

Part 03: Killingworth Moor

North Tyneside Council

Killingworth Moor and Murton Gap

Outline Development Framework

June 2016

ARUP



North Tyneside Council

## Part 03



# Part 03

3.1	Overview	Page 04
3.2	Killingworth Moor Vision and Opportunities	Page 05
3.3	Delivering Quality Places	Page 14
3.3.1	Site and Context	
3.3.2	Landownership	
3.3.3	Planning Policy	
3.3.4	Transportation	
3.3.5	Geotechnical	
3.3.6	Drainage and Flood Risk	
3.3.7	Existing Utilities	
3.3.8	Ecology	
3.3.9	Archaeology and Heritage	
3.4	Development Framework	Page 45
3.4.1	Objectives and Concept	
3.4.2	Land Use	
3.4.3	Character	
3.4.4	Transport and Movement	
3.4.5	Green Infrastructure and Open Space	
3.4.6	Precedent Models	
3.5	Delivery	Page 54
3.5.1	Overview	
3.5.2	Indicative Land Use Budget	
3.5.3	Infrastructure requirements	
3.5.4	Viability Appraisal	

## 3.1 Overview

This part of the framework outlines the vision, opportunities and constraints, development framework and delivery issues for the Killingworth Moor site. It seeks to provide advice and guidance in order to develop the planning and design of the site.



## 3.2 Killingworth Moor Vision and Opportunities

The vision for the Killingworth Moor site is described within the emerging Local Plan as:

*“walkable, connected village neighbourhoods, within a green, natural environment.”*

The vision has emerged from the character of the surrounding area, a series of small towns and villages which are separated by green spaces. The site is close to the edge of Killingworth and land designated as Green Belt is located on the northern edges across Killingworth Way (A1056). This gives a rural character to the site which is typified by the presence of woodland edges and hedgerows forming corridors along the A19(T) to the north east and Metro line to the south east.



Killingworth Moor site context location plan (Arup)



The vision supports the development of residential “clusters” that are within walking distance of each other and the bordering neighbourhoods. This increases the opportunity for travel by sustainable methods, means less reliance on personal vehicles, and is conducive to sustainable development. New supporting social infrastructure is also proposed including primary and secondary schools, an employment area and local centre.



View from the B1317 looking east towards the site (Arup)



Supporting the vision the Strategic Concept Framework, that provides a basis for the Framework Plan, proposed a set of high level development principles:

- Integrate the site into a well-connected, wider neighbourhood, whilst maintaining the unique and varied characters and identities of existing areas and settlements whilst maintaining an appropriate level of 'separation' and avoiding the 'merging' of settlements.
- Create sustainable and balanced communities.
- Facilitate and encourage healthy lifestyles and quality of life.
- Create a coherent, unique and distinctive 'place', comprised of a range of character areas, experiences and environments.
- Maximise the integration and benefits/uplift for the wider existing communities, settlements and environments.
- Ensure the provision and access to high-quality education facilities, community facilities and services.
- Create an effective and efficient local transport and highway network.
- Protect and enhance the natural environment, ecology and biodiversity, whilst balancing this against the need to also achieve the wider objectives of the development.
- Facilitate sustainable modes of transport: walking, cycling, Metro and buses.

- Create access to local jobs (new and existing) for new and existing residents and the wider workforce.
- Allow for, and facilitate viable and feasible phased delivery.
- Encourage variety in design responses.

The Concept Plan identifies the following 'fixes'.

- The strategic relationships between the two sites.
- Principal highways connections, junctions and indicative key routes.
- Secondary highways junctions and key routes;
- Green infrastructure: The principles of key wildlife/green corridors and the principles of green amenity spaces and 'buffer zones'.
- The location of 'Development Zones' – indicative areas where development will be located.
- The need for mixed-use hubs.
- The location of schools and associated community facilities.
- The need for new Metro stations.
- Community connections (pedestrian and cycle links) through the sites and to wider areas.

The Concept Plan allows for the following 'flexes':

- Actual, precise highway routes.
- Housing numbers, density gradients or the amount of development within the Development Zones.
- Actual uses or content of the mixed-use hubs.
- Site specific locations of any uses.
- Locations of specific housing tenures or accommodation (affordable, extra-care, special needs, accessible, family, executive, self-build).
- Sustainable Drainage Systems.
- Service distribution.

Using the development principles as a framework, this Development Framework Document has identified proposals at Killingworth Moor that can provide the following opportunities for new residents and adjacent communities.

## Integration

- The location of the site, adjacent to Killingworth, Killingworth village and Palmersville, creates opportunities to support local centres within walking distance of the site.
- The new development can be sensitively located on the eastern edge of Killingworth to provide an extended neighbourhood with a similar character.
- It can enhance the setting of existing heritage assets including East Farm House.
- It can create appropriate development around existing heritage assets within the site boundary i.e. High Farm, Holystone Farm and the landscape features of Seaton Burn Waggonway.



Killingworth, Local context (Arup)



### **Sustainable and Balanced Communities**

- Good transport connectivity via the A19 (T).
- Good public transport connections within North Tyneside to Newcastle via the Bus and Metro system. The construction of a new Metro station at the site would provide enhanced links to existing neighbourhoods and proposed residential and employment areas.
- On site community infrastructure, such as primary and secondary school provision, will reduce the need to travel.
- A mixture of housing tenures and sizes is proposed with the intention of providing a balanced community.



Allotment garden



### Healthy Lifestyles and Quality of Life

- Developing housing next to local facilities and good public transport links promotes walking and cycling to work and local facilities.
- Housing surrounded by a network of accessible green spaces with integrated play, activity areas and wider opportunities for cycling and walking promotes active lifestyles.
- Local centres and schools onsite promote walking to shops and community facilities.



Combining sustainable transport with leisure activities





Oldbury Court, Bristol

### Distinctive Places

- Enhancing and reusing onsite features provides a link to the history of place and provides the basis for a distinctive development.
- Supporting this strategy is recognising subtle variations within the site to create a series of character areas which have their own development principles.
- High quality green spaces with strong conceptual design can integrate the character areas and create a distinctive sense of place.

## Process

- Working closely with stakeholders to utilise local knowledge, recognising and integrating landowner considerations.
- Working with consortia to identify deliverability issues and provide an opportunity to influence the form of the development.

## Community Infrastructure

- A requirement to provide onsite social infrastructure including a local centre, primary and secondary schools.
- An opportunity to create sports facilities at the secondary school which could be accessible to the community.
- Public open space that can be used for community, cultural and sports events

## Connections

- A proposed new Metro station at Holystone connecting to the centre of Newcastle and the surrounding area.
- Pedestrian connections to local centres and green spaces.
- Enhanced bus routes.
- Enhanced highway connections.



Asda Benton, located to the south of the site (Arup)



### **Employment**

- New commercial employment land located near the proposed Metro station.
- New primary and secondary schools and local centre.

### **Phasing**

- The site has numerous points of highway access which will facilitate phased development and delivery from multiple development parcels.
- Access to high quality green space and play space.

### **Design Innovation and Variety**

- Building for Life 12 is the analysis method that North Tyneside Council have elected to use, and this is outlined within Supplementary Planning Document Design Quality. The development will be assessed and scored using this method.
- It is also expected that master plans and applications coming forward on this site will benefit from independent external design review.
- The principles set out within this document and other referenced reports are intended to guide development and provide a framework for good design. They are intended to encourage innovative, high quality responses to the site and the brief.

## 3.3 Opportunities and Constraints

### 3.3.1 Site and Context

The site is located on the north edge of the Borough and south west of the A19. It is situated between Killingworth and Backworth and is characterised in the North Tyneside Landscape and Townscape Character Description as follows:

*'the topography reaches a peak in the central areas of the Borough around Killingworth, Northumberland Park and Cobalt Business Park, and continues north-westwards.'* (pg. 7)

*'The topography and physical landform of the Borough has been affected by the legacy of coal mining. Following restoration, former spoil heaps have become pastures or country parks. Weetslade Country Park (8), Fenwick Eccles (9) and Rising Sun Country Park (10), and amenity ponds and lakes have been created (for example, Killingworth Lake).'* (pg. 8)



Killingworth Moor site context location plan (Arup)



*'This area comprises of a series of agricultural fields, mostly bordered by hedgerows that overall form a space that feels very rural indeed. Similar is the area known as Killingworth Moor (13) that provides a large space of rural character between the A19 and the built-up areas of Killingworth and Holystone.*

*On a smaller scale, but of no less significance, is the open land to the south of Killingworth Village, known as the Killingworth open break (14). It forms a valuable break between the Village and the built up areas of West Moor, Forest Hall and Palmersville to the south' (pg.8).*

The neighbourhoods surrounding the site are Holystone, Palmersville, Forest Hall, Killingworth village, Killingworth and Backworth. The site is bounded by the A19 (T) to the east and Killingworth Way to the north and contains agricultural land beyond the A19.



View from the B1317 looking east towards the site (Arup)



The neighbouring areas range in size from the small villages of Backworth to the larger settlement of Killingworth.

The neighbourhoods of Killingworth on the boundary to the site contains a mixture of estate roads, public open space and playing fields. There is an industrial estate to the south at Benton Square and a new residential development at Forest Gate.



View from Whitley Road to the south of the site looking towards the north-east (Arup)



It is approximately a mile from the northern edge to the southern boundary, a 20 minute walk, at average walking speed.

There are several opportunities to connect to the surrounding neighbourhoods including; existing bridge access over the Metro at Holystone, Great Lime Road at the existing Forest Gate junction, and along Killingworth Lane and Killingworth Way.

Existing centres at Northumberland Park and Killingworth town centre are within walking distance of the site.



View from Great Lime Road bridge at Palmersville Metro station looking towards the Metro lines (Arup)



View from the Forest Gate junction to the south of the site looking towards the site (Arup)

There are existing primary schools in Shiremoor, Killingworth and Forest Hall. However, given the size of the development at Killingworth Moor additional education facilities are required.

The site is also within walking and cycling distance of large employment areas including Cobalt Business Park, Quorum Business Park, Gosforth Business Park, and Silverlink Business Park.

It is also within walking, cycling and 10 minute driving distance of a number of employment areas including North Tyne Industrial Estate, Camperdown, Benton Square and Indigo Park.



View of the A186/A191/Holystone Way/Whitley Road roundabout with the A19 to the south-east of the site (Arup)





View of public bridleway Holystone 1 from the B1317 looking south towards the site (Arup)

There are existing site features that can be incorporated into the development, including the Seaton Burn Waggonway which forms a dominant feature across the site north/ south and existing farm complexes, including Holystone and Hill Farm and a network of hedgerows mark historical field boundaries.

Pylons crossing the site are a prominent site constraint that will require considered design responses as development layouts and building orientations are developed. This should be to enable appropriate screening and lessen their visual intrusiveness.



The surrounding area has an extensive network of country walks and Public Rights of Way, and National Cycle Route 10 which extends from Shiremoor to the north of Killingworth, providing good opportunities for recreation.

The site has a strong relationship with the Murton Gap site as both sites need to address a number of shared needs, including a secondary school and transport impacts upon the A19(T), A191 and Metro.

The Local Plan for North Tyneside sets out the next phase of growth within the Borough and will see the delivery of at least 17,000 new homes between 2011/12 and 2031/32. A key component of this growth will be the development of the Strategic Allocation at Killingworth Moor (2,000 homes).

This Development Framework is an important strategic document and will guide all future stages of the planning and design of the Strategic Allocations alongside the Concept Framework and Local Plan policy. It establishes a context for planning applications, ongoing preparation of a proposed Detailed Development Framework and site design guidance.

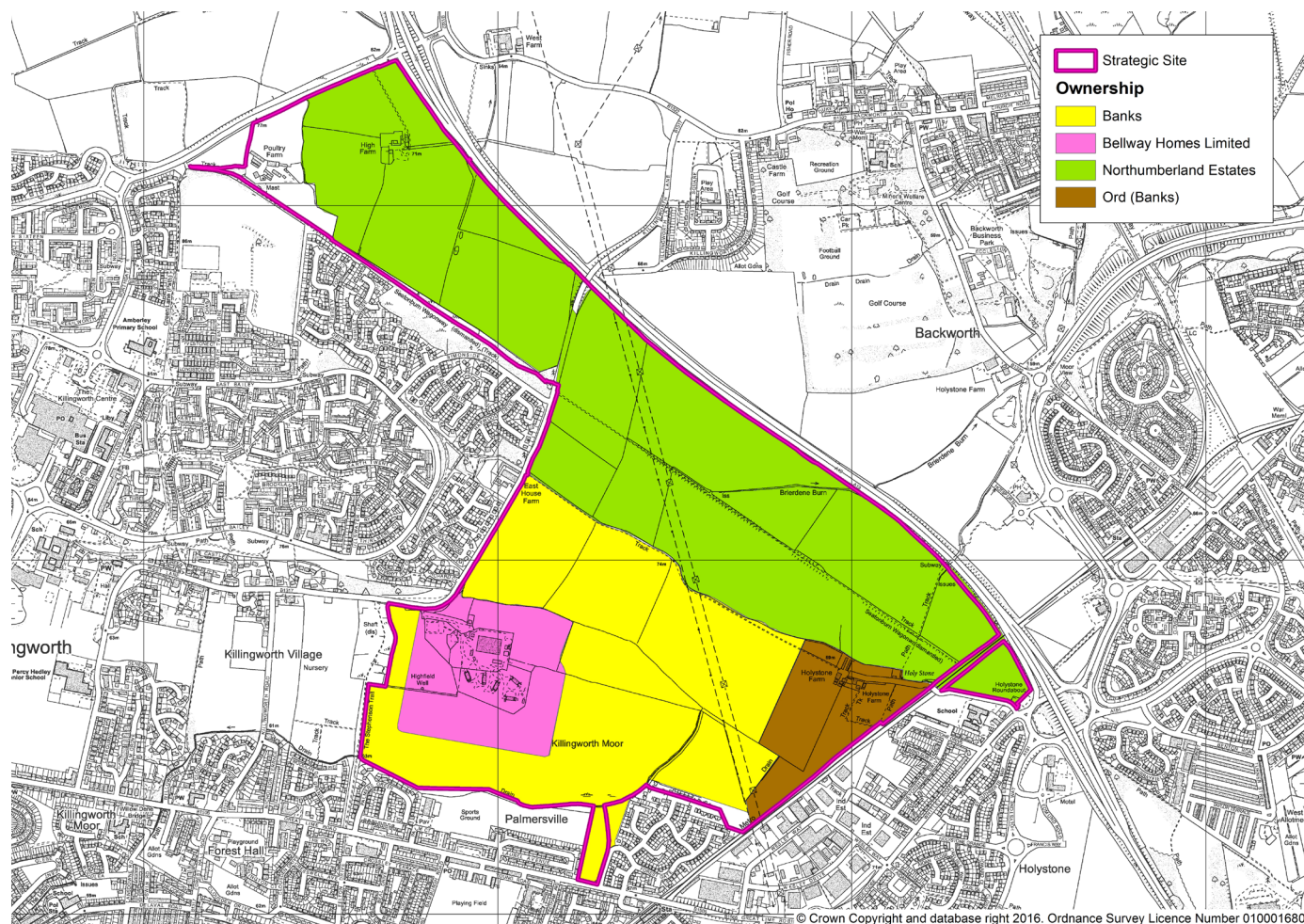


View of new housing development under construction off the B1317 within the site (Arup)



### 3.3.2 Landownership

Land ownership is primarily divided between Bellway Homes, Northumberland Estates and the Banks Group. These landowners form the Killingworth Moor Consortium. The Consortium have worked with the Council to develop the concept plan and development framework and have provided representations to the Local Plan. Ongoing joint working between the Consortium, Council and key parties is of key importance to the successful delivery of the site and infrastructure requirements identified.



Landownership Plan (Arup, based on NTC information)

### 3.3.3 Planning Policy

The Local Plan Submission Draft includes a number of key aims and objectives including:

- Provide an appropriate range and choice of housing to meet current and future needs.
- Diversify, strengthen and grow the local economy, providing excellent job opportunities for all.
- Protect and enhance the natural and built environment.

The Local Plan as a whole will be relevant to development proposals at Killingworth Moor, with the following policies of particular relevance:

**Policy S4.4(b)** *proposes a Strategic Allocation is identified at Killingworth Moor (Sites 22 to 26) to secure the delivery of approximately 2,000 homes during the plan period in a mix of housing tenures, types and sizes, informed by available evidence of the housing needs of the borough, convenience retail provision of approximately 500sqm and 17 hectares of employment land.*

**Policy S4.4 (c)** *Applications for Delivery of the Strategic Allocations states that applications for planning permission will be granted where identified criteria are met. Criteria include consistency with a comprehensive master plan, conformity with the principles of the Concept Plans, phasing and delivery strategy, transport strategy. In addition the criteria include a requirement that a landscape and visual amenity impact assessment is provided identifying key features of note on each site, demonstrating an appropriate design response (e.g. the location, orientation, density of development and landscape/planting treatment). Design quality will be secured through the application and use of appropriate design standards agreed as part of the masterplans.*

**Policy DM6.1** *Design of Development states that applications will only be permitted where they demonstrate high and consistent design standards. Designs should be specific to the place, based on a clear analysis of the characteristics of the site, its wider context and the surrounding area.*

**Policy DM5.5** *Managing effects on Biodiversity and Geodiversity states that applications should protect the biodiversity and geodiversity value of land, protected and priority species and minimise fragmentation of habitats and wildlife links. They should also maximise opportunities for creation, restoration, enhancement, management and connection of natural habitat and incorporate beneficial biodiversity and geodiversity conservation features providing net gains to biodiversity, unless otherwise shown to be inappropriate.*

**Policy DM5.7** *Wildlife Corridors states that development proposals within a Wildlife Corridor must protect and enhance the quality and connectivity of the Wildlife Corridor. All new developments are required to take account of and incorporate existing wildlife links into their plans at the design stage. Developments should seek to create new links and habitats to reconnect isolated sites and facilitate species movement.*

**Policy DM7.4** *New Development and Transport states that the transport requirements of new development must be proportionate to the scale and type of development including how accessible the development is and existing public transport levels. Car and cycling space provision must be in line with standards set out in the Transport and Highways SPD (LDD12). Opportunities for public transport improvements should be identified. New developments in close proximity to public transport facilities will be required to provide a higher density of development to reflect increased opportunities for sustainable travel. On developments considered appropriate, the Council will require charging points to be provided for electric vehicles.*



### 3.3.4 Transportation

#### 3.3.4.1 Overview

The following key transport requirements have been identified in order to deliver the Killingworth Moor site:

- Provision of site access points and links between the site and the existing road network.
- Mitigation of adverse effects of development traffic on the local and strategic road network.
- Provision of high quality public transport connections to/from the Murton Gap site, employment sites and community facilities.
- Provision of comprehensive cycling and walking networks.
- Creation of walkable neighbourhoods, so that everyone lives within walking distance of a viable bus route, Metro station, neighbouring communities and key local amenities.
- Demand management measures are used in order to help achieve a shift from journeys by car to more sustainable transport modes.

### 3.3.4.2 Access and Highways Requirements

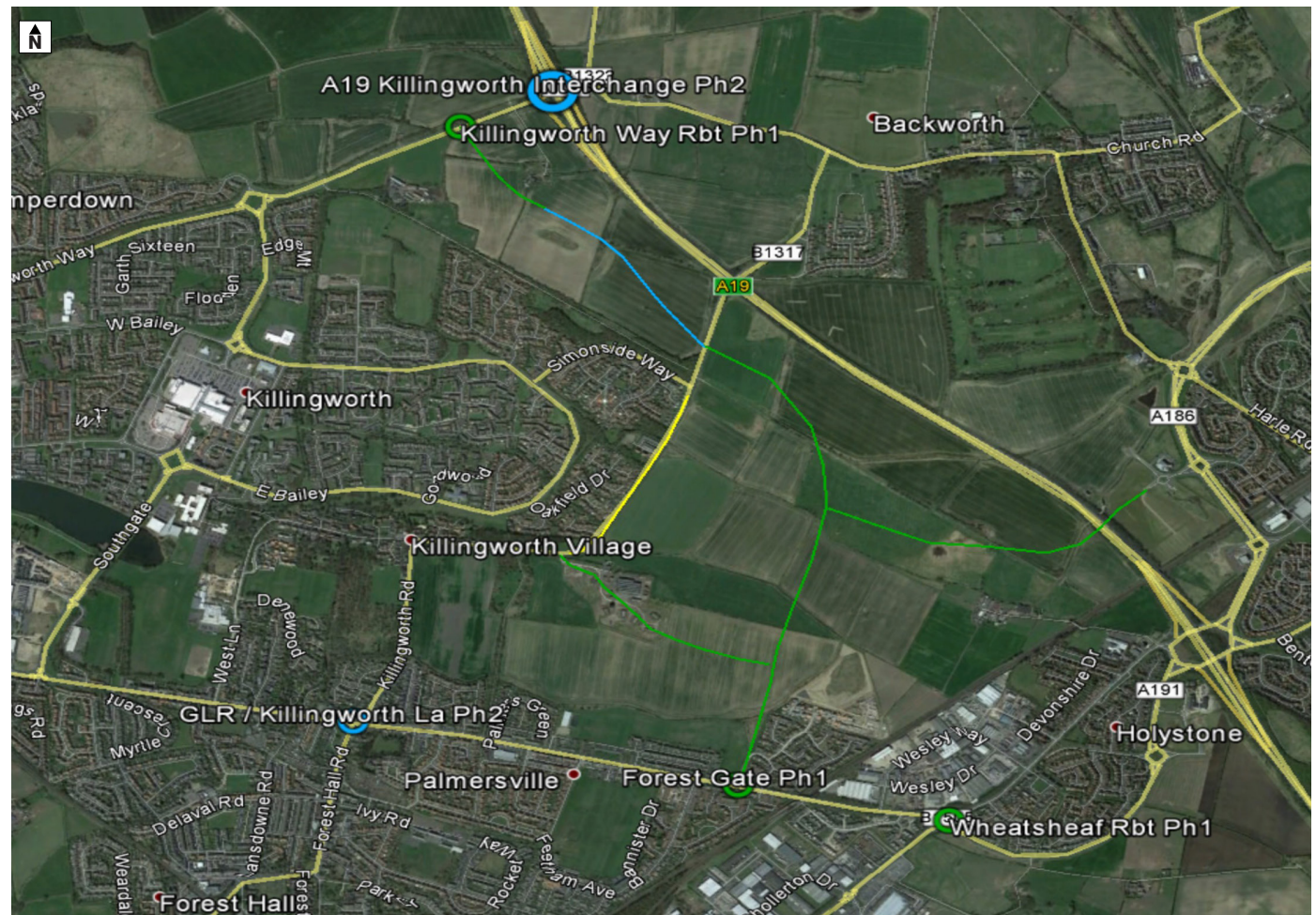
Access to Killingworth Moor will be provided via the following primary access points:

- Forest Gate signalised junction with two-lane exit.
- A new access roundabout off A1056 Killingworth Way (3-arm).
- A new access off the B1317 Killingworth Lane (south of A19 (T) bridge).
- An A19 (T) Underpass link to A186.

The Forest Gate signalised junction access and the new A1056 Killingworth Way roundabout access will be connected via a new primary north-south highway, which will form the spine road for the site.

Secondary highways from the spine road will be provided internally, linking the primary route to the development parcels across the site.

The location of the site access points and primary and secondary highways is shown in the figure opposite.



Location of Site Access Points and Primary and Secondary Highways (Capita, NTC Local Plan, Transport Impacts Report, May 2016)



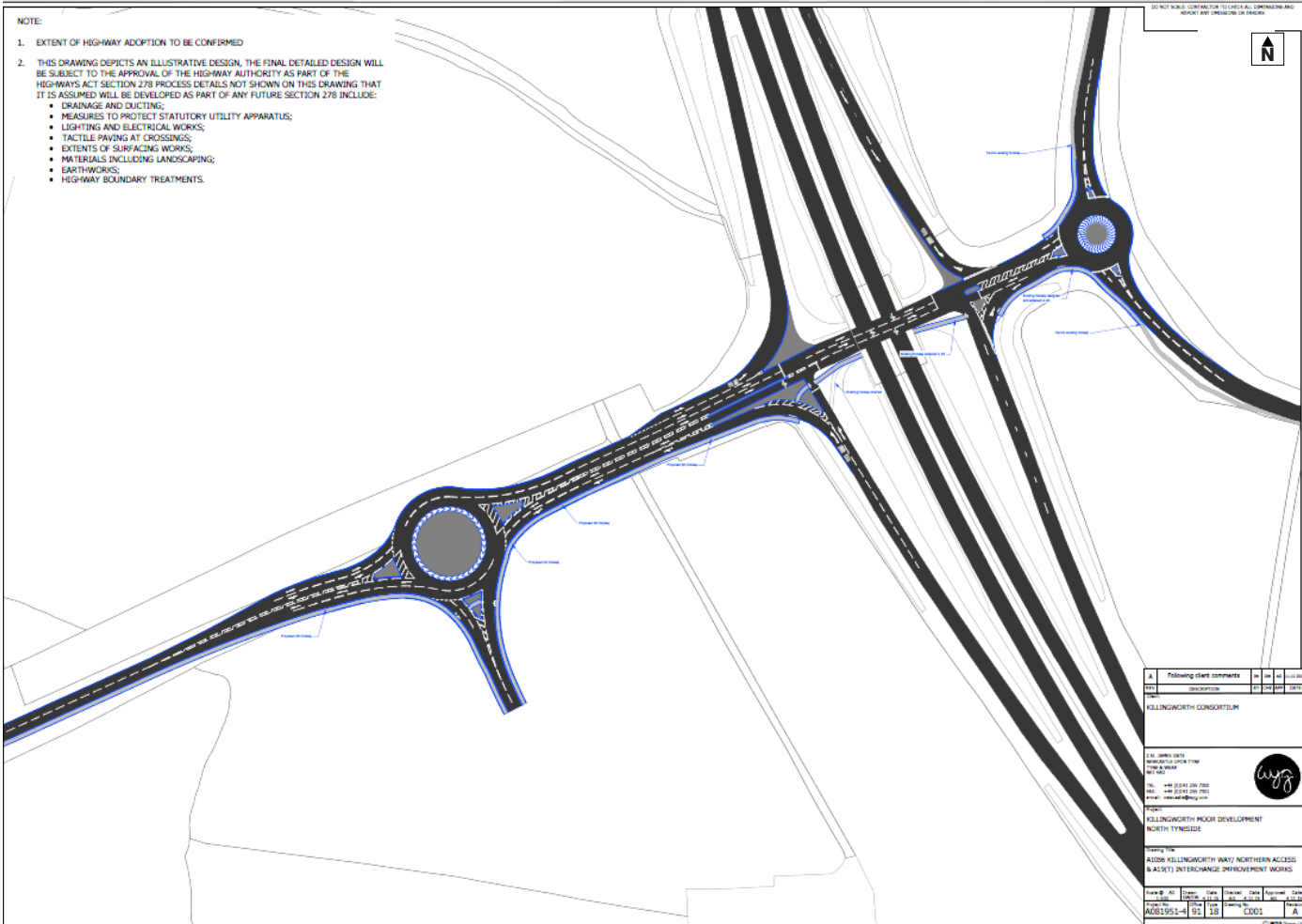
## Required Highway Improvements

To identify the proposed highway improvements the Council has undertaken a traffic modelling exercise at a network and junction level. This has identified a range of improvements at the following locations to ensure the highway network operates at an acceptable level. The analysis assumes a reduction in vehicular trip rate on the basis of excellent access to sustainable transport modes with the introduction of a Metro Station and bus services that will serve the site.

## A19 (T)/A1056 Killingworth Interchange and Killingworth Way/Site Access

The A19 (T) Killingworth Interchange and Killingworth Way site access junctions have been designed as a combined scheme due to the constraints on road space at the Killingworth Interchange. The limited space to widen the junction has pushed the design solution towards restricting some movements at the junction and locally diverting this traffic via new roundabouts either side of the A19 junction.

Highways England will work with the Council and landowners to agree a timetable for delivery and how many units can be delivered prior to work being carried out.



A19 (T) / A1056 Killingworth Interchange and Killingworth Way / Site Access Proposed Layout (Capita, NTC Local Plan, Transport Impacts Report, May 2016)

## Forest Gate Site Access Junction

The Forest Gate site access will form the start of the link road that will run through the whole site and effectively bypass Killingworth.

The existing signal controlled junction will be upgraded to provide the additional capacity necessary to serve the whole site and any redistributed local traffic. Proposed works include widening of the Forest Gate arm to accommodate two lanes on this approach, and also widening of the eastbound Great Lime Road approach.

## Off Site Improvements

## A191/B1505 Wheatsheaf Roundabout

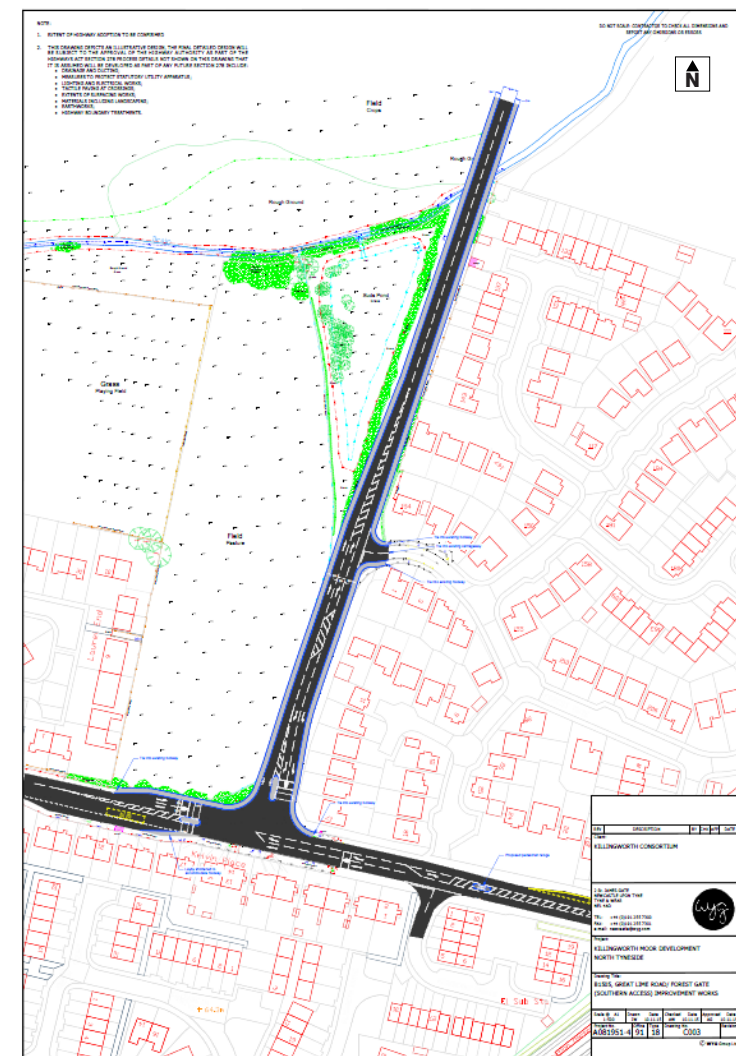
Improvements are required at the A191 / B1505 Wheatsheaf roundabout at an early stage of the site build out due to existing constraints on the Great Lime Road approach. The proposed A19 (T) underpass may provide an alternative access option allowing some traffic to avoid the Wheatsheaf and Holystone junctions.

## B1505 Great Lime Road/B1317 Killingworth Lane Junction

If existing through traffic using this junction and increased traffic arising from the development continue to exit on to Great Lime Road at this junction the scope for mitigation of the increased flows would be limited by constraints affecting the junction. It is proposed that access along Killingworth Way is restricted, thus redistributing this site and through traffic to the Forest Gate site access junction. Initial assessments indicate that this would provide the optimum solution to impacts here, whilst also safeguarding the environment and character of Killingworth Village.

## Local Highway Network Requirements Conclusion

Modelling results of the improved junctions for the scenario of the full occupation of the site indicate that the impacts of housing growth are effectively mitigated. The majority of journey times are shorter compared to the no-mitigation scenario for both am and pm peaks.



Forest Gate Site Access Junction Proposed Layout (Capita, NTC Local Plan, Transport Impacts Report, May 2016)



### 3.3.4.3 Strategic Road Network Potential Requirements

In addition to the local network highway improvements, it is expected highway impact will have to be considered on the following strategic road network junctions:

- A19 Seaton Burn.
- A19 Moor Farm.
- A19 Killingworth Interchange.
- A19 Holystone.
- A19 Silverlink.
- A19 Howdon Interchange.

It is identified that further analysis will need to be undertaken in order to assess the capacity of the majority of these junctions and the appropriateness and timing of proposed mitigation. It is identified that proposed arrangements for the A19 Silverlink Interchange are assumed to accommodate the predicted overall North Tyneside growth.

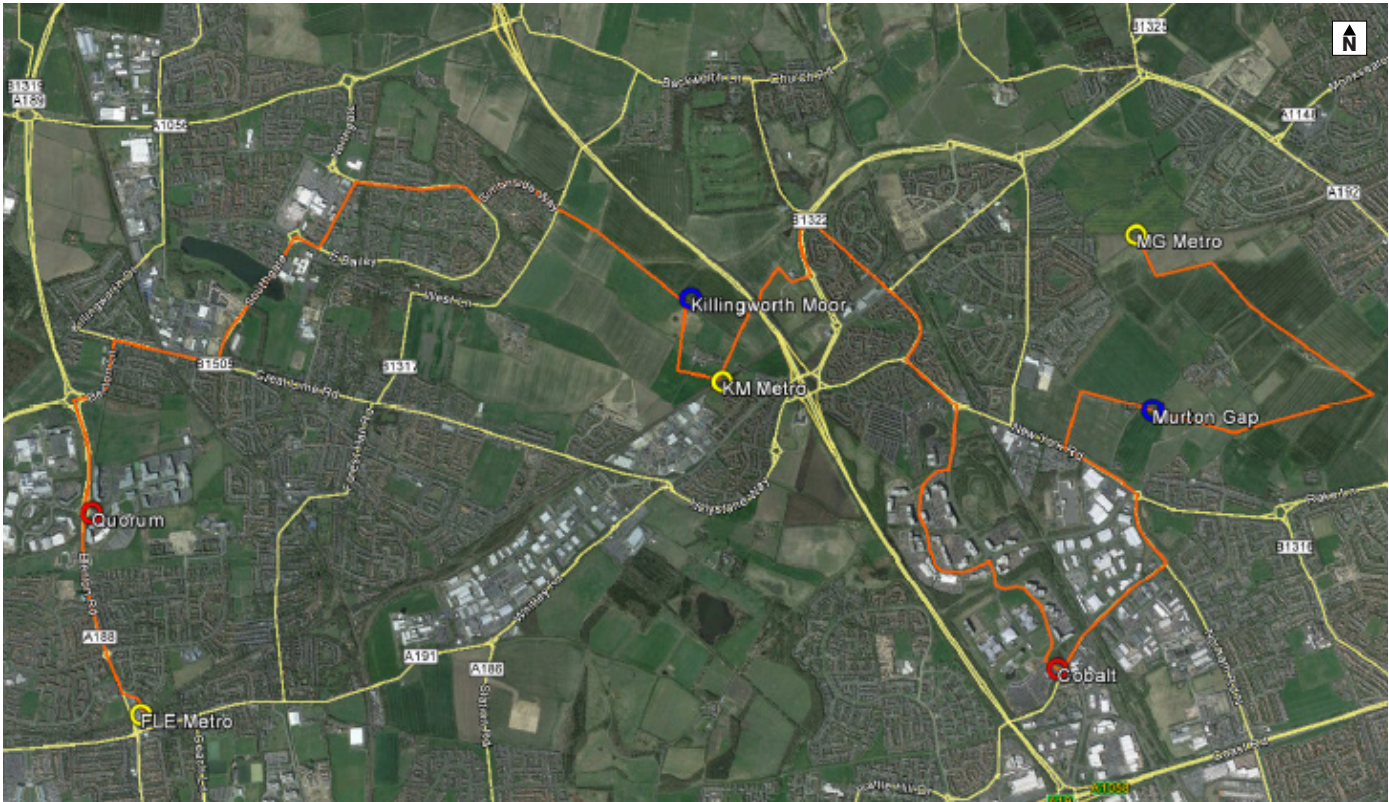
#### **Strategic Road Network Potential Requirements Conclusions**

The strategic road network impacts of the Local Plan only require physical works to be carried out at the A19 Killingworth Interchange (subject to low trip rates being realised). The remaining impacts are the operation of the slip roads which will remain the responsibility of Highways England.

Work remains ongoing in partnership with Highways England regarding future modelling. The primary identified impact arising from development at Killingworth Moor is upon the Killingworth Interchange A1056 / A19(T) junction. A proposed mitigation scheme has been proposed within the Highway Impacts Report that is generally welcomed at this stage by Highways England as an appropriate mitigation. When accompanied by a high level of sustainable transport options, the Killingworth Moor site does not result in a further need for mitigation associated with the SRN junctions.

3.3.4.4 Public Transport

Promotion of sustainable transport refers to the provision of a new bus route and Metro station to service the site. An overview of the proposed bus route and Metro stations is shown in the figure opposite.



Proposed Bus Route and Location of Proposed Metro Stations (Capita, NTC Local Plan, Public Transport Demand Scoping Study, May 2016)

-  Key employment site
-  Metro Station
-  Bus route



## Bus

A new high frequency bus route to serve the site is proposed. The bus route will provide linkages employment sites at Quorum and Cobalt Business Parks, the Murton Gap site, and to existing community facilities within the vicinity of the site.

The bus service operational costs are to be subsidised by developers until they are financially viable and a backstop date agreed.

It is expected that the proposed services will reduce the number of trips off-site when combined with Metro. Additional local services are to be diverted into the site where possible.

## Metro

A new Metro station is proposed to be provided to the south of the site, between Palmersville and Northumberland Park Metro stations, featuring pedestrian and cyclist facilities, including secure cycle parking and storage facilities and ramp access to platforms. Pedestrian and cycling links will provide direct and convenient access to the station. Car parking facilities are also proposed to be provided station in order to minimise on-street highway parking at the stations.

The proposed new station generates significant demand primarily from commuting trips.

A number of quantifiable benefits related to the development of the new Metro station have been identified as follows:

- Reduced off-site highway impacts- local (borough wide) and regional (arterial routes into Newcastle).
- Health benefits associated with walking/cycling to the Metro station.
- Carbon reduction benefits.

Nexus' research highlights the importance of the timing for delivering new Metro stations on the network. The earlier the provision of a new station is made the larger the mode shift toward this mode. It is easier to convert/persuade users to utilise the Metro if it is there prior to them relocating to the new housing area. The later the Metro is provided the more established existing residents will be in terms of their travel choices/mode.

The practicality of when to deliver a new Metro station at Killingworth is linked to the proposed/anticipated phasing of the sites. As identified in the Public Transport Study there are existing Metro stations adjacent to the sites that could part serve the site. If initial phases were within reasonable distance of these existing stations (Palmersville and Northumberland Park) then the need for the delivery of the new station could be deferred. In conjunction with this would be the prerequisite for sufficient internal site infrastructure to provide access to the proposed new stations.

At Killingworth the delivery of the new station is linked to the delivery of development phases beyond reasonable walking distance of existing stations.

## Public Transport Conclusions

The identified provision that is being sought as part of the proposals and this Development Framework are key to achieving the policy objectives set out in the Local Plan to prioritise sustainable transport modes. They are also identified as essential to enable the reduction in vehicle trip-rates required to ensure the impacts of development upon the local and strategic road network are mitigated by the proposed schemes identified.

### 3.3.4.5 Cycling and Walking

A comprehensive cycling and walking network will be provided (alongside the public transport strategies), which will also include improvements to existing routes and the provision of new facilities and infrastructure. The new cycling and walking network will provide linkages within the site to the proposed bus stops and Metro station, and will additionally enable direct access to existing communities, to the Murton Gap site, public transport facilities and key local amenities. The proposed routes will form the missing links in the existing North Tyneside Strategic Cycle Network.

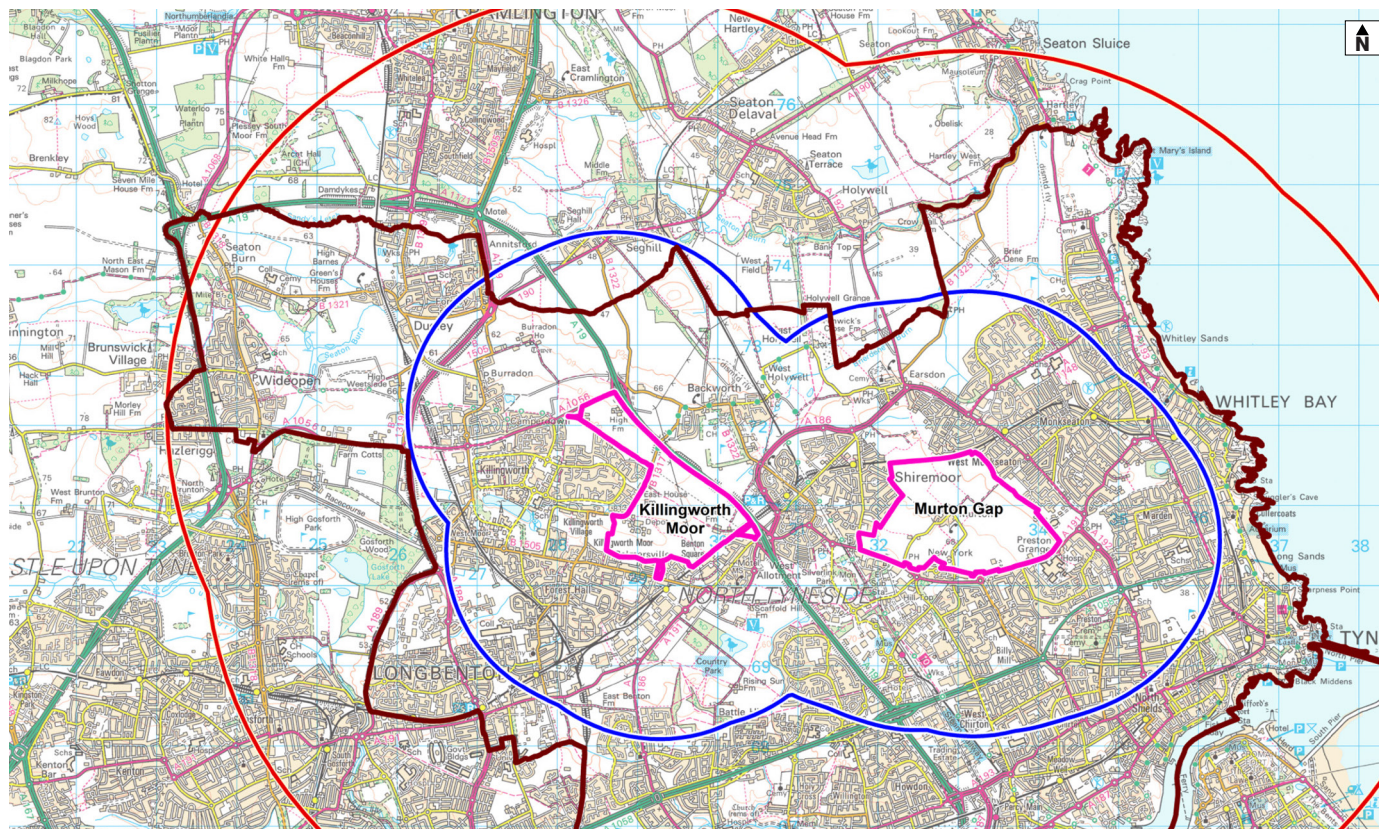
It is proposed that the cycling/walking facilities will be structured in a 3-tier system, as follows:

- 1st tier - Principle Highway - Strategic pedestrian/cycle route adjacent to main highway.
- 2nd tier - Secondary distributor - Secondary pedestrian/cycle routes adjacent to distributor link roads.
- 3rd tier - Residential streets - Shared space treatment with all modes at the same grade connected via direct cycling and walking routes permeating through the site with natural surveillance from residential frontages.

The design principles will be established for each level of network hierarchy in order to ensure cycling opportunities are maximised.

### Cycling and walking conclusions

The proposed network of cycling and walking infrastructure provides a framework upon which high quality connections both within the site and outside can be made. These connections align closely with the wider road and public transport requirements and contribute to the Local Plan policy objectives to promote healthy lifestyles and indicative Concept Plan.



Walking and Cycling Distances (Capita, North Tyneside Local Plan Strategic Sites, Pedestrian / Cycling Study, May 2016)



### 3.3.4.6 Constraints

The key transport constraints are summarised as follows:

- Existing traffic pressures on certain routes and junctions in the wider site area.
- Limited existing walking/cycling access to the site.
- No permeable public transport services through the site.

### 3.4.7 Next Steps

In order to confirm the transport strategy for the site it is proposed that:

- A business case for the proposed Metro station is undertaken by Nexus.
- Discussions with bus operators/Nexus are undertaken to develop the bus strategy for the site.
- A Transport Assessment and Residential Travel Plan strategy is agreed with the Council and Highways England.

### 3.3.5 Geotechnical

The evidence base for geotechnical conditions of the sites includes the following:

- Geo-Environmental Desk Studies.
- Coal Authority Mine Abandonment Report and Plans.
- Groundsure reports.
- Borehole logs (BH) from the British Geological Society (BGS) and Terraconsult.

The key findings from these documents have been summarised below:

- The existing geology is characterised as Glacial till over Pennine Coal Measures.
- The site is within influence of workings in nine seams from shallow depths to 440m depth.
- 14 mine entries are recorded onsite, mostly in the south-east, though a number of these will have been removed by later opencast mining of the site.
- Mine abandonment plans outline workings in the High Main seam (60-149m depth) under the south-east of the site, workings in the Yard seam (80-120m depth) in the east of the site and workings in the Moorland seam (c. 100m depth) in the south west of the site.

- It is noted that there are a number of coal subcrops underlying the site, there is potential for further unrecorded works to be present underlying the site.
- The site is within the boundary of a past opencast mine.
- It is unlikely that the recorded historical land uses of the site and surrounding area will have generated significant or widespread geo-environmental contamination, though localised risks may be present.
- Given the depth of the deep-mining coal seams and time since they were last mined, it is anticipated that any further subsidence is unlikely and that the risk of unstable ground conditions is more prevalent with the historic open-cast and shallow mining sites.
- The potential risk to development of the site due to past mining land activity is generally considered low, though this risk is elevated in the vicinity of subcrops.
- An Agricultural Land Classification assessment has also been carried out. This study concluded that a classification of 2, 3a and 3b for the Killingworth Moor site is appropriate. The majority of the site (117.2ha) is within 3b which classifies the site as being of moderate quality agricultural land capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.

#### 3.3.5.1 Development Guidance

- Phase II intrusive investigations are recommended to establish the existing ground conditions and to obtain development-specific geotechnical design parameters.
- A borehole investigation is recommended to determine the presence, depth and extent of shallow coal seams and workings beneath the site.
- Given the cohesive subsoils and in the absence of adequate testing, a low CBR value should be assumed for the design of new road pavement at this stage.
- The investigation strategy should also include an “environmental” investigation designed to interrogate the Phase 1 CSM, establish the status of the identified Source-Pathway-Receptor linkages and thereby reduced uncertainties in the PRA.
- Investigation should be undertaken in line with BS5930 (2015) and BS10175 (2011) with the aim of determining the ground conditions, allowing sampling of soils for geotechnical and environmental testing. Such investigations will determine the need for mitigation against aggressive ground, establish the suitability of materials for re-use and characterise ‘Waste’ for future disposal.



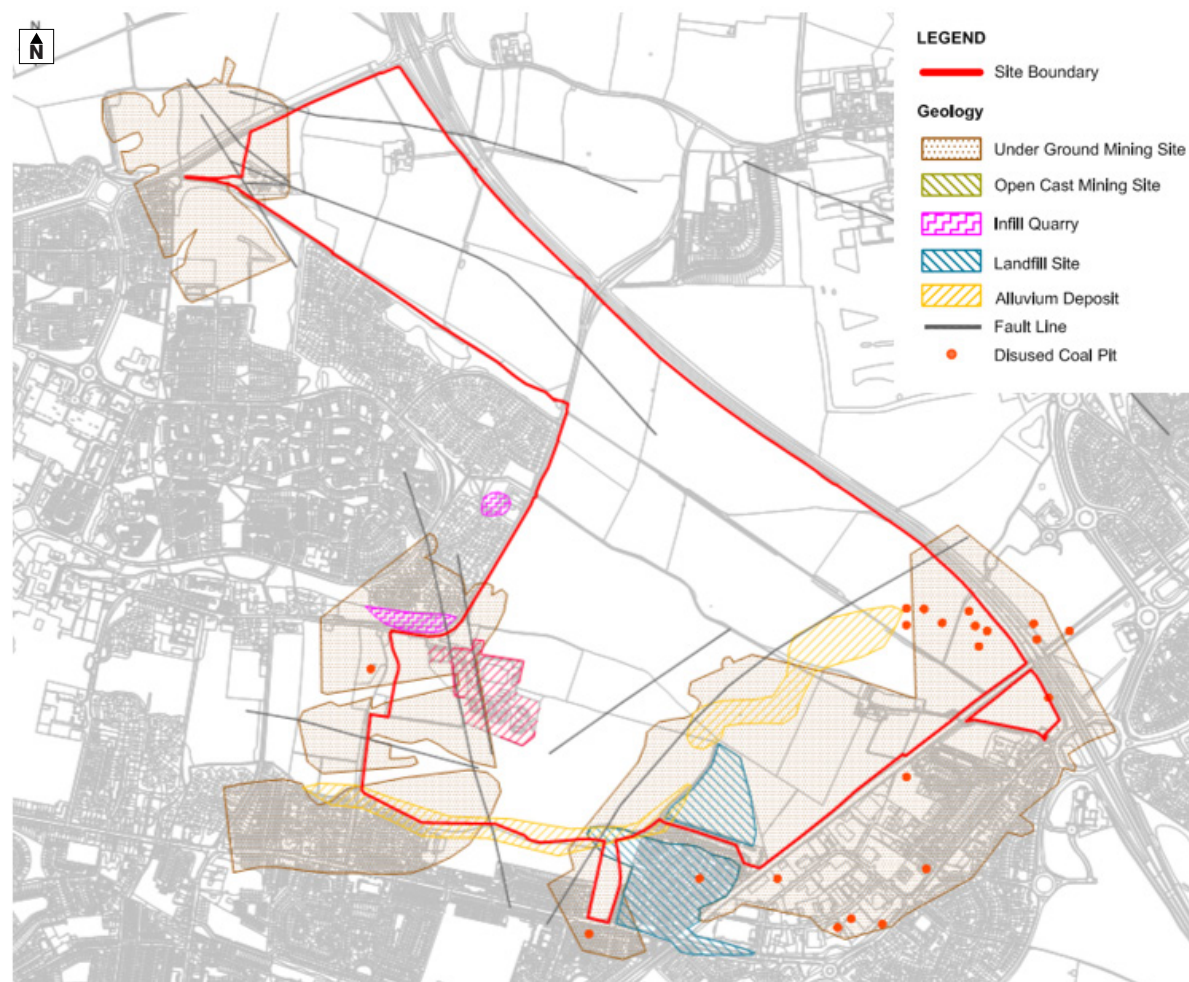
### 3.3.5.2 Constraints

The constraints are illustrated in the figure opposite. In summary, the site shows extensive historical mining activity, both opencast and subsurface including:

- Historical underground mining area.
- Open cast mining areas.
- Infill quarry, to the west of the boundary.
- Landfill site.
- Alluvium deposits.
- Disused coal pit.
- Geological fault line.

#### Geotechnical analysis conclusions

Whilst further works and investigations are required to ensure a full understanding of the constraints and ground conditions affecting the site, at this stage our analysis indicates that the existing Geotechnical evidence does not provide a fundamental constraint to housing delivery and the objectives of the indicative Concept Plan for Killingworth Moor.



Geotechnical Constraints Plan (Arup, based on NTC information)

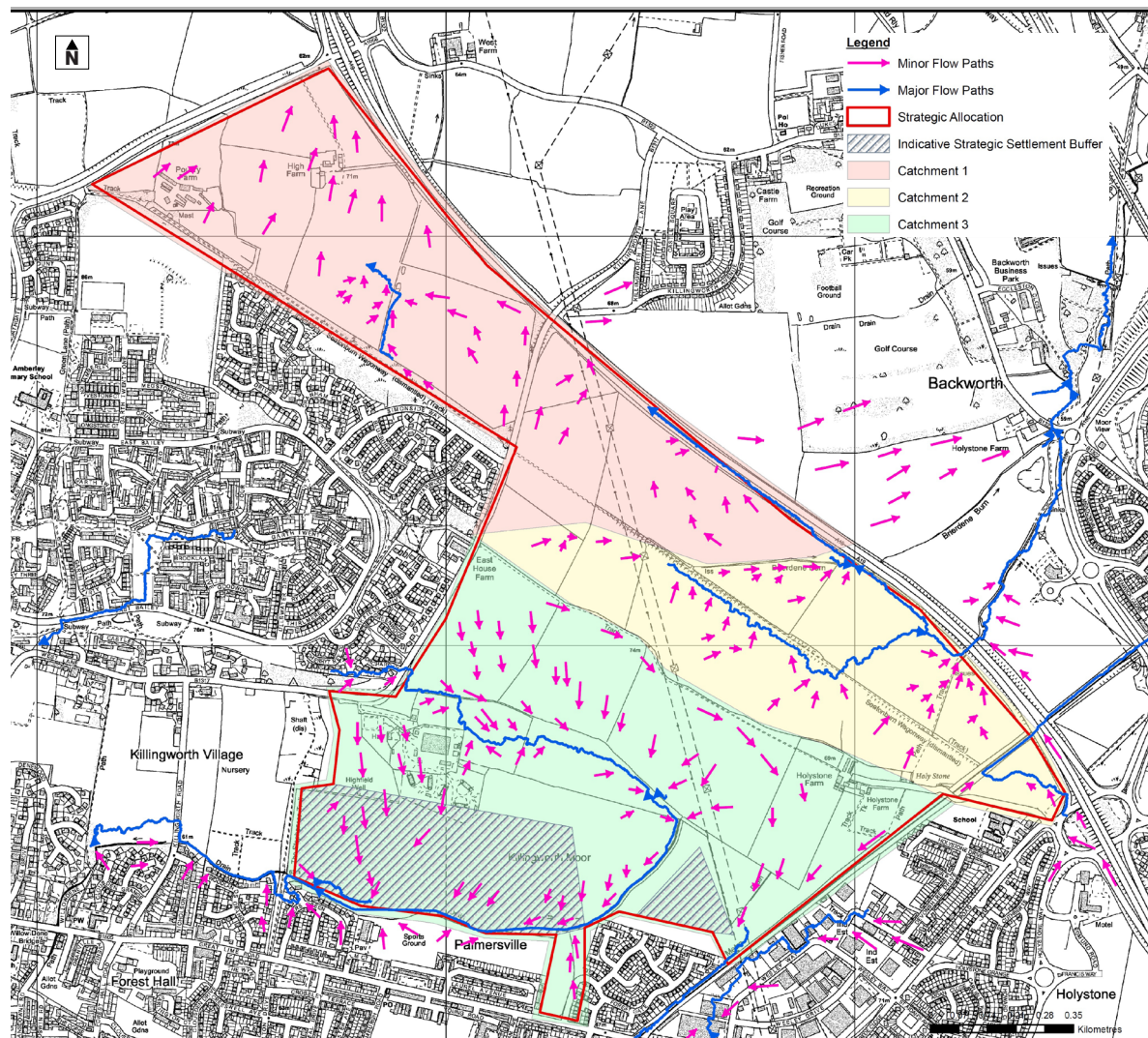
### 3.3.6 Drainage and Flood Risk

The existing evidence base for drainage and flood risk includes the following documentation:

- Murton Gap and Killingworth Moor - Infrastructure Delivery Plan.
- Killingworth Moor - Flood Risk Assessment.

The key findings from these documents have been summarised below:

- There are four main watercourses which run through the site; Forest Hall Letch, Brierdene Burn and two unnamed tributaries.
- The majority of the Killingworth site is in Flood Zone 1 with than 1 in 1000 year risk of flooding. A small proportion of land has been identified as residing in Flood Zone 2 and 3. This is the area immediately to the south of Forest Hall Letch.
- The risks of fluvial flooding of the Killingworth site is considered low and limited to a localised area on the south side of Forest Hall letch.
- The risk of flooding from surcharge of the existing sewerage infrastructure is considered low.
- The risk of tidal flooding is negligible.



Indicative Flow Paths Map-FRA Plan (Capita, Killingworth Moor Broad Scale FRA and Drainage Strategy)



### 3.3.6.1 Development Guidance

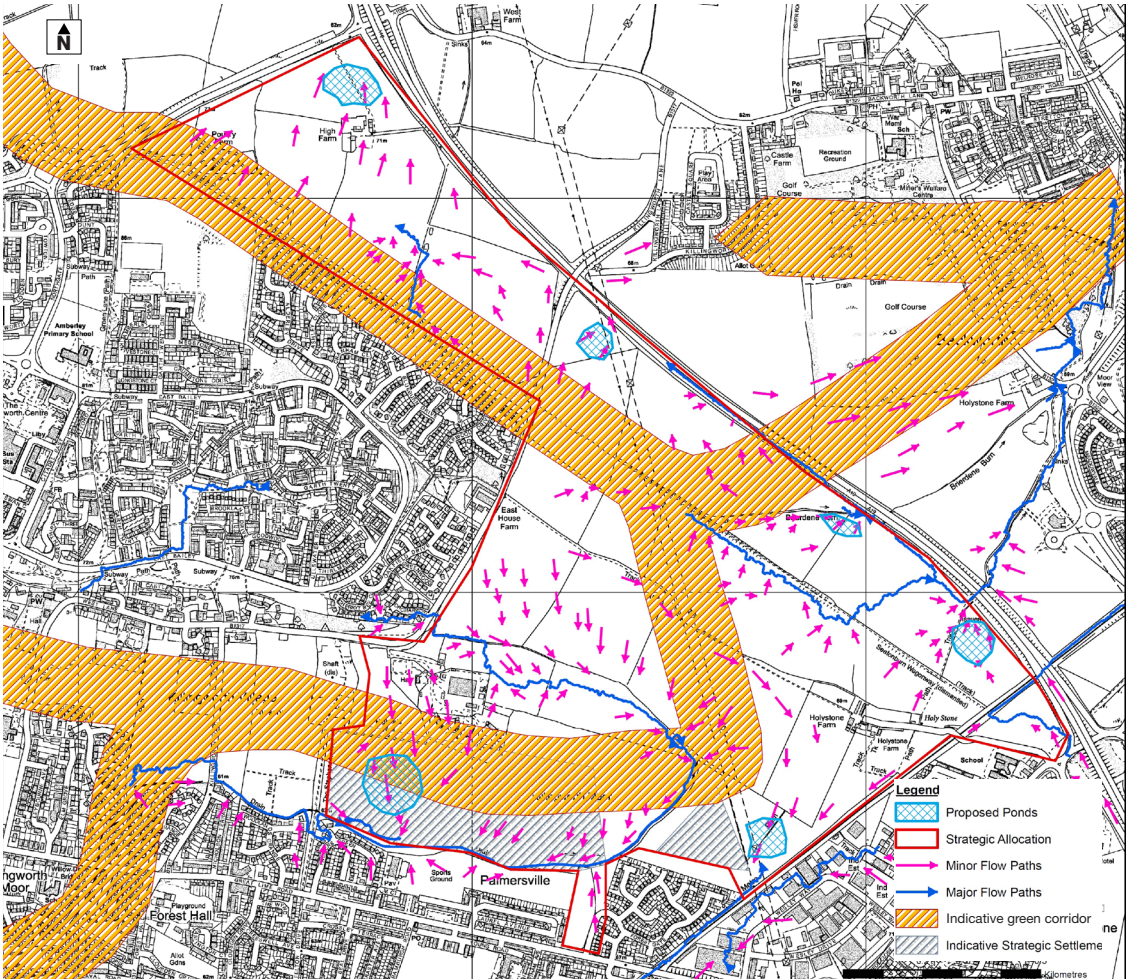
- Surface water from the site may contribute to the wider catchment surface water flooding issues and hence the development at Killingworth Moor should be SuDS orientated in so far as is reasonably practicable.
- The opportunity for infiltration SUDS should be assessed and areas of high and low permeability established at an early stage.
- The proposed drainage strategy will need to account for the existing flow routes across the site, and how these would be altered by any proposals.
- Storage requirements are to be based on an allowable discharge of 50% green field run off rates as per the Capita FRA.
- Opportunities should be sought for SuDS schemes to positively benefit biodiversity, landscaping and recreational opportunities.
- The impact on existing site drainage infrastructure by development of the site should be established and considered as the master planning progresses.
- In progressing a master plan for the site, it is important to demonstrate a sound understanding of the potential flooding mechanisms (fluvial, tidal, surcharge) considering the risks posed by each and mitigating as appropriate.
- In preparing a drainage strategy betterment over the existing Greenfield run off discharge rate should be achieved and demonstrate an understanding of the wider context in terms of existing and proposed drainage infrastructure, including Howden Sewage Treatment Works and SUDS.
- Understanding of the existing groundwater regime should be demonstrated including mitigation of issues pertaining to any perched groundwater or a high water table.
- All surface water drainage should be designed in accordance with 'Sewers for Adoption' guidance.
- An allowance of 40% for climate change should be accounted for in accordance with the National Planning Policy Framework and supporting guidance, based on an assumed development design life of 100 years.
- All surface water storage, up to and including the 1 in 30 year storm event, should be located below ground.
- Storage for storm events between the 1 in 30 year and the 1 in 100 year should be retained on site either below or above ground. Any above ground storage should be routed to safe and sacrificial areas, away from buildings.

3.3.6.2 Constraints

The constraints are illustrated in the figure opposite. In summary, the main constraint for Killingworth in terms of drainage and flood risk, is the requirement to deliver an integrated SUDS driven strategy, given existing ground conditions and the permitted discharge of 50% Greenfield run-off rates.

Drainage and Flood Risk Conclusions

The range of evidence already available and works underway illustrate that the site presents a complex series of issues regarding surface drainage. The potential to deliver an integrated drainage management strategy for the site can complement the objectives of the Concept Plan, and support delivery of attractive open spaces and areas for biodiversity and recreation.



Indicative SUDS Layout (Capita, Killingworth Moor Broad Scale FRA and Drainage Strategy)



### 3.3.7 Existing Utilities

The existing evidence for utilities is provided from the following documents:

- Infrastructure Development Guidelines (Capita).
- Existing Utility Assessment (Capita).

The key findings from these documents are listed below:

- Killingworth Moor has overhead power distribution lines identified as crossing the site.
- Northern Gas Network have advised that sufficient capacity exists to support the estimated demand of the development site.
- Virgin Media and BT Openreach are the two broadband providers for North Tyneside. Initial discussions suggest there are no issues in providing required connections.
- Northern Power Grid have proposed a servicing strategy for the site, and advised they will be able to service the site.

#### 3.3.7.1 Development Guidance

- Due to prohibitive cost and anticipated lead times it is envisaged the high voltage overhead cabling crossing the site will not be diverted and must remain live at all times.
- Access to all existing infrastructure onsite must be provided and the master planning of the site should reflect this need.
- Once master planning and delivery phasing is sufficiently developed, revised load demands should be submitted to the statutory undertakers to confirm their ability to supply the site and establish the cost of any necessary diversions and network reinforcements.
- Easements will need to be provided to any non-privately owned infrastructure existing within the site boundary.
- Masterplanning proposals which rely on agreements with Statutory Undertakers (for example, potential build over agreements with NWL) should be discussed with the relevant parties at an early stage in the design development.



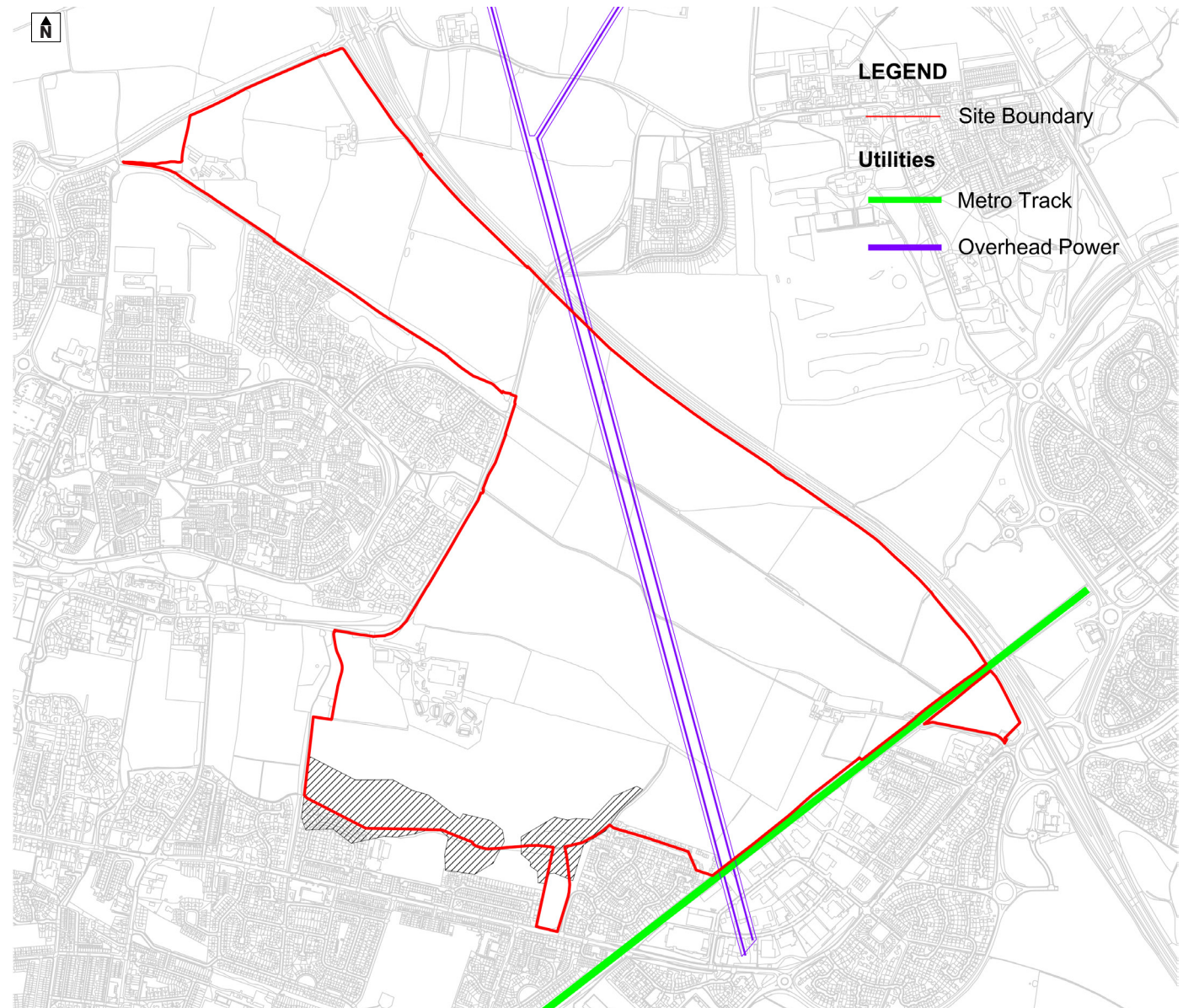
### 3.3.7.2 Constraints

The constraints are summarised in the figure opposite. Due to the largely undeveloped nature of the site there are limited existing utilities within the site boundary. The overhead power lines are seen as the only major constraint to the development in terms of exiting utilities.

Further constraints exist in the form of buried services, though these are limited and it is expected providing diversions or granting easements will not pose a major constraint to development.

#### Utilities Conclusions

As stated, existing utilities will not pose a constraint to the deliverability of the site and objectives of the Framework Plan. Further investigation and understanding of the specific infrastructure enhancements necessary to service the site will be required as more detailed proposals are developed but are not expected to pose a significant risk to delivery at the site.

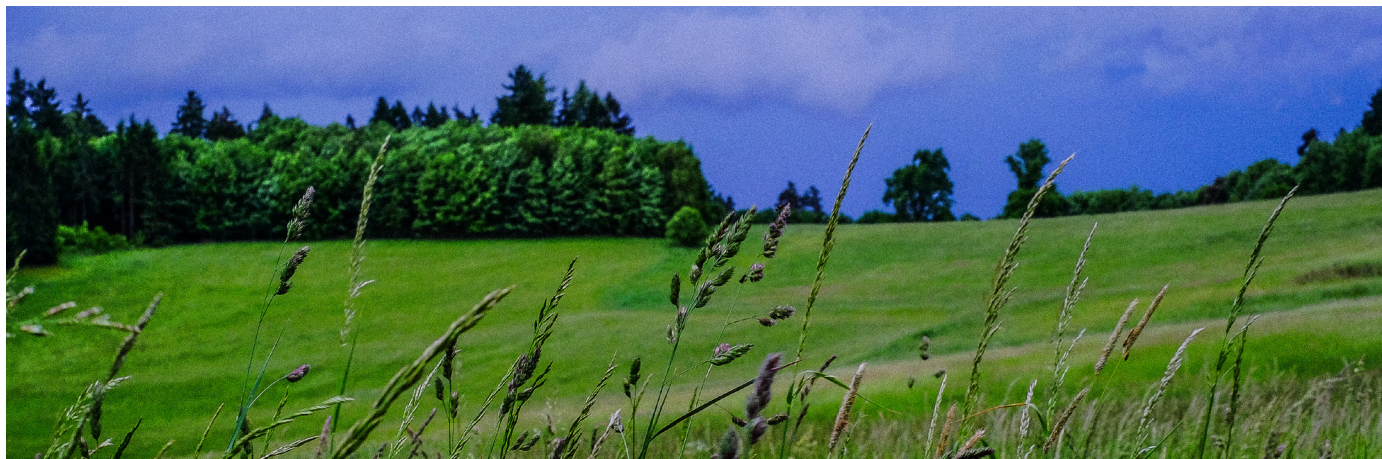


Existing Utilities Constraints Plan (Arup, based on NTC information)



### 3.3.8 Ecology

The existing evidence on ecology is provided by the Killingworth Moor - Extended Phase 1 Habitat Survey authored by BSG Ecology.



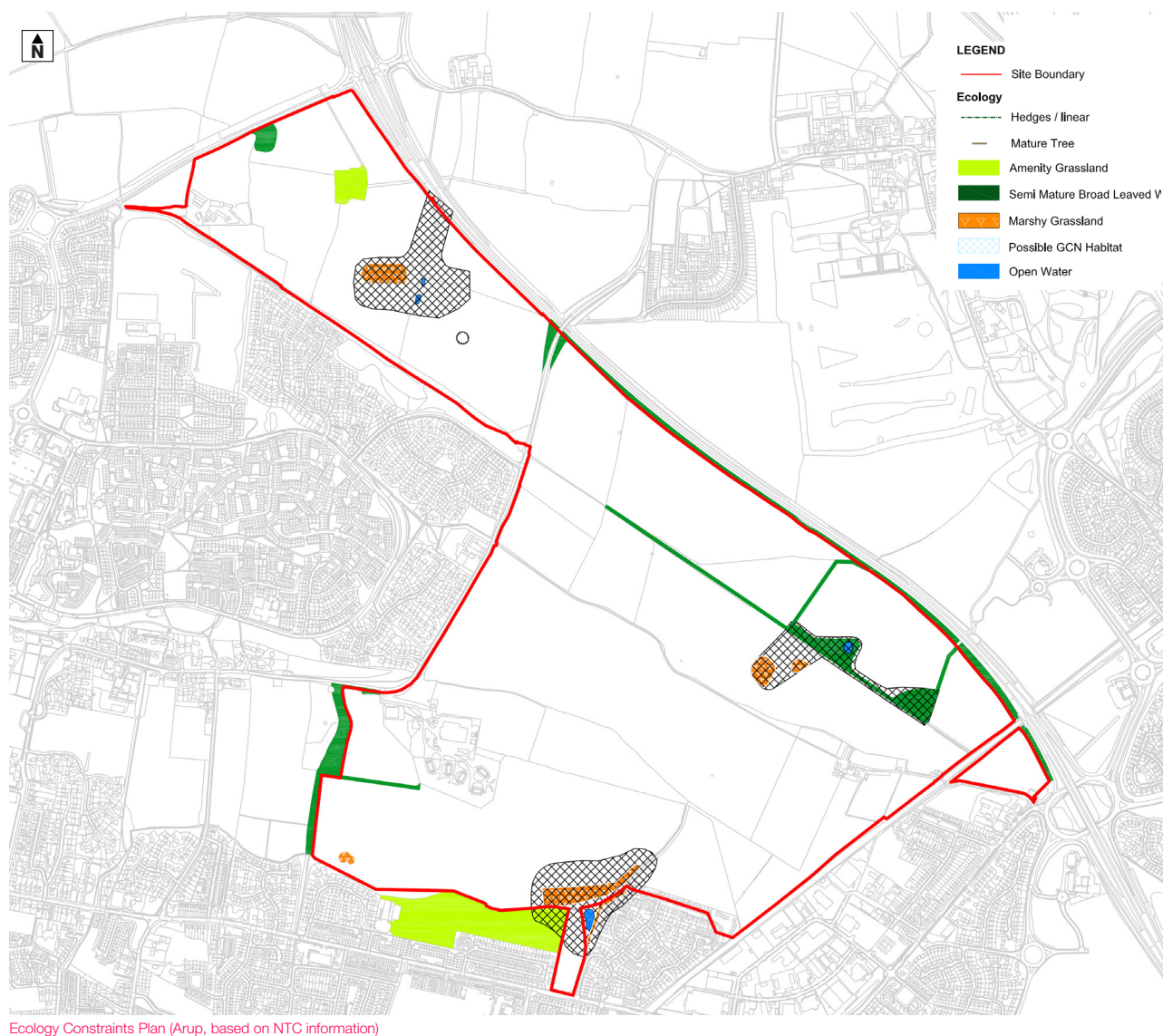
The key findings from this document are summarised below:

- No statutory designated sites are located within a 2km radius of the development.
- There are six Local Wildlife Sites (LWS) and seven Sites of Local Conservation Interest (SLCI) located within 2km of the development.
- Habitats are arable farmland with some areas of improved or poor semi-improved grassland, field boundaries and species poor hedgerows.
- Small areas of mixed and broadleaved plantation, and several areas of standing water are present on site.
- The Brierdene Burn flows across the north-eastern part of the site. Buildings onsite are High Farm steading, Holystone Farm steading and Holystone Cottage.
- Holystone Farm steading and Holystone Cottage are privately owned and not included in the development plans.
- A cluster of dilapidated buildings are situated in the south-west part of the Site, close to the B1317 with bat roost potential.
- Several ponds are considered to have good or average great crested newt (GCN) suitability.
- Bat roost surveys found low numbers of bat passes and low species diversity, no roosts found.
- No signs of otters or water vole found on site during initial surveys.

#### 3.3.8.1 Development Guidance

- Where possible, existing pond features and their surrounding habitats should be retained as part of a wider drainage strategy.
- Where possible, hedgerows should be maintained and protected during construction and operation of the development. Where hedgerow habitat is lost during development of the site, opportunities should be identified to replace with similar or more species diverse hedgerows adjacent to proposed right-of-ways.
- Any potentially significant impacts on ecology throughout the construction and operation of the development should be identified and a mitigation strategy put in place.
- Opportunities should be identified where landscaping, recreation areas and SuDs ponds can enhance the biodiversity or replace habitats impacted by the development of the site.
- Wildlife corridors should be incorporated across the site to facilitate habitat connectivity and safe movement for notable species through the site.





### 3.3.8.2 Constraints

The constraints are summarised in the figure opposite. Within the site the main existing ecological assets are hedgerows and existing water features. These provide wildlife and open space corridors, as well as containing individual mature trees (in the case of hedgerows).

The main ecology site constraints are summarised as follows:

- Possible GCN habitat.
- Open water bodies.
- Amenity grassland.
- Hedgerows.
- Marshy Grassland.
- Semi mature broadleaf trees.

### Ecology conclusions

The existing evidence demonstrates that no designations affect the site. The overall assessment of biodiversity value on the site does not pose a significant constraint to delivery of the site, assuming appropriate measures are taken to safeguard and enhance those areas of biodiversity that exist. This would include responding to the proposed Wildlife Corridor through the site, maintaining connectivity between the countryside to the north and the heart of the North Tyneside urban area to the south and west connecting with Killingworth Village and proposed area of Local Green Space.

### 3.3.9 Archaeology and Heritage

The existing evidence on archaeology and heritage is provided by:

- Killingworth Moor Archaeological Desk-Based Study (Durham University Archaeological Services).
- Killingworth Moor Draft Heritage Statement (Capita).

The key findings from these reports are summarised below:

- There are no historic or statutorily protected buildings within the site.
- There are two 19th-century farms on the site and one 20th-century farm.
- There is a Scheduled Ancient Monument c.300m to the north of the site; this is the remains of West Backworth deserted medieval village.
- There are two conservation areas in the vicinity, covering the medieval villages of Killingworth and Backworth.
- There is evidence of one probable later prehistoric/ Roman enclosure within the site boundary there may be further evidence for enclosures and the exploitation of the wider landscape in these periods.
- Seaton Burn Waggonway (now disused), runs north-west/south-east across the site, and the Hillhead Engine was located in the north-western corner of the site, immediately to the north of the Waggonway. It is possible that evidence of the engine house and trackbeds survive.



#### 3.3.9.1 Development Guidance

- Development over the majority of the site has the potential to remove known and unknown archaeological resources through construction activities. In areas of previous open-cast mining activity such resources will have already been removed and it is unlikely further feature of importance will exist.
- It is recommended that the extent and significance of any archaeological resources which may exist on the site are evaluated through geophysical survey in those areas that have not been disturbed or developed.
- A topographical survey is recommended of all visible historical earthworks to assess their extent and significance.
- Risks associated with damaging previously undiscovered archaeological assets and heritage features could be avoided by minimising development of areas potentially sensitive to development and retaining for recreation or as open space.

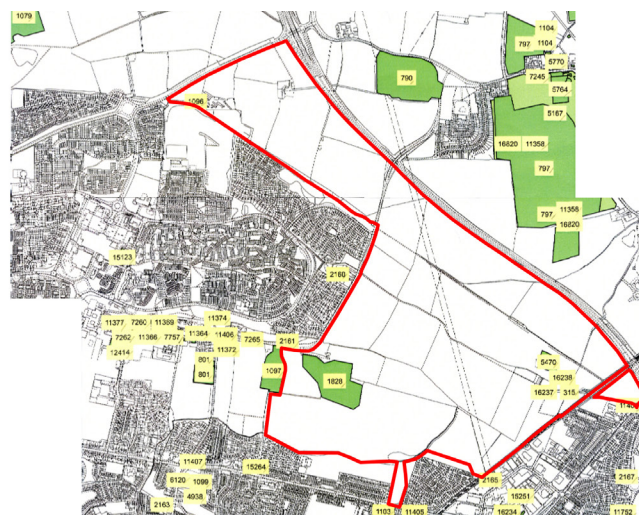
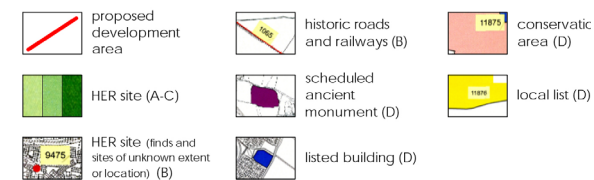
#### 3.3.9.2 Constraints

The constraints are summarised in the figure (next page). The archaeological and heritage constraints on and around the site are as follows:

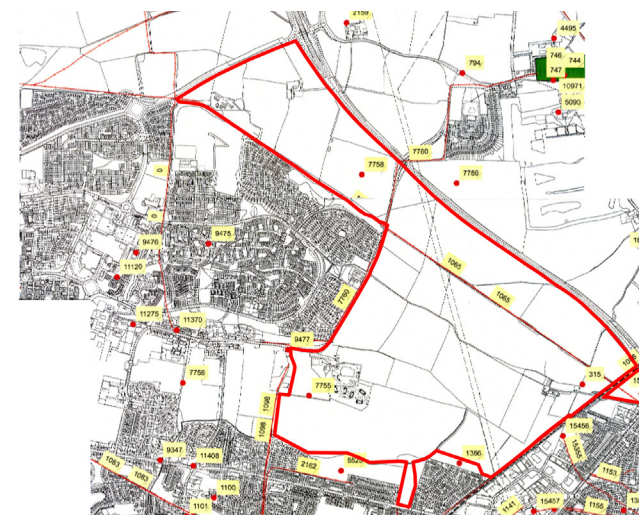
- High Farm.
- Holystone Farm and Holystone.
- The Seaton Burn Waggonway.
- East House Farmhouse setting.
- Near the site and of significance is Killingworth village.
- West Backworth Medieval Village.
- Killingworth Colliery.
- Highfield Well.

#### Heritage and Archaeology Conclusions

Further work will be required ahead of development, particularly regarding understanding of archaeological constraints. However, overall the indicative Concept Plan can be implemented whilst respecting and gaining value for the development from the heritage assets discussed.



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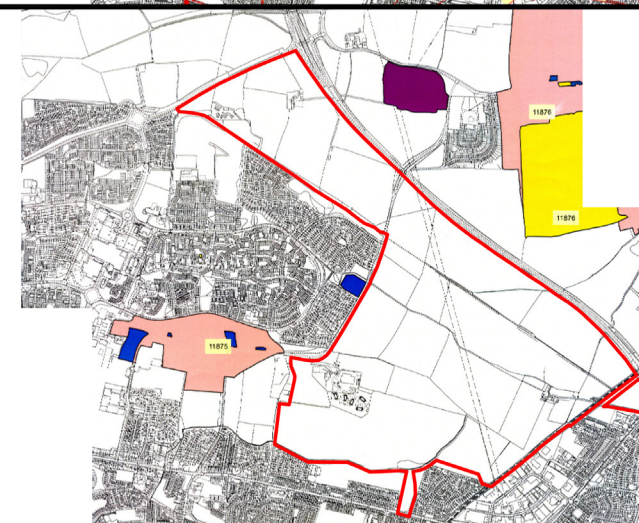


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Archaeology and Heritage Constraints Plan (North Tyneside Council)



## 3.4 Development Framework

### 3.4.1 Objectives and Concept

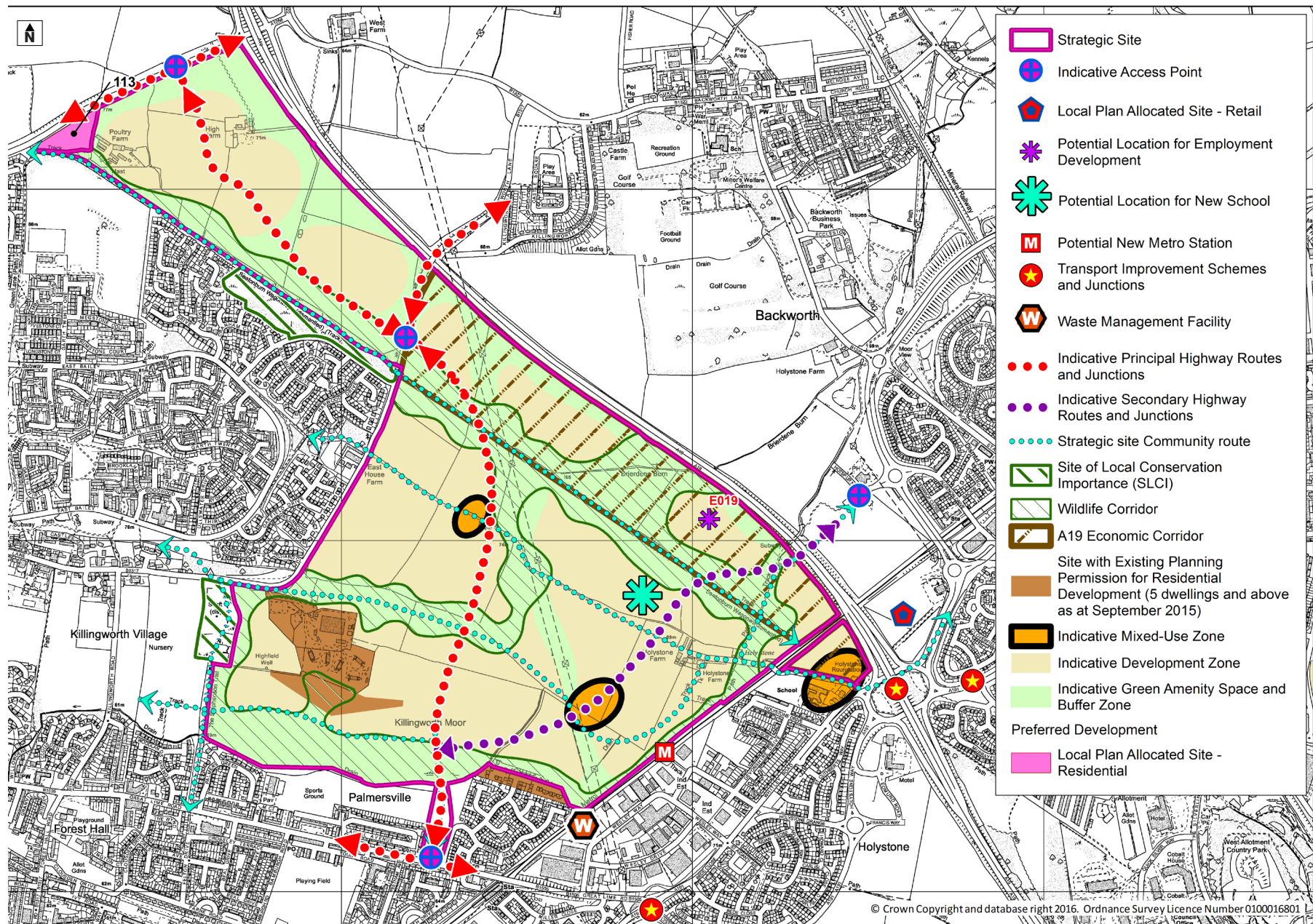
The following five core objectives underpin the vision set out in the draft Local Plan for a: *“walkable, connected village neighbourhoods, within a green, natural environment”*.

These are the key issues that need to be achieved if the Vision is to be delivered, the site specific objectives are as follows:

- To deliver high quality residential environments that exploit their physical location.
- To connect with and integrate green environments and corridors.
- Opportunity to increase the sustainability and attractiveness of existing settlements through the delivery of sensitive development, infrastructure and environments.
- Create good strategic highways links, good community connections and promote transport modal shift using the Metro, buses, pedestrian routes and cycle ways.
- Access to existing community facilities and local centres facilitate early phase residential delivery, initially borrowing from and ultimately enhancing their vitality and success.

The objectives provide definition and understanding to enable the development to be planned more confidently.

The Outline Development Framework Plan for the site is shown on the following page. The Plan outlines the high level strategy for development and shows indicative strategies including areas for development, open space, access and infrastructure. The following sections provide further detail on the Framework with regard to land use, character, transport and movement, green infrastructure and precedent models.



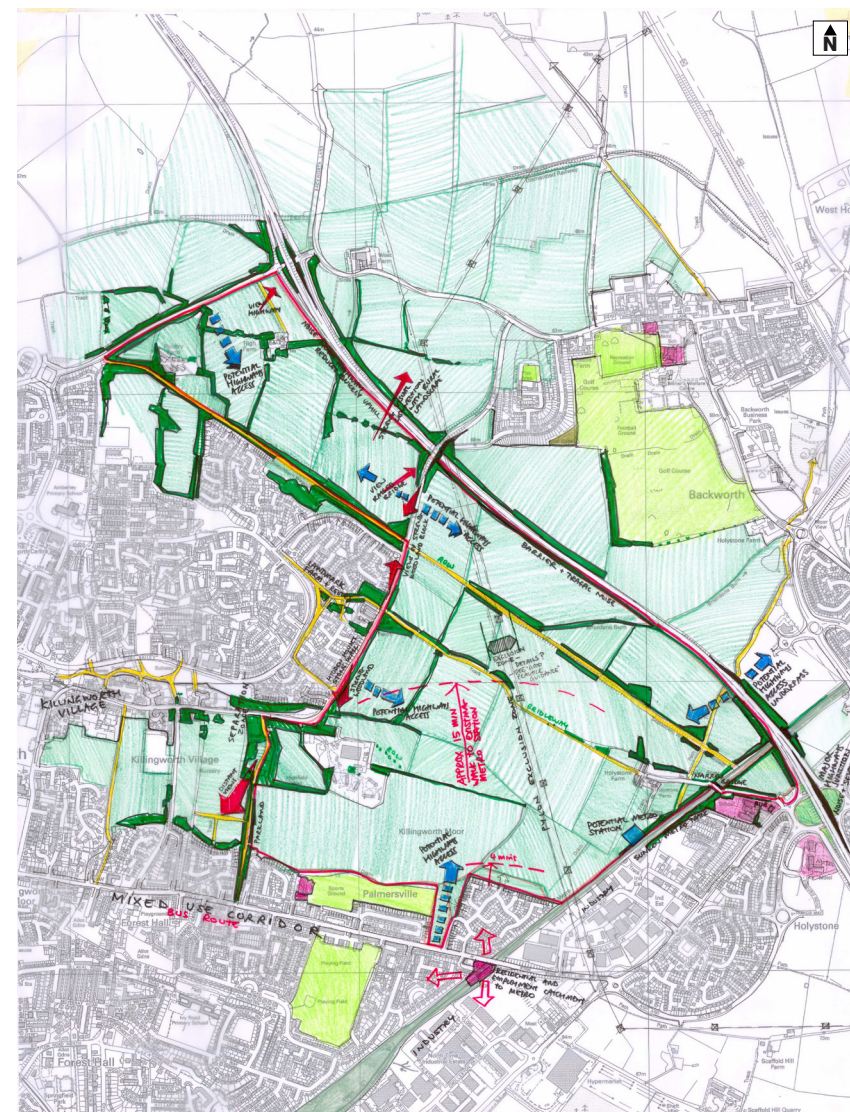
Killingworth Moor Development Framework Plan (Arup, based on NTC information)



### 3.4.2 Land Use

The Killingworth Moor site provides an opportunity to create a new high quality development set within a strong landscape framework. The site can accommodate up to 2,000 homes with an average household size of 2.4, housing a population of 4,800 residents of all ages within the Local Plan plan period. A community of this size requires a supporting infrastructure to provide not only for the needs of residents onsite but also mitigate the potential impacts upon surrounding residential neighbourhoods. The requirement for additional supporting uses has been identified including:

- Community hubs and connections.
- Retail and community facilities.
- Employment.
- Allotments.
- Secondary School.
- Primary School.
- Residential accommodation.



Land Use Plan (Pick Everard, Preparation of a Strategic Concept Framework Plan, Murton Gap & Killingworth Moor, October 2015)

### 3.4.3 Character

In accordance with Policy DM6. 1 Design of Development, planning applications relating to the site will only be permitted where they demonstrate high and consistent design standards. Designs should be specific to the place, based on a clear analysis of the characteristics of the site, its wider context and the surrounding area.

The nature and range of community infrastructure should be sufficient to support the projected population of each character area as it is developed in conjunction with that provided in the wider local area.

The Killingworth Moor community will derive its character and identity from the land it occupies and the countryside surrounding it, the landscape will play a dominant role in bringing that community to life.

Six character zones have been identified as follows:

- Killingworth Village Ride.
- East House.
- High Farm.
- Stephenson.
- Holystone Place.
- Central Park.

For each character zone a careful and 'seamless' integration of highways, urban form and landscape offer the potential to create 'statements', distinct 'places' that reveal and harness the uniqueness and identity required.

The detailed design for each of the zones should exploit the opportunity and reinforce the distinctiveness in context, to add richness, variety, identity and sense of place to the built and natural environments.



Character Zones Plan (Pick Everard, Preparation of a Strategic Concept Framework Plan, Murton Gap & Killingworth Moor, October 2015)



### 3.4.4 Transport and Movement

A key objective for Killingworth Moor is to create good strategic and local highways links, good community connections and promote use of sustainable transport modes, encouraging residents and employees to use the Metro, buses, pedestrian routes and cycle ways. The residents will benefit from being able to access a range of sustainable transport choices to get around the development and to key destinations.

The main highway strategy is to be achieved by:

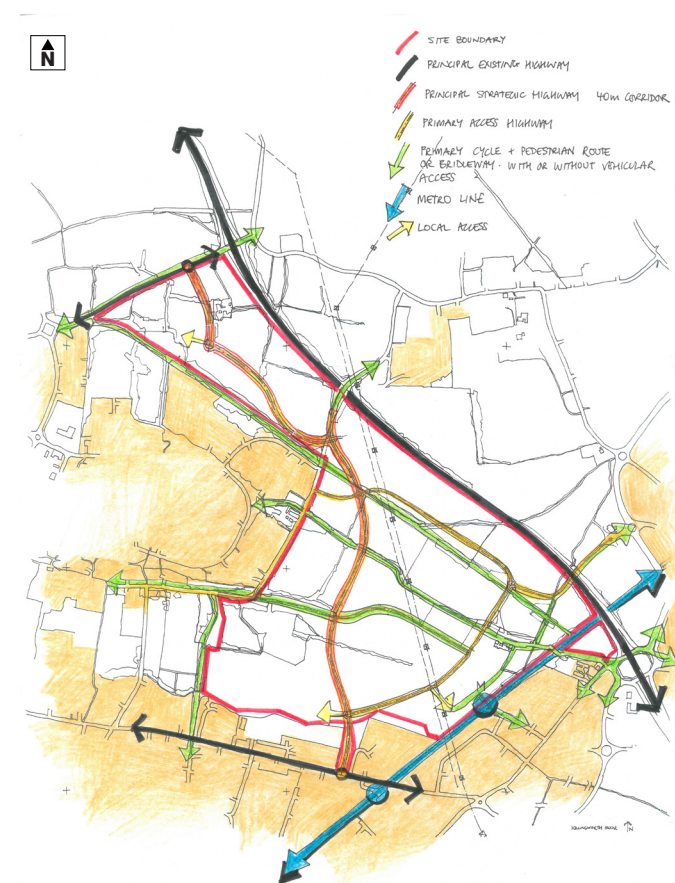
- Creating a north-south principal highway route from Killingworth Way through to Great Lime Road.
- Highway realignment will downgrade the existing road (Killingworth Lane) to local access only.
- The proposed underpass route, under the A19, must not become a 'preferred option' for through-vehicles.

Cycleways bridleways and pedestrian routes:

- The Waggonways - improvement to the existing network and introduction of crossings with the highways at key junctions.
- Cycle lanes to main highways, dedicated pathways and shared surface residential streets.
- Introduction of a network of pedestrian and cycle connections within local communities and transport corridors.

Metro station:

- New Metro station on the southern boundary to link with an existing footpath south of the Metro line.
- Bus routes to link Metro station, the secondary school and via underpass under the A19.



Principal Routes and Transport Structure (Pick Everard, Preparation of a Strategic Concept Framework Plan, Murton Gap & Killingworth Moor, October 2015)

### 3.4.5 Green Infrastructure and Open Space

The Killingworth Moor Open Space Assessment outlines the quantum and quality of existing open spaces in the area and the amount needed to meet demand created by new development. It provides an assessment of both the quality and quantity of existing open space provision in the locality of the suggested site. The Assessment has informed the scale of the open space required for the site.

The Green and Blue Infrastructure Framework seeks to integrate a 'nature-dominant' environment with the proposed development.

The strategy seeks to preserve, where possible existing landscape features and the site's rural character as well as provide natural connections with the wider setting.

The key elements of the landscape and open space hierarchy are:

- 'Civic' - public or semi-public formal green spaces to encourage active use for sport, leisure, playspace, dog-walking and exercise.
- 'Rural' - informal, natural green spaces of rural aspect. The character of these green spaces is enriched through existing qualities and potential uses. The rural aspects will exploit existing mature woodland blocks and hedgerows to define and establish early place-making, quality and identity, and break down the scale of development and will be managed to support wildlife.
- 'Other' - at this stage these areas include natural or created incidental space, to support character zones, buffer areas or the provision of green community.
- SUDS - features and flood alleviation areas to be included within the green infrastructure network.
- Electricity pylon exclusion zone, indicatively marked at this stage.
- Integration with wider environment and green corridors.



Green and Blue Infrastructure Plan (Pick Everard, Preparation of a Strategic Concept Framework Plan, Murton Gap & Killingworth Moor, October 2015)





Landscape buffer

### 3.4.6 Precedent Models

A series of design concepts have been prepared which are intended to guide the detail design of the main spaces in the Framework.

The following are a collection of illustrative precedent models which are arranged under three themes: green infrastructure; highway design; and architectural approach. They are intended to provide inspiration for the subsequent stages of the design process.

The images have been selected from from the UK and internationally, and are intended to be used as a guide.

#### Green Infrastructure

- **Buffer zones:** to the edge of the development adjacent to rear gardens and areas of historical sensitivity. These are intended to provide privacy and a pedestrian/cycle route around the site.
- **Rural edge:** incorporating Sustainable Urban Drainage systems, wildlife corridors and pedestrian cycle routes.
- **Wildlife corridors:** using existing woodland cover, hedgerows and making provision for ecological habitat extension.
- **Play spaces:** within the development in accordance with the Council Green Space strategy.
- **Greens:** central areas that act as focal points for the community and areas suitable for events, play and walking/cycling.
- **Cycle ways:** enhancing the historical Waggonway route and extending this link to provide access to the local centre and adjacent facilities.

## Highway Design

- **Principle routes:** the principle routes through the development are to be designed as a pedestrian friendly environment and contain landscape features including street trees.
- **Shared surface and home zones:** within development parcels a shared surface approach to highway design is promoted which incorporates landscape design and an informal approach to detailing.
- **Green corridors:** incorporating cycle pedestrian and ecological features which provide green links to neighbouring development and the site centre.
- **Parking strategy:** a range of parking strategies are expected from a development of this scale depending on the tenure of the houses. These will include on street, on plot, communal and some small courtyards.



Shared surface design



## Architectural Approach

- **Gateways:** the entrances of the site need to be marked by architectural and landscape features that signal the start of the new development. They should be of a scale appropriate to the surrounding area and in keeping with the aims and objectives of the framework.
- **Architectural features:** at the main road junctions and the local centre which provide architectural hierarchy and aid wayfinding in the site. These areas will also have a higher density appropriate to nodal areas.
- **Commercial area:** the use class, scale and design of the commercial area needs to respect the adjacent school and residential uses. The transition between uses needs to be designed to provide landscape buffers and promote the use of sustainable transport modes within, and from outside, the site.



Design for Homes Awards - 'The Avenue', Saffron Waldon

# 3.5 Delivery

## 3.5.1 Overview

This section outlines the infrastructure requirements for the development of the site and proposed phasing, funding streams and viability issues.

## 3.5.2 Indicative Land Use Budget

This indicative land use budget identifies how much land within the strategic allocation is likely to be required for the range of land uses identified. This enables a picture of the capability of the site to accommodate all the requirements for the development, infrastructure and open space that have been identified.

Development zones are created within a network of green spaces and form a series of parcels within the site with the community hub in the heart of the development. The zones create effective green corridors, environments and spaces and reinforce character of the site and wider landscape setting.

The following land use budget has been generated in response to known site constraints, community and social infrastructure requirements, framework design concepts and market testing.

The budget assumes the following:

- All incidental landscape areas, small LAP playspace and residential streets are included within the housing development area.
- Existing farmsteads of Holystone and Hill Head are included.
- Main primary highways, central greenspace and buffer zones are excluded.
- Educational land use requirement defined in the Education Needs Report 2016 prepared by North Tyneside Council.

Land use description	Area in ha	Comments
Red line boundary	192.5	
Residential areas	57.0	Developable at 30-35 dwelling per hectare
Secondary School	8.0	
Primary School	2.0	
Open space	30.0	At 50 homes per hectare requires 40ha - less 10ha for primary and secondary schools (Informed by existing standards of provision)
Employment	17	
Strategic road	6.0	Estimate based on 2km length and 30m total width of route.
SUDS	3.0	Estimate, dependent on site drainage strategy
Gross site area	124.0	
Remainder for general space, fields, REME Depot etc	68.5	and

Table 3.1 - Land Use Description and Area



### 3.5.3 Infrastructure requirements

Outlined below is a summary of the key infrastructure requirements associated with the development of the site. This information is drawn from the Council's Infrastructure Delivery Plan (2016).

#### **Education**

The Education Needs Assessment outlines the school infrastructure required to cater for the household and population growth as part of the site's development.

The assessment undertakes an analysis of primary and secondary school pupil yields within North Tyneside in the context of planned development to 2032, identified within the emerging Local Plan. The Assessment also provides growth forecast and projection and has informed the scale of education infrastructure requirements for the site.

The site requires a new primary school to be delivered on the site which would be wholly funded by the developers of the site.

Whilst there is a need for a secondary school on the Killingworth site, this will not be wholly funded by the developers. Instead a contribution to the Local Authority as part of the S106 requirements will be paid, the details of which are set out in the Education Impact Assessment (April 2016). The costs are based on assumed pupil numbers and are subject to detailed designs being made available.

#### **Highway infrastructure**

The following highway improvements are required to deliver the site:

- Link Road.
- A19 Underpass Tunnel.
- Roundabout on Killingworth Way.
- Killingworth Lane Junction.
- Forest Gate Junction.
- Off Site Highways works at A19 Killingworth Interchange.
- Off site Highways works at Wheatsheaf Roundabout.
- Potential wider S106 contributions which could include the A1056 Camperdown roundabout. As outlined in the North Tyneside Council Local Plan Highways Contribution Model (S.106 / S.278), the delivery of specific junctions by S.278 agreements will be determined by the Council and prioritised according to those that resolve key local network concerns. Junctions delivered by a single development would be agreed as a S.278 agreements, those with multiple contributors would remain a S.106 obligation.

### **Recreation**

Key requirements (informed by existing standards of provision) include cycling infrastructure, sport, play and open space maintenance. It is assumed that informal play areas are within the general landscaped areas.

### **Community facilities**

A contribution towards facilities has been identified, however there is no specific site requirement currently defined.

### **Healthcare**

At this time no specific on-site requirement for healthcare provision has been made but adequate contributions towards supporting the capacity of healthcare provision in the surrounding area will be required. Meanwhile, the potential provision of a specific facility within the proposed local centre on the site will remain an option as proposals are advanced.

### **Retail**

The Murton Gap – Killingworth Moor Retail Requirements Assessment highlighted the preferred scale and suggested locations for potential retail provision on the Strategic Allocations of Murton and Killingworth Moor, to inform ongoing options analysis in preparation of a Concept Framework for both sites. The Assessment informed the scale of the proposed retail provision for the site.

### **Funding Sources**

Funding sources for the required infrastructure include:

- Local Authority - including via regionally and nationally funded loans and grants.
- Nexus.
- Developer.
- Section 278.
- Section 106.
- Community Infrastructure Levy.



## Phasing

It is envisaged that the Development Framework will be delivered in three phases as set out in the table below.

Delivery Phase	Phase 1	Phase 2	Phase 3	Total
Anticipated Years	2018 - 2022	2023 - 2027	2028 - 2032	2018 - 2032
Housing Delivery	850	650	500	2000

Table 3.2: Proposed Phasing

A full breakdown of the phasing, funding source and criticality rating of infrastructure is set out in the table below.

Item	Phase	Funding Source - Probable Delivery	Essential/Desirable
Highways Infrastructure			
Off Site Highway Works - Great Lime Road/Killingworth Village	2	Developer –s278 / s106	Essential
Link Road	1, 2	Developer –s278	Essential
A19 Underpass Tunnel	1	Developer –s278	Essential
Roundabout on Killingworth Way	1	Developer –s278	Essential
Killingworth Lane Junction	2	Developer –s278	Essential
Forest Gate Junction	2	Developer –s278	Essential
Off Site Highways works at A19 Killingworth Interchange	2	Developer / Public funding –s278	Essential
Off site Highways works at Wheatsheaf Roundabout	2	Developer – s278 / s106	Essential
Education			
Primary School	1, 2	Developer S106	Essential
Secondary Education	1, 2, 3	Developers – s106 (strategic site), CIL contribution	Essential

Table 3.3: Infrastructure, phasing, funding and criticality rating

Item	Phase	Funding Source - Probable Delivery	Essential/Desirable
Social Infrastructure			
Onsite pedestrian and cycle connections	1, 2, 3	Developer - Onsite contribution	Essential
Offsite pedestrian and cycle connections	1, 2, 3	Developer – s278 / s106	Essential and Desirable
Sport & Recreation	1, 2, 3	Developer - s106	Desirable
Community Facilities	1, 2, 3	Developer - s106	Desirable
Public Realm	1, 2, 3	s106 agreement	Desirable
Play, parks and green space	1, 2, 3	s106 agreement	Desirable
Health			
Health	1, 2, 3	Developer – s106	Essential
Utilities			
Drainage	1, 2, 3	Developer – s106	Essential
Transport			
Metro Station	1, 2	Developer – s106	Essential
Bus Service	1, 2, 3	Developer – s106	Essential
CIL			
CIL Infrastructure Contribution	1, 2, 3	CIL (pending introduction)	

### 3.5.4 Viability Appraisal

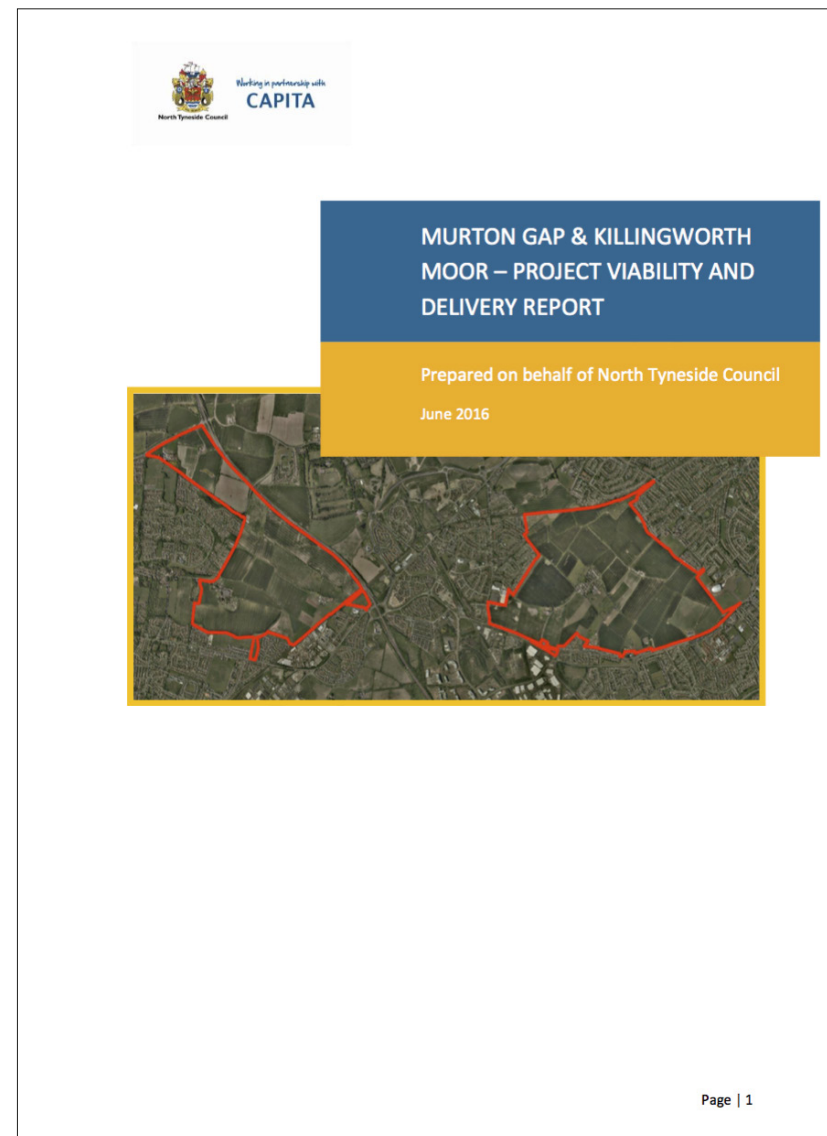
The Project Viability and Delivery Report (June 2016) is a high level report that considers the deliverability of the sites in terms of viability and deliverability. It is based on the methodology set out in 'Viability Testing Local Plans; Advice for planning practitioners' (the Harman Guidance) and the Planning Practice Guidance (PPG).

The purpose of the Viability report is to assess the likelihood of the development generating a residual land value that is sufficient to induce the landowner to sell and which would give the Council the confidence that the sites would be deliverable within the next five years and continue throughout the Local Plan period.

The viability study has been carried out using separate appraisals for the two sites, and has been based upon the HCA Development Appraisal Toolkit (DAT). The DAT models have been populated with data sets gathered from the available strategic infrastructure and mitigation costs; a robust range of commercially facing, evidence based assumptions in terms of values and costs obtained through consultation with land owners, promoters and developers of the sites; the expected rate of development anticipated on the sites and incorporates the Council's existing and emerging policy requirements including affordable housing.

It is inevitable that as planning applications are prepared and the site move towards delivery, the information will be refined. In line with paragraph 2 on page 23 of the Harman Guidance it will be important that the Council continues to work closely with the developers to further understand the viability issues around these sites.

In conclusion therefore, the viability study carried out for Killingworth Moor, has included robust, commercially derived assumptions for costs and values, has set realistic phasing and delivery schedules, incorporates the costs or impact of all the Council's requirements to mitigate the development, and includes for the provision of all necessary infrastructure. The study shows that the residual land value calculated represents a significant uplift over the existing use land value, and therefore should be sufficient for the land owners to be incentivised to sell their land for development. It has therefore been demonstrated that the site is deliverable within the Local Plan policy, and that the indicative Framework Plan can be included as a strategic site allocation.



Project Viability and Delivery Report (June 2016)



