Corneddan Ballinalee Co

Longford Stage 1 Design

Submission

DOCUMENT CONTROL SHEET

Document: **Stage 1 Design Submission**

Client: **Longford County Council**

Project Title: **Corneddan, Ballinalee Co Longford**

Document No: **2022-097**

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1.0 INTRODUCTION

Thomas Campbell Consulting Engineers Limited have prepared the following Stage 1 Design submission based on the Project Brief issued as part of Tender Documents, the Department Design guideline housing in rural sites with topographical considerations.

As part of any concept design approach, Thomas Campbell Consulting Engineers Limited have considered and incorporate the following design standards:

- Recommendations for Site Development Works for Housing Areas
- Quality Housing for Sustainable Communities
- Design Manual for Quality Housing
- Universal Design - Building for everyone
- Housing for All
- The County Development Plan Requirements

The final design of the properties are in accordance with the following:

- Project background and Objectives – 1no 2 bed unit.
- The Project objective as set out in section 4.0 Project Design-Brief.
- Site Specific Topography and setting.
- Site Investigation Results.
- Quality Housing for Sustainable Communities.

The following section sets out how Thomas Campbell Consulting Engineers Limited appraised the current site for the most appropriate design.

2.0 DESIGN BRIEF

The purposed development includes the Design and Construction of a new two Bedroom house with associated siteworks at Corneddan, Ballinalee, Co. Longford. The Site at Corneddan, which is approximately 1.53 acres, is in private ownership but to be transferred in due course to Longford County Council. It is situated approximately 4.4km South of Drumlish and 9.9km from Longford Town.

The Project is designed in accordance with current building regulations and standards and the following guidance documents, as applicable:

- The current Building Regulation and Standards.
- DHPCL guidelines (available to download on http://www.housing.ie/ including Quality Housing for Sustainable Communities and Sustainable Residential Development in urban areas
- DECLG guidelines (available to download on http://www.environ.ie/ including Quality Housing for Sustainable Communities).
- The proposed in-fill development must be designed in accordance with '*Quality Housing for Sustainable Communities'.*
- The County Development Plan Requirements.
- The comments/conditions of the Part 8 Planning Process.

The unit is designed in accordance with the following objectives and considerations.

- Comply with all fire codes/regulations and good practice.
- Design detail, finishes and materials prioritise quality, robustness, longevity, ease of construction, cost of construction (value for money) and ease/cost of future maintenance.
- Design and orientation optimise use of natural light and passive thermal gain.
- The property includes a kitchen, living area, bathroom, 2 bedrooms, main bath/shower room and cloakroom/storage facility.
- Bedrooms are designed in a manner that facilitates built-in versatility.
- Shower/bathrooms are designed with accessibility in mind (level shower access, non-slip tiles, wet-room design, etc.).
- Relocate existing services if required.
- External surfaces/landscaping should match existing with emphasis on managing the generation and disposal of surface water run-off and low maintenance landscaping.
- As far as it is practicable design incorporate 10 important features to a universal designed home that, if incorporated into the design of a new house or apartment, will greatly enhance the product being offered to new and existing residents:
    - Provide level access at front and rear of house and include wider external and internal doors
    - Provide capped electrical points for future installation of a stair lift installation, front door illumination, adjacent to internal doors, above and beside window heads and at skirting level (for future automatic devices such as assisted door openings, ceiling hoists and automatic curtain/blind opening)
    - In the entry level toilet, ensure that it is sufficient for the future installation of a level access walk-in shower including walls of adequate wall strength to take future fittings such as handrails and a shower seat. Below floor drainage, level access, moisture resistant plasterboard and light fittings and tanking of floor and walls up to a height of 2000mm will also be necessary.
    - Locate the main bathroom immediately adjacent to the main bedroom with a “soft spot” for future installation of a door between them. Ensure that provision is made for future adaptation to a shower room including the features listed for the entry level toilet.
    - In the main bedroom, located beside the bathroom, provide “hard spots” in the ceilling for future hoist installation and a “soft spot” in the wall for a future door to create an ensuite.
    - Ensure that all fixtures and fittings are age friendly such as lever door handles and lever taps.

- Minimum room sizes to be in accordance with Quality Housing for Sustainable Communities.
- Use of open plan living spaces in part or in full;
- Designated storage space.
- Optimise access (bathroom facilities in particular)
- Use of durable, low-maintenance external materials.
- Optimum use of natural light.
- Optimum use of natural thermal gain.
- Energy efficient, robust and low-maintenance heating system design.
- Evaluate onsite versus street parking options and any modifications required to site frontage, existing footpath and roadway arrangements.
- Assimilation into existing built environment.
- Access to rear gardens and provision for bin storage.
- Appropriate landscaping with emphasis on low maintenance.
- Permanent, low maintenance boundary (all boundaries);

- Service connections and all reinstatement works and
- provide pollinator friendly planting within the development, refer to www.pollinators.ie, Councils: actions to help pollinators.

3.0 SITE CONSTRAINTS

The purpose development at is located at Corneddan, Ballinalee Co Longford. The overall site of 1.53 acres is a rural site and is in Corneddan, Corneddan, Ballinalee which is approximately 9.9km from Longford town centre. The site is currently in private ownership but will be transferred to Longford County Council. The site slopes approximately 10.3m over 125m from North to South. It will require boundary treatment, road works, footpaths, services, drainage and landscaping. Refer to Figure 1 and Figure 2 for photographs of the site.

Figure 1

Figure 2

4.0 SCHEME DESIGN – OVERALL DESIGN INTENT

Section 5.0 of the Project Brief outlined the Housing need. It is Longford County Council's preference for this development to provide 1 no. 2-bed with a minimum of 2 of these following the Building for Everyone: A Universal Design guideline.

The units include

1. The Dwelling house is designed and compliant with all current Building Regulations and Standards including Part L – Conservation of Fuel and Energy – Dwellings.
2. The dwelling is designed and constructed to be Nearly Zero Energy Buildings (NZEB) in accordance with European Energy Performance of Buildings Directive Recast (EPBD)
3. A detailed Part L Conformance report demonstrating that the design conforms with requirements as detailed in the current Part L Technical Guidance Document including:
4. Maximum elemental U Value and maximum average U value requirements.
5. Current Maximum Permitted Energy Performance Coefficient (MPEPC) target.
6. Current Maximum Permitted Carbon Performance Coefficient (MPCPC) target.
7. Heat loss calculations are to be completed for all heated areas in accordance with the current version of The Domestic Heating Design Guide 2015.
8. The following are also be taken into consideration:
    - 1.8.1 All appliances that use Energy shall be on the SEAI Triple E register or equivalent.
    - 1.8.2 All lighting components shall be low energy (e.g. LED, fluorescent).
    - 1.8.3 Storm water management to include appropriate SUDs design.
    - 1.8.4 Site foul sewer design to be approved by Irish Water prior to tender.
    - 1.8.5 Water main designs to be approved by Irish Water prior to tender
    - 1.8.6 All insulation works to be in accordance with part L of the current Building Regulations.

Please refer to our drawing package (appendix A) which identifies the proposed units to satisfy each element of the housing need.

5.0 SCHEME DESIGN – HOUSE DESIGN

TA Group in accordance with Table 5.1 of the Quality Housing for Sustainable Communities document and Section 16.4.4.9 Design and Layout of Chapter 16 Development Management Standards of the County Development Plan have provided the following space provision.

Table 5.1 – Quality Housing – 2bed/3p house (1 storey)

DWELLING TYPE	TARGET GROSS FLOOR AREA	MINIMUM - MAIN LIVING ROOM	AGGREGATE LIVING AREA	AGGREGATE BEDROOM AREA	STORAGE
	(m^2)	(m^2)	(m^2)	(m^2)	(m^2)
2BED/3P House (1 storey)	60	13	28	20	3

Chapter 16 Development Management Standards

DMS 16.43

Housing developments should achieve the minimum floor areas and storage requirements as follows:

Unit Type (House)	Floor Area	Internal Storage Area
One Bedroom	$55m^2$	$3m^2$
Two Bedroom unit	$85m^2$	$6m^2$
Three Bedroom unit	$100m^2$	$9m^2$
Four Bedroom or more	$110m^2$	$10m^2$

TA Group also had to take into consideration the supporting background medical information provided in relation to the tenant and the potential future needs when preparing the proposed design layout and areas.

RELEVANT AREA	PROPOSED UNIT		DEPT. GUIDELINES		
	ACTUAL WIDTH	ACTUAL AREA (Sq.M)	MIN. WIDTH	MIN. FLOOR AREA (Sq.M)	
BEDROOM 1 & 2	3.7 & 4.4	25.5	2.8	20.0	128%
TOTAL STORAGE AREA		3.0		3.0	100%
TOTAL LIVING/KITCHEN AREA		28.3		28.0	101%
GROSS INTERNAL AREA		73.9		60.0	123%

- Area of a double bedroom 1 is a minimum of 13 sqm
- Area of a double bedroom 2 is a minimum of 12 sqm
    - Bedrooms to have an aggregate area of 20 sqm as per the Quality Housing Guidelines
- Kitchen / living area 28.3sqm
- The bedroom are designed to facilitate a turning circle, to allow for users future needs and potential wheel chair use.
- The shower area to the bathroom is designed as a wet room design to accommodate users future potential needs.

In summary the proposed unit is achieves the tenants requirements and potential future needs whilst also minimising the total gross floor area to less than the 85m2 as outlined in Chapter 16.

House Type Two-bedroom Unit

The unit is based on the following functional requirements

- Ground floor WC located immediately adjacent to the bedroom
  - Soft spot included in wall between bedroom and bathroom
  - The layout of the bedroom and bathroom will facilitate hoists if required in the future.
- Provision of storage
- Access to rear private open space

Please refer to Appendix A – Works Requirements.

6.0 SCHEME DESIGN – SITE DESIGN

As outlined in section 3.0, Site Constraints, the site is an elevated site, which falls in a North to South direction.

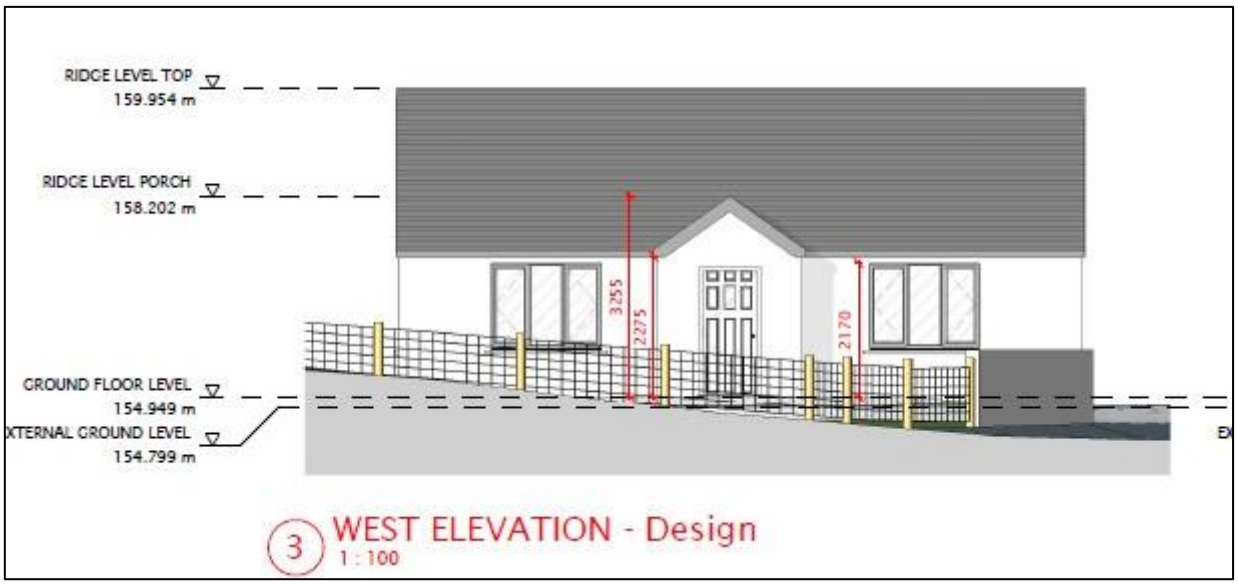
Appropriate Architectural Design must ensure that any proposed development assimilates into the surrounding area. The change in elevation across the site had to be considered which influenced the proposed house type design and formation.

TA Group also have to take into consideration the requirements of Chapter 16 Development Management Standards of Longford County Councils Development Plan.
Key elements included in the design as outlined in Chapter 16 are as follows:

- Ensure the development sensitively integrates into the landscape.
- Integrate into the receiving landscape by selecting naturally sheltered and screened sites with the proposed building being of simple built form.
- External finishes and materials used should reinforce the texture and colours of the surrounding landscape and neighbouring and existing buildings and dwellings.
- As the road is a rural cul-de-sac and due to its alignment, it is adjudged that the speeds on the road are reduced from 80km/h to 60km/h. Therefore, a 65m sightline is required as per the Longford County Development Plan - Section 16.4.7/DMS 16.114.

The following factors are contained within our final design

- Unit Location
    - Minimise the overlooking to adjacent unit, relocate to the bottom of the site.
    - Minimise the ground works required due to the gradient of the site from North to South
    - Avoid the need to divert/cross the existing open water channel.
- Appropriate formation level
    - Selection of an appropriate formation level to ensure finished floor level of units are in keeping with the existing public road and foot path.



7.0 SCHEME DESIGN – CIVIL DESIGN

The proposed development is a single rural dwelling in a green field site in a rural/farming setting. The following services are in place in the public road

- Water main (potable water)
- ESB supply
- Telecommunications

An onsite Wastewater Treatment system is proposed (see appendix B)

8.0 SITE INVESTIGATION – TOPOGRAPHICAL SURVEY

A topographical survey of the site was completed on the 16/12/2022.
The proposed layout is based on the confirmed topographical data.
Please refer to appendix C for reference.

9.0 SITE INVESTIGATION – GEOTECHNICAL REPORT

A geotechnical survey of the site was completed on the 16/03/2023.
The ground conditions are suitable for conventional strip foundations. The depth to suitable bearing and the depth of subfloor infill will not require precast suspended floor slabs.

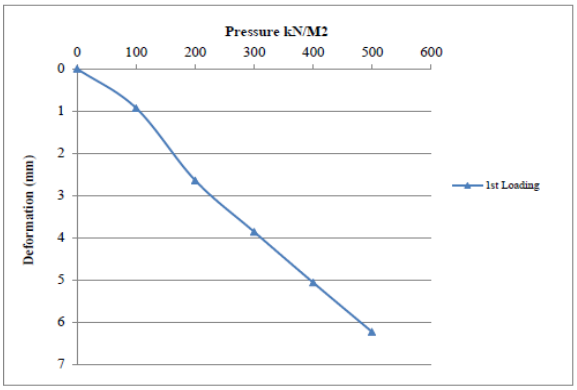
Proposed formation level at 0.7m to 0.850m below ground level. A 1200mm x 350mm strip footing with C28/35 and A393 mesh with 500mm overlap shall be sufficient.

Please refer to appendix D for reference.

TGD Part A	STRUCTURE 2012
Unit(s) Number(s) Inspected:	1 unit
Description of Observation(s):	Trial hole no 1 / plate bearing test 50mm top soil 400mm of silty boulder clay light brown and grey 3% CBR achieved Trial hole 2 50mm topsoil 550mm of silty boulder clay Moisture in clay at 400mm bgl 15% CBR achieved Trial hole 3 50mm topsoil 650mm of silty boulder clay Trial Hole completed at 2.0mBGL Boulders encountered at 1.5m BGL

Client Reference: Oghil, Drumlish, Co. Longford
Location Reference: Site CBR Test Location - Test 2
Type of Reaction Load: Excavator
Plate Diameter: 450mm
BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)

E Mail jamespurcell@bhp.ie



Bearing Pressure kN/m²	Plate Settlement (mm)
0	0
100	0.93
200	2.64
300	3.86
400	5.06
500	6.23

Maximum Applied Pressure (kN/m²)	500
Maximum Deformation (mm)	6.23
Estimated CBR % @ 1.25mm deformation	11
K= (KN/m²/m) @ 1.25mm deformation	59024
K= (MN/m²/m) @ 1.25mm deformation	59

Remarks:
CBR calculated in in accordance with Part 2 DMRB Volume 7 : Part 2 HD 25/94.
Time Recorded at each interval was 2 minutes.

10.0 SITE INVESTIGATION – ARCHAEOLOGICAL REPORT

On review of the site location by our nominated Archaeologist specialist Byrne Mullins and Associates, it was deemed that an Archaeological Heritage Screening Report was not deemed necessary for this development.

11.0 SITE INVESTIGATION – EPA ON SITE WASTEWATER TREATMENT SYSTEM

A Soil Characterisation and Site Suitability Assessment Report was completed on the 16/03/2023. The reported in appendix B outlines the proposed unit required due to the site characteristics.

4.0 CONCLUSIONS of SITE CHARACTERISATION:

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Slope of Proposed Infiltration/treatment area	*1.200*
Are all minimum separation distance met?	*Yes*
Depth of unsaturated soil and/or subsoil beneath invert of gravel (or drip tubing in the case of drip dispersal system)	*0.90m*

Percolation test results: Surface: *50.60min/25mm* Sub-surface: *68.77min/25mm*

Not suitable for Development ☐ ***Suitable for Development*** ✓

Identify all suitable options		**Discharge Route**
1. Septic tank System (Septic tank and percolation area) **(Chapter 7)**	☐	***Groundwater***
2. Secondary Treatment System **(Chapters 8 and 9)** and soil polishing filter **(Section 10.1)**	✓	
3. Tertiary Treatment System and Infiltration/treatment area **(Section 10.2)**	✓	

5.0 RECOMMENDATION:

Propose to install	*Traynor Environmental recommends an O' Reilly Oakstown EN Treatment system or similar EN certified system, Ecoflo Coco Filter and Gravel Distribution Bed in accordance with EPA guidelines 2021.*

And discharge to	*Groundwater*

Invert level of the trench/bed gravel or drip tubing (m)	*0.30m Above Ground Level (AGL)*

Site Specific Conditions (if any) e.g. special works, Site Improvement Works, Testing etc.
The tests showed that the site has a Sub-surface modified value rating of 68.77min/25mm indicating average percolation characteristics of the Sub-surface. A surface value modified rating of 50.60min/25mm was attained indicating average percolation characteristics of the surface. Groundwater was encountered in the trial hole at a depth of 1.80m. Winter GWL expected to be up to 1.00m. Bedrock was not encountered in the trial hole. ***A Ecoflo Co Co Filter should be constructed to ensure that there is a minimum of 0.90m of suitable percolating material between the base of the lowest part of the Gravel Distribution Bed and Groundwater at all times. The Ecoflo Co Co Filter will be bedded on 300mm depth of crushed stone (20-30mm in sizes).*** ***Traynor Environmental Ltd also recommends that the O' Reilly Oakstown EN Treatment system or similar EN certified system Ecoflo Coco Filter & Gravel Distribution Bed construction is overseen by a suitable qualified and accredited person.***

12.0 SITE INVESTIGATION – ECOLOGICAL REPORTS

An Ecology assessment of the site was completed in August 2022.

The following reports are included as part of our submission

AA Screening Report
EIA Screening Report
Invasive Alien Plant Species Assessment

As outlined in the AA and EIS the drainage ditch on the western boundary flows from the north and is culverted across the road to the west. This potentially connects to the Aghaboy Stream to the West. This stream flows into the Camlin_026 located approximately 6km south as per the river course. This in turn flows approximately 22km westward, as per the river course, prior to converging with Lough Forbes.
Therefore, all surface water runoff from the hard standing areas shall not be diverted into the adjacent stream to prevent

Please refer to appendix E – AA Screening Report

5.2 Screening for AA Conclusion

This screening for AA identifies and assesses potential significant effects which are likely to occur as a result of the proposed construction of a residential dwelling and associated works located at Corneddan, Oghil, Drumlish, Co. Longford.

The screening identified two European site; Lough Forbes Complex SAC and Ballkenny-Fishertown Bog SPA, located within the zone of influence of the proposed works. Through an assessment of the Source-Pathway-Receptor model, which considered the ZoI of effects from the proposed works and the potential in-combination effects with other plans or projects, the following findings have been reached:

- The application site is not directly connected with, or necessary to, the management of any European site;
- The proposed development works do not support direct or indirect connectivity with any European site via ecological or environmental vectors;
- Substantive pathways for transmission of impacts into European sites do not exist; and
- The proposed project will not give rise to likely significant effects on the qualifying interests of any European Site, in view of best scientific knowledge and in view of the conservation objectives of the European sites concerned.

On the basis of objective scientific information, this Screening for Appropriate Assessment finds that the proposed development works, either individually or in combination with other projects and plans, is not likely to have a significant effect on any European site.

Please refer to appendix F – Environmental Impact Assessment Report

5 Conclusion

It is concluded that impacts associated with the construction and operation of the proposed development are not considered to be significant in the context of Directive 2014/52/EU nor Schedule 7 of the *Planning and Development Regulations 2001 to 2017*, as amended.

Based on the findings of this report, the context and character of the site and the receiving environment, as well as the nature, extent, form, and character of the proposed development, the proposed development works are not considered likely to have significant effects on the environment and consequently do not require an Environmental Impact Assessment Report as prescribed under the EIA Directive 2014/52/EU.

Please refer to appendix G – Invasive Alien Plant Species Assessment

2.3 Desk Study

A review of the National Biodiversity Data Centre (NBDC) online database was conducted[1] for invasive species, located in the following 2km² grid squares: N18W in which the proposed works are located. **Table 2.1** below outlines the NBDC data search results, with both invasive flora and faunal species listed. The 1km² grid square N1883 in in which the proposed works are also located, was also checked for the presence of invasive species, none were recorded.

Table 2-1: NBDC Invasive Species Results for Relevant 2km² Grid Squares

Common Name	Scientific Name	Grid Square	Status
Japanese Knotweed	*Fallopia japonica*	N18W	3rd Schedule (Regs 49 &50), High Impact Invasive Species
Indian Balsam	*Impatiens glandulifera*	N18W	3rd Schedule (Regs 49 &50), High Impact Invasive Species

3 Best Practice Guidelines

No Invasive Alien Plant Species (IAPS) were identified within the proposed works site location. It should be noted early March is not the optimum IAPS survey season, with vegetation primarily undergoing die-back. However, no evidence of IAPS vegetation stands die-back was noted. All works on site should adhere to best practice biosecurity measures. In the event IAPS are identified during future works best practice guidelines should be adhered too.

13.0 POLICIES OF THE COUNTY DEVELOPMENT PLAN

As per Chapter 4, Core Settlement and Housing Strategies of the Longford County Development Plan 2021-2027, Section 4.8.11 – One-Off Rural Housing is supported as follows;

A significant majority of housing planning permissions in County Longford have been in the open countryside, with one-off rural housing accounting for 64.1% of housing units granted in the county between 2012 and 2019.

The NPF recognises the importance of sustaining rural areas, specifically through NPO 15 which states:
'Support the sustainable development of rural areas by encouraging growth and arresting decline in areas that have experienced low population growth or decline in recent decades and by managing the growth of areas that are under strong urban influence to avoid overdevelopment, while sustaining vibrant rural communities'

As per NPO 19, the NPF requires a clear distinction to be made between areas under urban influence and elsewhere in providing for the development of rural housing in the countryside. The RSES reinforces this through its requirement for core strategies of development plans to identify 'areas under strong urban influence in the hinterlands of settlements and set the appropriate rural housing policy response to avoid ribbon and over spill development from urban areas', support revitalised towns and villages, achieve sustainable compact growth targets, sustainably address rural decline and protect the rural resource for rural communities

The Council will ensure that development of the open countryside takes place in a manner that is compatible with the policy objectives of the NPF, and further expressed by the RSES, whilst ensuring the protection of key economic, environmental, biodiversity and cultural/heritage assets such as the road network, water quality and important landscapes

The open countryside is and will continue to be, a living and lived-in landscape focusing on the requirements of rural economies and rural communities, based on agriculture, forestry, tourism and rural enterprise, while at the same time avoiding ribbon and over- spill development from urban areas and protecting environmental qualities.

Section 4.8.12 outlines the Rural Settlement Strategy for County Longford including specific rural housing County Policy Objectives . A key principle underpinning the Settlement Strategy is the sustainable development of rural areas by encouraging growth and arresting decline in areas that have experienced low population growth or decline in recent decades and by managing the growth of areas that are under strong urban influence to avoid overdevelopment

The proposed development at Corneddan, Ballinalee is a "Rural Areas Elsewhere" –

> These areas are the residual rural areas of the county not under Strong Urban Influence which can range from strong rural areas where population levels are generally stable within a well-developed town and village and in the wider rural areas around them to structurally weaker rural areas which exhibit characteristics such as persistent and

significant population decline as well as a weaker economic structure based on indices of income, employment and economic growth.

In respect of 'Rural Areas Elsewhere', the Council aims to accommodate rural housing demand from individuals for permanent residential development, subject to good planning practice by applying a more flexible approach in the assessment of planning applications which are primarily based on sustainable planning principles (appropriate siting and design and negligible impacts to existing amenities or sensitive environments). The requirement to demonstrate local housing need will not apply to applications within this designated area.

Dwellings and structures in the countryside need to be sited and designed to impact minimally on their setting. The utilisation of existing features, natural and manmade, can assist in integrating new development into its established setting. Design standards are outlined in Chapter 16: Development Management Standards and Annex 7: Rural Design Guidelines for Residential Developments in Rural County Longford. Furthermore, the Landscape Character Assessment (Chapter 14, Appendix 9 and Annex 11) assess the sensitivity and capacity of the different character areas ability to absorb and facilitate rural residential development.

TA Group have incorporated the above core policies and objectives of the Longford County County Development Plan for Rural Areas Elsewhere and Chapter 16 Development and Management Standards by consolidationg the residential service base and enchancing the natural landscape.

14.0 APPENDIX

- Appendix A – Works Requirements (drawing package)
- Appendix B – EPA Site Suitability Report
- Appendix C – Topographical Survey
- Appendix D – Site Investigation Report
- Appendix E – AA Screening Report
- Appendix F – EIA Screening Report
- Appendix G - Invasive Alien Plant Species Assessment