D J Atkinson Construction

New residential development at King Street, Elsecar

Design and Access Statement

15-018-21 *

Revision * Issued for approval – 30-08-16



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Introduction:

Article 9 of The Town and Country Planning (Development Management Procedure) (England) (Amendment) Order 2015, requires a Design and Access Statement to be submitted where planning applications comprise a major development, the provision of one or more dwelling houses or when the floor space created by the development is 100 sqm or more.

As at least the 2nd and 3rd of these criteria apply in this case, so this design and access statement has been prepared as far as possible in accordance with the recommendations of CABE guidance 'Design + Access Statements'

Note:

Where adjoining development has been shown in submitted drawings and documents, access has not always been possible or practical to carry out a full measured survey. These buildings are shown with a reasonable level of accuracy commensurate with planning stage documents, but unless noted as subject to a measured survey are necessarily indicative.

Drawings shown in this Design and Access Statement are not necessarily to scale, and reference should be made to the submission drawings where this is critical - which are within the limits defined above.

Third party information has been provided to us by others with appropriate copyright release in place.

Process

Assessment:

The application site is located south-east of the centre of the village of Hoyland, Elsecar, an area to the south-east of Barnsley. The site is made up of two parts, either side of the unnamed access road that leads to the "park and ride" site serving Elsecar railway station. The larger part of the site is triangular in shape and bordered on one side by King Street (B6097), one by the un-named access road and the other by the railway line. The smaller portion is bordered by the railway line, a wooded park area and residential properties.

The site is not in or adjoining the Elsecar Conservation Area.

The site is shown outlined in red on the extract from the ordnance survey plan shown in **Figure 1** and circled in the aerial photography shown in **Figure 2**, below. The area of the application site is approximately 0.87ha / 8,716 m² (2.2 acres), divided into two portions.

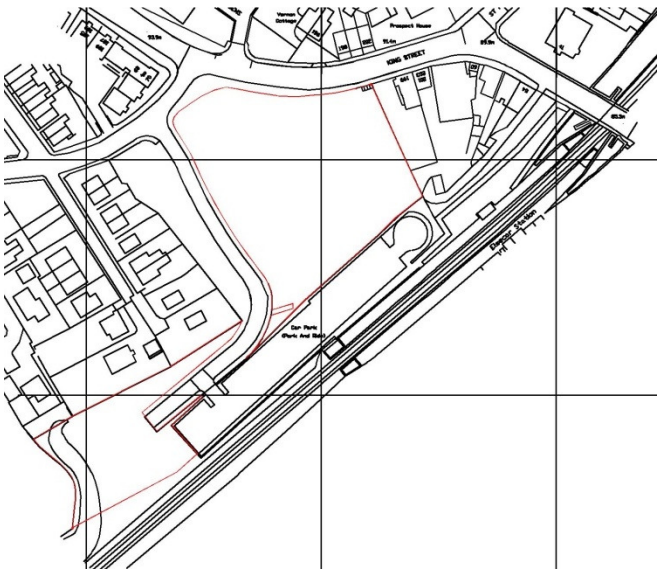


Figure 1 - Extract from the ordnance survey - showing the two portions of the application site outlined in red.



Figure 2- Aerial photography

The site is currently overgrown with ruderal shrubs and grass, with a number of trees along the boundaries. Part of the site was previously used for leisure and recreation, including tennis courts and a bowling green which fell into disrepair, and the northern part of the site was the site of King Street Primary School which was demolished prior to 1993. The unnamed access road was added in 2011 to allow access to a new "park and ride" facility at the railway station, to facilitate which the recreation facilities were demolished.

The lower part of the site is also overgrown, and includes a valley and culvert that directs an existing water source under the railway and to the east of the site. Footpaths have established themselves by frequent use, but are not thought to be formalised rights of way.

The application site is shown in **Figure 3** below.



Figure 3 - The application site - as existing

King Street runs along the north eastern boundary of the site, and is generally at a higher level, as the land form slopes substantially towards the south. The road joins Hill Street which leads down to the pedestrian entrance to the railway station.

The site slopes steeply down to the railway line from the top edge of the site, and the majority of the site is hidden from King Street by the properties that line the main road and the level difference. The northern portion of the site that is not bounded by buildings is divided from the street by a brickwork wall with metal railings over. The residential properties to the west of the access road are separated from the site by their rear gardens, a landscape band not affected by the proposals, and the access road.

The railway station 'park and ride' to the south of the site is separated from the site by metal fencing and overgrown shrubbery.

The photographs in **Figures 4 to 24** below show the existing site and the surrounding context.



Figure 4 – Smaller part of the site. View north towards the existing housing.



Figure 5 – Smaller part of the site. View up the unnamed access road, station car park to the right. The rest of the site is visible in the distance.



Figure 6 – Smaller part of the site. View west.













Figure 7 (top) – Smaller part of the site. View up from the lower part of the site to the unnamed access road.
Figure 8 (middle) – Unnamed access road. The larger portion of the site is visible centre and the "park and ride" site to the right.
Figure 9 (bottom) – Larger part of the site. View east. King Street is to the left and the station to the right.

Figure 10 (top) – Larger part of the site. View south towards the station car park.
Figure 11 (middle) – Larger part of the site. View west. The unnamed access road sits between the site and the band of grass and housing.
Figure 12 (bottom) – Larger part of the site. View looking up the site towards King Street.













Figure 13 (top) – Larger part of the site. View east. King Street is on the left.
Figure 14 (middle) – Unnamed access road. View down towards the station car park. The application site is to the left.
Figure 15 (bottom) – Larger part of site. Corner junction between King Street and the unnamed access road.

Figure 16 (top) – King Street. Brickwork wall and railings marking the boundary of the application site shown to the right.
Figure 17 (middle) – View from King Street down into the site. Showing the level difference.
Figure 18 (bottom) – View from King Street. The boundary of the application site runs along King Street and the unnamed access road, which is to the right.







Figure 19 (top) – Existing shrubbery and trees bordering the larger portion of the site. Seen from the unnamed access road.
Figure 20 (middle) – View up the unnamed access road. The larger portion of the site is to the right.
Figure 21 (bottom) – View along Hill Street showing local amenities. The back of these properties backs onto the eastern boundary of the site.







Figure 22 (top) – View down Millhouses Street. The corner of the application site is visible in the distance.
Figure 23 (middle) – View of the station access from Hill Street. The application site is beyond.
Figure 24 (bottom) – View of the station from Hill Street. The application site is beyond.

Planning History:

The land is shown as undeveloped on ordnance survey mapping issued in 1903.

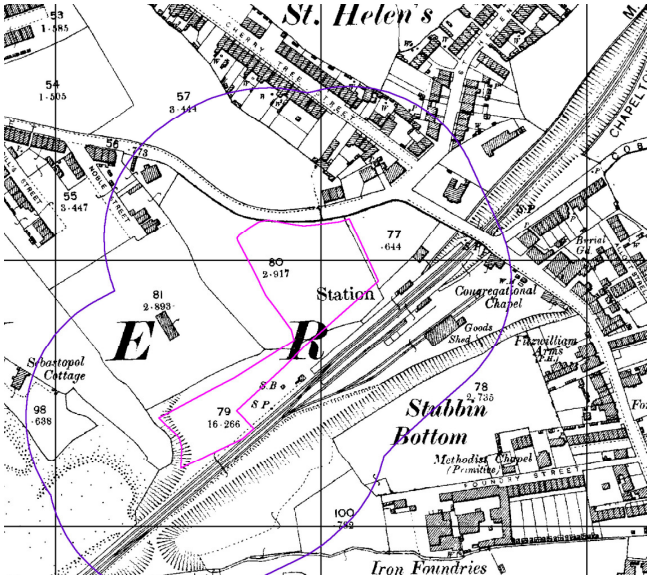


Figure 25 – Ordnance survey mapping in 1903 shows the land the un-developed.

However, the map issued in 1930 shows King Street school occupying the larger, eastern part of the site, and the tennis courts and bowling green to the western part of the site.

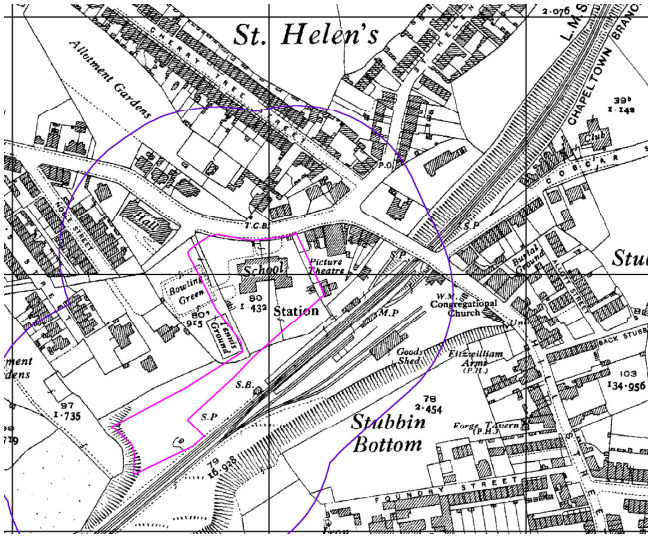


Figure 26 – In 1930 the school, bowling green and tennis court are shown.

By 1993 however, the school no longer appears, although the bowling green and tennis courts are still shown at that time.

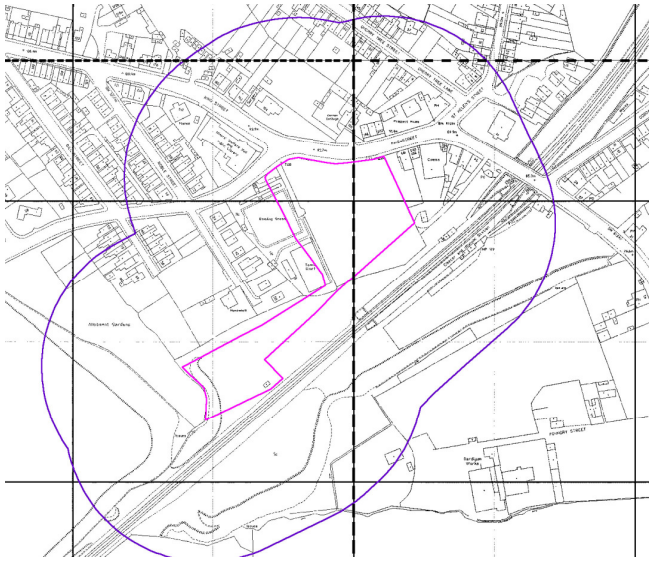


Figure 27 – Ordnance survey mapping in 1993 shows the school gone, but the bowling green and tennis court remaining.

At the end of September 2010 however, application 2010/0824 was approved to use part of the land formerly occupied by the school as 'park and ride' car parking for the existing railway station, providing 92 new spaces and improving pedestrian access to the station.

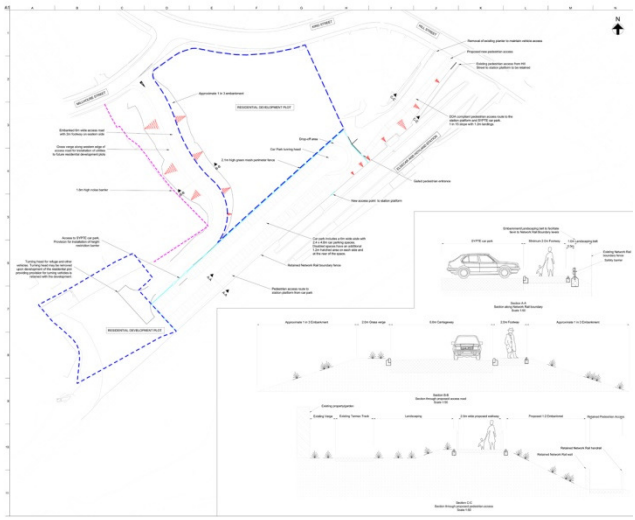


Figure 28 - The "park and ride" scheme as approved at the end of September 2010, as proposed.



Figure 29 - The "park and ride" scheme as built.

As the alignment of the access road conflicted with the bowling green and tennis courts, its implementation meant that these were of course lost.

Contemporaneously with this, outline approval 2010/0825 was granted for a market residential scheme on the remaining parts of the site. Details of the scale, layout, landscaping and appearance were reserved for future determination.

The proposals comprised a development of 18 houses each of 3 or 4 bedrooms, in semi-detached, detached and town house formats, with the intention of helping the local authority, who were the landowner, divest itself of the remainder of the site. The units were two or three stories high, with large integral garages and private drives. It is hard to see how the proposals took into account the large level differences across the site, without extreme cut and fill required to make use of the site. There is also a substantial area of open space to the western part of the site with no clearly established owner or occupier.



Figure 30 – Layout of the residential scheme which received outline approval.

Unlike the 'park and ride' facility and the still unnamed access road which have been implemented, the market residential proposals which gained outline approval were not developed during the 3 years up to September 2013 when the approval expired, and the remainder of the site was left in an un-used state.

As there have not been any relevant changes to adopted policy since the expiration of the outline approval in 2013, the use of the site for residential purposes has been already established by the previous outline approval.

The proposals which are the subject of this application are show in **Figure 31** below. They go somewhat further than the scheme which gained outline approval, in taking account of the land form and the substantial slope across the site.



Figure 31 – The submission site plan

The need to comply with requirements for overlooking, car parking and amenity areas was identified early in the process. Key site constraints such as these were the subject of an extensive dialogue with the development control team, the narrative of which is noted below.

A community consultation exercise was carried out at the beginning of June 2016, and the results are recorded in **Appendix 7** below. Other appendices incorporate information and reports required for validation including Building for Life **(3)**, sustainability **(4)**, geotechnical and mining **(5)** sustainable drainage **(6)** affordable housing **(8)**, arboriculture **(9)** noise **(10)** ecology **(11)** and landscape design **(12)**.

Involvement:

First contact with the LPA in respect of the proposals was made in February 2016.

In their initial advice, the planning officer (James Hyde), advised that as the previous approval had now lapsed so a new submission was required and a full submission - rather than another outline scheme - would be most appropriate. The application would constitute a major development and would be subject to the requirements of the supplementary planning guidance.



Figure 32 – Initial proposals issued on 3 February 2016

The comments of the planning officer on the initial proposals showing 36 dwellings included the following:

> *Direct vehicular access from the existing road to plots 9-18 would lead to the removal of the majority of existing trees, which is unlikely to be acceptable to the Tree Officer and would reduce visual amenity.*
>
> *The separate plot of land comprising plots 1-8 seemed overdeveloped. Separation distances do not appear to have been achieved and plots 1-4 would be in close proximity to the private amenity space serving existing dwellings. The outline approval showed a far smaller number of dwellings in this part of the site.*
>
> *Car parking to plots 27-36 is generally in front of the houses and results in large areas of hardstanding which could dominate the streetscene, there would be little opportunity for soft landscaping.*
>
> *The front elevations of plots 19-26 would be close to the back edge of the footpath would appear dominant features with little opportunity to soften them with planting/landscaping.*

In order to address these comments the proposals were amended and re-issued about a week later on 12 February 2016.



Figure 33 – Amended proposals issued on 12 February 2016

The units with direct access from the existing road were reduced, and the overall number of units reduced from 36 to 32 to allow more of the retention of existing trees, and additional landscaped areas added. The parking for units 27-36 was amended and additional shared green space added to reduce the impact of the hardstanding. Notwithstanding, the car parking was retained in front of the houses, to provide access compliant with by Lifetime Homes' requirements. To the south of the site the plots were moved backwards to give extra space between the footpath, creating additional landscaping.

Following on from this, in June 2016 a community consultation exercise was carried out at Hoyland Library. Full size display drawings were on show and the architects, the housing association and a housing officer from the local authority were in attendance to explain the development. The proposals were received well by those that visited and generally well supported. Queries were limited to an existing road

which was actually outside of the scope of the application, and also whether any bungalows would be included. The response was that the access would remain as existing and that no bungalows would be provided as the housing association had not identified a need for that type of property, but that all the units were compliant with Lifetime Homes and included ground floor spaces adaptable for bedrooms and accessible bathrooms.

Since the initial contact with the local planning authority in February 2016, the community consultation exercise in June 2016 there was a lapse in communication with the local planning authority, which is attributable largely to the complexity of the agreements for the purchase of the land from the same local authority, onward sale of the completed development to the housing association and securing funding support from the HCA.

With time now pressing, a pre-application meeting was held at the offices of the local planning authority on 08 August 2016, and including representatives of both the developer and the housing association.



Figure 34 – Proposals tabled at the pre-application meeting of 08 August 2016

The local planning authority was represented by the planning officer (James Hyde) and team leader (Steve Kirkham), and their comments and queries were:

Capacity of the site
Overlooking distances
Adjacency of the existing Electra Palace cinema building to the east
Loss of existing trees
Car parking at the front of plots

Taking these factors in to account, a further visit to site revealed that the existing cinema was at a minimum of 26 m to the side elevation of the nearest proposed house and there was no risk of over bearing between itself and the proposed development.



Figure 35 – The Electra Palace building, seen from the rear / station access. There is a spacing of 26m up to the side elevation of the nearest of the proposed houses.

To progress matters as expeditiously as possible a sketch scheme was issued to the local planning authority, initiating a dialogue which assisted the development of the layout.

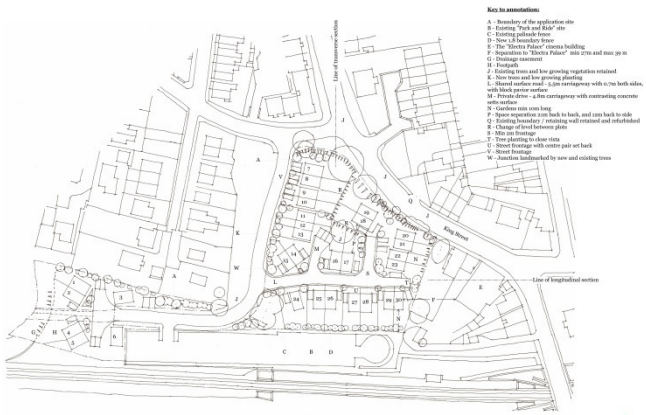


Figure 36 – Sketch scheme in response to the pre-application meeting

The key aspect of this layout was the reduction in content from 32 to 30 houses, which was categorically the least for which the HCA would provide funding.

Comments from the planning officer were:

> *"Plots 3 & 6 still sit a little awkward*
>
> *Plots 14 7 15 are relatively tight, limited rear amenity space, appear shoehorned & ad-hoc*
>
> *Plot 5 rear garden tight – assume main amenity space & habitable room windows would be to the side*
>
> *Separation between plot 15 & 24 tight at 11m*
>
> *Separation between plots 29/30 and 23 falls short of 12m*
>
> *Parking for plot 20 is not obvious?*
>
> *Separation distance between front elevations of plots 18/19 and 20/21 are tight*
>
> *Rear garden of plot 12 falls short of policy requirements – would they have rear pedestrian*
>
> *Parking for plots 11-13 awkward – jut into amenity space of plot 16*
>
> *Some of the proposed trees appear to impede access into/out of driveways i.e. plots 26/27, plots 29/30"*

In response to these comments a second sketch scheme was issued on 16 August 2016.

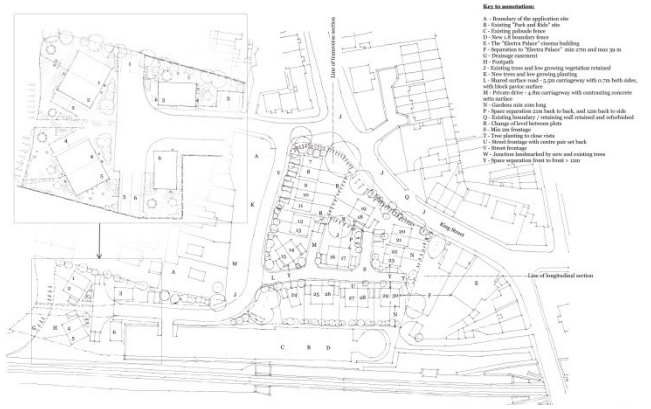


Figure 37 Amended sketch scheme

On 16 August the LPA commented:

> *"It appears that plots 1-6 would now be acceptable in principle. The scheme still seems tight around plots 14-15 and 18-23. We have had a little doodle on the plan to provide an alternative option which removes the access road to the parking spaces for plots 12 and 13 which seems to take up quite a bit of space. You will be relieved to see it is still for 30 units…*
>
> *Hopefully if the amendments can be achieved it would reduce the car dominance on plots 7-11 and 20-22. It would also allow plots 14-15 to be parallel to the access road and achieve the 10m separation distance to the private amenity space to the rear."*

forwarding their own markup plan as below.

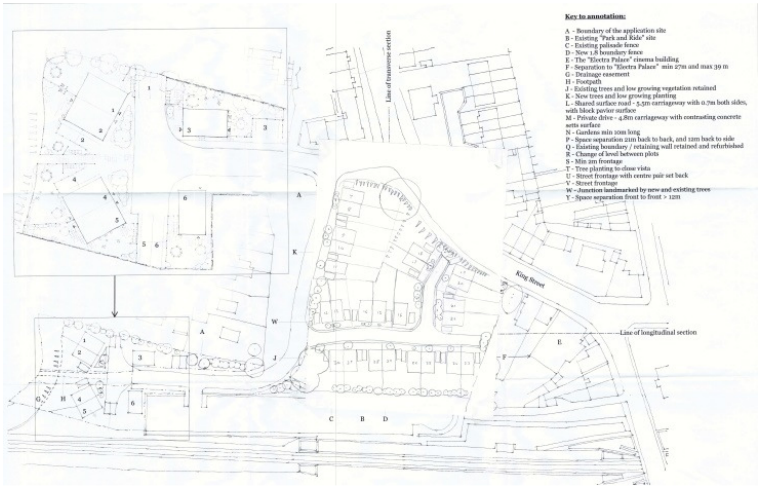


Figure 38 The markup scheme issued by the LPA

In response to this, a third sketch scheme was issued on 18 August 16.

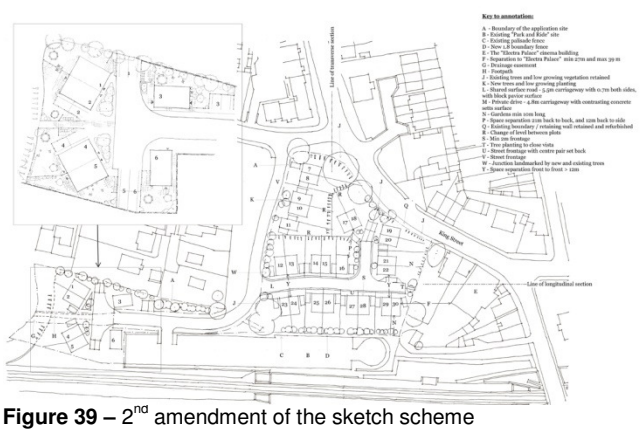


Figure 39 – 2nd amendment of the sketch scheme

The planning officer responded by email as follows:

> *"...however, the revised layout is a marked improvement. The main section of the plan that jumps out at me is the area around plots 17-20. The positioning of plots 17 and 18 are a little at odds with the rest of the scheme and there may be some overlooking from the front elevation of plot 17 over the rear amenity space of plot 16, especially given the level differences. There are also concerns over the rear amenity space of plot 19 due to the overall size and the level changes in that area of the site, however, it looks as though you have identified this reading through your covering email...*
>
> *If you have all the relevant submission documents, the application could be submitted and if any further tweaks are required (bearing in mind the comments above) these could be done during the consultation process in order to speed things up."*

From that point, these outstanding comments were incorporated as far as possible into the submission scheme, with a view to an application for full planning approval being made before the end of August 2016.



Figure 40 – The submission stage site plan **[Drawing 15-018-10 L Site Plan as Proposed]**

Evaluation:

Although now lapsed, the recent outline approval established that the site was suitable for residential use, and there have been no material changes in planning policy since that time in this respect.

The absence of development is indicative that the previous outline approval did not present a sufficiently attractive proposition to the market, either in terms of the development yield or the terms upon which it was offered. The site remains vacant, but is well suited to residential use, as this is both the predominant local land use and the immediately adjacent public transport infrastructure.

A new development will provide affordable housing to address the housing need identified by housing association and adding commensurate support to both the local economy and the vibrancy of the community.

In addition, the construction phase will create or support a number of jobs across a spectrum of skill levels, including a number of apprenticeships for which the contractor is expected to recruit locally.

Design

Use:

The proposals are for 30 new housing units comprising 15 no. 2 bedroom 4 person, 14 no. 3 bedroom 5 person and 1 no. 4 bedroom 6 person. Each unit has at least 1 parking space (2 in the case of the larger units), either within the curtilage of the dwelling or adjacent, and its own private garden to the rear and side in some cases. Refuse and recycling storage is provided in the gardens to the rear of the properties, rather than in front of the dwellings.

All the new houses will be provided as affordable housing for The Together Housing Group, and offered on long-term assured tenancy to those in local housing need.

The proposals include a new road to access the development, but also make use of direct access for some of the properties from the unnamed access road. This road will then be extended into the smaller portion of the site to provide access to the new properties at that end.

The proposals, whilst different to the outline approval in size of units and layout, have taken into consideration the comments made by the LPA and the consultees, and the requirements set out in the LPA's planning guidance.

Amount:

The existing site is approximately 0.87ha / 8,716 m² / 2.2 acres and is in two parts, neither of which have a current use.

Overall, there are 30 houses in the proposal, which is the equivalent to approximately 34 houses / hectare or 13 houses / acre, and also represent 76 bedrooms.

By comparison to the previous outline approval **(Figure 25)** which achieved only 61, this is a slight increase in numbers of bedrooms, but makes more intense use of the site available.

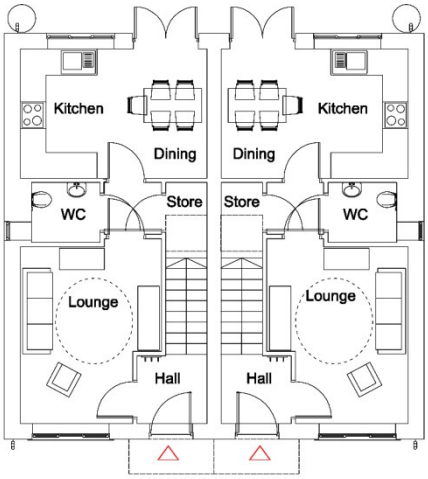
The gross internal area (GIA) of each of the 30 proposed units exceeds the requirements of the Barnsley Local Development Framework Supplementary Planning Document for Designing New Housing Development (BLDF), adopted in March 2012.

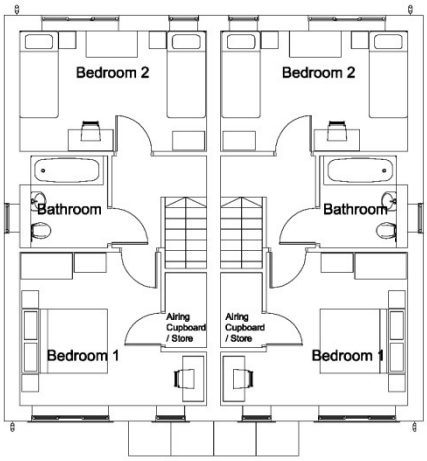
The proposals also exceed the requirements of the South Yorkshire Residential Design Guide for the overall size of dwellings, which is also referenced by the BLDF.



Figure 41 – Site plan as proposed [Drawing 15-018-10 L Site Plan as Proposed]

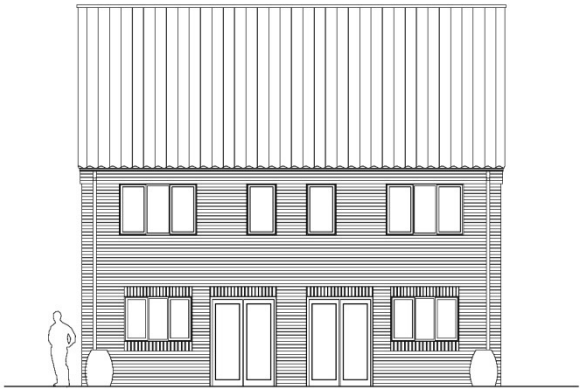
Examples of a typical 2, 3 and 4 bedroom house are shown in **Figures 42, 43 + 44** below. Rather than all being semi-detached, in order to fit areas of the site, a number of detached units are also provided.



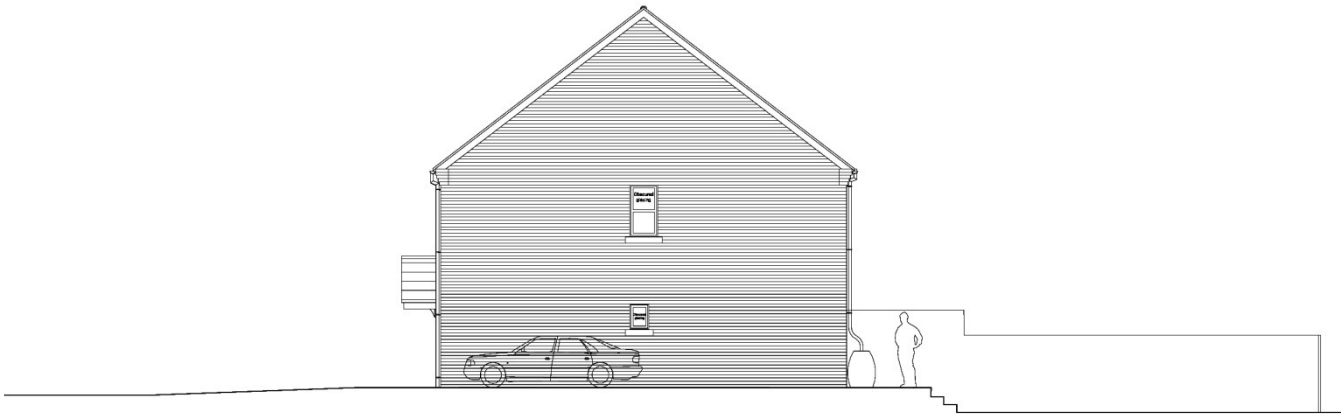


Type 1A 2B 4P: Typical plans



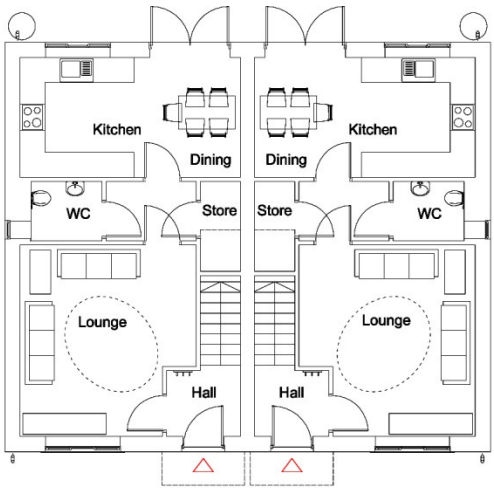


Type 1A 2B 4P Typical front and rear elevations



Type 1A 2B 4P: Typical side elevation

Figure 42 – Unit type 1A as proposed – 2 bedroom, 4 person house



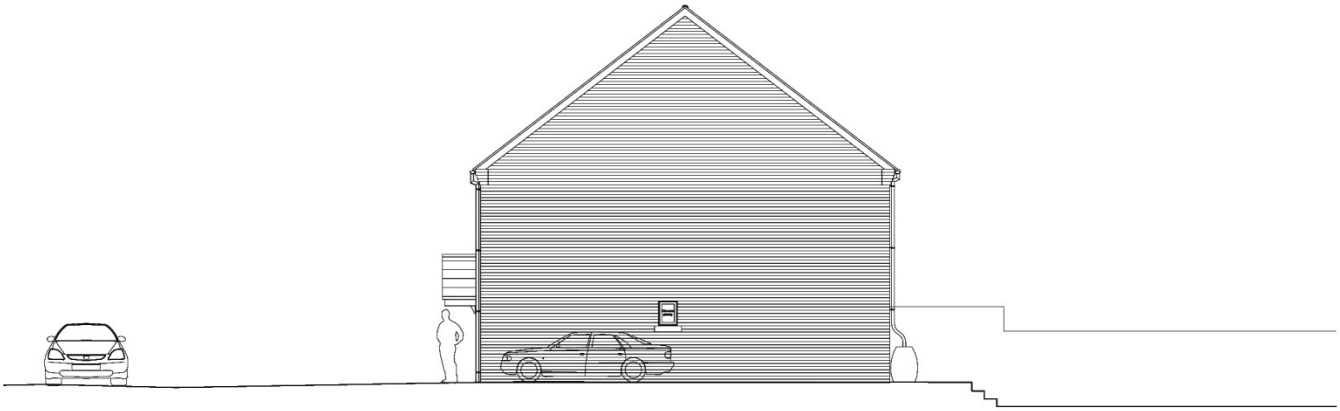


Type 2A 3B 5P: Typical plans



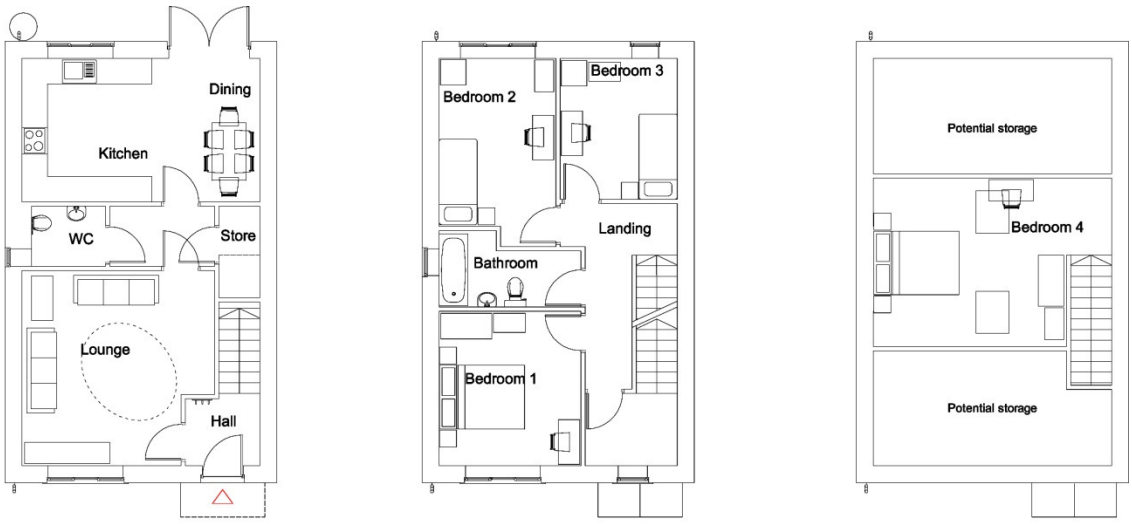


Type 2A 3B 5P Typical front and rear elevations



Type 2A 3B 5P: Typical side elevation

Figure 43 – Unit type 2A as proposed – 3 bedroom, 5 person house



Type 3A 4B 6P: Typical plans



Type 3A 4B 6P: Typical front and rear elevations



Type 3A 4B 6P: Typical side elevation

Figure 44 – Unit type 3A as proposed – 4 bedroom, 6 person house

Layout:

As **Figure 41** above shows, the layout of the proposals has been influenced to a great extent by the fall of the land form across the site. In addition other determinants have been level access to the new properties, retaining as many existing trees as possible, and considering the effect on adjacent properties and the proximity of the railway station.

The design reflects the local context and meets the requirements of local policy in respect of residential development.

Since the removal of the bowling green and tennis courts to facilitate the 'park and ride' site, the site has been un-used, becoming ever more overgrown. These proposals will put this disused site in a prime location near to the centre of the town and transport facilities to a good use for the benefit of the community.

The layout of the dwellings follows the route of the access road and also the new road with the site boundary, creating small groups of dwellings and distinct areas rather than a uniform run of properties with little articulation. Facing onto the new and existing roads, the new houses will create an active frontage to the streetscape.

The majority of properties have parking within the curtilage of the unit, to the side of the house, whilst there are a small number which have parking in designated areas overlooked but not immediately next to each house.

The external space standards of the Supplementary Planning Document provide guidance for the space separation of front elevations facing across a road, back-to-back dimensions between facing habitable rooms and distances between the existing and the proposed dwellings. In addition, the varied levels across the site and the proposed privacy screening will mitigate any overlooking.

The private gardens are enclosed and also take account of the areas required by the planning guidance.

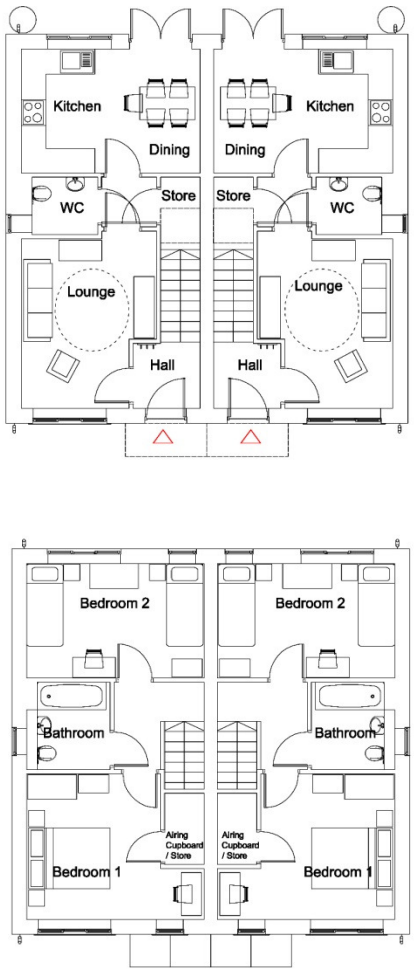


Figure 45 – Typical ground and first floor plans for a 2 bedroom house

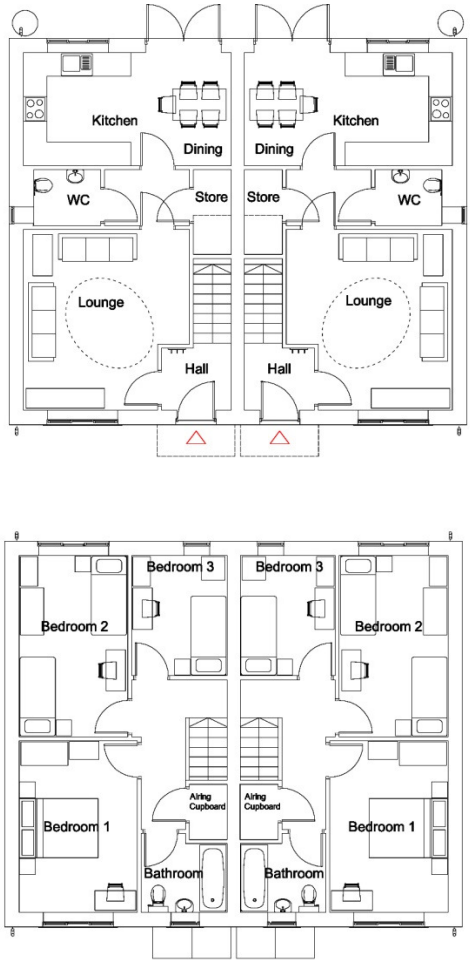


Figure 46 – Typical ground and first floor plans for a 3 bedroom house



Figure 47 – Typical ground, first and seconf floor plans for a 4 bedroom house

All the houses follow approximately the same layout as shown in **Figures 45 – 47** above. The ground floor comprises a hallway leading to a living room, kitchen / dining space, store and wheelchair accessible WC - including a floor drain to make it compatible with the Lifetime Homes standard, if a ground floor shower is required in the future. Access is provided to the rear garden from the kitchen / dining area as well as externally along the side of the unit.

Upstairs, there are 2 or 3 bedrooms with a bathroom compliant with Lifetime Homes requirements and a storage area. The 4 bedroom units have an additional bedroom on the second floor.

As noted above, the internal space standards are consistent to those required by the South Yorkshire Residential Design Guide, although it should be noted that there is no specific guidance for a 2 bedroom, 4 person unit.

Building on our previous discussions with the urban design officer for a recent approval at Havelock Street (2015 – 1425) windows with obscured glazing have been added to the houses for which the layout has a bathroom on the external gable wall.

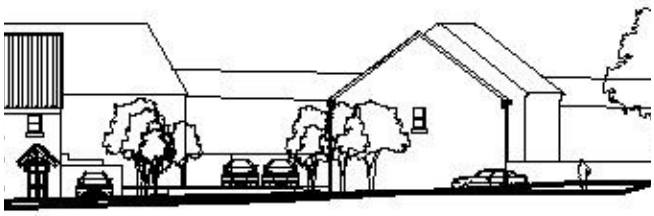


Figure 48 – Typical flank elevation in context

Scale:

The great majority of the existing development adjacent to the application site is two storey residential. There are a wide variety of styles and configurations, and a number of properties of single or, three stories in height. Almost all of the properties have pitched roofs with the pitch related to the roof covering.



Figure 49 – The scale and mix of existing development to the site – the southern part of Noble Street adjoining the western part of the site.

The scale of the proposals is consistent with the scale of the surroundings, comprising two storey properties with pitched roofs in both semi-detached and detached units.



Figure 50 – The contextual elevation shows the scale of the proposals

Landscape:

The majority of the vegetation on the site is un-tended, ruderal growth with few larger shrubs and trees around the boundary and adjacent to the existing access road. The existing trees which are already well established will be retained wherever possible, but some will need to be removed to make best use of the site. Introducing new trees is an important part of the landscape strategy and form part of the planting palette.

The landscaping which forms part of these proposals will greatly improve the visual amenity of the site, and rejuvenate the views from beyond the site boundary.

In addition to private garden spaces at the rear of each property which comply with the requirements of the LPA, two new public areas of soft landscaping with planting are incorporated, one on each part of the site, fronting onto the new road etc.

Cycle parking will be provided in the rear gardens in accordance with the Code for Sustainable Homes (CfSH) as required by the housing association.

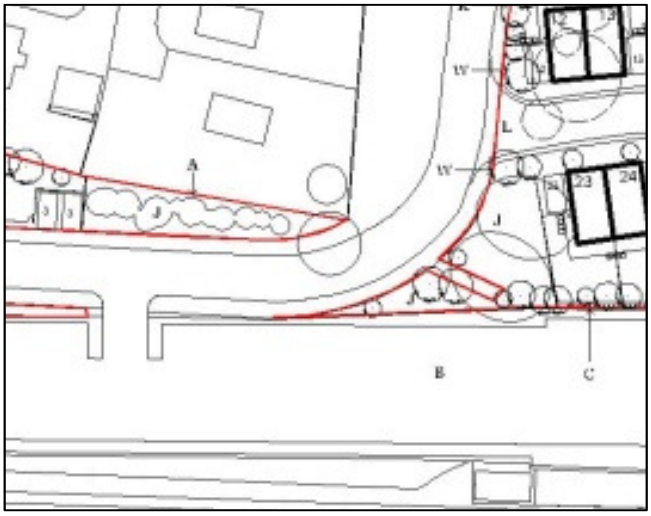


Figure 51 – Public open space with existing and new trees and planting

A number of new and existing trees will be incorporated into rear gardens, together with low maintenance shrubbery and hedgerows, but each garden will also include areas of hard terrace and grassed lawn. The level changes across the site are accommodated within individual gardens, with additional boundary treatment to increase privacy where gardens are at different levels.

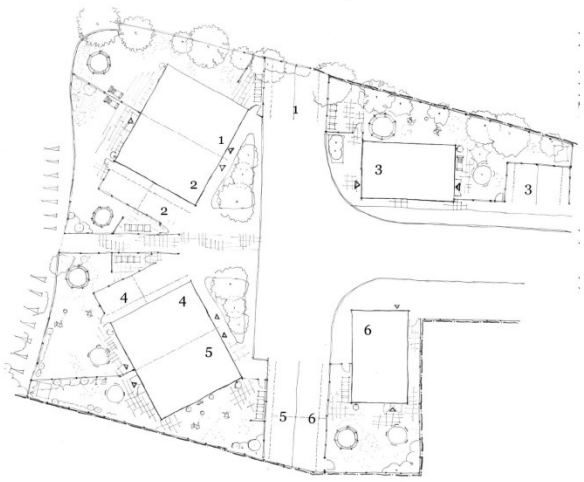


Figure 52 – Example garden layouts showing potential uses of the space for relaxation and play

A preliminary planting palette and schedule of tree recommendations for the site are shown in **Appendices 1** and **2** of this document, and detailed landscape proposals will form **Appendix 12** which is to be delivered under separate cover.

Whilst the garden areas in the curtilage of the properties will be maintained by the tenants, the areas of public open space will be managed by the housing association, Together Housing Group. As with other local schemes, they will employ an independent, locally based, contractor on a contract basis to provide periodic maintenance to keep the areas tidy and the landscaping healthy.

New external lighting will be provided for security, operational and street lighting purposes, and it has been assumed also that these will be subject to a condition of approval.

Appearance:

Although existing development in the area of the application site is predominantly two storeys in height, many different styles and ages of development are represented.







Figure 53 , 54 & 55–The varied palette of materials represented in the existing development adjacent to the application site.

Clearly, there is a dominance of brickwork walls and hard, pitched roof coverings, with white coloured window frames.

The elevations of typical 2, 3 and 4 bedroom houses are shown in **Figures 56 – 58** below.



Figure 56 –Elevations as proposed – 2 bedroom house



Figure 57 – Elevations as proposed – 3 bedroom house



Figure 58 – Elevations as proposed – 3 bedroom house

These follow the pattern basic of the predominant building type in the vicinity, being a two storey structure of traditional masonry with a pitched roof, but would lend a welcome visual consistency by providing 30 similar instances.

The principal external materials shown in **Figures 56 - 58** above will be:

Walls:	Facing brickwork with soldier course over openings to rear and cast stone over openings to front 2 different colours / textures are anticipated to give visual interest
Roof:	Interlocking tiles in two different colours
Windows/Doors:	White uPVC
Boundary treatments:	Timber hit and miss fencing Existing railings will be retained where practical
External works:	Permeable block paving Landscaping as above

Access

Vehicular and transport links:

The application site is located just off King Street and Millhouses Street, approximately 0.6 miles South of the centre of Hoyland, approximately a 10-15 minute walk from the centre.

The site is adjacent to Elsecar Railway station, which provides hourly connections to Sheffield, Meadowhall, Barnsley, Wakefield and Leeds as well as other local services and would encourage the use of public transport and reduce vehicular need. There are also frequent bus services from King Street to Barnsley.

In order to reduce the use of motor vehicles, the units have space for enclosed cycle parking in the rear gardens in accordance with CfSH. The 2 bedroom units have 1 car parking space, whilst the 3 and 4 bedroom units have 2 spaces.

Access to the site is via the existing access road that leads to the park and ride facility, with new access roads provided within the new development.

With a number of newer developments and residential properties adjacent to the site, whilst the new units will generate additional trips from delivery and collection services, these are likely to be absorbed by the existing capacity of these services.

Inclusive access:

It is axiomatic that where the built environment is designed to meet the needs of disability, it will generally provide a better environment for all of those who use it.

In this instance level access is provided up to the principal entrance of each unit which has a level threshold, utilising ramps if required. At ground floor level there is sanitary accommodation, comprising a WC and a connection for a floor drain together with and an area that can be used as a bedroom space.

The internal and external layouts comply with the requirements of Lifetime Homes and Part M of the Building Regulations, and allow adaptability in the future.

Within the units:

Doorways will provide a minimum clear opening width of 800mm to facilitate wheelchair access.

Floor finishes, such as barrier matting, will be chosen to facilitate wheelchair access.

New electrical controls to be located between 450mm and 1200mm from the finished floor level.

Appendices:

Appendix 1:	Planting Palette
Appendix 2:	Tree Recommendations
Appendix 3:	Building for Life Statement
Appendix 4:	Sustainability Statement
Appendix 5:	Phase 1 and 2 Geotechnical and Geo-environmental site investigation
Appendix 6:	Ground Investigation
Appendix 7:	SUDS Statement
Appendix 8:	Community Consultation Statement
Appendix 9:	Affordable Housing Statement
Appendix 10:	Noise Assessment
Appendix 11:	Ecology Report
Appendix 12:	Landscape design

Appendix 1: Planting Palette

Provided by *Synergy Housing Solutions*

3 pages inserted

Planting Palette – Hedges & Shrubs

Formal Hedges



Fagus sylvatica
(Beech)



Carpinus betulus
(Hornbeam)



Buxus semperivens
(Box)

Informal Hedges



Rosa rugosa
'Alba' and 'Rubra'



Rosa 'Bonica'

Large specimen shrubs



Buddleia davidii 'Black Knight'
(Butterfly Bush)



Cornus Alba 'Elegantissimi
(Variegated Dogwood)



Phormium tenax
(New Zealand Flax)

Low shrub planting



Hebe 'Autumn Glory'
(Dog Rose)



Rosa 'Meidiland'
(Groundcover rose)



Lavandula 'Vera'
(Lavender)



Rosmarinus officianalis
(Rosemary)

Planting Palette – Herbaceous Perennials & Grasses



Achillea 'Coronation Gold'
(Yarrow)



Chrysanthemum leucanthemum
(Oxeye Daisy)



Crocosmia 'Lucifer'



Geranium 'Ann Folkard'



Geranium 'Orion'



Hemerocallis lilio-asphodelus
(Day Lily)



Nepeta x faassenii
(Catmint)



Phormium 'Yellow Wave'
(New Zealand flax)



Phormium 'Bronze Baby'
(New Zealand flax)



Rudbeckia fulgida 'Goldsturm'
(Coneflower)



Salvia nemorosa
'May Night'



Sedum spectabile
'Autumn Joy'



Stachys macrantha 'Superba'



Festuca glauca
(Blue grass)

Planting Palette – Bulbs & Wildflowers

Bulbs



Crocus
(Mixed Dutch Varieties)



Galanthus nivalis
(Snowdrop)



Hyacinthoides non scriptus
(Bluebell)



Narcissus pseudonarcissus
(Wild Daffodil)



Narcissus 'February Gold'
(Early Daffodil)

Wildflower Plugs



Anenome nemorosa
(Wood Anenome)



Primula vulgaris
(Primrose)



Ranunculus ficaria
(Lesser Celandine)



Viola riviniana
(Dog Violet)

Appendix 2: Tree Recommendations

Provided by *Synergy Housing Solutions*

2 pages inserted

King Street, Elsecar

Recommended Tree Species to Formalise Development Proposal

Small Trees

- Acer campestre (field maple)-small tree
- Acer griseum (paper bark maple)-slender ascending branches, open crown, attractive bark
- Ailanthus altissima (tree of heaven)-strongly ascending branches
- Amelanchier lamarkii-planted alternate with crataegus x flowers contrast with the crataegus leaves and vise-versa
- Carpinus betulus (hornbeam) var fastigiata-strongly ascending branches
- Crateagus laevigata (midland hawthorn) var Pauls scarlet-striking red flowers
- Corylus avellana (common hazel)- attracting wild life
- Prunus padus (bird cherry)-pendulous white flowers
- Prunus serrula-very characteristic bark
- Sorbus aucuparia (mountain ash)-clusters of red fruit/wildlife
- Sorbus aucuparia (mountain ash) var Joseph rock-produces clusters of yellow fruit, suggest planting alternate to sorbus acucuparia for maximum effect

Medium Trees

- Acer rubrum (red maple)-attractive red/yellow leaf in Autumn
- Acer saccharinum (silver maple)-tolerant to most soils, attractive leaf with a silver underside
- Alnus cordata (Italian alder)-dense majestically conic crown
- Alnus glutinosa (common alder) var laciniata-attractive leaves
- Betula pendula (silver birch)-soft pendulous canopy
- Betula papyrifera (paper bark birch)-very characteristic bark
- Sorbus aria (whitebeam)-attractive leaves with silver underside, white flowers
- Quercus ilex (holm oak)-evergreen, spreading crown, good screening tree

King Street, Elsecar

Recommended Tree Species to Formalise Development Proposal

Large Trees

- Acer platanoides (Norway maple) var crimson king-deep red purple leaves
- Acer platanoides (Norway maple) var drummondii-green and yellow variegated leaves
- Fagus sylvatica (copper beech) var purpurea-good Autumn colours
- Tilia cordata (lime)-formal avenue tree
- Castanea sativa (sweet chestnut)-striking leaves and fruit

Appendix 3:
Building for Life Statement

Questions taken from *'Building for Life 12'*
Birkbeck and Kruczkowsk 2015

> *"Building for Life 12 is a government-endorsed industry standard for well-designed homes and neighbourhoods. Local communities, local authorities and developers are encouraged to use it to guide discussions about creating good places to live…*
>
> *…It was redesigned in 2012 to reflect the National Planning Policy Framework's commitment not only to build more homes, but better homes, such as can be achieved when local communities participate in the place-making process and help identify how development can be shaped to accommodate both new and existing communities.*
>
> *The questions are therefore designed to help structure discussions between local communities, local planning authorities, developers and other stakeholders…"*

The requirement for Building for Life (BfL), assessment at Barnsley Metropolitan Borough Council (BMBC) pre dates the changes to the BfL system and, in fact, still asks for response to the original 20 question assessment. The former assessment was a qualitative scoring system whereas, as above, BfL 12 is a tool for promoting discussion and a certified assessment can only occur post approval. As such, the submission and validation requirements for BfL are somewhat less defined.

On that basis, our submission in respect of BfL at this stage, with commentary on each of the 12 Criteria, is shown below:

Integrating into the neighbourhood

1 Connections

Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones, while also respecting existing buildings and land uses around the development site?

An area surrounded by housing, whilst the site has been a school and leisure facilities in the past, it is currently unused and in the perfect location for housing.

As the existing unnamed access road only provides a link to the station park and ride car park, the new development will allow it to be used more fully and reinforce the streetscape along it.

The existing unofficial footpath at the bottom end of the site made by people using the route will be retained, and the route reinforced by the new hard landscape.

2 Facilities and services

Does the development provide (or is it close to) community facilities, such as shops, schools, workplaces, parks, play areas, pubs or cafes?

The site is an urban infill site in an existing town, fully served by all of the above facilities in close proximity.

3 Public transport

Does the scheme have good access to public transport to help reduce car dependency?

As Question 2 above. Specifically there are bus stops immediately adjacent to the site with a regular service, and the site backs onto the park and ride car park for the adjacent railway station, which has frequent services.

4 Meeting local housing requirements

Does the development have a mix of housing types and tenures that suit local requirements?

The end user and applicant have worked closely with local housing services to achieve an appropriate mix of housing suited to local need. This comprises 2 and 3 bedroom properties on a long term assured tenancy basis.

Creating a place

5 Character

Does the scheme create a place with a locally inspired or otherwise distinctive character?

As an urban infill development, the scheme is designed with an overall scale and appearance typical to the area.

6 Working with the site and its context

Does the scheme take advantage of existing topography, landscape features (including water courses), wildlife habitats, existing buildings, site orientation and microclimates?

The site is steeply sloping and south facing, and accommodating this slope was one of the key design criteria, as well as maintaining access routes and retaining existing trees as far as possible.

7 Creating well defined streets and spaces

Are buildings designed and positioned with landscaping to define and enhance streets and spaces and are buildings designed to turn street corners well?

The buildings are oriented and positioned to create opportunities for a layering of public, semi-private and private landscape. The dwellings follow the existing unnamed access road and new roads, defining the streetscape and creating groups of development.

8 Easy to find your way around

Is the scheme designed to make it easy to find your way around?

With a new road terminating within the development, wayfinding is not deemed difficult, and it is possible to see the majority of the dwellings from the unnamed access road. The sloping site will allow views across the site, with areas of public open space defining the beginning and ends of the road.

Street & home

9 Streets for all

Are streets designed in a way that encourage low vehicle speeds and allow them to function as social spaces?

Due to the existing slope of the unnamed access road, it is expected that vehicles will have to slow down considerably to turn into the site. In addition, the new roads are designed as a shared surface, and areas of public green space and parking courts are provided that sit off the main road provide low speed social spaces away from the main street.

10 Car parking

Is resident and visitor parking sufficient and well integrated so that it does not dominate the street?

All of the new dwellings are provided with at least 1 parking space, and up to 2 for 3 and 4 bedroom units. In some instances car parking is provided off the street, adjacent to the dwelling, in others in front of

the units and for others in parking areas set off the street in front of the units.

11 Public and private spaces

Will public and private spaces be clearly defined and designed to be attractive, well managed and safe?

A number of public spaces are provided which will be maintained by the housing association, the front and rear garden spaces of each unit will be maintained by the tenants. The planting palette and landscaping proposals are incorporated into the Appendices of the Design and Access Statement.

12 External storage and amenity space

Is there adequate external storage space for bins and recycling as well as vehicles and cycles?

The refuse and recycling requirements of BMBC have been considered, and adequate space for this designed into the scheme. In all cases this is incorporated into the rear gardens of the properties which all have external access. Whilst cycle storage is not necessarily provided by the housing association, the external access to the rear will allow the addition of secure shed and / or cycle storage to be provided by the tenants.

The vehicular parking requirements are as per Question 10 above.

Appendix 4: Sustainability Statement

Economic Sustainability:

Central to the sustainability of this development is that an affordable housing provider has been established as the end user. This ensures that in an era of affordable housing shortage the properties will not only be in demand and occupied, but also maintained. There is a clear need for affordable housing in this area, and the housing association have a long list of people requiring this type of housing.

Providing affordable housing with a secure tenure, fulfils a key aspect of overall economic stability for families in housing need, with the consequent benefit to the overall local and national economy.

Social Sustainability:

As a development specifically built to be affordable, for people in housing need, it contributes directly to building strong sustainable communities. The housing mix has been established to reflect local need and the houses designed using established standards to match the current and future needs of occupants.

By infilling an existing site, the new development will be central to an existing community which has facilities already established, including public transport, schools and retail, and can support and enhance these existing resources.

Environmental Sustainability:

The buildings are constructed in accordance with the end user requirements which ensure a simple building fabric which can be carried out to a high level of competency. In addition, a 'fabric first' approach is used to maximise fabric insulation and airtightness standards to improve thermal performance, but without resorting to add-ons such as photovoltaic panels. This should deliver comfortable internal environments that are pleasant and inexpensive in use.

Notwithstanding, as a south facing slope the design of both the houses and the layout utilises passive solar gain where possible, and some of the properties are provided with a south facing roof of appropriate construction and pitch for possible future installation of solar photovoltaic or solar thermal panels, to further enhance environmental performance and reduce utility bills.

Appendix 5: Phase 1 and 2 geotechnical and Geo-environmental Site investigation

Provided by *Eastwood + Partners Consulting Engineers*

62 pages / 34 mb – provided under separate cover

Appendix 6: SUDS Statement

Provided by *Eastwood + Partners Consulting Engineers*

2 pages inserted

King Street, Elsecar

SuDS statement

SUDS methods are considered in line with the hierarchy proposed in the SuDS Manual (CIRIA C753). The principal methods and their suitability to the site are summarised in the accompanying SuDS checklist.

Existing site

The northern parcel of land is scrubland, falling to the south at an average gradient of 1 in 12. The southern parcel of land is relatively flat and is covered in dense scrub. There is a private surface water system crossing the southern parcel which serves the adjacent Elsecar Park and Ride carpark. The system outfalls to a watercourse to the south-west of the site.

Proposed development

The site will be developed with up to 30 houses.

A site investigation carried out by Eastwood & Partners encountered made ground across both parcels of land overlying sandy clay and mudstone. Percolation testing was unsuccessful as water failed to drain from the trial pits. Thus, soakaways will not be viable on this site.

The site will drain to the nearby watercourse.

The surface water discharge from the site will be attenuated to the greenfield rate of 5 l/s.

Above-ground SuDS storage will not be possible due to slope of site (northern parcel) and presence of deep made ground (southern parcel). Instead, attenuation storage will be provided underground.

Water treatment will be provided by permeable paving to private drives.

SuDS Type	SuDS Technique	Description	Suitable	Comments
Source Control	Green roof	Vegetated roof that reduces runoff volume and rate	No	Expected planning requirement for traditional pitched roofs to match neighbouring buildings
	Rainwater harvesting/ Water butt	Rainwater is stored and re-used	Yes	Individual storage tank capacity unlikely to meet volume required. Water butts could be used for garden watering.
	Permeable paving	Paving which allows inflow of rainwater into underlying construction/soil	Yes	Suitable for private drives. Impermeable ground is present across the entire suit but permeable paving areas could provide limited infiltration and water treatment within the underlying construction material.
Infiltration	Soakaway	Pit or trench which stores and disposes of water to the ground	No	Impermeable ground.
	Filter Drain	Trench which conveys and/or disposes of water to the ground.	No	
	Infiltration Basin	Shallow basin which stores and disposes of water to the ground	No	
Conveyance	Swale	Shallow vegetated depression which conducts and retains water	No	The northern parcel is steeply sloping and the gradient unsuitable for swales. The southern parcel is flat but comprises deep made ground with the associated risk of site settlement or seepage onto the railway embankment.
Detention	Subsurface storage	Traditional underground pipes or tank storage, or modular systems	Yes	
	Detention Basin	Normally dry but may have small permanent water pools at the inlet and outlet. They can function as POS	No	The northern parcel is steeply sloping and the gradient unsuitable for basins, ponds and wetlands. The location of the southern parcel, elevated relative to the adjacent railway line precludes the use of above ground water features due to the risk of seepage though the railway embankment.
	Pond	Permanent body of water	No	
	Wetland	Permanent body of shallow water or marsh	No	

Appendix 7: Community Consultation Statement

Provided by *Synergy Housing Solutions*

5 pages inserted

King Street, Elsecar

Community Consultation Statement

23rd June 2016

Address: Land at King Street, Hoyland, Barnsley, S74

As part of our Framework Agreement with our partner, Barnsley Metropolitan Borough Council (BMBC), Together Housing Association held a community involvement event in the Hoyland Centre for local residents and businesses, in particular residents adjacent to the proposed scheme. BMBC and Together Housing developed a flier together that was hand delivered and invited residents to come and express their views, comments and share with us any particular concern(s) that they may have.

The event was held on 16th June. 2015 and the scheme's architect, representatives of Barnsley Housing Growth Team and Chevin Housing Association, were in attendance. The residents who came to view the plans were provided with details of the scheme and the development programme and were also given the opportunity to note their comments and were generally supportive of the proposals and had no adverse comments about the design. The comments received and the responses provided are attached for information and summarised below.

- Total attendees: 10
- Total attendees who provided written comments: 5
- 1 comment concerned with whether the service road previously used for the school would be used during construction (which it will not be).
- 1 comment in respect of the naming of the new road.
- 2 comments in support of the scheme.
- 1 comment querying whether some bungalows could be provided.

The majority of comments were in support of the development, and the other comments in respect of roads not owned by the applicant and road naming were referred to the relevant parties.

Appendix 8: Affordable Housing Statement

Provided by *Synergy Housing Solutions*

1 page inserted

King Street, Elsecar

Affordable Housing Statement

30th August 2016

Address: Land at King Street, Hoyland, Barnsley, S74

Together Housing Association, part of Together Housing Group made a successful Bid in spring 2014 to the Homes and Community Agency (HCA) for funding to support the Association's 2015-2018 development programme.

This development is in line with the housing growth strategy of Barnsley M.B.C and had received the necessary support from Barnsley M.B. Council prior to the bids to the HCA.

Together Housing Association was successful in receiving the required support from the HCA, to develop this scheme of 30 family houses, for affordable rent, comprising of 15 x 2 bedroom houses and 15 x 3 bedroom houses.

This development is programmed to start on site in October 2016 and to be completed in Autumn 2017.

This housing development when completed will be offered for letting to local people who are in the greatest need for housing / re-housing under a partnership agreement with Barnsley M.B.C.

The rents are all "Affordable Rents" which are set at 80% of Market Rents for that locality.

Appendix 9: Arboricultural Report

Provided by *Anderson Tree Care*

19 pages inserted

ANDERSON
TREE CARE

Arboricultural Contractors and Consultants

Anderson Tree Care Limited,
Garden Cottage, Park Street,
Barlborough,
Chesterfield, S43 4TJ.
Phone; 01246 570 044
Fax; 01246 570 045
e-mail; info@andersontreecare.co.uk
company registration no. 5872995

Tree Survey:	**Site at King Street, Elsecar.**
Client:	**D J Atkinson Construction Ltd.** **123 North Wingfield Road,** **Grassmoor,** **Chesterfield, S42 5EB.**
Date of Survey:	**August 18th 2016.**
Weather at time of Survey:	**Fine and bright.**
File reference:	King Street 01 draft

Appendices: 1. Tree location plan.

Report author: W L Anderson. Dip Arb.(RFS) M.Arbor.A.
Checked by: R H Anderson. Dip Arb.(RFS)

Introduction.
This site is an area of waste land adjacent to Elsecar's (fairly new) park and ride train station. I'm not sure what was on the site before this facility was installed but beneath the undergrowth on the site there are remnants of walls and concrete footpaths. The site contains a number of trees, some appear to have been planted others are clearly self-set seedlings. The site is to be developed as affordable housing.

Tree Preservation Orders.
I'm not aware of any protection on any of the trees, and it is not in a Conservation Area.

British Standard 5837 2012 Trees in relation to design demolition and construction – Recommendations.

I have taken the above document as the basis for this report. The Standard has been recently revised and the 2005 version withdrawn. The Local Planning Authority should consider this Standard in its deliberations about this site. The Standard states its objectives of achieving "a harmonious and sustainable relationship between trees and structures."

The preoccupation of this standard is the categorisation method and the Root Protection Area (RPA). The logic for this is that resources should not be wasted attempting to retain trees that do not justify retention, nor should a project set out to retain a tree only to ensure its rapid demise by failing to take account of its growing conditions.

While the Standard covers much more than these matters, at this stage in this project these are the major concerns. This survey is intended to supply the information necessary to ascertain which trees are suitable for inclusion in the project and how their retention will affect the manner in which the site is developed. BS5837 anticipates that an Arboricultural Impact Assessment (AIA) will be undertaken once the layout is finalised and that the planning application will be accompanied by a Tree Protection Plan (TPP).

The TPP is a drawing that shows which trees are to be retained and where the protection measures are to be installed. This should be accompanied by a "Method Statement" detailing the measures to protect the trees and when they can be removed. The AIA will contain details of tree work to be undertaken to facilitate the development and a summary of any tree planting.

BS5837; Tree Categorisation Method.
The categorisation method is summarised in BS5837 at section 4.5 where it emphasises the need for it to be undertaken by an Arboriculturist. Elsewhere the Standard tells us that an Arboriculturist should be a "person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction."

There are 4 retention categories; U, A, B & C. The criteria for inclusion in each category and subcategory are summarised in Table 1 "Cascade chart for tree quality assessment," an interpretation of which follows:

Trees unsuitable for retention.			
Category and definition			
Category U: Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees. Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.*		
Trees to be considered for retention.			
Category and definition	Subcategories		
	1. Mainly arboricultural qualities	**2. Mainly landscape qualities**	**3. Mainly cultural qualities**
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal Arboricultural features (e.g. the dominant or principal trees within an avenue).	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.

NB. This is an interpretation of table 1, not a copy, although much of the text is verbatim.

BS5837 contains details about what colours should be used to indicate their categories on any drawings; these are U = dark red, A = light green, B = mid blue, and C = grey.

BS5837 goes into greater detail (at 4.5.10) about the appraisal of small trees; those of less than 150mm diameter, as these are easily replaced with similar sized new trees. It notes that they might even be transplanted.

It includes further detail (at 4.5.11) about the importance of veteran trees and the measures that are likely to be needed to avoid damaging them and to ensure they are not an imposition upon a development.

BS 5837; Root Protection Area.

The Root Protection Area (RPA) is defined as a circular area of radius 12 times the trunk (stem) diameter (TD). BS5837 contains details as to where and how it should be measured, and also as to how to treat trees with more than one stem; an equivalent diameter is calculated. I use a diameter tape to measure this and use common sense to adjust this measurement where Ivy or other factors affect the measurement. Despite the Standard's attempts to standardise the measurement conventions there will be times when there is little choice but to estimate the measurement.

While the RPA is defined as a circle the Standard accepts the impracticality of erecting circular fences and it implies that other shapes are acceptable as long as the impact of the alteration is properly appraised. As a general rule, the 12 times the TD sum can be interpreted as a "tree to building distance" that is easy to calculate. It would usually be acceptable to plot the RPA on any drawing as a square with sides of twice the tree to building distance, notwithstanding the fact that this would have a greater area than the circular area.

The two previous versions of BS 5837 have contained advice about offsetting the RPA. The 2012 version does not but allows (at 4.6.2) deviation based upon "a soundly based Arboricultural assessment of likely root distribution."

The 12 times the TD rule is often seen as a mathematical method of calculating where a tree might have grown roots, plainly it is not. It might be helpful to consider it as a system of calculating the size of pot that might be needed were it possible to transplant a mature tree into a pot. The calculation is actually for a volume of soil, although as the pot is predetermined to be 600mm deep (most tree root action is in the upper 600mm of a soil profile), it is only necessary to calculate an area.

Clearly if a tree has grown on very shallow soils it might be necessary to have a larger RPA. I anticipate that a tree grown in such conditions would be of relatively poor quality, although making firm predictions about such things should be avoided.

At Annex D, BS5837 contains a table of RPA areas for single stem diameters, and at Annex C the measuring conventions are illustrated. Annex D rounds the TD to multiples of 25mm and the RPA to the nearest whole square metre.

While damage to tree roots is paramount, other factors need to be taken into consideration; factors such as shade from nearby trees, future growth and even access for machinery in order to undertake future tree management. These factors may affect the categorisation.

The Survey Schedule.

While BS5837 suggests numerous factors that should be recorded on the schedule the information presented in this survey is as follows:

1. **Tree no & species.** I hope this is self-explanatory. I routinely use common names but will use scientific names to clarify the identification where necessary. Some trees are dealt with as groups. Hedges are dealt with similarly.
2. **Height.** (Ht) measured in metres. This is estimated from ground level. I use a clinometer and laser range finder to assist. While these are reasonably accurate, actually seeing the top of a tree from ground level can be difficult so the height should always be regarded as an estimate.
3. **Trunk Diameter.** (TD) measured in millimetres using a tape. This is rounded up to the nearest 10, greater accuracy is unnecessary. Where I have been forced to estimate the measurement due to basal growths or some-such, the figure is appended with an "E."
4. **Age class.** BS 5837 uses the term "life stage." I consider this to mean the same as age class. The categories are Young (Y), Middle-aged (EM for early-mature), Mature (M), Over-mature (OM) and Veteran (V). BS5837 uses the class "semi-mature" but this appears too similar to early-mature for me to make a meaningful distinction. A veteran tree is one that has probably exceeded its 'normal' life span and has developed attributes such as wildlife habitat, biodiversity benefits, historic association or such-like. To quote from the Standard: It is a tree that *by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.*
5. **Category.** The retention category as detailed above.
6. **Comments**. This column is simply to impart additional information and may cover reasons for the trees' categorisation or anything else that I feel is worthy of mention. Peculiar crown formation might be mentioned, or an unusual branch configuration. BS5837 recommends we measure the *"radius of branch spread at the four cardinal points."* This section will contain that information if I feel it necessary to measure unusual crown formation. Otherwise the presumption is that the trees are fairly typical for the species. The Standard also suggests that we record the height of crown-clearance; that is how far from the ground the branches grow. I shall not mention this unless it is unusual or particularly relevant. I shall broadly confine my assessment of the trees physiological condition to poor, fair, good, or dead and mention it here. All trees are assumed to be in good condition unless mentioned otherwise. The Standard asks us to include the *"estimated remaining contribution in years."* This is rather a "how long is a piece of string" question. I shall include a rough assessment of remaining life where I deem it necessary. By and large this will have been included as part of the 'category' assessment. If necessary I shall comment here.
7. **Root Protection Area.** As detailed above. Taken from Annex D. (NB. The RPA is 'capped' at 707m^2, i.e. a circle with 15m radius or a square with 26m sides.)

BS5837 contains a suggestion of information that might be gathered for a tree survey. This includes information such as the height of a tree's first branch, and the

crown spread to the four cardinal points. I note that the Blue Book (that is "Tree Preservation Orders; a guide to the law and good practice" DETR 2000 (since 2014 replaced by internet guidance that says much the same thing)) contains the very useful advice that local planning authorities should not ask for any more information than is necessary to decide an application (to work on a protected tree). This is a sensible approach and one that I apply to all matters related to planning and trees. I note that the recent NPPF document (at paragraph 193) contains similar advice.

If something is particularly notable about a tree, say the crown spread is particularly broad or lop-sided, I shall mention it and expand upon the characteristic and its relevance in the discussion section of the report.

The previous version of BS5837 contained the instructions for preparing a "Tree Constraints Plan." While this was a sensible idea it was probably over complicated. It was intended to be a tool to inform the designer of a site layout more than an essential component of a planning application. It was meant to show the various retention categories of each tree or group, the tree positions and the heights and accurate spreads of each tree. It was also supposed to show the areas likely to be affected by shade. Shade would clearly differ from June to December and on slopes of different orientations, so this would be a complicated drawing. In fact I think it would be likely to be so convoluted as to be unusable.

Experienced designers are fully capable of working with different levels, neighbouring buildings, slopes of differing orientation, and interpreting where shade might be a problem, so the tree constraints plan could be seen as unnecessary. It is our intention that the tree schedule should provide sufficient information for a suitably experienced and skilled graphic designer to prepare some sort of Tree Constraints Plan should he or she consider it was necessary.

"An iterative process."

BS5837's Figure 1 is a flow chart illustrating the processes in developing a site. It emphasises that a development project should be an "iterative" process, meaning that advice from the Arboriculturist should be ongoing. This might mean that a sketch of a proposal should be discussed with the Arboriculturist, and the impact on trees appraised before preparing more detailed plans.

On large spacious sites it might be feasible to simply position structures and services outside of the RPAs, but on more typical sites it might be necessary to sacrifice a poor quality tree in order to give a better quality tree more space.

If these matters are addressed before a planning application is submitted it ought to speed up the decision-making process for the local planning authority. Figure 1 anticipates that the planning application will be accompanied by a Tree Protection Plan, which shows the positions of RPA protection fencing, and an Impact Assessment. This should be a summary of tree work that the project will require. This will include trees that are to be removed as well as those that might need pruning. It will also include an appraisal of the benefits of any tree planting and the likelihood of improved tree management upon the project's completion. By definition the impact assessment will take into account the surrounding area's tree population and the condition and management (or lack of) currently in operation.

The Trees.

A tree location plan is appended to the rear of this report.

Tree No.	Species.	Ht	TD	Age class	Cate-gory	Comments.	RPA
1.	Sycamore	16	900E	M	C1	Superficially OK but one sided crown due to tree 2. Fairly severe vandal damage and soil level may have been raised over the roots.	366
2.	Sycamore	16	800E	M	C1	One sided crown due to tree 1, Soil level probably been raised over roots, appears to have been some excavations at the base.	290
3.	Sycamore	13	500E	M	C1	Soil level raised over roots, adjacent to a brick wall. OK.	113
4.	Group	13 max	400E max	M	C2	Adjacent to the same wall as tree 3. Mainly saplings and coppice growth of Sycamore. Some Hawthorn. Soil level raised over roots, unlikely to survive disturbance involved with removal of the wall.	72
5.	Sycamore	14	500E	M	C1	OK despite some vandalism and soil level changes. Hard to imagine it surviving the inevitable soil level changes and demolition work.	113
6.	Group	8 max	200E	Y	C2	Self-set saplings of Ash and Sycamore that have germinated in the nooks and crannies around the walls and concrete slab. Unsuitable for retention in the scheme.	18
7.	Group	8 max	200E max	Y	C2	More Ash and Sycamore saplings with some Cherry. As group 6, with Blackberry Bramble understorey.	18
8.	Small-leafed Lime	15	490	M	C1	A decent specimen; it will require regular pruning if it is to be retained in the scheme. Therefore it's not really suitable for retention in the scheme.	113
9.	Variegated Sycamore	15	540	M	C1	OK. There seems to have been some soil level changes around this tree.	137
10.	Hawthorn	11	400E	M	C1	Leaf cover somewhat sparse, poor crown shape due to suppression from tree 9.	72

Tree No.	Species.	Ht	TD	Age class	Cate-gory	Comments.	RPA
11.	Group	8 max	200E max	Y	C2	More Ash and Sycamore saplings, largely in the shade of tree 12.	18
12.	Horse Chestnut	16	980	OM	U	18 metre crown spread; superficially an excellent specimen, unfortunately infected with Bleeding Canker, infested with Horse Chestnut Leaf Miner, and with serious structural defects that are only likely to get worse. There is no real option to removing this tree.	0
13.	Small-leafed Lime.	15	580	M	C1	As tree 8.	163
14.	Group	10 max	300E max	EM	C2	More Ash and Sycamore saplings growing in positions that mean their retention is impossible. Also some Elderberry and the occasional Silver Birch.	41
15.	Group	18 max	750E max	M	C2	Off-site alongside the eastern boundary (In the grounds of the redundant cinema). Sycamore and Hawthorn with some Pussy Willow. The principal Sycamore is disturbing the boundary wall.	255
16.	Group	7 max	300E max	EM	C2	Mainly Hawthorn, some Elderberry, Sycamore and Norway Maple. This is a vacant plot that has clearly been colonised by trees, in the main Hawthorn saplings. It adjoins an area of what appears to be established woodland.	41
17.	Group	5 max	100E max	Y	C2	A narrow strip of land that adjoins group 16. Mainly of interest because of Oak saplings that appear to have been planted there along with some ornamental Sedge-like plants, which appear somewhat invasive.	5
18.	Group	20 max	750E max	M	C2	The vacant plot opposite the site, apparently divided from the site when the park and ride access was constructed. Only mentioned because of some planted Oak saplings and the mature Purple Beech, Lime and London Plane.	255

Discussion.

As mentioned above this site is earmarked for affordable housing. To that end I have seen two drawings showing potential layouts. I have also seen a tree report (dated March 2010) that I presume was prepared to inform the construction of the access to the park and ride facility. From these documents and the views of the site available on Google it is possible to gain some impression of the site before the access road (to the car park) was constructed. It also becomes clear that there has been some considerable disturbance about the site.

As might be anticipated, the site-layouts show dwellings of modest proportions with some of the trees that were picked up on the topographical survey retained. While this is laudable we need to consider how the trees are likely to be accommodated and more importantly what the trees' future prospects might be. This means considering how quickly the trees might outgrow their surroundings and how future management might be undertaken once the trees are surrounded by buildings.



Photograph 1.

Photograph 1 is a view of trees 1 at the right and 2 to the left. Having grown in proximity to one another the crowns are "co-dominant." If one tree was removed the other would have an extremely one-sided shape.

It is also apparent that the road is built on a raised embankment, which must have intruded well into the trees RPA.

I took photograph 2 in an effort to show the road's haunches. While the trees do not seem to have suffered unduly so far it is inevitable that the new development is going to require substantial soil level changes within the trees' RPAs.

Note also the vandalism on the secondary trunk.



Photograph 2.

While I accept that methods of construction could be employed that would do less damage to an RPA it needs not to be forgotten that these construction methods are not infallible. So in this case we have trees that might already have been compromised by construction work, and might very well suffer ill-effects from further construction work. These are not what anyone would call "good prospects."



Photograph 3.

Photograph 3 is a better view of the vandalism. A vandal has seen fit to stick a paving block in the fork between the two stems. (There's a pile of blocks fly-tipped nearby.) The growth of the tree has now trapped this block to such an extent that removing it would cause yet more damage to the bark. This has also reduced the tree's prospects.

Photograph 4 shows tree 3, tree 5 is in the left background. Group 4 is between them. There's nothing much wrong with these but the trees grow close to a substantial brick wall. As with trees 1 & 2 it also seems that the road's haunches necessitated the soil level being raised within the tree's RPA.



Photograph 4



Photograph 5.

Photograph 5 shows a section of the wall. This appears to be well-constructed and removing it will require some heavy machinery, for which there is not much space. The chances of any of these trees surviving such a procedure unscathed are small.



Photograph 6.

Photograph 6 shows group 6 emerging from alongside a cast-concrete road. While these don't look like very much from this angle, from the opposite side they appear to be a group of healthy young trees.

Photograph 7 is a view of group 6 from the road. While they appear OK from here the chances of them surviving the removal of the concrete roadway unscathed are low.



Photograph 7.



Photograph 8.

Photograph 8 is a view of another wall and part of group 7. The saplings are Ash and might have been scorched by a fire. Whatever the cause they're poor trees as a result.



Photograph 9.

Photograph 9 shows tree 9, which is a Sycamore with a variegated leaf. This is a cultivar named after King Leopold of Belgium; *Acer pseudoplatanus* "Leopoldii." (Probably best not to dwell on that as he's now regarded as having been something of a tyrant!)

It appears that the access road must have severely impacted upon the soil at its base although at the moment it does not appear to have been adversely affected by the change in its surroundings.



Photograph 10.

Photograph 10 shows tree 12 the Horse Chestnut. Most of the foliage in this picture belongs to that tree. Unfortunately Horse Chestnut is having a particularly torrid time

of things at the moment; not only is it being attacked by the Horse Chestnut Leaf Miner, an insect pest, but it is also under attack from a bacterium and a fungus-like organism. Both these organisms cause similar symptoms which are known as "Bleeding Canker."



Photograph 11.

Photograph 11 shows the trunk of the tree. It has probably developed this rather convoluted branch structure and wide spreading crown as a result of damage sometime in the distant past. More recent damage is apparent in the photo; some inexpert pruning and something that might be vandalism or it might be due to Grey Squirrels.

Photograph 12 is a view of a long lateral branch. The cracks in the bark may be due to the branch subsiding under it's own weight or they might be due to Bleeding Canker. Whatever the cause the tree is entirely unsuitable for its current position let alone its future surroundings.



Photograph 12.

NB. None of this is to say that Horse Chestnut is not a suitable urban tree species, it's simply to acknowledge that this particular one is no longer suitable for this location in this condition. Were the tree in better condition it might be worth

attempting to prune it and thus retain it in a smaller form. Unfortunately the infections mean that this course of action is likely only to hasten its demise. While declining trees have numerous benefits to biodiversity in this case the risk of the tree declining and injuring someone is high so it is not a suitable tree to retain.



Photograph 13.

Photograph 13 shows tree 13 one of the Limes; there is not a clear view of tree 8 but it's similar. Both trees give the impression of having been fairly recently planted; relatively speaking.

Small-leafed Lime is an excellent species choice for urban planting, unlike Common Lime it is not susceptible to aphid infestation and the subsequent "honeydew-drip."

While I like the trees it is hard to see either this tree or tree 8 being comfortably accommodated in this development, at least not without regular and fairly frequent pruning. And quite drastic pruning at that.

Photograph 14 is a view of one of the trees in group 14, a Sycamore. This is clearly self-sown as no one would plant a tree so close to a wall and very few people would plant a Sycamore either.



Photograph 14.



Photograph 15.



Photograph 16.

Photograph 15 shows some of the infrastructure damage caused by trees in group 14. Even the Elderberry shrubs are lifting the steps and it seems brickwork has been displaced as well. Photo 16 is a more general view of the group of trees growing in close proximity to the wall.



Photograph 17.

Photograph 17 is a view of the eastern boundary. The large building in the background is the old cinema. All these trees appear to be in the neighbouring plot. The larger tree to the right is a Sycamore.



Photograph 18

Photograph 18 is a view of the Sycamore mentioned above. The wall is being distorted by the tree to such an extent that it is unsafe. (At least in my opinion as an Arborist.) Clearly someone has recently cut some branches from the tree, presumably to permit the fence to be secured. Old tangled fencing wire is mixed amongst the branch-wood.

The wall appears to extend along the boundary and it's hard to imagine the wall being rebuilt or restored without the tree being removed.



Photograph 19.

Photograph 19 shows the area where group 16 grows. The sketch plan shows 6 units erected here. The trees are mainly Hawthorn although I also noted the odd Norway Maple sapling as well as Sycamore and Elderberry.

In terms of biodiversity a dense thicket of Hawthorn could be very valuable; Hawthorn is a good conservation-tree. Its berries are a useful food source for small birds and its dense thorny branch structure means it provides excellent cover for nests. Ornamentally it's good with its white flowers lasting well and heralding summer. In autumn it invariably shows excellent autumn colour. In this case it will be lost although it should be remembered that it probably colonised this plot in an extremely short period of time; the 2010 survey recorded this area as "scrub." Clearly some neighbours to this site regard the area as suitable for dumping garden waste.



Photograph 20.

Photograph 20 shows some dumped brushwood within group 16. The herb layer here is sparse and mainly ruderal plants. While the dead brushwood is not much of a problem, it wouldn't be hard for it to be set alight; while this might not actually cause a large scale forest fire the potential damage could be significant.



Photograph 21.

Photograph 21 shows part of the area I called group 17. The only relevant trees here are some Oak saplings that can only have been planted quite recently. This was probably part of the permission for the park and ride scheme. The planting scheme probably called for the ornamental Sedge-like plant that is planted beneath.



Photograph 22.

Photograph 22 shows the mature trees in the area I called group 18, which is adjacent to but entirely outside the site. These are London Planes, Purple Beech and

Lime. According to the 2010 site plan they grew at the edge of a bowling green which must be several metres beneath the roadway now. If I've appraised the matter correctly the street lamp would probably have been in the centre of the bowling green. There are more Oak saplings and ornamental grasses in this area, probably planted as part of the planning permission for the road.

Note also in photo 22 more of the Sedge-like plant, which gives the impression of behaving invasively. That said I found no similar plant in the Field Guide to Invasive Plants and Animals in Britain (Bloomsbury 2015) but as invasive species are a major factor in landscape and environmental management at the moment (and are likely to be for the foreseeable future), it is as well to be aware of the potential problems.

This concludes my observations on the trees around this site.

Conclusion.

This is a difficult site, very few of the trees within the site are suitable for inclusion in the scheme and what is superficially the best tree on the site (tree 12) is in reality on the verge of becoming unsafe.

Trees 1, 2 & 3 have already had their RPAs encroached-upon and trees 8 & 13 should only be included in the scheme if they can be drastically pruned and then pruned regularly in this manner in the future.

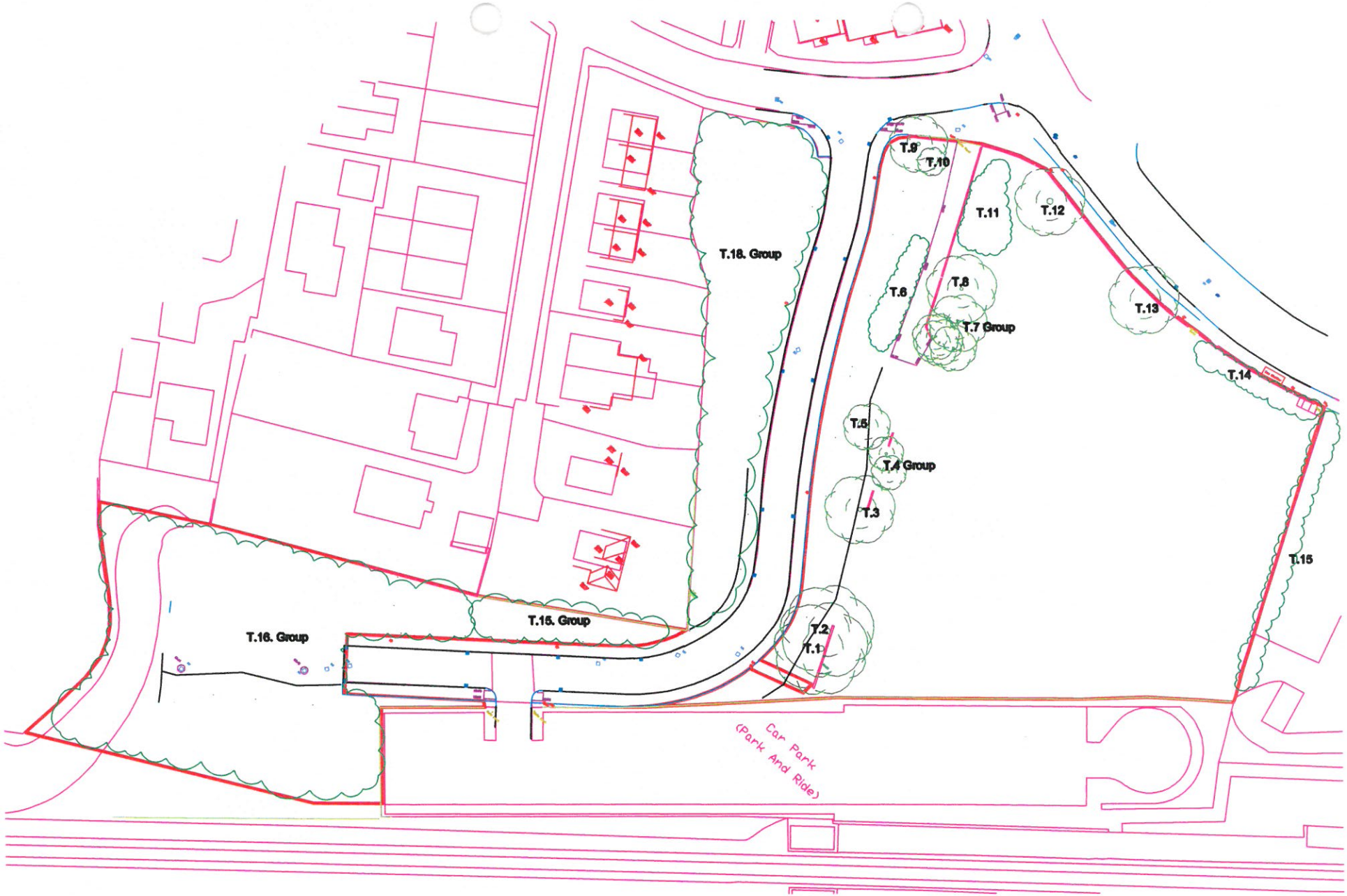
Tree 9, the variegated Sycamore appears to be in a position where retention and future management will not be too onerous.

I note the Architect's sketch-drawing shows "existing low growing vegetation" to be retained in places. I don't think any of it is really suitable for retention in a small domestic garden.

An argument could be made that the site should be cleared and then new trees planted when development is complete. This argument is not without merit; the biodiversity value of the site is not high, there are nearby areas that are of substantial benefit to biodiversity, and it should not be forgotten that domestic gardens (given time) might very well offer more biodiversity than the existing site vegetation.

I see no reason for the existing trees on this site to be a hindrance to the proposed scheme.

W. L. Anderson. Dip.Arb. (RFS) M.Arbor.A.
ANDERSON TREE CARE LIMITED. August 2016.



ANDERSON TREE CARE

Arboricultural Contractors and Consultants

Tree Location Plan
Site at King St, Elsecar
August 2016

Appendix 10: Noise Assessment

Provided by *Acoustic Design Technology*

17 pages inserted

ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

ADT 2449

31 August 2016

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LAND AT KING STREET, ELSECAR

ENVIRONMENTAL NOISE AND VIBRATION IMPACT ASSESSMENT

ACOUSTIC CONSULTANCY REPORT ADT 2449/ENIA

Revision	Date	Issued By	Revision Notes
-	31 August 2016	Chris Middleton	first issue

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1.0 SUMMARY

Planning permission is being sought for 30 affordable homes as shown on the planning application drawings.

Acoustic Design Technology Limited have undertaken an environmental noise and vibration survey to determine the typical levels of noise and vibration generated by the main sources impacting on the proposed development site.

Based on the survey data, preliminary analysis indicates that compliance with the BS 8233:2014 indoor ambient noise criteria should generally be achievable with standard thermal double glazing and trickle vents, with higher performance glazing and acoustic vents required to the houses most exposed to the railway and the King Street traffic (i.e. plots 4 to 6, 7, 19 and 20 on the indicative layout).

Noise levels in outdoor amenity areas should be within the BS 8233:2014 recommended limits, once solid timber garden fencing is in place.

Measured vibration levels are within or below the lowest range defined as 'low probability of adverse comment' in BS 6472-1:2008.

The site should therefore be acoustically suitable for residential development, with appropriate sound insulation measures to the plots most exposed to the environmental noise sources.

2.0 BASIS OF ASSESSMENT

2.1 Site Location

The site is located on King Street in Elsecar, and is currently overgrown scrubland.

The surrounding area is primarily residential. King Street forms the northern site boundary, with houses to the north and north-west. The nearest building to the north-east is a 'Cohens' chemist shop, with the former 'Electra Palace' cinema building and 'The Clothiers Arms' pub slightly further away to the east.

To the east of the site is Elsecar railway station and the associated park and ride facility, with the latter forming the south-eastern site boundary. West of the site are existing houses on Millhouses Street and Noble Street.

The M1 is about 3km away to the west.

2.2 Proposed Development

The proposal is to redevelop the site to create 30 no. affordable rented houses as shown on the planning application drawings.

2.3 Assessment Criteria

Suitable indoor ambient noise criteria for residential developments are provided in Section 7.7.2 of BS 8233:2014, as follows:

Activity	Location	Day (07:00 - 23:00)	Night (23:00 - 07:00)
Resting	Living room	35 dB $L_{Aeq, 16hour}$	-
Dining	Dining room / area	40 dB $L_{Aeq, 16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq, 16hour}$	30 dB $L_{Aeq, 16hour}$

Section 7.7.3.2 of the same document recommends that the external noise levels in outdoor amenity spaces such as gardens and patios do not exceed $L_{Aeq, T}$ 50 - 55 dB, where practical.

In terms of vibration, BS 6472-1:2008 sets the following vibration dose values (VDV) for residential buildings:

	VDV ($m/s^{1.75}$) x, y or z axes		
	Low probability of adverse comment	Adverse comment possible	Adverse comment probable
Day 07:00 - 23:00	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Night 23:00 - 07:00	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

2.4 Strategy for Noise Impact Assessment

Based on the information in Sections 2.1 to 2.3 above, the strategy for the noise impact assessment has been broken down into the following stages:

i. undertake an environmental noise and vibration survey to obtain baseline noise and vibration data, as described in Section 3.0 below

ii. assess the noise levels across the site with reference to the BS 8233 criteria and provide preliminary guidance on the scope of noise control measures that may be required, as described in Section 4.0 below.

iii. assess the vibration levels against the BS 6472 criteria, as described in Section 5.0 below.

3.0 ENVIRONMENTAL NOISE AND VIBRATION SURVEY

3.1 Introduction

An environmental noise survey was undertaken between 07:00 hours and 09:00 hours on Wednesday 24 August 2016, that being a sample of typical rush hour road traffic, typical railway operations and morning commuters entering the park and ride facility.

3.2 Instrumentation

The survey was conducted using the instrumentation detailed in Appendix A of this report.

The sound level meter and analyser were calibrated at the beginning of the survey period, and the calibrations checked at the end. No significant drifts occurred.

3.3 Procedure

Measurement positions were selected as described below and indicated on the attached site plan 2449/SP1:

i at the south end of the site, at the approximate position of the proposed houses nearest the railway, some 10 metres away from the railway boundary.

ii on the site, around 5 metres away from the access road and 10 metres away from the park and ride, this being representative of the proposed houses nearest the park and ride.

iii in the east corner of the site, nearest the railway station

iv on King Street, approximately 3 metres in from the kerb

At all positions the microphone was mounted on a tripod approximately 1.2 metres above the ground and least 3.5 metres from any other acoustically reflective surface.

Measurements were taken continuously at position 1, with the Svantek 958 analyser set to store the octave band and A-weighted 100ms short-term L_{eq} levels, along with triaxial ground vibration for subsequent post processing.

Measurements were taken hourly at positions 2 to 4, with the Svantek 971 sound level meter set to store the octave band and A-weighted 100ms short-term L_{eq} levels over a 15 minute sample of each hour for subsequent post processing.

3.4 Results

The logged data has been post processed to determine $L_{Aeq,T}$ $L_{A90,T}$ and L_{Amax} levels for each 15 minute period, and these are listed in the attached table 2449/T1.

Octave band $L_{eq,\ 15\ mins}$ averaged over the survey period are listed in the attached table 2449/T2.

Please refer to Appendix B for an explanation of the noise units and the A-weighting term used in this report.

Vibration survey results for the survey period are listed in the following table:

	VDV ($m/s^{1.75}$)		
	x-axis	y-axis	z-axis
$VDV_{,\ 2\ hour}$	0.087	0.067	0.084

3.5 Weather Conditions

For the duration of the survey the weather conditions were dry and still, and had no effect on the measured levels.

3.6 Description of Existing Acoustic Environment

The noise climate across the site was mainly controlled by the noise from road traffic on King Street and the surrounding road network as well as a distant traffic drone from the M1, with railway noise controlling the levels at position 1

4.0 NOISE IMPACT ASSESSMENT

4.1 Introduction

The guidance in the following sections is intended to demonstrate how suitable noise levels could be achieved inside dwellings and in outdoor living areas, for the purposes of the planning application. It is not intended provide definitive acoustic performance specifications for the building envelope.

4.2 Site Noise Levels

When assessing external noise intrusion into new dwellings and noise levels in gardens it must be borne in mind that the noise climate may change in the future. The following discussion is by necessity based on the results of the environmental noise survey described in Section 3.0 above.

Day time and night time noise levels have been derived for the four positions according to the following principles:

i noise levels over the surveyed portions of the day (07:00 - 23:00) period are assumed to be typical of the full period

ii in terms of noise levels during the night, at position 1 a -4 dB correction has been applied to the measured $L_{Aeq,\ 2\ hour}$, to account for the fact that trains run up to midnight and from 05:00 hours, that is, 3 hours of the full 8 hour night time period (23:00 - 07:00).

iii at the remaining positions, night time levels are assumed to be 5 dB below the day time levels, that being typical of similar sites controlled by road traffic noise.

The derived noise levels for the day and night periods are therefore as follows:

Location	Noise levels	
	Day $L_{Aeq,\ 16\ hour}$ dB	Night $L_{Aeq,\ 8\ hour}$ dB
Position 1	64	59
Position 2	54	49
Position 3	51	46
Position 4	60	56

Cleary the actual levels across the building plot will vary according to distance from and line of sight to King Street and the railway. Detailed acoustic modelling of the noise levels across the site is outside the scope of this assessment, although as a general guide, the site can be roughly divided into three zones:

Location	Noise levels	
	Day $L_{Aeq, 16\ hour}$ dB	Night $L_{Aeq, 8\ hour}$ dB
Zone 1: Plots 7 to 23, towards King Street boundary	54 - 61*	49 - 56*
Zone 2: Plots 24 to 30 and Plots 1 to 3	51 - 54	46 - 49
Zone 3: Plots 4 to 6, nearest railway	60	56

* Note:- a line source distance correction has been applied to the levels measured at position 4, as the proposed houses are set back from the boundary, while the readings were taken on the pavement

The three zones are highlighted on the attached site plan 2449/SP2.

4.3 Noise Design Criteria

BS 8233:2014 noise criteria for indoor and outdoor living areas are provided in Section 2.3 above and provided again for quick reference:

Activity	Location	Day (07:00 - 23:00)	Night (23:00 - 07:00)
Resting	Living room	35 dB $L_{Aeq, 16hour}$	-
Dining	Dining room / area	40 dB $L_{Aeq, 16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq, 16hour}$	30 dB $L_{Aeq, 16hour}$
-	Outdoor living areas	50 - 55 dB $L_{Aeq, 16hour}$	-

4.4 Noise Levels Within Dwellings

Based on the incident noise levels set out in Section 4.2 above, noise reduction requirements for compliance with the indoor ambient noise criteria in Section 4.3 above are as follows:

Location	Reduction of traffic controlled $L_{Aeq,T}$ required (dB)	
	Day (07:00 - 23:00)	Night (23:00 - 07:00)
Zone 1: Plots 7 to 23, towards King Street boundary	19 - 26	19 - 26
Zone 2: Plots 24 to 30 and Plots 1 to 3	16 - 19	16 - 19
Zone 3: Plots 4 to 6, nearest railway	25	26

A typical building facade with windows open for ventilation generally provides around 12 dB noise reduction of road traffic controlled $L_{Aeq,T}$. It should be apparent from the above table that the noise reduction requirements for all elevations exceed that level, as is typical of virtually all urban locations.

With windows closed and ventilation using typical frame mounted trickle ventilators an overall noise reduction of around 25 dB is fairly readily achievable, assuming standard thermal double glazing. This would be sufficient for all areas except for Plots 4 to 6 during the night, and for the houses closest to King Street (Plots 7, 19 and 20), which would require a higher performance double glazed unit (nominally R_w 35) and acoustic trickle vents (nominally $D_{n,e,w}$ 35 dB).

4.5 Noise Levels in Outdoor Amenity Areas

Day time noise levels in gardens should be within the recommended range of $L_{Aeq,T}$ 50 - 55 dB except on the railway boundary and the King Street boundary, with a 5 to 6 dB excess. Solid timber garden fencing should be capable of reducing the noise levels to within the BS 8233 recommended limits.

5.0 VIBRATION ASSESSMENT

5.1 BS 6472 Criteria

BS 6472-1:2008 sets the following vibration dose values (VDV) for residential buildings:

	VDV ($m/s^{1.75}$) x, y or z axes		
	Low probability of adverse comment	Adverse comment possible	Adverse comment probable
Day 07:00 - 23:00	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Night 23:00 - 07:00	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

5.2 Assessment of Measured Vibration

Published train schedules indicate that traffic on the line adjoining the site normally runs between 05:00 hours and midnight. The measured $VDV_{,\ 2\ hour}$ have therefore been factored up to VDV for the day time and night time in accordance with the methods in BS 6472-1:2008, as follows:

$$VDV_{day} = (16 \text{ hours} / 2 \text{ hours})^{0.25} \times VDV_{,\ 2\ hour}$$

$$VDV_{night} = (3 \text{ hours} / 2 \text{ hours})^{0.25} \times VDV_{,\ 2\ hour}$$

Day time and night time VDV determined from the measured $VDV_{,\ 2\ hour}$ in Section 3.3 above are therefore as follows:

	VDV ($m/s^{1.75}$)		
	x-axis	y-axis	z-axis
$VDV_{,\ day}$	0.15	0.11	0.14
$VDV_{,\ night}$	0.1	0.07	0.09

A comparison of the VDV in the above table with the BS 6472 criteria in Section 5.1 above shows that the vibration levels are within or below the lowest range defined as 'low probability of adverse comment'.

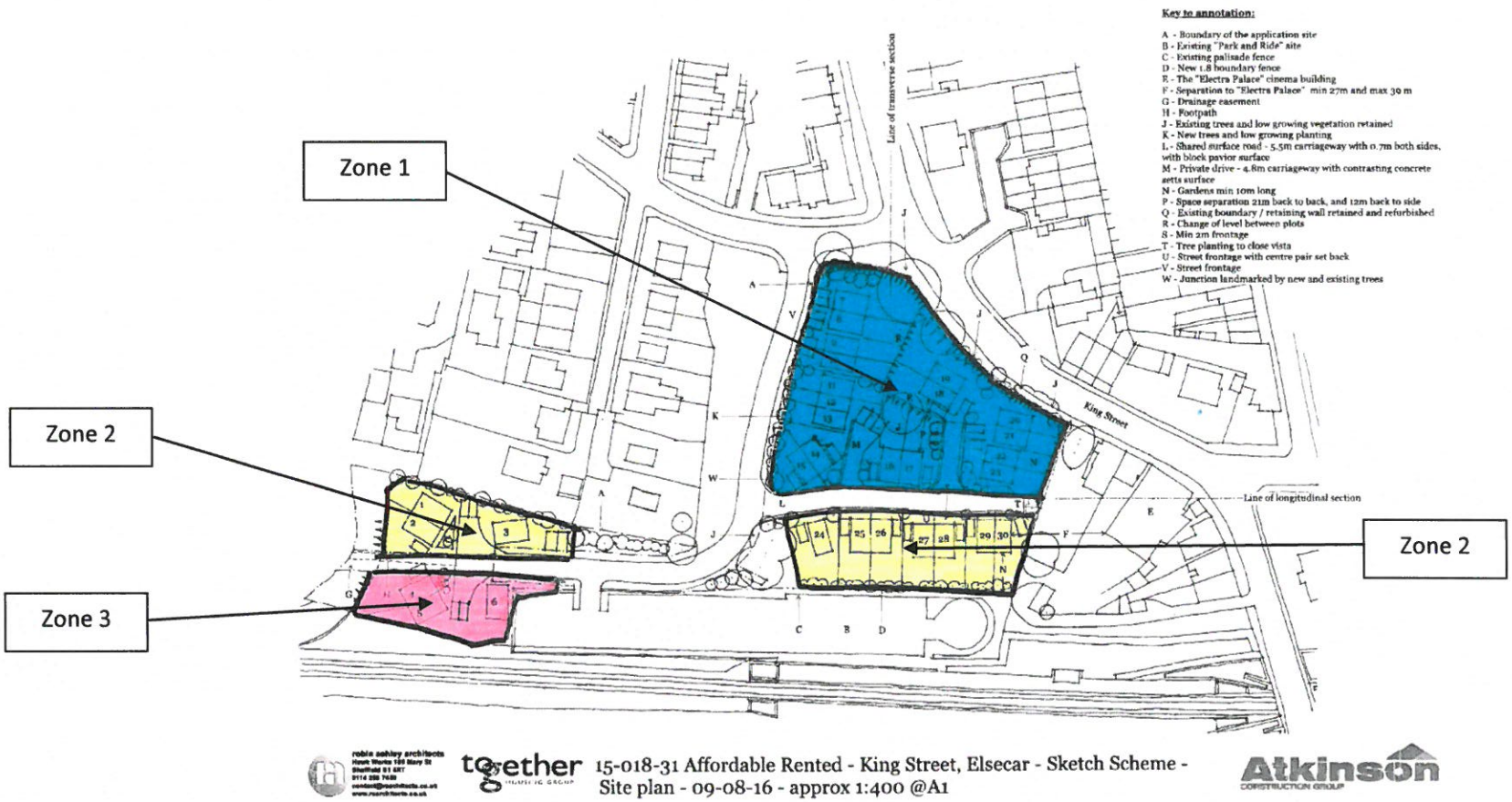
As these measurements were taken at the position of the proposed dwellings closest to the railway, it is reasonable to conclude that railway vibration levels on the site are acceptable.

FOR ACOUSTIC DESIGN TECHNOLOGY



Notes	**Description** Site Plan Showing Noise Monitoring Locations	
	Project Land at King Street, Elsecar	
	Survey Date 24 August 2016	**Drawing No.** 2449/SP1

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Notes	**Description** Noise assessment zones for indicative layout	
	Project Land at King Street, Elsecar	
	Survey Date 24 August 2016	**Drawing No.** 2449/SP2

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SURVEY RESULTS (A WEIGHTED TIME HISTORY)

Position	Period	$L_{Aeq,T}$ dB	L_{Amax} dB	L_{A90} dB
1	07:00 – 08:00	61	91	40
	08:00 – 09:00	60	87	39
2	07:00 – 08:00	52	78	40
	08:00 – 09:00	54	72	41
3	07:00 – 08:00	50	71	40
	08:00 – 09:00	52	73	40
4	07:00 – 08:00	63	77	49
	08:00 – 09:00	64	79	44

Table 2449/T1

AVERAGED OCTAVE BAND LEQ,T BY POSITION

Position	$L_{eq,T}$ (dB) Octave band centre frequency (Hz)								$L_{Aeq,T}$ (dB)
	63	125	250	500	1k	2k	4k	8k	
1	58	62	48	57	57	51	45	38	**60**
2	66	64	55	47	47	45	41	36	**54**
3	63	57	46	45	46	43	40	35	**51**
4	70	63	58	58	60	57	51	45	**64**

Table 2449/T2

APPENDIX A - INSTRUMENTATION

Manufacturer	Type and / or Model	Serial Number	Last Calibrated
Svantek	SVAN 971 Class 1 Sound Level Meter SV 7052E ½ inch Microphone	34392 54655	October 2015
	Svan 958 4 Channel Sound and Vibration Analyser	23430	August 2014
Norsonic	Nor1251 Microphone Calibrator	34220	January 2016

APPENDIX B

Acoustic Terminology

The annoyance produced by noise is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and any variations in its level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

A-weighting — The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the A-weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average person. It is also possible to calculate the A-weighted noise level by applying certain corrections to an un-weighted spectrum.

When the noise being measured has variable amplitude, such as traffic noise, it is necessary to qualify the basic dB unit. This may be done using a statistical index L_n dB, where n is any value between 0 and 100, and is the percentage of the sample time for which the stated level is exceeded. In defining the use of the index, both the value of n and the length of the sample period must be stated.

L_{10} — L_{10}, being the level exceeded for 10% of the time, has been shown to be a good indicator for traffic noise intrusion, and is used in assessing the effect of traffic noise on residential or commercial premises.

L_{90} — L_{90} is the level exceeded for 90% of the time, and is used as a measure of background noise level, as it excludes the effects of occasional transient levels, such as individual passing cars or aircraft.

In addition to the statistical noise indices defined above, the following noise units are also used to define variable amplitude noise sources:

$L_{eq,T}$ — $L_{eq,T}$ is defined as the notional steady sound pressure level which, over a stated period of time, would contain the same amount of acoustical energy as the actual fluctuating sound measured over the same period. In other words, it is a measure of the "average" noise level

L_{max} — L_{max} is the maximum time-weighted sound pressure level recorded over the stated time period

Appendix 11: Ecology Report

Provided by *Ramm Sanderson*

To be provided under separate cover

Appendix 12: Landscape design

Provided by *Dally Henderson Landscape Architects*

To be provided under separate cover

D J Atkinson Construction
New residential development at King Street, Elsecar

Design and Access Statement



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