B9485 CAMBRIDGE CITY COUNCIL

RELATING TO

OPTION APPRAISALS

AT

EKIN ROAD & EKIN WALK ESTATE, CAMBRIDGE

POTTER RAPER

Contents

Quality Control

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Cambridge Council	Jim Pollard	1 (Issued electronically)	10/04/2020
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1.0 Brief

Potter Raper were instructed by Jim Pollard of Cambridge City Council to undertake condition surveys and an option appraisal of their stock at 1-99 Ekin Road and 1-8 Ekin Walk, to report on the current condition and to provide suitable options regarding maintenance requirements, possible energy reducing measures and redevelopment.

We are advised the tenure at 1-99 Ekin Road (Excluding 1-8 Ekin Walk) comprises 10 leasehold, 93 tenanted and 11 freehold properties. The brief requested an external survey of all tenanted and leasehold properties and a sample number of non-invasive internal surveys of each archetype at 1-99 Ekin Road, supplemented by EPC Assessments, as follows:-

- 10% internal surveys of flats (62 tenanted)
- 25% internal surveys to tenanted houses (21 tenanted)
- 2-3 internal surveys to bungalows (10 tenanted)

The brief requested an external survey only of the Maisonette properties at 1-8 Ekin Walk. The tenure includes 3 leasehold and 5 tenanted properties.

2.0 Executive Summary

Cambridge City Council have confirmed they have a shortage of council properties and no available green field sites in the Cambridge area to construct new properties.

Potter Raper were instructed by Cambridge City Council to undertake an appraisal of their stock at 1-99 Ekin Road and 1-8 Ekin Walk (see Appendix A: Property List), to report on the current condition of their stock and to provide options to advise regarding maintenance requirements, possible energy reducing measures and redevelopment.

The surveys carried out by Potter Raper have revealed the estate to be generally in fair condition, having already benefited from roof replacement, cavity wall insulation and windows replacement (C2008). The houses, bungalows and Maisonettes appear generally to be in good condition, with no signs of structural deformation or failure observed.

The blocks at Ekin Road appear to be in fair condition. The Easiform Type 2 Pre-Cast Reinforced non-traditional structure has not been designated 'Defective' under the Housing Defects Act 1984 (Part XVI Housing Act 1985). However, the common inherent defect of all Pre-Cast Reinforced (PRC) structures is carbonation of the concrete, which can lead to component failure. Structural movement/cracking is evident to the balconies above the rear access door(s). The Structural report received from Millward Structural Engineers has prescribed superficial repairs and monitoring, to ascertain if the movement is progressive, therefore the full extent and long-term effect this will have on the building is at present unknown.

The following issues were observed which do not comply with current Building Regulations and/or the Housing Health & Safety Rating System:

a) Ekin Road Blocks (External) - The height of the balustrade (and brick dividing wall) to the balconies is approximately 950mm. This should be a minimum of 1100mm to comply with current Building Regulations Part K;

b) Ekin Road Blocks (Communal area) - The height of the balustrade to the stairwell and landings is approximately 800mm. Again this should be a minimum of 1100mm to comply with current Building Regulations Part K to ensure compliance with Building Regulations Part K;

c) Ekin Road (Flats & Houses) - the bedroom window openings to the 1st floor properties do not comply with current Building Regulations Part B Emergency Egress, which state that a fire egress window should have an unobstructed openable area that is at least 0.33m² and at least 450mm high and 450mm wide;

d) 1-8 Ekin Walk - The stairwell has a timber balustrade, which has gaps in excess of 95mm present between the timber rails and between the stair/landing and the timber and the stair risers are open between each step. Again this should be a minimum of 1100mm to comply with current Building Regulations Part K to ensure compliance with Building Regulations Part K. The underside of the stair is open/not enclosed with a suitably fire rated material, and does not comply with current Building Regulations Part B Emergency Egress;

e) All properties – the concrete slab forming the ground floor is uninsulated and does not comply with current Building Regulations Part L Conservation of Fuel and Power.

f) Ekin Road Estate – Drainage: The structural report undertaken by Millward Consultants on behalf of the City of Cambridge Council (see Appendix C: Extract from Millwards Structural Inspection Report), includes recommendations received from Metro Rod following a recent CCTV survey of the drainage, which revealed numerous issues with the main drains and a survey of the storm drains to the rear of the blocks was not possible due to root ingress. An overhaul of the existing drainage configurations is required to ensure the drains are running freely.

g) All properties: Existing paths and hardstanding (Paved/concrete) to the communal and garden areas throughout the estate were noted to be uneven and contained potential trip hazards.

h) Ekin Road Blocks - Implement the initial recommendations provided by the Structural Engineers, including monitoring the movement over a 12 month period.

The above items (except item e) have Health & Safety implications which need to be addressed as soon as is practically possible, to ensure the estate is safe and fit for purpose for their residents. This will require further investment in the existing stock, regardless of which refurbishment option Cambridge Council decide to implement.

The EPC rating of the existing houses and bungalows is band C which is a good score for properties constructed around this time. As advised above the properties are generally in good order and have an anticipated remaining life in excess of 30 years, if maintained to their present standard. The flats on Ekin Road are generally in fair condition and have an EPC rating of band C, which is a good score for this type of property.

Cambridge Council have requested proposals to potentially improve the EPC rating of the existing properties to band B. The table on the following is compiled from potential energy improvements/recommendations listed in the individual EPC's and energy assessment report. The table includes the positives/negatives of each measure, if this improvement is desirable and if it will improve the EPC rating.

Based on the energy improvements/recommendations listed in the individual EPC's, the installation of PV panels will improve the EPC rating for the houses and bungalows from band C to band B. However, there are no recommendations which will improve the EPC ratings of the flats from their current rating of band C.

ARCHETYPE	POTENTIAL ENERGY IMPROVEMENTS/EPC RECOMMENDATIONS	DESIRABLE	IMPROVE EPC BAND (Y/N)
All	**No insulation in the ground floor slab:** Break out the existing floor slab and reinstate incorporating insulation to meet the current standard/Building Regulations.	**No** – expensive and disruptive – decant will be necessary to achieve a minor gain to the EPC score.	**N**
All	**Replace existing PVCu double glazed windows:** Install new PVCu triple glazed windows to meet current standard/Building Regulations.	**No –** existing windows have in excess of 10 years remaining life. The replacement of the windows would be expensive and achieve a minor gain to the EPC score.	**N**
Flats	**Install PV (Photovoltaic) panel system to heat domestic hot water.**	**Not recommended** due to the complexities posed by multiple occupancy and ownership (Leasehold)	**N/A**
Flats	**Replace central heating boilers with Ground Source Heat Pumps and loop system.**	**Not recommended** due to the complexities posed by multiple occupancy and ownership (Leasehold)	**N/A**
Houses/Bungalows	**Replace gas fired central heating boilers with Ground Source Heat Pumps and loop system.**	**No** – costly to install and negligible gain to EPC score.	**N**
Houses/Bungalows	**Install PV (Photovoltaic) panel system to heat domestic hot water.**	**Yes** - will reduce carbon emissions and surplus power can be exported to the national grid to be used by others	**Y**

A new build model created by Potter Raper based on similar sized schemes in the South East, suggests the Ekin Road estate can be reconfigured to include approximately 254 new energy efficient/low carbon units - an increase of around 146 units, to address the councils housing shortage.

It should be noted, refurbishment or redevelopment of the estate will require Building Control consent prior to any works being undertaken on site.

There are a number of freehold properties neighbouring Ekin Road and Ekin Walk. Where there are alterations involving the boundary/line of junction to an adjoining property and/or excavation for new foundations which will impact on adjacent properties, The Party Wall Act 1996 etc. would apply and the appropriate notice will need to be served to all adjoining/adjacent properties which are not owned by Cambridge City Council.

Potter Raper have prepared a cost comparison (See Appendix D: Financial) based on a 20-year life cycle estimate for options 1 & 2 and for the demolition and regeneration of the estate in option 3.

No	OPTIONS:	Estimated Costs
1.	Reactive and Planned Maintenance – day to day repairs and planned replacement where the element has reached the end of its serviceable life (including items listed above which have H&S implications and require immediate attention).	£ 4,388,100
2.	Refurbishment of Existing Properties – In essence this option 1 including the installation of Photovoltaic panel system to the houses and bungalow, to lower carbon emissions and improve EPC ratings.	£ 4,660,000
3.	Demolition and Redevelopment of the existing estate (Based on 254 units - £ 2,516 pm² as detailed in Appendix D: Financial)	£ 51,114,800

The difference in cost between option 1 and option 3 is significant. However, the difference between Option 1 and Option 2 negligible. Option 2 would improve the EPC ratings of the existing houses and bungalows to meet new build standard. However, options 1 & 2 will not increase the number of dwellings to address the councils housing shortage.

Option 3 will provide low/net zero carbon dwellings, which would address the councils housing shortage. This option would require a significant investment/cost to procure additional dwellings. Part of the new build costs could be recouped by selling a small percentage of the new properties (Proportion of properties to be sold would need to be in accordance with government guidelines and planning permissions).

In summary, the existing properties have benefited from significant investment in 2008 and are generally in good order, have achieved well above average EPC scores and have an anticipated remaining life in excess of 30 years, if maintained to their present standard. The installation of PV panels would improve the EPC rating for the houses and bungalows from band C to band B. However, there are no recommendations which will improve the EPC ratings of the flats from their current rating of band C. The flats on Ekin Road are of non-traditional construction but are generally in fair condition. The structural issues present to the rear, the poor thermal integrity of the properties and potential degradation of the structural frame due to the effects of carbonation, will ensure these properties may require considerable investment to ensure a life span in keeping with the houses. There are a number of items listed above which have H&S implications and require immediate attention and further investment in the existing stock.

The redevelopment of the existing estate would provide an opportunity to invest in innovative construction, which will be aesthetically pleasing and include energy/carbon reducing techniques. This will provide low/net zero carbon dwellings, which generate as much energy as is needed for heating, hot water and household appliances and would address the councils housing shortage. The redevelopment of the existing estate would provide an opportunity to invest in innovative construction, which will be aesthetically pleasing and include energy/carbon reducing techniques. This will provide low/net zero carbon dwellings, which generate as much energy as is needed for heating, hot water and household appliances and would address the councils housing shortage. This would require a significant investment/cost to procure additional dwellings. However, part of the new build costs could be recouped by selling a small percentage of the new properties (Proportion of properties to be sold would need to be in accordance with government guidelines and planning permissions).

It would be prudent for the City of Cambridge Council to consult with the tenants and leaseholders on the Ekin Road Estate at the onset, if they wish to consider regeneration.

3.0 Condition Surveys

Property condition recorded under individual archetype below:-

3.1 Flats

Construction
There are 6nr purpose built 3nr storey blocks, each containing 12nr flats, which are located on Ekin Road (see Appendix A: Property List). Construction is of Easiform Type 2 Pre-Cast Reinforced (PRC) concrete cavity wall, finished externally with a painted render and insulated retrospectively. The buildings were constructed C1950.

The main roofs are duo pitched and covered with interlocking concrete profiled tiles and matching ridge tiles, sitting on traditional timber rafters and purlins. There are brick chimneys located within the front slope, flashed to the main roof with lead. The roof spars are exposed at the roof eave, projecting away from the building. There are no fascia boards installed and the PVCu gutter is fixed directly to the spar ends. There are 4nr PVCu rainwater pipes located to the front and rear of each block.

The windows are PVCu double glazed. There are a variety of concrete window surrounds, cills and planters located to the front elevation. There are 2nr entrances to each block providing access to an enclosed communal stair. These have timber doors with glazed apertures and a controlled entry system. Above the front entrance there are recessed concrete panels and a PVCu canopy.

To the rear there is a secure timber door with a glazed aperture. To the rear of the blocks, above the doorway are private recessed balconies accessed directly from each dwelling.

To the rear of the building there is a standalone block of storage sheds, comprising brick sheds with timber ledger and brace style doors and a concrete flat roof, finished with bituminous felt. The hardstanding to the rear is a mixture of pre- cast concrete paving stones, concrete, tarmac and grassed areas, enclosed by fencing.

Surveys: External
The external façade was noted generally to be in fair condition. The Easiform Type 2 has not been designated 'Defective' under the Housing Defects Act 1984 (Part XVI Housing Act 1985). However, the common inherent defect of all Pre-Cast Reinforced (PRC) structures is carbonation of the concrete.
Carbonation is the chemical reaction between carbon dioxide present in the air and cement contained within the concrete, which may lead to the corrosion of the reinforcement steel and deterioration of the concrete.

The roofs were replaced C2008 and as would be expected are in good order. The walls were noted generally to be fair in condition with only minor blemishes in the render and concrete finishes and discoloration of the masonry paint observed.

However, to the rear of each block, there was evidence of structural movement around and above the rear doorway, with extensive cracking observed in the floor and walls of the balconies. Potter Raper have received a structural report undertaken by Millward Consultants on behalf of the City of Cambridge Council (see Appendix C: Extract from Millwards Structural Inspection Report), containing proposals to undertake superficial repair and monitor the movement for a defined period (12 months). At the end of the monitoring period further investigation and/or assessment should be undertaken by a suitably qualified Structural Engineer with regards to further work to stabilise the structure to the rear of the buildings. The report also includes recommendations received from Metro Rod following a recent CCTV survey of the drainage, which revealed numerous issues with the main drains and a survey of the storm drains to the rear of the blocks was not possible due to root ingress.

A number of cracks were noted within the concrete planters. It would be prudent to obtain a sample from the planters to test for the presence of asbestos containing material, prior to attempting repair.

The hardstanding generally, requires an extensive overhaul to address to changes in level which constitute a trip hazard and to improve the appearance aesthetically. The storage sheds require minor repair to address missing pointing/damaged timber etc. and redecoration. A number of the perimeter fences, particularly to the rear, are in poor condition and in need of repair/replacement.

Surveys: Internal Communal
Internally, the finishes to the communal stair are in fair condition, including the non-slip floor covering. However, the stair would benefit from minor repair and redecoration. The doors to the front and rear of the buildings appear dated and consideration should be given to replacing the door(s) and combination frames with new timber. The access to the roof void above the communal stair has been screwed shut to prevent unauthorised access.

The FRA reports received from the City of Cambridge Council refer predominately to housekeeping issues, securing the loft access hatches (Noted: the loft access hatches are screwed shut) and isolated incidence of non-fire rated glazing employed to flat entrance doors. We are unable to comment on the fire integrity of the roof void or materials employed within the roof void and/or hatch.

The height of the balustrade to the stairwell and landings is approximately 800mm. This should be a minimum of 1100mm to comply with current Building Regulations Part K and Housing Health & Safety Rating System.

Surveys: Internal - Dwelling
Access was obtained to 6nr flats (see Appendix B: List of Properties Surveyed Internally). The dwellings were all found to be generally in fair condition. The PVCu windows were found to be in fair condition requiring a service (lubrication and adjustment) and isolated replacement of defective ironmongery. However, the bedroom window openings to the 1st floor properties do not comply with current Building Regulations Part B Emergency Egress, which state that a fire egress window should have an unobstructed openable area that is at least 0.33m² and at least 450mm high and 450mm wide. The timber flat entrance doors were found generally to be in fair condition, with isolated occurrence of missing smoke seals and broken Perko closers.

The kitchens and bathrooms were found generally to be satisfactory, with only isolated replacement required. The electrical installations and boilers inspected are in good condition, benefiting from regular testing (Noted that there was no Carbon Monoxide detection in any flat inspected). In a small number of properties the door from the kitchen to the hallway (Primary escape route) was either absent or non-fire rated. Access to the roof void was available from the top floor properties. The insulation has been topped up and is in excess of 300mm thick which is compliant with current standards.
A number of residents advised the properties are generally difficult to heat during the winter months and they suffer adversely from thermal gain during the summer months, which raised concerns, as the blocks have benefited from retrofit cavity wall insulation.

This has resulted in further investigation being undertaken. A Borescope was inserted in to the cavity of 2nr void dwellings to confirm the presence of cavity insulation. Insulation was noted to have been installed to all locations inspected. It is therefore presumed the issues reported are due to the poor thermal efficiency of the external walls.

3.2 Houses

Construction
There are 32 No (21 tenanted) & 11 freehold) 2-story semi-detached houses constructed C1950. Construction is of traditional cavity wall with fair faced brickwork, with a concrete floor slab at ground level and timber to the first floor. The cavities have benefited from retrofill cavity wall insulation.

The main roofs are duo pitched and covered with interlocking concrete profiled tiles and matching ridge tiles, sitting on traditional timber rafters and purlins. There are brick chimneys located within the front slope, flashed to the main roof with lead. The fascia boards and soffits are PVCu. The gutters are PVCu and there are 2 No. rainwater pipes located to each gable elevation.

The windows are PVCu double glazed, with a tile cill.

The front entrance doors are timber, with a concrete canopy above which is supported by a projecting half brick wall.

To the rear there is a timber door providing access to the rear garden. The gardens and pathways are a mixture of pre-cast concrete paving stones, concrete and grassed areas, enclosed by fencing.

Surveys - External
The exterior areas were noted generally to be in fair condition. The roofs were replaced C2008 and as would be expected are in good order – however, no ventilation was observed (to the ridge or roof eave) and would recommend further investigation is required to ascertain if there is a satisfactory flow of air within the roof void. The walls were noted generally to be in fair condition with only minor blemishes to the brickwork and/or /pointing absent etc.
The canopy above the front door requires repair to address cracking/blemishes in the concrete and redecoration with an anti-carbonation coating.

The timber front and rear entrance doors were found generally to be in poor condition and would benefit from replacement. A number of properties have altered the front garden to form a driveway and off street parking for their car.

The pathways generally, require an extensive overhaul to address to changes in level which constitute a trip hazard and aesthetically to improve the appearance. To the rear gardens there are brick storage sheds which have either concrete or asbestos corrugated roofs.

The storage sheds require repair to address damaged asbestos corrugated roofs and windows suffering timber decay and/or missing glass.

The glazing to the sheds generally was in poor condition. Rotting timber was evident to the majority of the windows and these would benefit from replacement

Surveys - Internal
Access was obtained to 6 No. houses (see Appendix B: List of Properties Surveyed Internally). The dwellings were all found to be generally in fair condition. The PVCu windows were found to be in fair condition requiring a service (lubrication and adjustment) and isolated replacement of defective ironmongery. However, the bedroom window openings to the 1st floor do not comply with current Building Regulations Part B Emergency Egress, which state that a fire egress window should have an unobstructed openable area that is at least 0.33m² and at least 450mm high and 450mm wide.

The kitchens and bathrooms, were found generally to be satisfactory, with only isolated replacement required. The electrical installations and boilers inspected are in good condition, befitting from regular testing (Noted - no Carbon Monoxide detection in any property inspected).

3.3 Bungalows

Construction
There are 10No. single-story terrace and quasi/semi-detached bungalows constructed C1950. Construction is of traditional cavity wall with fair faced brickwork and concrete floor slab. The cavities have benefited from retrofit cavity wall insulation.

The main roofs are duo pitched and covered with interlocking concrete profiled tiles and matching ridge tiles, sitting on traditional timber rafters and purlins. There are brick chimneys located within the front slope, flashed to the main roof with lead. The fascia boards and soffits are PVCu. The gutters and rainwater pipes are PVCu.

The windows are PVCu double glazed, with a tiled cill. The front entrance doors are timber, recessed within an open porch.

To the rear there is a timber door providing access to the rear garden. The gardens and pathways are a mixture of pre-cast concrete paving stones, concrete and grassed areas, enclosed by fencing.

Surveys - External
The exterior areas were noted generally to be in fair condition. The roofs were replaced C2008 and as would be expected are in good order – however, no ventilation was observed (to the ridge or roof eave). The walls were noted generally to be fair condition with only minor blemishes to the brickwork and/or /pointing absent etc.

The timber rear entrance doors were found generally to be in poor condition and would benefit from replacement.

The pathways generally, require an extensive overhaul to address to changes in level which constitute a trip hazard and aesthetically to improve the appearance.

Surveys - Internal
Access was obtained to 2 No. bungalows (see Appendix B: List of Properties Surveyed Internally). The dwellings were all found to be generally in fair condition, but spatial restrictions were observed, predominantly to the kitchen areas. The floor tiles to the kitchen area are thermoplastic (Potentially asbestos containing material). The PVCu windows were found to be in fair condition requiring a service (lubrication and adjustment) and isolated replacement of defective ironmongery.

The kitchens and bathrooms, were found generally to be satisfactory, with only isolated replacement required. The electrical installations and boilers inspected are in good condition, befitting from regular testing (Noted - no Carbon Monoxide detection in any property inspected – some properties have not benefited from mechanical extraction in the kitchen – this may be due to spatial constraints).

3.4 Maisonettes

Construction
1-8 Ekin Walk comprises 2-story purpose built block of flats constructed C1970's. Construction is of traditional cavity wall with fair faced brickwork and concrete floor slabs. The cavities do not appear to have benefited from retrofit cavity wall insulation.

The main roofs are duo pitched and covered with interlocking concrete tiles and matching ridge tiles. The fascia boards are PVCu. The gutters are PVCu and there are 2nr rain water pipes located to the front and rear elevation.

The windows are PVCu double glazed and are full height screens incorporating an insulated uPVC panel below cill height to all dwellings and curtain walling to the communal areas.

The front entrance doors are aluminium double glazed. Access to the main doors is via a tarmac pathway, with grassed areas either side, enclosed by a timber fence.

To the rear there is a glazed PVCu door providing access to the rear garden. The gardens and pathways are a mixture of grassed area pre- cast concrete paving stones and tarmac, enclosed by fencing with a secured gate.

Surveys - External

The exterior areas were noted generally to be in fair condition. The roofs were replaced C2008 and as would be expected are in good order – however, no ventilation was observed (to the ridge or roof eave). The walls were noted generally to be fair condition with only minor blemishes to the brickwork and/or /pointing absent etc. However, vegetation/climbing plants were observed to the full height of the right hand gable. The tendrils from climbing plants will, if left attached for a period time, result in damage to the face of the brickwork and pointing. The plant should be removed carefully and the wall behind repaired as necessary. Cracking was observed between the window frames and the brickwork, which requires filling and sealing with a proprietary sealant to ensure wind and watertight.

The front and rear entrance doors and entry system were found generally to be in fair, but dated condition and would benefit from an overhaul.

The pathways and paved areas require an extensive overhaul to address to broken paving stones and changes in level which constitute a trip hazard and aesthetically to improve the appearance.

Surveys: Internal - Communal
Internally, the finishes to the communal stair are in fair condition, including the tiled floor to the entrance lobby. Only minor cracking/blemishes were noted in the plaster finishes to the walls and ceiling, confirming the communal stair would benefit from minor repair and redecoration.

Internal surveys of individual dwellings was not part of the brief provided to Potter Raper and we are therefore unable to comment on the fire integrity of the flat entrance and/or the storage cupboard doors located on the 1st floor landing.

The stairwell has a timber balustrade, which has gaps in excess of 95mm present between the timber rails and between the stair/landing and the timber and the stair risers are open between each step.

The stairs do not comply with current Building Regulations Part K and Housing Health & Safety Rating System and consideration should be given to replacing with a metal balustrade (minimum height 1100mm and maximum height between the balustrades of 95mm) and the underside of the stair enclosed with a suitably fire rated material.

4.0 Redevelopment

4.1 Existing Site

The Ekin Road estate is a typical 1950's style housing complex, accessed by a single road from the north, via Keynes Road, with properties on either side, forming a square to the centre. The site comprises 108 single, two and three storey properties with several designated parking areas.

To the east is Ditton Lane, with private houses forming a border; to the south there are commercial buildings and to the west is Wadloes Road which is lined with two-storey properties and a wide grassed verge. The current configuration permits generous gardens and ensures the neighbouring properties are not overlooked.

The site could be reconfigured to increase the number units by introducing 4-storey blocks (Predominately to the south of the estate) subject to statutory consent.

The properties are generally in good order and have anticipated remaining life in excess of 30 years, if maintained to their present standard.

The flats on Ekin Road are of non-traditional construction. Although the flats are generally in fair condition, the structural issues present to the rear, the poor thermal integrity of the properties and potential degradation of the structural frame due to the effects of carbonation, will ensure these properties may require considerable investment to ensure a life span in keeping with the houses.

5.0 Statutory Considerations

5.1 Planning Consent

The existing layout of the estate includes 3-storey blocks of flats facing all boundaries. If Cambridge Council decide to redevelop the estate, with new energy efficient/low carbon dwellings etc., we would expect the planners to look favourably on their proposals assuming the new properties will not impact overly on neighbouring properties. We would recommend Cambridge Council obtain pre-planning advice, once preliminary drawings have been prepared.

5.2 Building Control Approval

If the estate is to be refurbished and energy reducing/low carbon measures are to be introduced, Building Control consent will be required, prior to any works being undertaken on site.

Redevelopment of the existing estate with newly constructed dwellings would also require Building Control consent, prior to any works being undertaken on site. The construction phase should be monitored by Building Control and NHBC (National House-Building Council) who is the leading home construction warranty and insurance provider for new and newly-converted homes in the UK.

All works must be undertaken by suitably qualified contractors and comply fully with current Building Regulations.

5.3 Party Wall Matters 1996 etc.

There are a number of freehold properties neighbouring Ekin Road and Ekin Walk. Where there are alterations involving the boundary/line of junction to an adjoining property and/or excavation for new foundations which will impact on adjacent properties (Line of Junction or within 3m/6m of the building), The Party Wall Act 1996 etc. would apply and the appropriate notice will need to be served to all adjoining/adjacent properties which are not owned by Cambridge City Council.

6.0 Environmental

6.1 Energy & Carbon Reduction Measures

The EPC rating of the existing houses and bungalows is band C which is a good score for properties constructed around this time. The properties are generally in good order and have anticipated remaining life in excess of 30 years, if maintained to their present standard. The flats on Ekin Road are of non-traditional construction and have an EPC rating of band C, which is a good score for this type of property. Cambridge Council have requested proposals to potentially improve the EPC rating to band B.

The following table is compiled from potential energy improvements/recommendations listed in the individual EPC's and energy assessment report. The table includes the positives/negatives of each measure, if this improvement is desirable and if it will improve the EPC rating.

ARCHETYPE	POTENTIAL ENERGY IMPROVEMENTS/EPC RECOMMENDATIONS	DESIRABLE	IMPROVE EPC BAND (Y/N)
All	**No insulation in the ground floor slab:** Break out the existing floor slab and reinstate incorporating insulation to meet the current standard/Building Regulations.	**No** – expensive and disruptive – decant will be necessary to achieve a minor gain to the EPC score.	**N**
All	**Replace existing PVCu double glazed windows:** Install new PVCu triple glazed windows to meet current standard/Building Regulations.	**No –** existing windows have in excess of 10 years remaining life. The replacement of the windows would be expensive and achieve a minor gain to the EPC score.	**N**
Flats	**Install PV (Photovoltaic) panel system to heat domestic hot water.**	**Not recommended** due to the complexities posed by multiple occupancy and ownership (Leasehold)	**N/A**
Flats	**Replace central heating boilers with Ground Source Heat Pumps and loop system.**	**Not recommended** due to the complexities posed by multiple occupancy and ownership (Leasehold)	**N/A**
Houses/Bungalows	**Replace gas fired central heating boilers with Ground Source Heat Pumps and loop system.**	**No** – costly to install and negligible gain to EPC score.	**N**
Houses/Bungalows	**Install PV (Photovoltaic) panel system to heat domestic hot water.**	**Yes** - will reduce carbon emissions and surplus power can be exported to the national grid to be used by others	**Y**

Based on the energy improvements/recommendations listed in the individual EPC's, the installation of PV panels will improve the EPC rating for the houses and bungalows from band C to band B. However, there are no recommendations which will improve the EPC ratings of the flats from their current rating of band C.

PV (Photovoltaic) panel system will reduce carbon emissions where employed to heat domestic hot water. Although costly to install, Cambridge Council may be eligible for the **Renewable Heat Incentive (RHI).

There will be occasions when the PV panel system will generate more electricity that is required/can be stored. The surplus power will be exported to the national grid to be used by others. **The Smart Export Guarantee (SEG) is a government-initiated export for British businesses and homes who have installed small-scale, renewable or low carbon technology.

We would advise Cambridge Council to ensure their current energy company is tariff bound by the terms of the SEG and will pay for any surplus power generated or negotiate with other energy suppliers to procure a company that will (**Source: The EnergySavingTrust.org.uk).

However, if the PV system is for heating hot water only, then a second Smart meter may need to be installed to monitor usage/electricity generated. Payment for exporting any surplus electricity would need to be negotiated with the energy suppliers.

All renewable heating systems in the Domestic RHI (**Renewable Heat Incentive) must be certified by Microgeneration Certification Scheme (MCS).

A contractor installing renewable heating systems should be MCS certified and they should be a member of one of the two consumer codes; the Renewable Energy Consumer Code (RECC) or Home Insulation & Energy Systems Contractors Scheme (HIES).

7.0 Options

We have prepared 3 options, which range from managing the properties employing planned and reactive repairs, refurbishment of the existing properties to improve the EPC rating, to full demolition and regeneration of the estate, reporting on potential risks.

7.1 Reactive & Planned Repairs and Cyclical Maintenance

The basic requirement is to ensure the properties remain wind, watertight and compliant with the Housing Health & Safety Rating System, by undertaking statutory inspections and preparing programmes of Planned and Cyclical maintenance. A number of element's requiring large capital outlay have already been addressed (Roof replacement, cavity wall insulation and windows replacement). The following items will require immediate attention:

a) of the balustrade to the communal areas to ensure compliance with Building Regulations Part K and Alteration the Housing Health & Safety Rating System;

b) Ekin Road Blocks - Implement the initial recommendations provided by the Structural Engineers, including monitoring the movement over a 12 month period.

c) Alteration of the bedroom windows to the 1st floor properties to ensure compliance with Building Regulations Part B Emergency Egress;

d) Overhaul of the existing drainage configurations to ensure they are running freely;

e) Overhaul/replacement of existing hardstanding to eliminate potential trip hazards.

Although this option would require the least capital outlay at the onset, it will not address the risk posed at Ekin Road by an ageing non-traditional structure, or the full rectification of the structural issues to the rear elevation of the blocks. It will not offer any improvement to the current EPC band, nor will it increase the number of dwellings to address the councils housing shortage.

7.2 Refurbishment of Existing Properties – Introducing Energy & Carbon Reduction Measures

This option is based on item 7.1 but includes energy and carbon reduction measures to improve the current energy performance and EPC rating. The EPC assessments state the current rating is band C. The report prepared by The Energy Council (See item 6.1 and Appendix E: Environmental) has suggested the following measures could be introduced to improve energy efficiency/EPC ratings and lower carbon emissions:-

a) Photovoltaic solar panels to heat domestic hot water – for the houses only;

The installation of Photovoltaic solar panels to the houses and bungalows would reduce the carbon emissions. The above measures combined will improve the EPC rating to Band B, which meets the rating preferred by Cambridge Council. However, there are no recommendations which will improve the EPC ratings of the flats from their current rating of band C. This option will not increase the number of dwellings to address the councils housing shortage.

7.3 Demolition and Redevelopment

The redevelopment of the existing estate would provide an opportunity to invest in innovative construction, which will be aesthetically pleasing and include energy/carbon reducing techniques. This will provide low/net zero carbon dwellings, which generate as much energy as is needed for heating, hot water and household appliances.

A new build model created by Potter Raper based on similar sized schemes in the South East, suggests the Ekin Road estate can be reconfigured to include approximately 254 units - an increase of around 146 units. This is supported by the preliminary study undertaken by Hawkins Browne Architects suggests there is sufficient space to more than double the number of dwellings on the Ekin Road estate, to address the councils housing shortage.

The proposals listed above would be subject to available funding and statutory approvals being obtained.

The tenure of properties within the Ekin Road estates includes a small number of leasehold dwellings, who may or may not support the case for regeneration and may challenge the council if they select this option.

7.4 Cost

Potter Raper have prepared a cost comparison (See Appendix D: Financial) based on a 20-year life cycle estimate for options 1 & 2 and for the demolition and regeneration of the estate in option 3.

No	OPTIONS:	Estimated Costs
1.	Reactive and Planned Maintenance – day to day repairs and planned replacement where the element has reached the end of its serviceable life. This includes the following items which require immediate attention: a) Alteration of the balustrade to the communal areas to ensure compliance with Building Regulations Part K and the Housing Health & Safety Rating System. b) Ekin Road Blocks - Implement the initial recommendations provided by the Structural Engineers, including monitoring the movement over a 12-month period. c) Alteration of the bedroom windows to the 1st floor properties to ensure compliance with Building Regulations Part B Emergency Egress. d) Overhaul of the existing drainage configurations to ensure they are running freely. e) Overhaul/replacement of existing hardstanding to eliminate potential trip hazards.	£ 4,388,100
2.	Refurbishment of Existing Properties – In essence this is option 1 including the installation of Photovoltaic panel system to the houses and bungalows, to lower carbon emissions and improve EPC ratings.	£ 4,660,000
3.	Demolition and Redevelopment of the existing estate (Based on 254 units - £ 2,516 pm² as detailed in Appendix D: Financial)	£ 51,114,800

The difference in cost between option 1 and option 3 is significant. However, the difference between Option 1 and Option 2 negligible. Option 2 would improve the EPC ratings of the existing houses and bungalows to meet new build standard. However, options 1 & 2 will not increase the number of dwellings to address the councils housing shortage.

Option 3 will provide low/net zero carbon dwellings, which would address the councils housing shortage. This option would require a significant investment/cost to procure additional dwellings. Part of the new build costs could be recouped by selling a small percentage of the new properties (Proportion of properties to be sold would need to be in accordance with government guidelines and planning permissions).

8.0 Conclusions & Recommendations

In summary, the estate is generally in fair condition, having already benefited from roof replacement, cavity wall insulation and windows replacement (C2008). The houses and bungalows appear generally to be in good condition, with no signs of structural deformation or failure observed.

The blocks at Ekin Road appear to be in fair condition. The Easiform Type 2 Pre-Cast Reinforced non-traditional structure has not been designated 'Defective' under the Housing Defects Act 1984 (Part XVI Housing Act 1985). However, the common inherent defect of all Pre-Cast Reinforced (PRC) structures is carbonation of the concrete, which can lead to component failure. Structural movement/cracking is evident to the balconies above the rear access door.

The Structural report received from Millward Structural Engineers has prescribed superficial repairs and monitoring, to ascertain if the movement is progressive, therefore the full extent and long-term effect this will have on the building is at present unknown.

The following items have been identified as having a significant impact on the building/building users and require immediate attention:

a) Alteration of the balustrade to the communal areas to ensure compliance with Building Regulations Part K and the Housing Health & Safety Rating System.

b) Ekin Road Blocks - Implement the initial recommendations provided by the Structural Engineers, including monitoring the movement over a 12-month period.

c) Alteration of the bedroom windows to the 1st floor properties to ensure compliance with Building Regulations Part B Emergency Egress.

d) Overhaul of the existing drainage configurations to ensure they are running freely.

e) Overhaul/replacement of existing hardstanding to eliminate potential trip hazards.

The above items have H&S implications and will need to be addressed, regardless of which option Cambridge Council decide to implement.

Based on the energy improvements/recommendations listed in the individual EPC's, the installation of PV panels will improve the EPC rating for the houses and bungalows from band C to band B. This option will not offer any solution to the councils housing shortage.

However, there are no recommendations which will improve the EPC ratings of the flats from their current rating of band C.

A new build model created by Potter Raper based on similar sized schemes in the South East, suggests the Ekin Road estate can be reconfigured to include approximately 254 units - an increase of around 146 units to address the councils housing shortage.

The redevelopment of the existing estate would provide an opportunity to invest in innovative construction, which will be aesthetically pleasing and include energy/carbon reducing techniques.

This will provide low/net zero carbon dwellings, which generate as much energy as is needed for heating, hot water and household appliances and would address the councils housing shortage. This would require a significant investment/cost to procure additional dwellings. However, part of the new build costs could be recouped by selling a small percentage of the new properties (Proportion of properties to be sold would need to be in accordance with government guidelines and planning permissions).

The proposals listed above would be subject to available funding and statutory approvals being obtained. We would recommend Cambridge Council obtain pre-planning advice, once preliminary drawings have been prepared.

The tenure of properties within the Ekin Road estates includes a small number of leasehold dwellings, who may or may not support the case for regeneration and may challenge the council if they choose this option.

9.0 Limitations

The scope of the inspections was confined to 1-99 Ekin Road and 1-8 Ekin Walk and were non-invasive (see Appendix A: Property List).

This report relates to 1-99 Ekin Road and 1-8 Ekin Walk Option Appraisal only and doesn't constitute in any way a review of any other property/property types.

This report has been written for the Client, City of Cambridge Council. Any Third Party that obtains a copy of the Report without the express permission of Potter Raper, or the author, relies on it at their own risk, and Potter Raper accepts no liability with respect to any finding within the Report relied upon.

The inspections were undertaken between 3rd February and the 10th March 2020 by Potter Raper and The Energy Council.