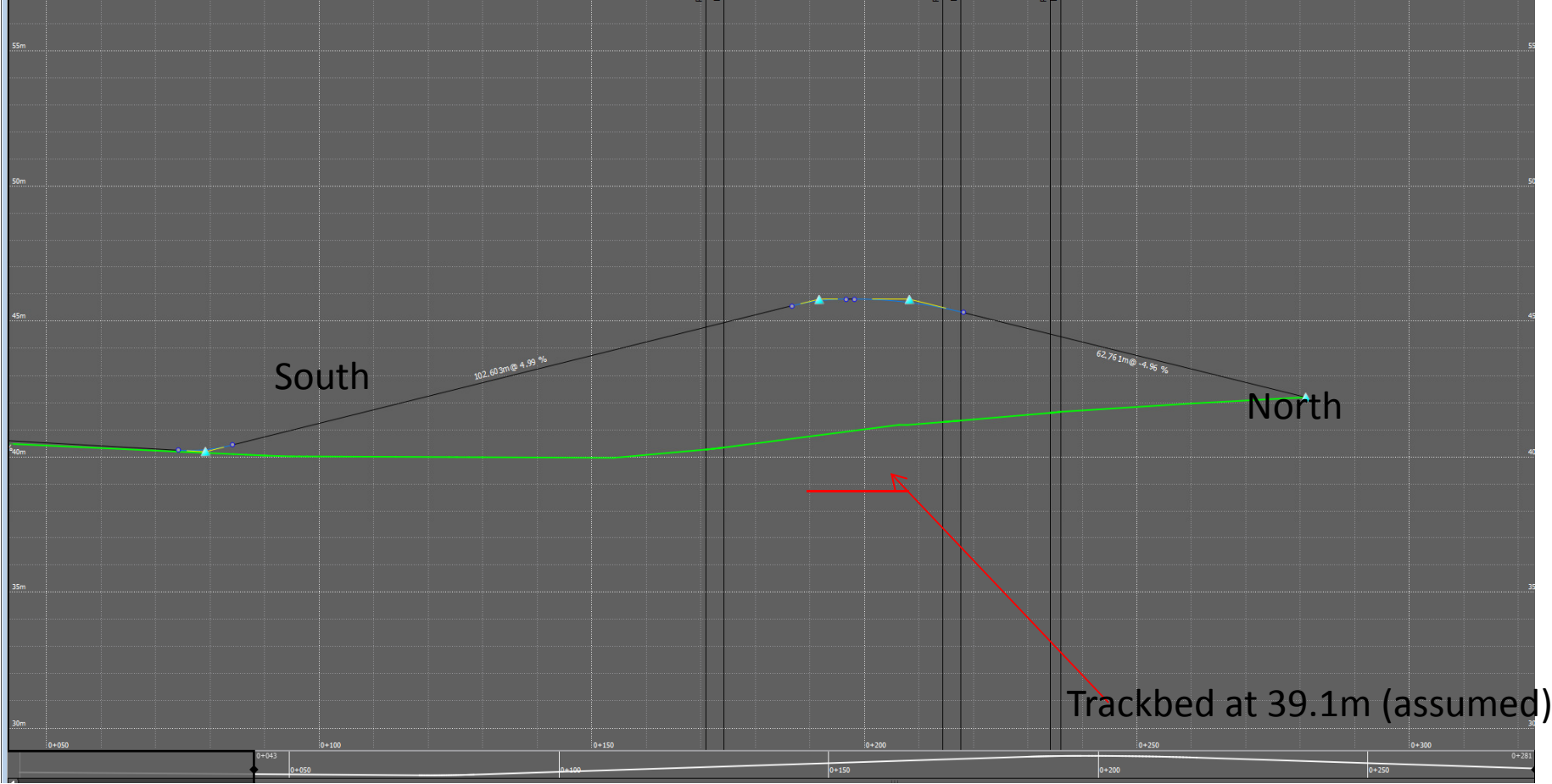
1:20 gradient  
5m wide path

All dimensions in mm

# Alternative Ramp

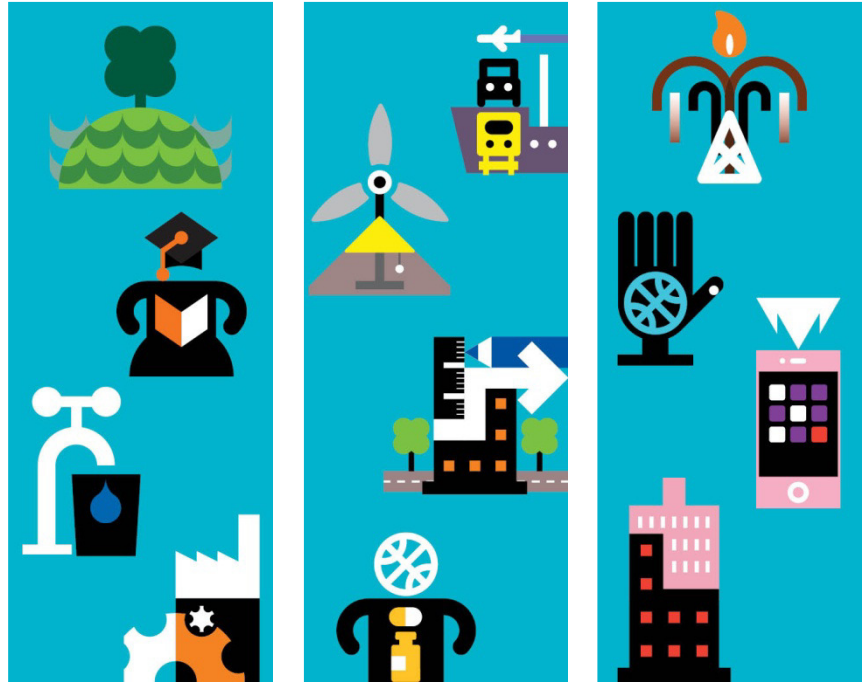


# Alternative Ramp



Footbridge approach ramp profile shown above.  
Approx 70m approach on north side. 110m on south side.

# Appendix C. Utilities Statement



# Ipswich Garden Suburb

Utilities Statement

September 2015

Ipswich Borough Council

# Ipswich Garden Suburb

Utilities Statement

September 2015

Ipswich Borough Council

Town Hall  
Princes Street  
Ipswich  
IP1 1DH

# Issue and revision record

<b>Revision</b>	<b>Date</b>	<b>Originator</b>	<b>Checker</b>	<b>Approver</b>	<b>Description</b>
A	September 2015	P. H. Satchell	A. J. Newson	A. M. Rawlings	First Issue

**Information class: Standard**

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# 1 Introduction

## 1.1 Development Description

This Utilities Statement report has been prepared by Mott MacDonald on behalf of Ipswich Borough Council to support the continuing development of the Ipswich Garden Suburb proposals.

It is proposed to develop land between Henley Road and Tuddenham Road, and south of Westerfield village. This Utilities Statement is based on the following proposed land use schedule:

1. Residential area 102ha
  - a. 3,500no. homes comprising;
    - i. 10% 1 bed homes (350no.)
    - ii. 23% 2 bed homes (805no.)
    - iii. 38% 3 bed homes (1330no.)
    - iv. 21% 4 bed homes (735no.)
    - v. 8% 5+ bed homes (280no.)
2. District Centre 3.5ha
  - a. 2,000 sq. m of convenience shopping;
  - b. 1,220 sq. m of comparison shopping;
  - c. 1,320 sq. m of service use (Planning Classes A1, A2, A3, A4 and A5);
  - d. A Health Centre;
  - e. A Library;
  - f. A Police Office; and
  - g. A Multi-use Community Centre.
3. Local Centres 1.5ha
  - a. 500 sq. m of convenience shopping;
  - b. 600 sq. m of comparison shopping; and
  - c. 500 sq. m of service use (Planning Classes A1, A2, A3, A4 and A5).
4. 1no. Secondary School 9ha
  - a. 1,200no. students (including Sixth Form).
5. 3no. Primary Schools 6ha
  - a. 210no. students per Primary School – total number of students 630no. (including Early Years).

The proposed development masterplan is included in **Appendix A**.

## 1.2 Indicative Development Phasing

It is understood that the development is proposed to be developed in 2no. separate phases, with Phase 1 delivering houses and associated facilities before 2021 and subsequent houses and facilities constructed

as Phase 2 after 2021. These Phases are required in order to develop in accordance with Ipswich Borough Council Core Strategy.

### 1.3 Pre-Development Enquiries

Pre development enquiries were submitted to the following statutory undertakers – outlined in **Table 1.1** below.

Table 1.1: Pre Development Enquiries

Service	Statutory Undertaker
Electricity	UK Power Networks
Gas	National Grid

Source: Mott MacDonald

It is recommended that up to date pre-development enquiries for site potable water supply, foul water disposal and surface water disposal are submitted to the appropriate statutory undertakers to confirm feasibility and costs associated with any works.

## 2 Existing Infrastructure

### 2.1 Site Utilities

Existing infrastructure information has been provided by Ipswich Borough Council. The following comments on the existing infrastructure are based on this information and information received from the respective statutory undertakers as part of the pre development enquiries only. The information and drawings included in this report should not be assumed to show all existing infrastructure on and adjacent to the site. These routes and locations of plant are not guaranteed and should be confirmed by Cable Avoidance Tool (CAT) scans and hand digging prior to any works on site. CAT scans and hand digging should be carried out by a competent contractor in accordance with current, relevant legislation and guidance including BS 6031:2009 Code of Practice for Earthworks, Health and Safety Executive (HSE) Avoiding Danger from Underground Services HS(G)47, HSE Avoiding Danger from Overhead Power Lines GS6 and National Joint Utilities Group (NJUG) Best Practice Guidance.

### 2.2 Electrical Infrastructure

The Vectos “Existing Statutory Undertakers” drawing (Drawing – 15.1) shows existing high voltage assets located adjacent to the site. The high voltage assets are located to the west of the site in Henley Road, to the south in Valley Road (A1214), and bisecting the southern part of the site in Westerfield Road (B1077) and to the east of the site in Tuddenham Road.

It is noted that the Vectos drawing does not show low voltage UKPN assets or connections details. The Vectos drawings should not be assumed to be the definitive source of existing UKPN asset information. UKPN should be contacted to confirm assets prior to the commencement of any works.

### 2.3 Gas Infrastructure

The National Grid drawing (Drawing 180002996) shows the layout of existing low pressure and medium pressure gas mains in the vicinity of the proposed development site. The medium pressure mains extend along Dales Road and Dale Hall Lane to the east of the development site, and Valley Road (A1214) to the south. The low pressure mains are located in the above mentioned roads and the network of minor roads adjacent to the west, south and east of the proposed development site. It is noted that it is likely that there may be existing gas assets not shown on the drawing, these include pipework, associated infrastructure and individual connections.

### 2.4 Water Supply Infrastructure

The Vectos “Existing Statutory Undertakers” drawing (Drawing – 15.1) shows existing Anglian Water mains adjacent to the site. The existing water mains and their respective locations are listed in **Table 2.1** below.

Table 2.1: Existing Anglian Water Strategic Mains

Water Main	Location
12 Inch Water Main	Valley Road (A1214)
18 Inch Water Main	Henley Road
150mm Water Main	Westerfield Road
6 Inch Water Main	Tuddenham Road
15 Inch Water Main	Between Westerfield Road and Tuddenham Road
3 Inch Water Main	Lower Road / Church Lane

Source: Vectos

The Vectos “Existing Statutory Undertakers” drawing (Drawing – 15.1) shows existing Anglian Water mains adjacent to the site. The existing water mains and their respective locations are listed in the table above.

## 3 New Infrastructure Requirements

### 3.1 Proposed Development Indicative Demands

The proposed development demands have been estimated in order to provide statutory undertakers with overall load figures upon which to base their assessments. UKPN and National Grid utilise their in-house software and engineers to carry out assessments of the loads on their networks in order to provide a response.

**Tables 3.1** and **3.2** below, show the estimated electrical and gas demands for the proposed development, based on the information available at the time; it should be noted that all estimates of anticipated demands are indicative only.

**Table 3.1: Estimated Electrical Loads**

Description of Building	Estimated Electrical Load
1 Bedroom House (350no. properties)	1.5 kVA / Property
2 Bedroom House (805no. Properties)	1.8 kVA / Property
3 Bedroom House (1330no. Properties)	2.3 kVA / Property
4 Bedroom House (735no. Properties)	2.7 kVA / Property
5 Bedroom House (280no. Properties)	3.1 kVA / Property
District Centre Convenience Shopping (2,000sq.m)	320 KW
District Centre Comparison Shopping (1,220sq.m)	305 KW
District Centre Service Use (Classes A1, A2, A3, A4 and A5)	330 KW
District Centre Health Centre	130 KW
District Centre Library	50 KW
District Centre Police Office	43.5 KW
District Centre Multi Use Community Centre	150 KW
Local Centre Convenience Shopping (500sq.m)	80 KW
Local Centre Comparison Shopping (600sq.m)	150 KW
Local Centre Service Use (Classes A1, A2, A3, A4 and A5)	125 KW
1no. Secondary School (1,200 students inc. Sixth Form)	550 KW
3no. Primary Schools (210 students per Primary School)	175 KW

Source: Mott MacDonald

**Table 3.2: Estimated Gas Loads**

Description of Building	Estimated Gas Load
1 Bedroom House (350no. properties)	Calculated by National Grid
2 Bedroom House (805no. Properties)	Calculated by National Grid
3 Bedroom House (1330no. Properties)	Calculated by National Grid
4 Bedroom House (735no. Properties)	Calculated by National Grid
5 Bedroom House (280no. Properties)	Calculated by National Grid
District Centre Convenience Shopping (2,000sq.m)	120 KW
District Centre Comparison Shopping (1,220sq.m)	73.2 KW

Description of Building	Estimated Gas Load
District Centre Service Use (Classes A1, A2, A3, A4 and A5)	92.4 KW
District Centre Health Centre	150 KW
District Centre Library	80 KW
District Centre Police Office	40 KW
District Centre Multi Use Community Centre	180 KW
Local Centre Convenience Shopping (500sq.m)	30 KW
Local Centre Comparison Shopping (600sq.m)	36 KW
Local Centre Service Use (Classes A1, A2, A3, A4 and A5)	35 KW
1no. Secondary School (1,200 students inc. Sixth Form)	700 KW
3no. Primary Schools (210 students per Primary School)	390 KW

Source: Mott MacDonald

### 3.2 Electrical Infrastructure

A budget estimate enquiry was submitted to UKPN, the return is included in **Appendix B**. UKPN has stated that in order to serve the proposed development, the proposed non-contestable electrical works (to be completed by UKPN only) are to include:

- Extension of the 11kV switchboard at Highfield Primary; and
- Installation of a dual circuit cable from the Highfield Primary to the proposed development site.

The UKPN budget estimate for the proposed non-contestable electrical works is £7million (exc. VAT).

UKPN have confirmed that the budget estimate figure does not include civils/ground excavation for the non-contestable electrical works. The civils works are to be carried out by the Developer.

The contestable works electrical works (to be completed by an ICP (Independent Connections Provider) or DNO (Distribution Network Operator) are to include:

- 11kV infrastructure around the site and associated sub-stations; and
- Final connections to properties.

UKPN have advised that for the infrastructure and final connections on site to allow for approximately £1,500 per each connection over and above the budget estimate of £7million.

When further proposed development details are available, the Developer can seek competitive quotations for the contestable works and further engage with UKPN to develop a more detailed estimate.

### 3.3 Gas Infrastructure

#### 3.3.1 Previous Gas Supply Information

The Vectos “Proposed Fulcrum Gas New Connections” drawing (Drawing – 15.3 – dated 23.05.14) shows the proposals by Fulcrum to supply the development with gas.

The proposals comprise:

- Installation of approximately 350m of offsite medium pressure mains to the site boundary from Valley Road;
- Construction of a Medium Pressure to Low Pressure reduction station within a GRP kiosk; and
- Construction of low pressure pipework and connections through the proposed development site.

The estimate shown on the Vectos drawing states a cost of £2.2million for the works (no detailed breakdown is provided in this estimate).

#### 3.3.2 New Gas Supply Information

National Grid has stated that the existing network has the capacity to supply the predicted demand of the development. National Grid has stated that the gas supply for the proposed development can connect to the existing network medium pressure main (225mm PE) located in the A1214 Valley Road to the south of the proposed development. Refer to **Appendix C** for the National Grid Return

#### 3.3.3 Fulcrum Gas Infrastructure Works

Fulcrum has prepared an indicative price quote for carrying out gas supply works on site. The indicative quote is £492,000. The quote provides an indicative figure for the following:

- Gas infrastructure to 3,500 domestic services, including meters (up to the Emergency Control Valve);
- Gas infrastructure to the commercial units (Fulcrum have estimated loads for these using their in-house software);
- An off-site connection and gas main laying to the site boundary;
- An MP to LP gas governor.

Fulcrum has confirmed that the quote has been computed based on their new prices and their direct labour model. Fulcrum has stated that the previous quote was based on their contractor model, which carries higher rates.

The quote does not include excavation, backfill and reinstatement of all trenches within the site boundary. The quote does not take into account, or include for, any specialist works e.g. rail crossings, third party underground plant, design studies, reinforcement, diversions or disconnections that may be required. The quote does not include traffic management or council permits or any out of hours work. When further details are available, a more accurate indicative price can be quoted by Fulcrum. The full list of inclusions

and exclusions is included on the quote in **Appendix D**. The Vectos drawing and the National Grid gas capacity check information were shared with Fulcrum for information for the indicative quote.

### 3.4 Potable Water and Wastewater Disposal

It is recommended that up to date pre-development enquiries for site potable water supply and foul water disposal are submitted to the appropriate statutory undertakers to confirm feasibility and costs associated with any works.

### 3.5 Telecommunications and Communications Networks

Telecommunications and communications network providers require a certain level of information in order to develop a strategy for a proposed development. BT Openreach guidance states that BT should be contacted as soon as possible after planning permission for the proposed development has been granted.

The BT Openreach guidance can be found here:

[https://www.openreach.co.uk/orpg/home/contactus/connectingyourdevelopment/downloads/developers\\_guide.pdf](https://www.openreach.co.uk/orpg/home/contactus/connectingyourdevelopment/downloads/developers_guide.pdf)

The guidance states that the following information is required by BT Openreach in order to progress telecommunications network connections:

1. Name and location of the development;
2. Developer contact details;
3. Site Manager contact details;
4. Confirmation that planning permission has been granted;
5. Details of the site location, including roads, and existing buildings;
6. Details of the site, including plot numbers for all properties and floor plans for each storey;
7. All drawings of the proposed development in black and white PDF format of less than 4Mb;
8. Proposed site start date and proposed first occupancy date;
9. When the first phone line will be required (some developments include lifts which require lift line installation early on during the construction phase);
10. Council addressing for the site as soon as it is available to enable BT to update their records and improve provision times for mutual customers;
11. A copy of any agreement or licence the Developer has with the Highway Authority – e.g. Highways Act 1980 Section 184 or Section 278 Agreements – where works impact on Openreach apparatus in the existing public highway;
12. Name and contact details of the builder; and it must be noted that
13. All work must be carried out within the requirements of the Health and Safety Work Act 1974 and Management of Health and Safety at Work Regulations 1992 and any other legislation or regulation that affect the task in hand. In addition, the Construction Design Management Regulations 1994 and the Construction (Health, Safety and Welfare) Regulations 1996.



It should be noted that there are other telecommunications and communications network providers that may be able to serve the site.

## 4 Conclusions

- This Utilities Statement has been carried out by Mott MacDonald on behalf of Ipswich Borough Council based on the information provided.
- UKPN has confirmed that it can supply the proposed development. However, necessary off-site works will need to be carried out in order to facilitate the supply.
- National Grid has confirmed that it can supply the proposed development.
- Fulcrum has quoted for gas supply works within the site boundary up to the Emergency Control Valve and the quote includes meter installation. However, the quote does not include excavation, backfill and reinstatement of trenches on site.
- It is recommended that up to date pre-development enquiries for site potable water supply and foul water disposal are submitted to the appropriate statutory undertakers to confirm feasibility and costs associated with any works.
- Telecoms ducts will need to be provided and used where required to facilitate telecoms connections to dwellings, including fibre optic broadband cabling, to meet the needs of future residents. The final number and location of ducts will be agreed as part of the detailed design process with the relevant service provider as agreed with the Developer.

## 4 Conclusions

- This Utilities Statement has been carried out by Mott MacDonald on behalf of Ipswich Borough Council based on the information provided.
- UKPN has confirmed that it can supply the proposed development. However, necessary off-site works will need to be carried out in order to facilitate the supply.
- National Grid has confirmed that it can supply the proposed development.
- Fulcrum has quoted for gas supply works within the site boundary up to the Emergency Control Valve and the quote includes meter installation. However, the quote does not include excavation, backfill and reinstatement of trenches on site.
- It is recommended that up to date pre-development enquiries for site potable water supply and foul water disposal are submitted to the appropriate statutory undertakers to confirm feasibility and costs associated with any works.
- Telecoms ducts will need to be provided and used where required to facilitate telecoms connections to dwellings, including fibre optic broadband cabling, to meet the needs of future residents. The final number and location of ducts will be agreed as part of the detailed design process with the relevant service provider as agreed with the Developer.

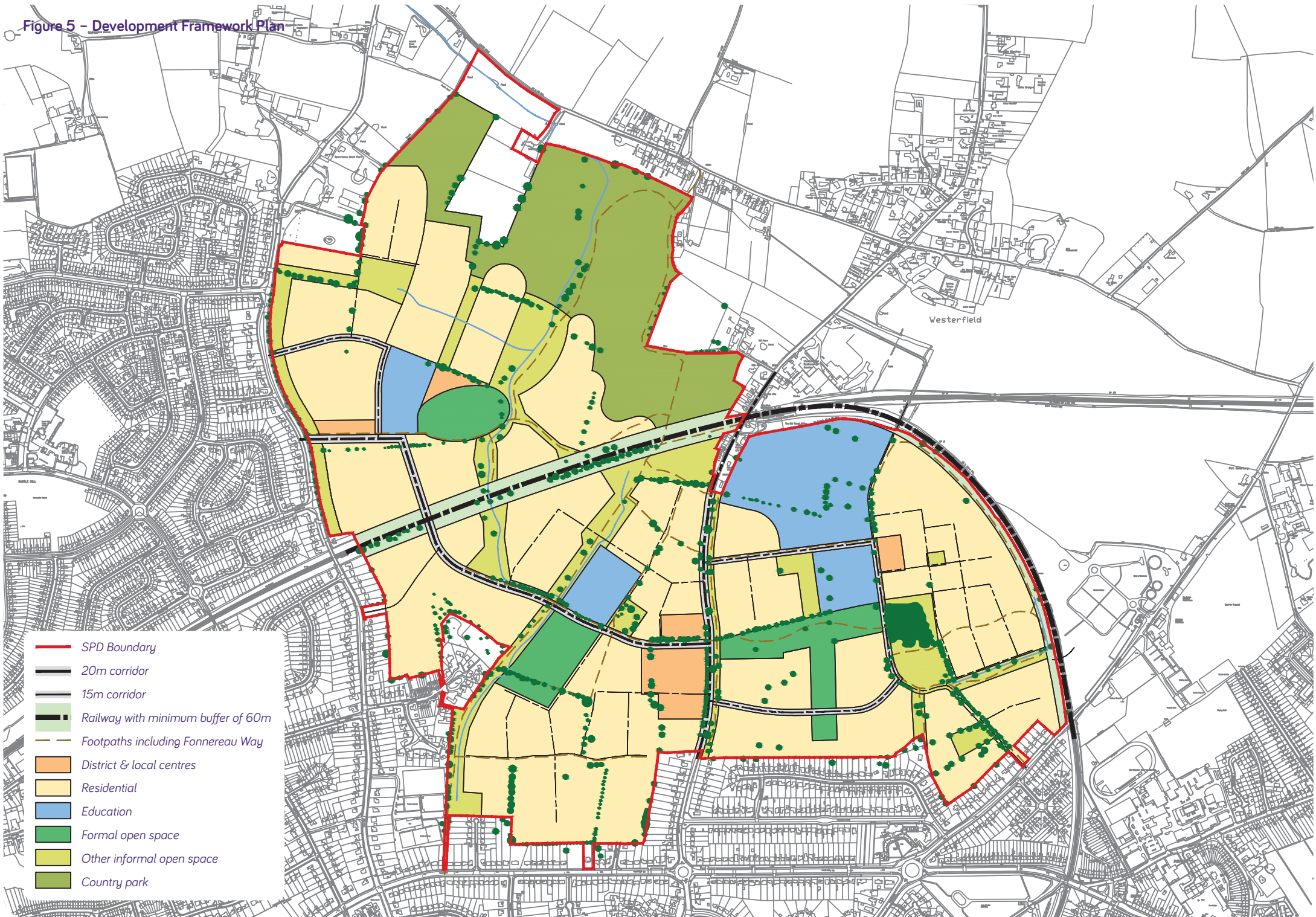
# Appendices

Appendix A. Proposed Development Masterplan _____	12
Appendix B. UKPN Pre Development Enquiry _____	13
Appendix C. National Grid Pre Development Enquiry _____	14
Appendix D. Fulcrum Quote (Gas) _____	15

# Appendix A. Proposed Development Masterplan

- Proposed Development Masterplan [1 sheet]

Figure 5 - Development Framework Plan



- SPD Boundary
- 20m corridor
- 15m corridor
- Railway with minimum buffer of 60m
- Footpaths including Fonnereau Way
- District & local centres
- Residential
- Education
- Formal open space
- Other informal open space
- Country park

Westerfield

## Appendix B. UKPN Pre Development Enquiry

- UK Power Networks (Electricity) Pre Development Enquiry Return [2 sheets]

Mr. Philip Satchell  
Mott MacDonald Ltd  
Murdoch House  
40-44, Station Road  
CAMBRIDGE  
CB1 2JH

08 July 2015

Our Ref: 8600000697/QID 3000002875

Dear Mr. Satchell,

Site Address: Between Henley Road & Tuddenham Rd / IPSWICH IP1 4NZ

Thank you for your recent enquiry regarding the above premises. I am writing to you on behalf of Eastern Power Networks PLC the licensed distributor of electricity for the above address trading as UK Power Networks.

I am pleased to be able to provide you with a budget estimate for the work.

It is important to note that this budget estimate is intended as a guide only. It may have been carried out without a site visit or system studies. No enquiry has been made as to the availability of consent or the existence of any ground conditions that may affect the ground works. It is not an offer to provide the connection and nor does it reserve any capacity on UK Power Networks electricity distribution system.

**1. Budget estimate:**

The budget estimation for this work is: £7,000,000.00 (exclusive of VAT)

Work included in this budget estimate:

- Extend 11kV switchboard at Highfield Primary
- Install dual circuit cable from Highfield Primary to site

Not included in this budget estimate

- 11kV Infrastructure around the site
- Final connections

For the infrastructure and final connection you may wish to include a cost of £1,500 per connection over and above the estimate of £7,000,000.00.

If you would like to proceed to a formal offer of connection then you should apply for a quotation, Please refer to our website [https://www.ukpowernetworks.co.uk/internet/en/help-and-advice/documents/the\\_connection\\_process.pdf](https://www.ukpowernetworks.co.uk/internet/en/help-and-advice/documents/the_connection_process.pdf) for 'The Connection Process' which details our application process. To help our progress any future enquiry as quickly as possible please quote the UK Power Networks Reference Number from this letter on all correspondence.



If you have any questions about your budget estimation or need more information please do not hesitate to contact me. The best time to call is between 9am to 4pm, Monday to Friday.  
If the person you need to speak to is unavailable or engaged on another call when you ring, you may leave a message or call back later.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'P S Hunt', is written in a cursive style.

Peter Hunt

Tel:07855056614  
peter.hunt@ukpowernetworks.co.uk

## Appendix C. National Grid Pre Development Enquiry

- National Grid (Gas) Pre Development Enquiry Return [2 sheets]

**Network Enquiry No** : 180002996  
**Your Reference** : 355949

**nationalgrid**

**National Gas Emergency Service - 0800 111 999\* (24hrs)**  
\*calls will be recorded and may be monitored

Phil Satchell  
MOTT MACDONALD LIMITED  
8-10  
SYDENHAM ROAD  
CROYDON  
CR0 2EE

**Date** : 29th June 2015  
**Contact** : Performance and Support  
**Direct Tel** : 0845 3666758  
**Email** : networkdesign@nationalgrid.com

www.nationalgrid.com

**Dear Phil,**

**Re: Land Enquiry for Proposed Development Site at NEW SUPPLY, IPSWICH SUBURB, LAND NEAR WESTERFIELD ROAD, IPSWICH, IP4 3AB.**

Thank you for your enquiry which we received on 22nd June 2015. I enclose details of National Grid Gas plant in the vicinity of your proposed supply.

The nearest main with sufficient capacity is 78 metres from the site boundary and it is a Medium Pressure main.

Plans attached: Yes

A copy of the National Grid Connections Charging Statement referenced in this letter can be found on National Grid's website:

<http://www2.nationalgrid.com/uk/services/Gas-distribution-connections/charges/>

If you require a printed version please contact us on the details provided above.

I trust this meets with your requirements at this stage. If you have any queries please do not hesitate to contact Performance and Support on the above number.

Yours sincerely,

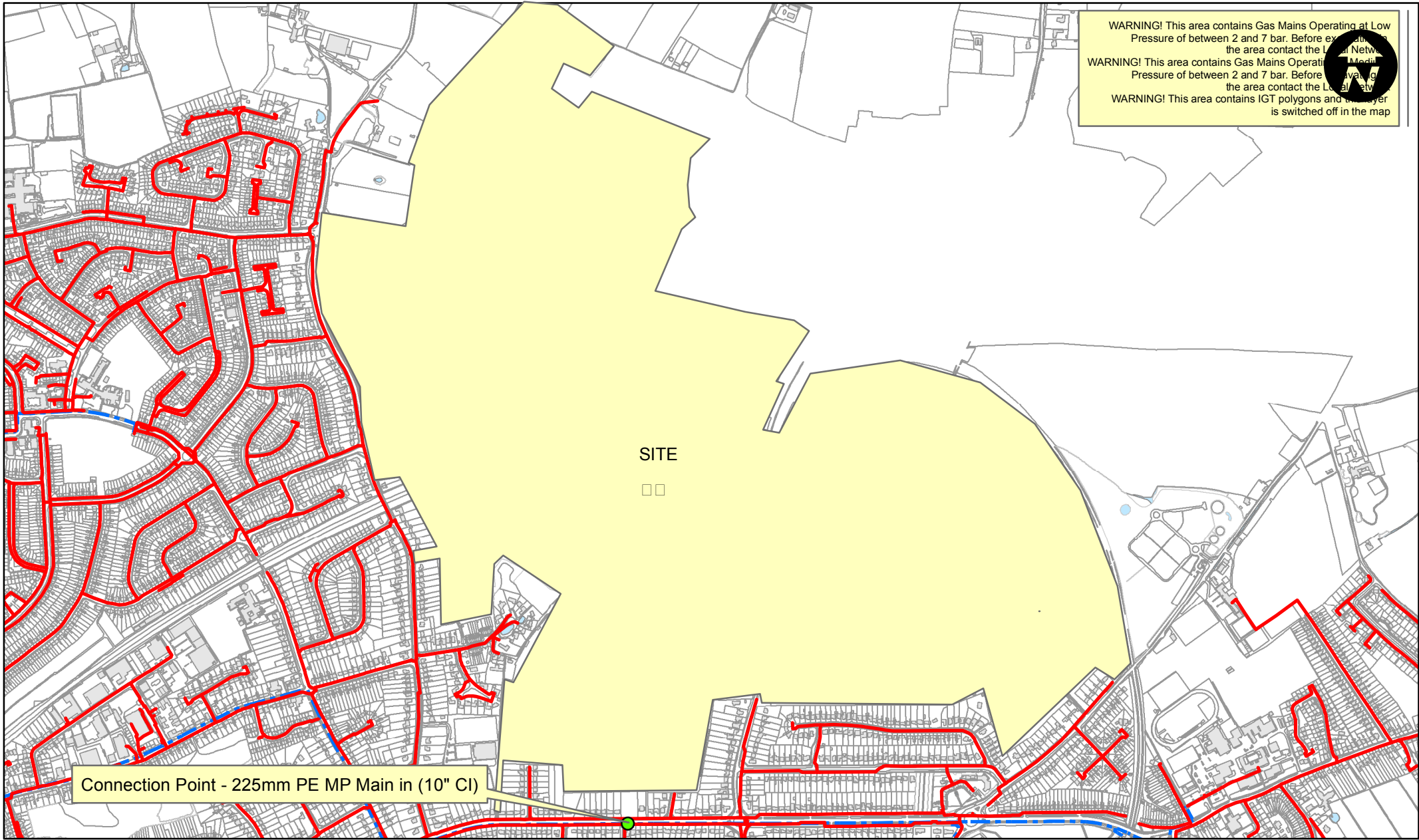


Adam Leeson  
Design Specialist



National Grid Gas plc  
Registered No.2006000  
Registered Address 1-3 Strand, London, WC2N 5EH

Letter Id: CRM013  
Page 1 of 1



WARNING! This area contains Gas Mains Operating at Low Pressure of between 2 and 7 bar. Before excavating in the area contact the Local Network Operator.

WARNING! This area contains Gas Mains Operating at Medium Pressure of between 2 and 7 bar. Before excavating in the area contact the Local Network Operator.

WARNING! This area contains IGT polygons and the Layer is switched off in the map

SITE  
□ □

Connection Point - 225mm PE MP Main in (10" CI)

SCALE: 1:1,250 @ A4  
 USER ID: rosie.whittle  
 DATE: 29-Jun-2015 14:27:00  
 INTERNAL USE ONLY  
 MAP REF: 616788, 247101  
 CENTRE:

L/P GAS MAIN  
 M/P GAS MAIN  
 I/P GAS MAIN  
 H/P GAS MAIN  
 N/H/P GAS MAIN  
 PROPOSED PIPE - LP  
 PROPOSED PIPE - MP  
 PROPOSED PIPE - IP  
 ABANDON - LP  
 ABANDON - MP



SCHEME: <NG GDFO Scheme Name>  
 DESIGN: <NG GDFO Design Number>  
 REVISION: <NG GDFO Revision>

This plan shows those pipes owned by National Grid in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and any other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Some examples of Plant Items:  
 Valve Syphon Depth of Cover Change of Dia Change of Material

180002996



This plan is reproduced from or based on the OS map by National Grid Gas plc, with the sanction of the controller of HM Stationery Office. Crown Copyright Reserved.

## Appendix D. Fulcrum Quote (Gas)

- Fulcrum On-Site Gas Supply Works Quote [2 sheets]

DATE 26/08/2015  
QUOTATION REFERENCE 5045787/PQ092090  
YOUR REFERENCE IP4 3AB



FULCRUM

Tel: 03330 146 466

2 Europa View  
Sheffield Business Park  
Sheffield S9 1XH

Web: fulcrum.co.uk  
Email: enquiries@fulcrum.co.uk

## YOUR INDICATIVE PRICE QUOTE

Mott MacDonald  
Demeter House  
Station Road  
Cambridge  
CB1 2RS

Dear Mr Satchell,

**RE: Dev @ Land nr Westerfield Road, Westerfield Road, Ipswich, IP4 3AB**

Thank you for giving us the opportunity to quote for works at the above site.

I am pleased to provide you with the following indicative price for the works as detailed below:

- Gas supply up to the Emergency Control Valve (ECV)
- Meter installation

The indicative price to carry out the work is: **£492,000.00** (excluding VAT)

**This price will be subject to VAT at the appropriate rate as set out by HM Customs and Excise.**

This figure is indicative and does not represent an offer to carry out the works. If a firm quotation is requested, Fulcrum may provide a price that is different from the amount indicated.

### ASSUMPTIONS

- Fulcrum is assumed to excavate, backfill and reinstate all trenches required outside the site boundary
- It is assumed that the customer / developer will excavate, backfill and reinstate all trenches required within the site boundaries.
- The customer / developer would be required to provide suitable provision for all work and clear working access to site at all times
- Termination points assumed
- It is assumed that no easements or permissions are required to carry out any of the proposed works
- It is assumed that any CHP, compressors or boosters etc. to be connected to the proposed infrastructure will be done in accordance with all appropriate legislation/policies etc. to maintain the integrity and security of the existing infrastructure (this may mean upsizing of some or all of the proposed new infrastructure) and no additional design parameters have been included for
- The assumption that there will be sufficient capacity in the existing network, no investigation into the available pressure or potential reinforcement with the network owner has been carried out, this will be done once a firm quotation is required. (To enable a firm quotation to be produced we will require a site layout plan).
- The estimate is based upon a minimum of 6 services being called at a time
- This indicative price quotation does not take into account, or include for, any specialist works e.g. rail crossings, third party underground plant, design studies, reinforcement, diversions or disconnections etc. that may be required

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Registered in England No. 6006362 Registered office: 6 St Andrew Street, 5th Floor, London EC4A 3AE Incorporated in England and Wales  
Fulcrum is a trading name for Fulcrum Pipelines Limited



## WHAT YOU NEED TO DO NOW

If you would like to proceed and make this indicative price quotation a firm quotation, or if you would like us to undertake a detailed design study, please contact us on 03330 146 466.

THANK YOU FOR CHOOSING FULCRUM

Yours sincerely,



**Kevin Walpole**  
Head of Design

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Registered in England No. 6006362 Registered office: 6 St Andrew Street, 5th Floor, London EC4A 3AE Incorporated in England and Wales



# Appendix D. Mott MacDonald Infrastructure Cost Review



**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb

**Project No:** 355949

**Date:** 01 Mar 2016

**Revision:** -

**Base Date:** 2Q 2015

**1.0 Infrastructure Viability Cost Analysis Schedule**

Ref	Item	Mott MacDonald
1.1	<b>Strategic Infrastructure</b>	64,623,336.00
1.2	<b>Neighbourhood Infrastructure Requirements</b>	67,598,723.50
	<b>Total</b>	<b>132,222,059.50</b>

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb

**Revision:** -

**Project No:** 355949

**Base Date:** 2Q 2015

**Date:** 01 Mar 2016

**1.1 Strategic Infrastructure**

Ref	Infrastructure Theme (based on SPD tables)	Item	Mott MacDonald
1	Access & Transport	Vehicular Rail Crossing; Pedestrian Crossing; Bus Services; Town Centre Cycle Improvements etc	16,567,098.21
2	Education	1200 place secondary school, including sixth form facility, playing fields and recreational facilities secured for use by the community (proportionate contribution of school build cost)	12,400,000.00
3	Open space, recreation & play	Country Park with visitor centre for Henley Gate; Swimming Contribution off-site	5,639,551.00
4	Community facilities	District & Local Community Centres including community buildings with integrated library facilities & police office alongside new health centre & reserved sites for community use	4,189,000.00
5	Utilities	Strategic improvements to electricity, gas, potable water, sewerage and SUDS	25,827,686.79
<b>Total</b>			<b>64,623,336.00</b>

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb  
**Project No:** 355949  
**Date:** 01 Mar 2016

**Revision:** -  
**Base Date:** 2Q 2015

**1.1 Strategic Infrastructure**

Ref	Infrastructure Theme (based on SPD tables)	Item	Detail	Mott MacDonald	Assumptions	Trigger Point for Delivery
<b>1</b>						
1.1	Access & Transport	Vehicular Rail Crossing	Vehicular crossing; approx. 6.2m overhead clearance from railway line	6,789,776.79	Assume steel construction to minimise Network Rail Compensation costs	Prior to the occupation of 300 dwellings in Henley Gate or as agreed with IBC in view of the sequencing of both Fonnereau and Henley Gate, unless this is otherwise required at an earlier point as informed by an agreed Transport Assessment for the whole development.
1.1.1			Network Rail Interruption Compensation; Vehicular Bridge	400,000.00	£200,000 / day; 2 days line closure - as advised by Network Rail	
1.1.2			Commuted Sums - 125 Years	1,500,000.00	Including Pedestrian / Cycle Bridge, as advised by SCC	
1.2		Fonnereau Way cycle / pedestrian bridge	Pedestrian / Cycle Bridge	1,870,000.00	Significant increase in ramp requirements to pedestrian footbridge; 5m wide ramp x 4.8m rise at 1:20 gradient	Prior to the occupation of 300 dwellings in Henley Gate or as agreed with IBC in view of the sequencing of both Fonnereau and Henley Gate, unless this is otherwise required at an earlier point as informed by Network Rail consultation.
1.2.1			Network Rail Interruption Compensation; Pedestrian / Cycle Bridge	200,000.00	£200,000 / day; 1 day line closure - as advised by Network Rail	
1.2.2			Commuted Sums - 125 Years	Included in 1.1.2	As advised by SCC	
1.3		Phased delivery of bus service & bus priority measures	Bus service for 5 years	3,830,580.36	5 year bus service (£3.7m) and 5nr shelters (£130k)	Strategic phasing plan for delivery of service and bus priority measures to be agreed prior to the commencement of development.
1.3.1			Off-site bus priority measures (physical)	292,410.71	Contribution allowance	
1.4		Improvements to strategic town centre & east - west footpaths / cycleways	Off site cycle and ped improvements	847,991.07	Allowance, scope to be defined	Strategic phasing plan for delivery of strategic improvements to be agreed prior to the commencement of development.
1.5		Improvements to Westerfield Station and level crossing	Improvements to level crossing	250,000.00	Allowance for contribution towards improved automated barriers and associated signalling	Contribution towards car & cycle parking provision (to include CCTV, lighting, landscaping and other associated infrastructure) and level-crossing upgrade (where required by Network Rail) will be secured at an appropriate stage in the development.
1.5.1			Resurfacing to Car Park; including line marking	37,500.00	Allowance for up to 250m2	
1.5.2			Lighting to Car Park	12,500.00	Allowance for up to 250m2	
1.5.3			Sheffield cycle hoops, on concrete base	10,000.00	Assume 20nr cycle hoops; excluding shelter	
1.6		Controlled Pedestrian & Cycle Crossings on Westerfield Road	Controlled Pedestrian & Cycle Crossings	187,142.86	Allowance for 2nr toucan crossing	Prior to the first building occupation in both Fonnereau and Red House.
1.7		Traffic management scheme for Westerfield Village, The Crofts and other locations	Road safety improvements in Westerfield village & The Crofts	327,500.00	Allowance, Westerfield village (£100k) & The Crofts (£227k)	Details and timetable for delivery of scheme to be informed by the Transport Assessment for the whole development in agreement with SCC Highways department.
1.7.1			Speed limit alterations	11,696.43		
<b>Access &amp; Transport</b>				<b>16,567,098.21</b>		
<b>2</b>						
2.1	Education	1200 place secondary school, including sixth form facility, playing fields and recreational facilities secured for use by the community (proportionate contribution of school build cost)	1200 Place Secondary School; to achieve BREEAM Excellent, including provision for a shared community 3G floodlit MUGA to Sport England requirements	12,400,000.00	0.22 pupils / dwelling as stipulated by the SPD, approx. 770 places. Developer contribution to be pro-rata from a build-cost of £19.3m	Development will not be permitted to commence until arrangements are in place to secure the commencement of the construction of a secondary school within the SPD site in accordance with a timetable to be agreed. Phased contributions proportionate to pupil yield shall be secured throughout each stage of the development.
<b>Education</b>				<b>12,400,000.00</b>		

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb  
**Project No:** 355949  
**Date:** 01 Mar 2016

**Revision:** -  
**Base Date:** 2Q 2015

**1.1 Strategic Infrastructure**

Ref	Infrastructure Theme (based on SPD tables)	Item	Detail	Mott MacDonald	Assumptions	Trigger Point for Delivery
<b>3</b>	Open space, recreation & play	Country Park with visitor centre for Henley Gate	Country Park - Capital Cost	2,037,500.00	24.5ha; Capital costs as advised by Ipswich Parks and Gardens team, including visitor facilities which are to be delivered in connection with local community centre	Phasing for tree planting and landscaping to be agreed and commenced an early stage in the development of Henley Gate. Completion and land transfer of initial ancillary works to include visitor facility / community centre and works compound prior to the occupation of 500 dwellings in Henley Gate. Capital and maintenance contributions (or in-kind provision by the Henley Gate developer) and transfer of the remaining land will be secured at an appropriate stage in the development.
3.1			Country Park, Car Park	112,500.00		
3.1.1			Country Park - maintenance sum	2,278,469.00	15 years maintenance; Maintenance costs as advised by Ipswich Parks and Gardens team, including visitor facilities which are to be delivered in connection with local community centre	
3.2		Swimming Contribution (off-site)	Off-site swimming contribution	1,211,082.00	Sport England advice in response to Planning Application; per 815 dwellings Swimming pool - 21.07m2 (£282,009)	
Country Park, Natural / Formal Open Spaces				5,639,551.00		
<b>4</b>	Community facilities	District & Local Community Centres including community buildings with integrated library facilities & police office alongside new health centre & reserved sites for community use	District & Local Community Centres - 1,000m2	1,700,000.00	Scope to be defined	Delivery linked to development of each neighbourhood – see entries in Tables 2-4.
4.1			District & Local Community Centres, linked to country park visitor centre - 500m2	875,000.00	Scope to be defined	
4.1.1			Maintenance of district and local community centres - 1000m2	500,000.00	10 years maintenance	
4.1.2			Maintenance of district and local community centres - 500m2	375,000.00	10 years maintenance	
4.1.3			Library contribution; on-site 60m2	286,000.00		
4.1.4			Library contribution; off-site upgrades to Suffolk Library	153,000.00	Enhance facilities off-site	
4.1.5			Funding for community development support officer(s)	Community Development Officer	300,000.00	
4.2	Community Facilities				4,189,000.00	

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb  
**Project No:** 355949  
**Date:** 01 Mar 2016

**Revision:** -  
**Base Date:** 2Q 2015

**1.1 Strategic Infrastructure**

Ref	Infrastructure Theme (based on SPD tables)	Item	Detail	Mott MacDonald	Assumptions	Trigger Point for Delivery	
<b>5</b>							
5.1	Utilities	Strategic improvements to electricity supply	UKPN	7,000,000.00	11kV switchboard at Highfield Primary School - Estimate as provided by UKPN	As required	
5.1.1							
5.1.2			Electric Distribution			11kV Infrastructure and Final Connections on-site; £1,500 allowance per dwelling - Estimate as provided by UKPN	
			Electric Distribution - Phase 1	1,200,000.00		(3,381 Units as Appendix 3 - Assumed Delivery Programme)	
		Electric Distribution - Phase 2	1,411,500.00				
		Electric Distribution - Phase 3	2,460,000.00				
5.1.3		Off-site diversion works	100,000.00		Allowance; Scope to be defined		
5.1.4		On-site Trenching for Electric	770,000.00		Estimated spine trenches; scope to be defined		
5.2		Strategic improvements to gas supply	National Grid		2,200,000.00	Medium pressure gas main (225mm PE) - Estimate as noted on Vectos drawing	As required
5.2.1							
5.2.2			Falcrum Gas Infrastructure Works	492,000.00		Including meters up to the Emergency Control Valve - Estimate as provided by Falcrum	
5.2.3			On-site Trenching for Gas	770,000.00		Estimated spine trenches; scope to be defined	
5.2.4			Gas works in connection with rail crossings	150,000.00		Allowance; Scope to be defined	
5.2.5		Off-site diversion works	100,000.00		Allowance; Scope to be defined		
5.3	Strategic improvements to Water supply	Mains water distribution	Mains water distribution - Phase 1	800,000.00	£1,000 allowance per dwelling; Assume no upgrade required to existing network (3,381 Units as Appendix 3 - Assumed Delivery Programme)	As required	
5.3.1			Mains water distribution - Phase 2	941,000.00			
			Mains water distribution - Phase 3	1,640,000.00			
5.3.2			Fire Hydrants	58,482.14	Allowance; Scope to be defined		
5.3.3	Off-site diversion works	50,000.00		Allowance; Scope to be defined			
5.4	Strategic infrastructure to the sewerage system	On-Site Foul Water Drainage Phase 1		935,680.20		As required	
5.4.1							
5.4.2			On-Site Foul Water Drainage Phase 2	906,547.30		Allowance pro-rata Phase 1 planning design for foul water rising main	
5.4.3			On-Site Foul Water Drainage Phase 3	822,576.00			
5.4.4	Off-site diversion works	100,000.00		Allowance; Scope to be defined			
5.5	Strategic SuDS infrastructure & connections	SW Drainage and attenuation - Phase 1		505,410.00	Allowance as masterplan detail in SPD	In accordance with agreed phasing plan prior to the commencement of development.	
5.5.1							
5.5.2			SW Drainage and attenuation - Phase 2	462,270.00			Allowance as masterplan detail in SPD
5.5.3			SW Drainage and attenuation - Phase 3	533,070.00			Allowance as masterplan detail in SPD
5.5.4			Swales / attenuation - Phase 1	373,488.00			Allowance as masterplan detail in SPD
5.5.5			Swales / attenuation - Phase 2	386,384.00			Allowance as masterplan detail in SPD
5.5.6			Swales / attenuation - Phase 3	355,172.00			Allowance as masterplan detail in SPD
5.5.7			Works to existing watercourses	70,178.57			Allowance; Scope to be defined
5.5.8	Drainage connection to railway	233,928.57		Allowance; Scope to be defined			
		Utilities		25,827,686.79			
				64,623,336.00			

**INFRASTRUCTURE VIABILITY COST ANALYSIS**  
for  
**IPSWICH GARDEN SUBURB**



**Project Title:** Ipswich Garden Suburb

**Revision:** -

**Project No:** 355949

**Base Date:** 2Q 2015

**Date:** 01 Mar 2016

**1.2 Neighbourhood Infrastructure Requirements**

Ref	Infrastructure Theme (based on SPD tables)	Item	Mott MacDonald
1	Access & Transport	Off-site junction improvements in surrounding road network; Connection to UTMC; Travel Plan and Improvements to Fonnereau Way	16,328,995.48
2	Education & Early Years	3nr 2FE (forms of entry) primary schools & nursery	19,800,000.00
3	Open space, recreation & play	Neighbourhood parks, allotments & open spaces with equipped sports & play facilities as per SPD	12,542,109.50
4	Community Infrastructure	District Centre supporting infrastructure (CCTV, electric charging points, recycling facility, cycle parking etc.); Temporary Community Centre	91,232.14
5	Other Items	Design, Legals etc.	18,836,386.38
<b>Total</b>			<b>67,598,723.50</b>

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**1.2 Neighbourhood Infrastructure Requirements**

Ref	Infrastructure Theme (based on SPD tables)	Item	Detail	Mott MacDonald	Assumptions	Trigger Point for Delivery
<b>1</b>						
1.1	Access & Transport	Off-site junction improvements in surrounding road network	Off-site 278 Works	2,339,285.71	Allowance for scope denoted in SPD	Timetable for delivery to be informed by the Transport Assessment for the whole development in agreement with SCC Highways department.
1.1.1			Junction off Henley Road and Phase 1 of development	233,734.00	Phase 1 - West of Westerfield Road	
1.1.2			Junction off Westerfield Road and new development Phase 1	869,297.00		
1.1.3			Junction off Westerfield Road and new development Phase 2	818,750.00	Phase 2 - North of Railway Line	
1.1.4			Junction off Tuddenham Road and new development Phase 2	409,375.00		
1.1.5			Junction off Henley Road and Phase 3 of development	818,750.00	Phase 3 - East of Westerfield Road	
			<u>Utilities in Connection with S.278</u>		Allowance for drainage and lighting	
1.1.6			Junction off Henley Road and Phase 1 of development	40,937.50	Phase 1 - West of Westerfield Road	
1.1.7			Junction off Westerfield Road and new development Phase 1	81,875.00		
1.1.8			Junction off Westerfield Road and new development Phase 2	81,875.00	Phase 2 - North of Railway Line	
1.1.9			Junction off Tuddenham Road and new development Phase 2	40,937.50		
1.1.10	Junction off Henley Road and Phase 3 of development	81,875.00	Phase 3 - East of Westerfield Road			
1.2		Connection to the Urban Traffic Management & Control (UTMC) System	Connection to the Urban Traffic Management & Control (UTMC) System	1,169,642.86	Allowance; To be advised by highways	Timetable for delivery to be informed by the Transport Assessment for the whole development in agreement with SCC Highways department.
1.3		Travel Plan development, implementation & monitoring				Travel Plan to be submitted and agreed with SCC Highways department as part of full/outline application for the development of the site. To be implemented and monitored during and following each phase of the neighbourhood development.
1.3.1			Travel Plan	1,336,024.55	Allowance; Scope to be defined	
1.3.2			S106 Monitoring Costs	116,964.29	Allowance; Scope to be defined	
1.3.3			Travel bond	292,410.71	Allowance; Scope to be defined	
1.3.4			<u>Spine Roads</u>		Allowance for primary and secondary roads as detailed on figure 11 in the SPD; Specification as advised by SCC Primary; Excavation and disposal of arisings on-site; 340mm Type 1 Sub-Base; 130mm HRA Regulating Course; 50mm HRA Binder Course; 50mm HRA Surface Course; 150mm granite kerbs; 7m in width Secondary; Excavation and disposal of arisings on-site; 320mm Type 1 Sub-Base; 100mm HRA Regulating Course; 60mm HRA Binder Course; 50mm HRA Surface Course; 150mm granite kerbs; 5.5m in width Assume 2.5m wide footways to one side, including 50 x 150mm precast concrete in kerbs. lighting and drainage Approx. 1700m Secondary & 800m Primary Route	
1.3.4.1			Spine Roads phase 1 (West of Westerfield Road) off Westerfield Road	1,971,096.00	Approx. 425m Primary Route	
1.3.4.2			Spine Roads phase 1 (West of Westerfield Road) off (remaining link to Henley Road)	378,875.00	Approx. 1200m Primary Route	
1.3.4.3			Spine Roads phase 2 (East of Westerfield Road) (Part 1) - top	1,054,375.00	Approx. 850m Secondary Route	
1.3.4.4			Spine Roads phase 2 (East of Westerfield Road) (Part 2)	633,820.00	Approx. 275m Secondary Route	
1.3.4.5			Spine Roads phase 2 (works to existing access off Tuddenham Road)	198,990.00	Approx. 1100m Secondary & 700m Primary Route	
1.3.4.6			Spine Roads phase 3 (North of Railway Line)	1,429,140.00		
1.4		Improvements to Fonnereau Way				Allowance for footpaths / cycle routes as defined on figure 11 of the SPD; assume 2m wide footpaths at approx. 12,000m & upgrading existing footpath to cycleway, approx. 2,300m
1.4.7			On-Site Pedestrian / Cycle Routes	1,784,760.00		
1.5		Pedestrian & cycle signage (monoliths)	Pedestrian & cycle signage (monoliths)	146,205.36	Allowance for signage	Contributions to be secured at an appropriate stage in the development.
<b>Access &amp; Transport</b>				<b>16,328,995.48</b>		

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**Revision:** -  
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**1.2 Neighbourhood Infrastructure Requirements**

Ref	Infrastructure Theme (based on SPD tables)	Item	Detail	Mott MacDonald	Assumptions	Trigger Point for Delivery
<b>2</b>						
2.1	Education & Early Years	3nr 2FE (forms of entry) primary schools & nursery	3nr 2FE (forms of entry) primary schools & nursery, including shared community fields 2FE Primary School - Phase 1 2FE Primary School - Phase 2 2FE Primary School - Phase 3	6,600,000.00 6,600,000.00 6,600,000.00	Allowance for 3nr 2FE Schools on approx. 2ha sites in accordance to BB103, achieving BREEAM Excellent and Sport England Requirements; Design and phasing requirements to be defined	Serviced site (with access roads) to be transferred prior to occupation of 100 dwellings. The need and timetable for the provision of a second form of entry will be reviewed following this Phased contributions proportionate to pupil yield shall be secured throughout each stage of the development.
Education & Early Years				19,800,000.00		
<b>3</b>						
3.1	Open space, recreation & play	Neighbourhood parks, allotments & open spaces with equipped sports & play facilities as per SPD				In accordance with phasing plan to be agreed prior to the commencement of development.
3.1.1			<b>Capital Cost</b> - Formal open space (incl sports pitches), parks & gardens, play areas and youth provision			
3.1.1.1			Formal recreation facilities such as playing fields 12 ha in total (5.5 ha in the community)	2,409,000.00	As advised by Ipswich Parks and Gardens team	
3.1.1.2			Formal recreation facilities such as playing fields 12 ha in total (6.5 ha in schools)	Included	As advised by Ipswich Parks and Gardens team, Capital Cost £2,847m; Included within Primary and Secondary School sports provisions	
3.1.1.3			Play areas (1.2 ha)	2,160,000.00	As advised by Ipswich Parks and Gardens team	
3.1.1.4			Youth Provision (0.3 ha)	522,000.00	As advised by Ipswich Parks and Gardens team	
3.1.1.5			Green spaces and parks with neighbourhoods (8 ha)	600,000.00	As advised by Ipswich Parks and Gardens team	
3.1.1.6			Natural & semi-natural green spaces including footpath links, hedgerows (16 ha)	960,000.00	As advised by Ipswich Parks and Gardens team	
3.1.1.7			Amenity green space (6 ha)	312,600.00	As advised by Ipswich Parks and Gardens team	
3.1.1.8			Allotments & community orchards (3ha)	442,500.00	As advised by Ipswich Parks and Gardens team	
3.1.2			<b>Maintenance</b> - Formal open space (incl sports pitches), parks & gardens, play areas and youth provision			
3.1.2.1			Formal recreation facilities such as playing fields 12 ha in total (5.5 ha in the community)	646,421.00	15 years maintenance; £9,000 average from £13,000 Tennis Court & £5,000 for Football Pitch	
3.1.2.2			Formal recreation facilities such as playing fields 12 ha in total (6.5 ha in schools)	763,952.00	15 years maintenance; £9,000 average from £13,000 Tennis Court & £5,000 for Football Pitch; As advised by Ipswich Parks and Gardens team	
3.1.2.3			Play areas (1.2 ha)	734,961.00	15 years maintenance; As advised by Ipswich Parks and Gardens team	
3.1.2.4			Youth Provision (0.3 ha)	118,315.00	15 years maintenance; As advised by Ipswich Parks and Gardens team	
3.1.2.5			Green spaces and parks with neighbourhoods (8 ha)	1,076,062.00	15 years maintenance; As advised by Ipswich Parks and Gardens team	
3.1.2.6			Natural & semi-natural green spaces including footpath links, hedgerows (16 ha)	480,571.00	15 years maintenance; As advised by Ipswich Parks and Gardens team	
3.1.2.7			Amenity green space (6 ha)	697,351.00	15 years maintenance; As advised by Ipswich Parks and Gardens team	
3.1.2.8			Allotments & community orchards (3ha)	86,189.00	15 years maintenance; As advised by Ipswich Parks and Gardens team	
3.1.3			Ecology Mitigation	532,187.50	Allowance	Prior to occupation of 500 dwellings.
Open space, recreation & play				12,542,109.50		



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**1.2 Neighbourhood Infrastructure Requirements**

Ref	Infrastructure Theme (based on SPD tables)	Item	Detail	Mott MacDonald	Assumptions	Trigger Point for Delivery					
<b>4</b>	Community Infrastructure	District Centre supporting infrastructure (CCTV, electric charging points, recycling facility, cycle parking etc.)	Electric Charging Points	32,750.00	Allowance for 8nr; To be advised on minimum nr of car charging points required Included within household waste facilities	Prior to occupation of 500 dwellings.					
4.1.1											
4.1.2											
4.1.3		Community Centre in DC with integrated library facilities, workspace hub and police office (where required by Suffolk Constabulary)	Community Centre with integrated library facilities, workspace hub and police office	58,482.14	Allowance for temporary modular building; to be advised on dimensions and time period	Temporary community centre to be provided prior to occupation of 50 dwellings. Permanent community centre with integrated facilities prior to occupation of 500 dwellings.					
4.1.4											
4.2		Health Centre	Health Centre		Assume incorporated within 1,500m2 community facility under strategic infrastructure	Serviced site within District Centre to be transferred at time to be agreed. Phased contributions for capital costs of providing health centre to be agreed.					
4.3											
Community Infrastructure				91,232.14							
<b>5</b>	Other Items	Household Waste Facilities	Superfast broadband infrastructure	178,358.84	Assume contribution to off-site facility	Contributions to be secured at an appropriate stage in the development.					
5.1.1											
5.1.2							Acoustic fence to boundary of railway line	700,000.00	Included	Reflected in construction costs	To be delivered in each phase of development in neighbourhood.
5.1.3											
5.1.4							Enabling Works	1,340,374.46	Included	Allowance for legal costs, S.278, S.38, S.104, Easements, Consultant Appointments and Part 1 Land Compensation Claims	
5.1.5											
5.1.6							Site Preliminaries	380,133.93	Included	Allowance for publicity, signage, website and public consultation	
5.1.7											
5.1.8							Finance / Legals	175,446.43	Included	Allowance for legal costs, S.278, S.38, S.104, Easements, Consultant Appointments and Part 1 Land Compensation Claims	
5.1.9											
5.1.10							Public Relations	292,410.71	Included	Allowance for publicity, signage, website and public consultation	
5.1.11											
5.1.12							Miscellaneous - Contamination	859,127.24	Included	Planning Fee's, including landscaping; 1.3% of construction costs	
5.1.13											
5.1.14							Strategic Planning and Masterplan	20,356.46	Included	Included in 12% professional fee below	
5.1.15											
5.1.16							Site Investigation	8,279,829.58	Included	Included in 12% professional fee below	
5.1.17											
5.1.18	Engineering Design	4,942,848.72	Included	Allowance for Environmental Clerk of Works and Ecological involvement in procurement							
5.1.19											
5.1.20	Landscape Design	12% on construction costs only	Included	12% on construction costs only							
5.1.21											
5.1.22	Ecology	Included in 12% professional fee above	Included	Included in 12% professional fee above							
5.1.23											
5.1.24	Design and Professional Fee's: Phase 1 - 3	Included in 12% professional fee above	Included	Included in 12% professional fee above							
5.1.25											
5.1.26	Site Supervision / General Design	4,942,848.72	Included	Allowance for S.38, 104 & 276 Inspection Fee's; County Council Pre and Post Design Check Fee's; Mini Cash Deposit for Highway Works; Traffic Regulation Orders and S.38, 104 & 276 Bonding Costs							
5.1.27											
5.1.28	Project Management	12% on construction costs only	Included	12% on construction costs only							
5.1.29											
5.1.30	Cost Management	4,942,848.72	Included	Included in 12% professional fee above							
5.1.31											
5.1.32	Local Authority Fee's	4,942,848.72	Included	Included in 12% professional fee above							
5.1.33											
Other Items				18,836,386.38							
				67,598,723.50							