

# Architectural Design Statement

DOCUMENT: 3587-EML-XX-XX-RP-A-9002

**DEVELOPMENT:** Housing Development at Ballymakenny Road, Drogheda, Co. Louth

**CLIENT:** Louth County Council

**DATE:** April 2024

**PREPARED BY:** eml architects 37 Fitzwilliam Place Dublin 2

Prepared on behalf of



Comhairle Contae **Lú Louth** County Council



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COVER IMAGE: CGI VIEW OF HOUSES ALONG MAIN ESTATE ROAD, LOOKING SOUTH-WEST (HOUSE 50 TO THE RIGHT, BUNGALOWS 63-66 IN FRONT). FINAL SELECTION OF BRICK AND RENDER AND EXTENTS OF SAME TO BE AGREED WITH LOUTH COUNTY COUNCIL.



This proposed development is one of five sites within County Louth identified for accelerated delivery as part of the government's Housing for All plan. It proposes to deliver high quality homes and sustainable communities, while utilising accelerated delivery routes and technologies available to assist its rapid programme.

The development will include the construction of 97no. houses including 12no. 2-bed bungalows, 40no. two storey 2-bed houses, 30no. two storey 3-bed houses, 13no. two storey 4-bed houses, and 2no. 3-bed bungalows on a site of 3.03 hectares in the townland of Yellowbatter at Ballymakenny Road, Drogheda, Co Louth.

The development will also include the construction of a new entrance onto the Ballymakenny Road; provision of new cycleway, footpath, and public lighting along the Ballymakenny Road; new estate roads and homezones within the site; 120no. car parking spaces including both on-street and in-curtilage parking; cycle parking; hard and soft landscaping including public open spaces, playground, and private gardens; boundary treatments; ESB substation; lighting; laying of underground sewers, mains and pipes; underground pump station and attenuation tanks; and all associated works. This Design Statement is structured to demonstrate accordance with the 12 criteria set out in the *Urban Design Manual*.

This document should be read in conjunction with the suite of drawings, reports, and forms accompanying it, including:

- All drawings listed on the eml architects Drawing Register & Distribution Sheet (Appendix A)

- All reports and input from the wider design team listed below:

Hayes Higgins Partnership Engineering Consultants

Hughes Planning & Development Consultants

Áit Urbanism and Landscape

Flynn Furney Environmental Consultants

Thornton O'Connor Town Planning



#### **1.1 SITE LOCATION & DESCRIPTION**

This site is located on the Ballymakenny Road in Drogheda and has been used as farmland most recently. Upgrade works along the Ballymakenny Road have seen the installation of a new footpath and verge along the eastern boundary.

To the east across the Ballymakenny Road is St. Oliver's NS and Ballymakenny College, with Presentation Primary School slightly further south. McCloskey's bakery and a light industrial/office unit (occupied by a playschool, "Smart Start") lies to the north along with lands currently being developed for housing. The site is bounded by existing housing developments to the west (Lia Bhrega) and south (Castle Manor).

The site is approximately a 10 minute cycle from the core of Drogheda (West Street) to the south which offers a wide range of amenities and services including supermarkets, cafes and coffee shops, takeaways, pharmacies, Drogheda library, and post offices etc.

The National Inventory of Architectural Heritage (NIAH) has no records of historic structures on the site. In the wider area, the nearest record of note is a ringfort in the site under development to the north.

The TFI Drogheda Town Bus service route D4 stops at Ballymakenny College adjacent to the site with with services typically every half hour during weekday and Saturday daytime to the centre and south of the town.









#### **1.2 PLANNING CONTEXT**

For a detailed analysis of the planning context please refer to the separate report from Hughes Planning & Development Consultants. A brief summary of some items is presented here for context and ease of reference.

The site is zoned A2 - New Residential Phase 1, where the objective is to "provide for new residential neighbourhoods and supporting community facilities."

Lands north the site are similarly zoned A2 with permissions granted and development commenced on a number of these.

APPLICATION SITE OUTLINED INDICATES OBJECTIVE A2 - NEW RESIDENTIAL PHASE 1 ZONING.

RIGHT: EXTRACT FROM THE LOUTH COUNTY DEVELOPMENT PLAN 2021-2027 - DROGHEDA COMPOSITE MAP.

WITH DASHED RED LINE.

DARKER YELLOW HATCH



#### 2.1 OVERVIEW

The site strategy proposes that the housing is primarily laid out in terraces, all with privacy zones at the front, to form a hierarchy of streets, cul-de-sacs and public open spaces consistent with the typology of the wider area.

The houses are set out on a back-to-back or back-toboundary basis to ensure that private open space is defensible and that there is a high degree of natural surveillance over the public realm.

The central public open space is the largest and is a proposed location for a playspace, with smaller pockets of open space throughout the site facilitating biodiversity and presenting opportunities for seating and socialisation.

The site is strategically important for facilitating eastwest connections from housing developments through to schools on the Ballymakenny Road, and with this in mind the layout facilitates the possibility of permeability to the west and north, subject to agreement with the neighbouring landowners.





#### 2.2 CONTEXT

The proposed site is relatively flat (falling approximately 1.5-2m across a length of c.280m), has services available and footpaths already constructed along the main road. It is one of a number of large sites in north Drogheda zoned for residential development. The adjacent developments at Castle Manor and Lia Bhrega set a useful precedent in terms of typology (low rise housing) and materials (brick and render), and the proposed scheme will add further to the compact growth of Drogheda with reference to the government's *Sustainable Residential Development and Compact Settlements Guidelines*.

The proposed design will add to the character of this growing neighbourhood by introducing new houses of the same typology (low-rise, medium density, semi-detached and terraces), albeit with their own distinct appearance and a variety of open spaces. The scheme follows design guidance from the *Design Manual for Quality Housing* in proposing dense terraced housing with strong street frontages, privacy zones to the front, and on-street parking with opportunities for integration of services such as EV charge points.

The houses are set out on a back-to-back or back-to-boundary basis to ensure that private open space is defensible and that there is a high degree of natural surveillance over the public realm.

The landscaping of the proposed scheme will enhance the variety of open spaces in the area with its own distinct character – this will include a mix of durable materials to the public realm, permeable paving, street trees, a mix of bulb and perennial planting, playgrounds and seating.



TOP: IMAGE OF ADJACENT CASTLE MANOR HOUSING ESTATE.

RIGHT: IMAGE SHOWING BAKERY TO THE NORTH AND FENCED BOUNDARY.

FAR RIGHT: IMAGE OF PLAYSCHOOL TO NORTH.







#### 2.3 CONNECTIONS

The proposed site is well-connected to existing footpath networks, and the rollout of upgraded cycle lanes along Ballymakenny Road will further enhance connectivity to surrounding areas.

Routes within the proposed scheme will be enhanced by attractive landscaping, with passive surveillance for safety and comfort, and connections which align with desire lines.

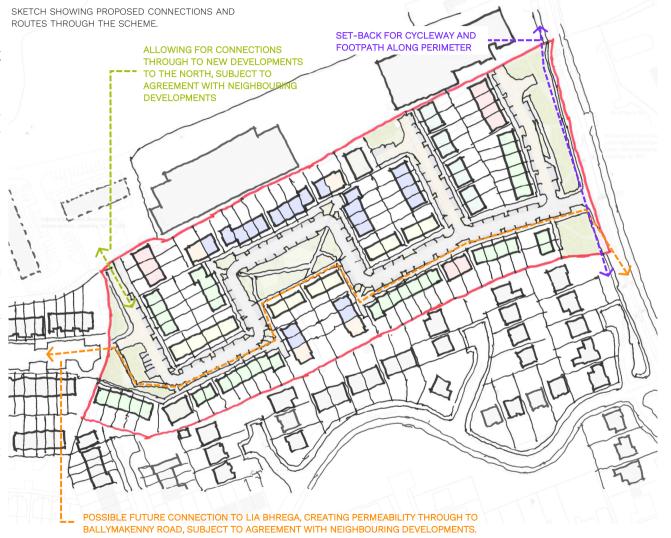
Any new footpaths within the scheme are 2m wide (above DMURS guidelines), with homezone treatments applied to any cul-de-sacs to allow people to cross through the neighbourhood where convenient.

Future active travel routes have been allowed for along the Ballymakenny Road with a cyclelane proposed in place of the existing verge.

The development has also been designed to allow for future connections to Lia Bhrega to the west, and new developments to the north, subject to agreement with the relevant housing bodies or landowners. This will assist in the implementation of recommendations outlined in the Geiran report and associated action plan.\*

The provision of 97 new houses on this site, will ensure the creation of a vibrant neighbourhood and support network for the residents. This neighbourhood will be closely linked to the places people want to get to, including bus services to the town centre or a 10 minute cycle away.

\**Drogheda: Creating a Bridge to a Better Future* report by Vivian Geiran, January 2021; with follow-up *Drogheda Report Implementation Plan* from the Department of Justice.





#### 2.4 INCLUSIVITY

This development is designed to be inclusive and specifically address the housing needs of Louth, with a very high proportion of the houses (27%) designed to a standard beyond Part M requirements. This includes 24 houses designed to the "UD" standard and 2 houses designed to the "UD+" standard, following the requirements of the "Universal Desian Guidelines For Homes in Ireland" published by the Centre for Excellence in Universal Design.

A hierarchy of external spaces is proposed which will ensure accessibility for visitors while maintaining security and privacy for residents. Footpaths exceed 2m in width and slope gently, and internal streets reduce to 5.5m wide in line with DMURS guidance to ensure a comfortable environment for pedestrians. Paving and strips of planting delineate the routes through the site and guide residents and visitors towards public areas such as the public open spaces, while generous rear gardens are provided to all houses for private amenity.

Street furniture including seating and bicycle stands are grouped and positioned to avoid obstructing routes, and adequate lighting will be provided to assist visually impaired people. In general the design aims for equality of access with level surfaces, non-slip materials and resting places at key access points.

A mix of parking including disabled spaces, on-street and driveway/in-curtilage parking ensures that new homes meet the aspirations of a range of people and households.

ABOVE: EXTRACT FROM THE UNIVERSAL DESIGN GUIDELINES FOR HOMES IN IRELAND. SHOWING

REOUIREMENTS WHICH WERE INCORPORATED INTO HOUSES TYPE E.







5.2 - 3 Bedroom 5 Person Semi-Detached House Universal Design layout - Indicative Floor Plan Example

Ground Floor

First Floor

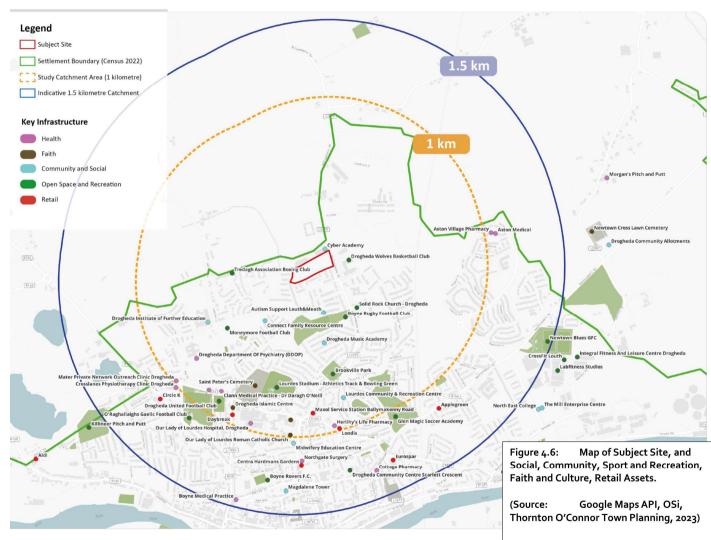
#### 2.5 VARIETY

The new houses provided by this proposal will incrementally enhance the vibrancy of life the locality by adding a diverse population of new residents who will avail of and contribute to local businesses and services.

The mix of housing includes 2-bed, 3-bed, and 4bed houses taking the form of detached, semidetached, and terraced housing. This variety of type will cater for small and large families, couples, and those with varied mobility needs across the lifetime of the scheme. The high proportion of universally-designed and adaptable houses will also ensure that the development is multi-generational.

The landscaping design will contribute a variety of quality open spaces to those already provided in the surrounding areas. The Castle Manor and Lia Bhreaga open spaces typically comprise open grassed areas, and the proposed development will complement this with informal seating and socialisation spaces, lawns for kickabout, and lowmaintenance meadow planting.

RIGHT: MAP EXTRACT FROM SOCIAL INFRASTRUCTURE AUDIT BY THORNTON O'CONNOR, SHOWING THE VARIETY OF FACILITIES AVAILABLE IN THE LOCAL AREA.





#### 2.6 EFFICIENCY AND LIGHT

The low-rise nature of the scheme will ensure that the development provides quality of light for residents of the housing, their private amenity areas, and public spaces. As stated in the government's *Sustainable Residential Development and Compact Settlements Guidelines (SRDCSG)* released in early 2024,

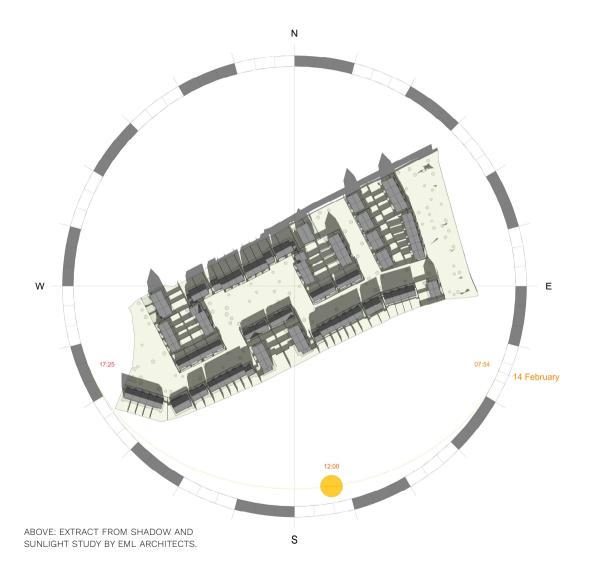
"it should be clear from the assessment of architectural drawings (including sections) in the case of low-rise housing with good separation from existing and proposed buildings that undue impact would not arise."

In the case of the proposed development, houses are at most twostoreys tall and separation distances typically exceed 22m back-to-back, and all exceed the 16m target outlined in the *SRDCSG*.

eml architects have also undertaken a high-level shadow study to check that no undue impacts will arise; this study (right) confirms that the proposal will have minimal impact on surrounding developments and similarly will not be significantly impacted by existing structures. The public open space along the stream to the north is separated from the housing on all sides and so will receive high levels of sunlight at all times of year.

Site investigation works indicate that the ground on the site is impermeable, but new biodiverse planting including native tree species will improve the soil quality and aeration gradually, reducing the burden on built drainage systems.

In general the scheme takes into account appropriate accessibility by public transport and the objectives of good design, and aims for a density which supports the compact and sustainable growth of Drogheda.





#### 2.7 DISTINCTIVENESS

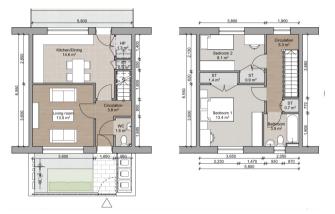
The proposal will create a sense of place through a number of design features:



The development will use a familiar material palette of brick and render, used in its own unique way to create recognisable features.



There is a discernible focal point to the scheme – the central public open space is well overlooked and has both playspaces and socialisation spaces.



The house layouts are based on those in the DHLGH's *Design Manual for Quality Housing*. Architectural variation is provided through window treatment, canopies, and materials which set them apart from the same house types in other locations.



The building and site design will have recognisable features through the use of materials and landscaping, so that people can describe where they live.



The scheme is a positive addition to the identity of the locality, with the high proportion of UD units bringing a diverse cohort of new residents.



The landscape design makes the most of big and small pockets of space throughout the scheme, providing opportunities for socialisation, play, and exercise.



#### 2.8 LAYOUT

The proposal will create people-friendly streets and spaces through the use of best-practice department guidance, including *DMURS*, the *Design Manual for Quality Housing*, and *Quality Housing for Sustainable Communities*. This includes adopting key measures such as:

- clear street hierarchy: streets reduce to 5.5m wide off the Ballymakenny Road, and cul-de-sacs are treated as homezones

- the approach to sizing privacy zones: approximately 2.2m setback for strong street frontage, which also allows for bin and bicycle storage

- layout of street parking: no more than 3 consecutive parallel parking spaces

In general the approach to the site layout is to adopt a compact form that follows guidance set out in the *Design Manual for Quality Housing*. Therefore the houses are laid out predominantly in terraces with privacy zones at the front, and on-street parking.

The scheme also allows for possible new routes to housing at Lia Bhrega and to the north, subject to agreement with the relevant housing bodies or landowners. This creates potential for a permeable interconnected series of routes through the wider neighbourhood.



PRECEDENT PHOTOS, TOP: DCC ARCHITECTS DIVISION – O'DEVANEY GARDENS REGENERATION PHASE 1. SHOWING PRIVATE CURTILAGE IN FRONT OF THE HOUSE WITH BIN STORAGE, PERMEABLE PAVING, AND INTEGRATED LANDSCAPING.

BOTTOM;

PRECEDENT IMAGES FROM ÁIT U+L SHOWING HOMEZONE TREATMENT.









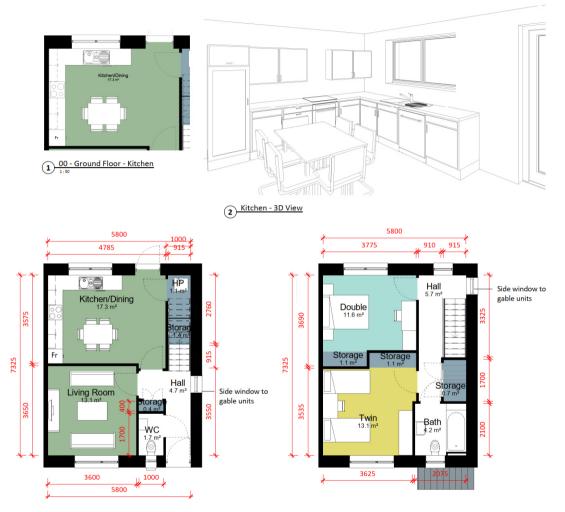
#### 2.9 ADAPTABILITY

In setting out the brief for the project and in designing the buildings, the team have incorporated several best practice strategies to allow the development to cope with change.

The high proportion of UD houses in the scheme will provide for both current and changing mobility needs over time. The Type A house has an enlarged hall and turning space for standard wheelchairs or people with walking aids; type D provides enlarged rooms for easier mobility; the type E house caters for specific needs within Louth by providing a large family home with a wheelchair-accessible downstairs bedroom and adaptability of other rooms; the type G house is a fully accessible 3-bed bungalow with space allowance for bathroom hoists if needed in future.

In addition to these provisions for universal design, private outdoor spaces exceed the guidance in the *Sustainable Residential Development and Compact Settlements Guidelines* and homes are generally designed so that they can be extended to the rear where that becomes necessary. Similarly, all house types have been tested with furniture layouts to check that bedrooms can incorporate a desk, wardrobe and bedside lockers without conflicting with other building elements such as windows.

The scheme is targeting Home Performance Index (HPI) certification which goes beyond typical building regulation requirements to include targets on water efficiency, overheating and biodiversity. This will ensure that the homes are energy-efficient and equipped for the challenges anticipated from a changing climate.



ABOVE: KITCHEN LAYOUTS HAVE BEEN PLANNED TO AVOID CLASHES WITH WINDOWS OR UNCOORDINATED VENTS ON EXTERNAL FACADES. HOUSE TYPE LAYOUTS HAVE BEEN TESTED TO ENSURE FURNITURE CAN BE COMFORTABLY ACCOMMODATED, INCLUDING BEDROOMS WHICH INDICATE POSITIONS OF DESKS TO ALLOW FOR STUDENTS TO STUDY, OR FOR FLEXIBILITY FOR WORKING FROM HOME.



#### 2.10 PRIVACY AND AMENITY

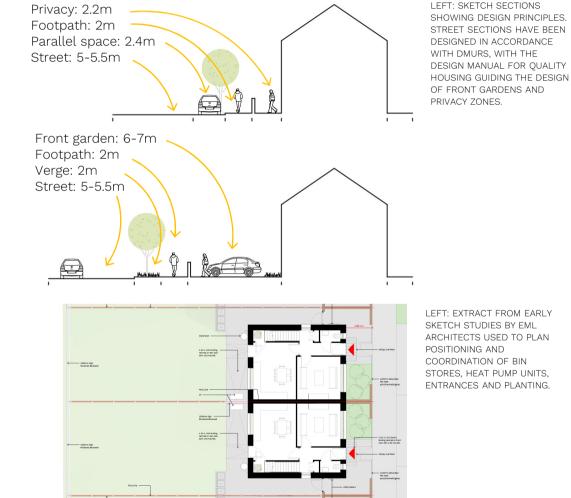
Each home has access to an area of useable, quality private outdoor space. These typically meet Louth Development Plan standards and are in excess of the *Sustainable Residential Development and Compact Settlements Guidelines*.

The units that address onto the main estate road are semi-detached so refuse bins, bicycles etc. can be stored to the rear of the houses. Where houses are in terraces there will be discrete bin enclosures within the privacy zones at the front. Bin enclosures, bike storage and external equipment such as heat pumps have been considered from the start so that their placement does not encroach on circulation spaces externally.

All homes are dual aspect, with semi-detached and detached houses also having windows to the side gables; this has the advantage of adding activation to the street edge and providing further passive surveillance.

Acoustic privacy will be ensured through rigorous oversight by the design team's acoustic consultants. iAcoustics have considerable experience in acoustic design and testing, and have submitted a supporting statement as part of this document (Appendix B) – the baseline testing undertaken on site confirms that standard window specifications and garden fences will mitigate any nearby sound pollution of note. The Home Performance Index (HPI) certification targeted by the scheme also asks for appropriate oversight and testing so that acoustic privacy is achieved in reality.

All homes are designed to provide adequate storage space in line with *Quality Housing for Sustainable Communities*. Calculated storage area values exclude areas required for heat pumps or hot water cylinders, and so reflect actual usable storage.





2.11 PUBLIC REALM

PRECEDENT PHOTOS, LEFT:

O'BRIAIN BEARY ARCHITECTS – BALLYMONEEN SOCIAL HOUSING, GALWAY CITY. CURTILAGES IN FRONT OF THE HOUSES WITH BIN STORAGE ARE SOFTENED WITH LANDSCAPING AND DIFFERENT GROUND SUBFACE FINISHES

eml architects have worked closely with Hayes Higgins Partnership and Áit U+L to design a public realm which is safe, secure and enjoyable for all to use.

All public open space is overlooked by surrounding homes so that this amenity is owned by the residents and safe to use – this includes pockets of seating space beside homezones, as well as the main public open space in the centre. Play areas are centrally located within the open spaces so that they are safe.

The public realm is considered as a usable integrated element in the design of the development, evidenced by the smaller pockets of seating and social spaces designed in addition to the main open space. There is a clear definition between public and private space with low walls, estate railings, and changes in surface materials delineating privacy zones to houses.

The Department house types have been enhanced by the addition of gable windows at key corners in the development, which adds activation to the street edge and allows for further passive surveillance.

#### 2.12 PARKING

While the goal in new developments is to encourage a transition to more sustainable modes of transport, car parking has also been designed to be secure and attractive where provided. This includes spaces which are adequately dispersed through the development so that parking is within easy reach of the home's front door. Parked cars are overlooked by houses, pedestrians and traffic for passive security.

For end-of-terrace or detached houses, side passages allow for bicycles to be stored safely to the rear of the house, while secure anchors are provided for mid-terrace units to lock bicycles to.

BELOW RIGHT: PHOTOS OF CHURCHFIELDS SOCIAL HOUSING BY EML ARCHITECTS FOR FINGAL COUNTY COUNCIL, SHOWING PERMEABLE PAVING USED FOR OFF-STREET PARKING.





#### 2.13 DETAILED DESIGN

The material palette has been developed with consideration for how changing seasons, weather conditions and light will affect the buildings over time and selected materials which are hard-wearing, will weather in a predictable and controlled fashion, or have been considered carefully in the context of long-term maintenance and appearance.

Our aim is to create architectural character and distinction through good design, a mixed palette of materials along with creativity applied to fenestration, canopies and elevational detail. An emphasis on gable treatments and curtilages will offer strong architectural character, natural surveillance and a sense of place.

Materials and finishes will be durable and sympathetic to the surrounding context, to include brick and render to complement the adjacent development, concrete roof tiles, zinc-clad canopies, and high-quality composite windows and rainwater goods. All to achieve a 60-year design life in line with the Building Regulations.

Care has been taken over the siting of rainwater pipes, vents, mechanical equipment and bin stores; these have been confined to the rear of houses where possible. Bin stores located to the front of houses in privacy zones are concealed with brick garden walls and face away from estate entrances. Kitchen and bathroom layouts have been tested to check positioning of extracts and vent pipes.

Design of both the buildings and the landscaping public space will facilitate easy and regular maintenance, with design details following best practice precedents and department guidance documents.



CLOCKWISE FROM TOP: EXAMPLE OF BUFF BRICK MIX PAIRED WITH METAL PROJECTING DETAILS AND AREAS OF RENDER (ROSEMOUNT COURT, DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL); BUFF BRICK SAMPLE; TYPICAL OFF-WHITE ACCENT RENDER.





#### 2.13 DETAILED DESIGN - MATERIAL PRECEDENTS

ABK ARCHITECTS - LADYSWELL SQUARE, MULHUDDART, DUBLIN. FOR CLÚID HOUSING.

CLAY TILE ROOF FINISH PAIRED WITH RENDER AND BRICK TO THE HOUSES, BUFF COLOUR TO HOMEZONE ON STREET, INTEGRATED BIN STORES AND PLANTERS TO FRONT GARDENS.







MIKHAIL RICHES - GOLDSMITH STREET SOCIAL HOUSING, NORWICH, UK.

PRIVATE LANDSCAPED CURTILAGES WITH INTEGRATED BIN STORAGE; HOME ZONES AND TRAFFIC CALMING USING TIMBER BOLLARDS. HOUSES ARE FINISHED IN VARIED BRICK PATTERNS.







### **3 CONCLUSION**

In the context of a pressing need for housing and a limited supply, and the government's housing delivery targets set out in Housing For All, this proposal for quality housing on a residential zoned site offers the opportunity to add a dense mix of house types to a well-serviced neighbourhood.

The designs integrate into the existing neighbourhood by referring to the local material and typological precedents, while having its own recognisable features.

In addition, the proposed scheme will create its own sense of community through the quality landscaping which offers opportunities for socialising and new connections.

It is envisaged that when complete, the proposed development will positively contribute to the compact growth of Drogheda and the Ballymakenny neighbourhood.

RIGHT: CGI VIEW OF CENTRAL PUBLIC OPEN SPACE, LOOKING NORTH-WEST. FINAL SELECTION OF BRICK AND RENDER AND EXTENTS OF SAME TO BE AGREED WITH LOUTH COUNTY COUNCIL.





# APPENDIX A: DRAWING REGISTER



DRAWING REGISTER & DISTRIBUTION SHEET												ſ	1
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Project:	Louth ADP Housing: Ballym	akennv	,								ARCH	IITECTS	•
Issue:	179A	,										www.eml.ie	÷
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Distribution							Qua	ntitv					
Client/Contracting Authority					Х								
Design Team					Х								
Main Contractor													
BCMS													
Drawing Description	Drg. No. Size Scale Latest				st Revisions								
Site Location Map	3587-EML-XX-XX-DR-A-0001	A2	1:1000	Х	Х								
Existing Site Plan	3587-EML-XX-00-DR-A-0002	A1	1:500	Х	x							+	
Proposed Site Key Plan	3587-EML-XX-02-DR-A-0003	A2	1:1000	Х	Х								
Proposed Site Layout	3587-EML-XX-02-DR-A-0004	A1	1:500	Α	Х								
Proposed Boundary Types	3587-EML-XX-02-DR-A-0005	A1	1:500	Α	Х								
Proposed Site Sections & Elevations 1	3587-EML-XX-ZZ-DR-A-2002	A1	1:200	х	х								
Proposed Site Sections & Elevations 2	3587-EML-XX-ZZ-DR-A-2003	A1	1:200	Х	Х								
Proposed Site Sections & Elevations 3	3587-EML-XX-ZZ-DR-A-2004	A1	1:200	Х	Х							+	
House Type A - 2b3p1s	3587-EML-ZZ-ZZ-DR-A-7001	A3	1:100	Х	X						+	+	
House Type B - 2b4p2s	3587-EML-ZZ-ZZ-DR-A-7002	A3	1:100	Х	Х								
House Type C1 - 3b5p2s	3587-EML-ZZ-ZZ-DR-A-7003	A3	1:100	Х	Х								

Drawing Description	Drg. No.	Size	Scale	Latest	Revisions										
House Type D - 3b5p2s-UD	3587-EML-ZZ-ZZ-DR-A-7005	A3	1:100	Х	Х										Τ
House Type E - 4b7p2s-UD	3587-EML-ZZ-ZZ-DR-A-7006	A3	1:100	Х	Х										
House Type F - 4b7p2s	3587-EML-ZZ-ZZ-DR-A-7007	A3	1:100	Х	Х										
House Type G - 3b5p1s	3587-EML-ZZ-ZZ-DR-A-7008	A2	1:100	Х	Х										$\square$
Schedule of Accommodation	3587-EML-XX-XX-SH-A-9001	A4	N/A	x	х									_	+
Design Statement	3587-EML-XX-XX-RP-A-9002	A4	N/A	Х	Х										

# APPENDIX B: ACOUSTIC STATEMENT





# Ballymakenny

iAcoustics

iAcoustics carried out a 24-hour baseline noise survey at the Ballymakenny site on 10<sup>th</sup> November 2023. All measurements were taken with calibrated precision grade, Type Approved (Class 1) sound level meters as per IEC 61672-1:2013. All equipment has calibration certificates traceable to the relevant standard. Measurements were captured in line with *ISO 1996-1:2016 Acoustics — Description, measurement and assessment of environmental noise — Part 1: Basic quantities and assessment procedures.* Noise from the adjacent situated bakery was observed to be the dominant noise source. Some road traffic noise from the Ballymakenny Road was also evident.

A summary of the noise measurements representing the worst effected location at the proposed site is presented below. These measurements were taken at a location immediately adjacent to the exhaust chimneys of the bakery at the northern edge of the site. Noise levels dropped significantly as distance from the bakery increased.

- $\lambda$  LAeq,16hr (daytime) = 52dB
- $\lambda$  LAeq,8hr (nighttime) = 49dB
- $\lambda$  LAF10% (daytime) = 54dB
- $\lambda$  LAF10% (nighttime) = 51dB
- $\lambda$  LAF90% (daytime) = 48dB
- $\lambda$  LAF90% (nighttime) = 45dB

In the context of the Professional Practice Guidance on Planning & Noise: New Residential Developments 2017 (ProPG), these noise levels would be considered "Negligible to Low Risk". Dwellings along the northern boundary that look out onto the bakery would benefit if their northern facing windows and ventilators were acoustically rated at 30dB Rw and 30dB D,n,e,w respectively.

At other locations around the site, the noise impact would be considered to have no adverse effect indicating that the development site as a whole is acceptable from a noise perspective and the application need not be delayed on noise grounds.

In the context of the World Health Organisation's Environmental Noise Guidelines 2018 and Guidelines for Community Noise 1999, the measured noise levels at the proposed site occur below the respective thresholds for road traffic noise exposure, serious annoyance and moderate annoyance. Given that these (outdoor) measurements are low, following the above advice pertaining to windows and ventilators, indoor noise levels would be controlled relatively easily. The applicable indoor noise level recommendations as per the World Health Organisation guidance would therefore be achieved easily too.