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Understanding the Heritage

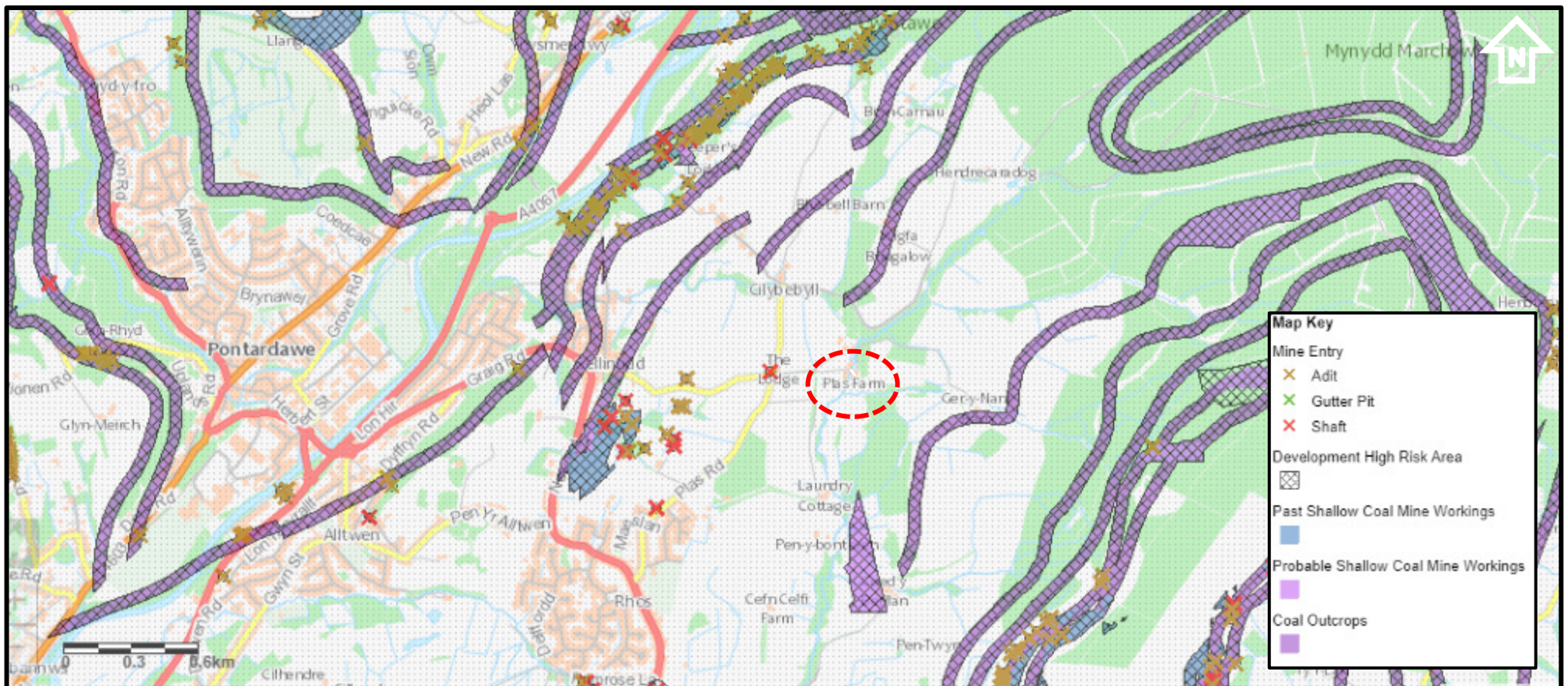
3.9 Geology

The rocks beneath the Plas Cilybebyll estate belong to the carboniferous series and there are coal outcrops in a number of locations; it is likely that these outcrops were mined on a small scale before the mid-18th Century, whereas a result of the industrial revolution, coal extraction greatly increased in the area. The coal from these mines

was predominantly used to fuel the furnaces of Neath and Swansea Valleys' copper smelting industries and later Ynyscedwyn, Ystalafera and Pontardawe's iron works.

The area's coal production increased even further following the construction of the Swansea Canal in 1798 as the coal could be transported to the markets on tram road feeders. Production

increased again after the Swansea Vale Railway's construction, especially as many collieries had constructed branch lines to improve transportation efficiency. The area's coal mining activities halted in the 1920s as a result of competition from elsewhere and Cilybebyll once again became a sleepy hamlet.



Statement of Significance

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Statement of Significance

Even though the Romans had managed to utilise concrete on a large scale over 2000 years ago, the knowledge of concrete making was largely lost with the fall of the Roman Empire and wasn't rediscovered in the UK until the end of the 1700's, with John Smeaton discovering a modern method of producing hydraulic lime that could be used to make lime concrete in 1793. Further developments in 1824 saw Joseph Aspdin invent Portland Cement by burning finely ground chalk with finely divided clay in a lime kiln until carbon dioxide was driven off. Portland cement quickly overtook lime to become the primary cementing agent used in construction.

From the arrival of lime concrete at the end of the 18th Century, until reinforced concrete became commonplace at the end of the 19th Century, mass concrete (concrete with no reinforcement, cast in situ using shuttering) was generally used for building components such as footings, underpinning, artificial stone bay windows and 'fireproof' floors, with only a handful of exceptions in existence where concrete was used to construct the whole building. Mass concrete was also used during the mid – late 19th Century in engineered structures such as harbours and bridges.

The experimental use of mass shuttered concrete to create building components quickly fell out of fashion and was largely abandoned in the 1890's following the introduction of reinforced concrete, as this broadened the use of concrete as a building material. Reinforced concrete was more attractive to engineers and architects for its superior

properties including freedom of form, fire resistance, and high tensile strength.

The mass concrete outbuilding at Plas Farm is designated as a Grade II listed building due to its special architectural interest as an extremely rare and excellent example of a mass concrete building dating back to the 19th Century, during a pioneering phase when concrete was first used to construct buildings, prior to the introduction of reinforcing members. It is one of the earliest examples of concrete construction in the country, built in 1891 using ballast from coal boats returning to Swansea. The stones were bought from Swansea docks to Pontardawe by canal and then hauled to the farm by horse and cart where they were mixed with sand and Portland cement to create concrete and poured into timber shuttering to create the mass concrete walls. The walls were finished with a concrete render externally.

The building was constructed to support the estate's activities, but the exact purpose for its construction is not documented; however, its form and inclusion of a first floor, including a loading door and winch indicates that it was possibly constructed as a cow house for dairy cattle with a hay loft/granary above. The form of the single storey annexe to the south indicates that this area was originally constructed as a pigsty before the walls were raised as a part of its conversion during the mid-late 20th Century to a milking parlour.

The building was last used as a milking parlour in 1993, the upper floor used as the 'Cake Loft' for the animal feed which descended in shoots whilst the

cows were being milked on the ground floor. Since the dairy herd was sold in 1993, the building has been used as general storage for the farm and has fallen into a state of disrepair; it is now in need of extensive repairs to prevent further deterioration / collapse. Most of the milking parlour's equipment has been removed, with only some remnants (random sections of pipework and fixings) left in-situ.



Article taken from *The Cambrian* (1876) relating to the construction of concrete houses in the Swansea Valley area

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Statement of Significance

Conservation Principles and Heritage Values

Cadw, following the lead set by Historic England, published Conservation Principles setting out how historic assets should be managed to sustain their values. The preceding part of this assessment has described the heritage asset and explained its significance. The next stage is to test this understanding against the conservation principles adopted by Cadw on behalf of Welsh Government. These principles start from the point of view that changes within the historic environment are inevitable and that conservation is often more about the careful management of that change rather than the prevention of it. The guidance set out by Cadw requires that:

"New work must respect the setting and significance of the historic assets affected. The quality of design and execution must add value to that site and its setting, both now and in the future"

It sets out criteria for how significance (the sum of all the heritage values attached to a place) can be evaluated, considering Evidential, Historical, Aesthetic and Communal values and says that:

"The significance of an historic asset embraces all of the cultural heritage values that people associate with it"

STATEMENT OF SIGNIFICANCE – EVALUATION OF HERITAGE VALUES

EVIDENTIAL VALUE	[Elements of an historic asset that can provide evidence about past human activity] The building's existence provides evidence of the continued development of Plas Cilybebyll Estate during the mid-19th Century and evidence exists within the building (remnants of old milking equipment) that confirms it was converted into a milking parlour to support the Plas Farm's dairy herd until it fell out of use at the end of the 20th Century when the farm diversified to offer holiday accommodation. The walls and first floor staircase also provide clear evidence of the experimental use of mass shuttered concrete to create building components during the mid-19th Century; mass concrete, now an obsolete form of wall construction was a stepping stone towards the development of reinforced concrete walls that began to come into existence at the end of the 19th Century (now commonplace in many modern structures). Therefore, their retention helps to demonstrate the early origins of modern day construction techniques. Unfortunately, the defects currently in existence at Plas Farm's mass concrete outhouse prove why reinforcement became necessary for the construction of structural concrete components such as walls, floors and beams.
HISTORICAL VALUE	[How the historic asset might illustrate a particular aspect of past life or be associated with a notable family, person, event or movement. This can be less tangible than the evidential value but are nonetheless important] As with all the buildings located on what was Plas Cilybebyll Estate, the mass concrete outhouse is linked to the Lloyd family who's ancestors owned the estate for the best part of 600 years up until the mid 20th Century (as explained in further detail in section 3.6 – Historical Context). Images on the following page show the structure in a far more favourable condition at the start of the 1900's, with one slightly earlier photo (mid-late 19th Century) showing the building being used for the agricultural purposes originally intended - members of the Lloyd family and some of the estate labourers are positioned with traditional farming equipment nearby/on the mass concrete staircase.
AESTHETIC VALUE	[The way in which people draw sensory and intellectual stimulation from an historic asset] Even though it isn't the most visually striking or aesthetically pleasing building found within the boundary of the old Plas Cilybebyll Estate due to the materials used in the construction of its walls, external staircase and roof, these elements are visually distinctive from the ornate gothic architecture of the neighbouring Plas Cilybebyll and Plas Farm's vernacular, traditionally constructed outhouses. These materials provide the building with an unique charm within its location and its other features (some of which are constructed from traditional materials) provide some familiarity by having a similar style and proportions to the building's contemporaries i.e. first floor loading door, timber casement windows & roof structure, and cast iron pigtail handrails.
COMMUNAL VALUE	[The meanings that an historic asset has for people who relate to it or for whom it figures in their collective experience or memory] The building has limited communal value due to its location on what was once a private estate, then a working farm, before transforming to its current use as holiday accommodation; the building may hold some significance in the memories of those who have lived at Plas Cilybebyll / Plas Farm or stayed at one of the holiday cottages.

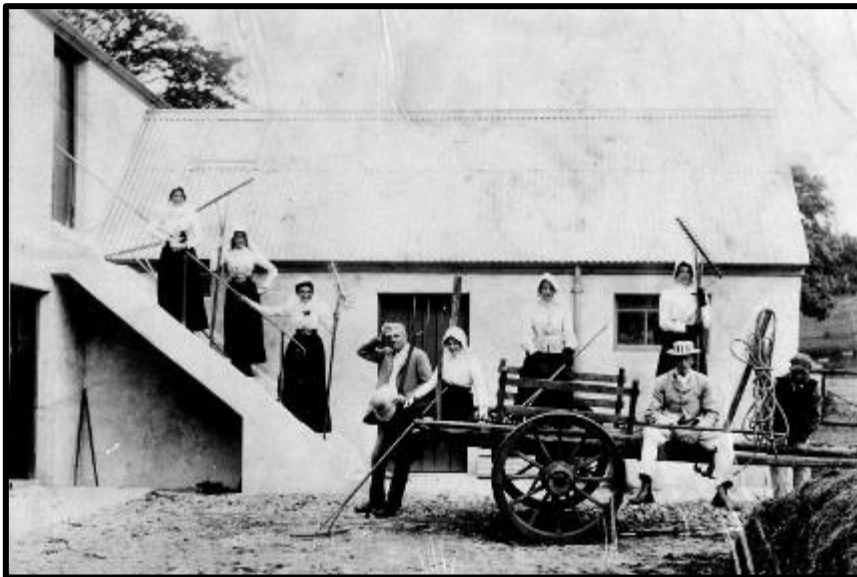
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Statement of Significance



Top Left:
Aerial view of the mass-concrete outbuilding taken in 1981

Bottom Left:
Members of the Lloyd family of Plas Cilybebyll (there were six daughters in one generation) and some of the estate labourers, taken by the concrete building's first floor staircase



Top & Bottom Right:
The building from circa 1900, demonstrating the original design and finish of the building. Mass concrete with a plain cement render, gable chimney and corrugated sheet roof. Tripart windows to ground floor, a loading door and hoist to first floor on the South gable with a projecting roof

Explanation of Proposed Interventions

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Explanation of Proposed Interventions

STRUCTURAL OBSERVATIONS *(Taken directly from Ateb Consult's structural survey dated July 2021)*

General:

The building structure is of mass concrete walls with timber 1st floor elements and roof structure, with a metal corrugated sheet roof

Roof:

The roof structure to the barn consists of timber A frame trusses that carry timber purlins that also span onto the gable walls. The trusses and purlins carry metal corrugated sheeting. The roof sheeting is in relatively poor condition and would not be suitable for incorporation into a conversion scheme. The roof's timber trusses appeared in reasonable condition considering their age [they do not however appear as being original] and subject to timber rot and specialist survey could possibly be made good where necessary to carry a new roof.

The roof rainwater goods and eaves boards and verges where present are in poor condition and would need replacement

Walls:

The walls to the barn building are in mass concrete, with window and door openings formed. The windows and doors where present are in timber and show signs of rot and decay and woodworm. These would need replacement with similar style timber windows. The external walls whilst having cracks present in them do however appear

structurally stable and considering their age and lack of maintenance, Whilst the cracking is limited in places, there is a large vertical crack in one elevation that also needs local rebuild and recasting of a section of wall to tie all together. At other crack locations it is recommended that specialist stitching is introduced with stainless ties used to tie the original walls together and a compatible concrete mix used to seal the cracks. A detailed drawing / survey and specification should be drawn up for implementation.

Due to the age and condition of the walls it is also concluded that in the build / conversion consideration should be given to introduce an inner timber frame structure alongside the external walls and tied back to them. This would then afford additional structural support and also allow the new first floor and roof elements to be supported. The external walls would then in effect become facing walls, with less structural capacity required. In this way the listed concrete walls could be maintained and supported, thus maintaining the listed features of the barn but also allowing it to be remodelled and brought back to use. In parallel with this work the steel beams that have been inserted in the building at some time in the past should be removed and the concrete walls made good at these locations.

Foundations

The foundations could not be inspected. Generally the building appeared stable, but subsidence has occurred to one corner, which was also noted in

the survey of 2003. From comparison of the results of 2003 with the current survey, little evidence of any ongoing movement is present and it appears the building has stabilised. However, local underpinning works will be needed to maintain the building long term

First Floor

The first floor area is of timber construction, carried off timber and in places steel beams. The floor areas where access was possible were not in good condition and areas of rot and distress observed. New floors would be needed in a rebuild as the existing floors are not structurally sound and would not support the proposed imposed loads

Ground Floor

The ground floor consists of mass concrete and solid earth, typical of old barns of this era. The ground floor is not suitable for a conversion scheme and would need to be replaced. With regards to the proposed works it is recommended that a new reinforced concrete floor slab is cast across the building, with the floor then tied into the main walls, so as to act as restraining tie / plate as well as a ground slab. This would tie the building together and allow a lightweight inner timber frame construction to be introduced to support the first floor and also allow thermal uplift to the building

Explanation of Proposed Interventions

STRUCTURAL OBSERVATIONS (Cont'd)

External Staircase:

The external concrete staircase appeared in reasonable condition and suitable for reuse, subject to local concrete repair and introduction of handrailing and balustrading.

PROPOSED STRUCTURAL INTERVENTIONS

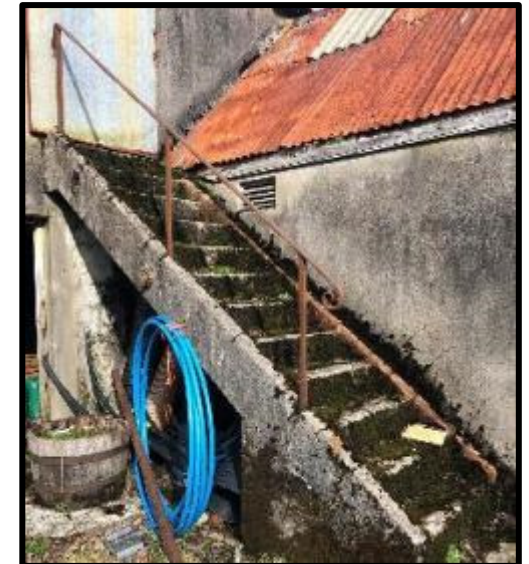
The Extent of works recommended by structural engineer to convert existing outbuilding into habitable space involve:

- Specialist concrete repairs to the existing walls to tie across the main cracks in the building so as to maintain integrity. Localised concrete repairs to any other areas of 'non-structural' damage.
- Underpinning of the external corner where there is evidence of past subsidence
- Timber survey to establish which timbers can remain and treated and which timbers need to be taken out
- Provision of a new ground floor slab / raft tied into the walls at floor level to form a sub-floor and lateral tie / plate holding all together at this level
- New internal timber frame with ply sheathing and insulation introduced off the new ground slab and ties into the existing concrete walls so as to afford support, with new timber first floor and repaired roof structure taken back to the timber frame to take loads off the original concrete walls.

- Removal of steelwork that has been inserted into the walls, making good walls and install new beams carried off the internal timber frame walls and frame
- Provision of new timber doors and windows, with appropriate damp proof courses and waterproofing

In addition to the structural interventions, other elements of the existing building that require attention include :

- The corrugated roof finish is in a very poor condition and will need to be completely replaced.
- The timber roof structure will be retained where possible, even if this is serving an aesthetic purpose only.
- A number of doors and windows are completely missing leaving just the openings. The remaining timber windows and doors still in position are in very poor condition and will need to be replaced.
- The balustrading to the external stairs is rusted, and its design does not meet current building regulations, and will therefore need to be replaced.
- Some later steel additions will need to be removed.
- The concrete ground floor is in very poor condition and will need to be replaced. Some areas of the existing slab have interesting channel markings, and it is intended that some areas of the slab are carefully removed but retained to create an external patio area.



Top Left & Top Centre : North Elevation & East Elevation (respectfully) demonstrating the structure's dilapidated condition, including missing roofing sheets & timber weather boards & damage to concrete walls

Top Right: Large crack in gable end wall

Bottom Left. Decayed ground floor timber window, typical of the condition of most of the outbuilding's windows

Bottom Centre: South Annexe – originally constructed as pigsty and crudely altered to create additional storage

Bottom Right. Existing external staircase



Top Left: current condition of internal plaster
Bottom Left: Existing mid-late 20th timber floor

Top Centre: current condition of internal plaster
Bottom Centre: water damage to existing floor boards

Top Right: Drainage channel markings within concrete floor slab
Bottom Right: Timber roof structure (to be retained where possible)

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Explanation of Proposed Interventions

Plas Farm Character

The main farm complex is a mixture of holiday cottages and traditional farm buildings, many of which have not been used for farming practices for some years.

The holiday cottages have been converted from the Plas Cilybebyll Manor House out-buildings, and have retained the style and features of these original buildings.

These features include:

- Pitched slate tile roofs
- Stone facades
- timber wall cladding
- Dormer windows and gables

The conversion works have introduced modern elements such as:

- PVCu and timber frame windows
- Velux windows
- PVCu fascias, soffits, gutters and RWP's.

A new-build dwelling built in 2006, includes some of the traditional features of the out-buildings including:

- a stone facade
- a pitched slate tile roof
- PVCu frame windows and fascias.
- dormer roofs and gables

Again, this is mixed with more modern finishes such as:

- PVCu gutters and RWP's
- rendered walls
- Velux windows



Photographs of the existing holiday cottages converted from the Plas Cilybebyll Manor House out-buildings

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Explanation of Proposed Interventions

Photographs of the existing converted holiday cottages converted from the Plas Cilybebyll Estate's out-buildings displaying sympathetic techniques for conversion that have helped retain the form and character of the original buildings



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Explanation of Proposed Interventions

Project Goals and Objectives

The proposals described in this application form part of a wider masterplan of continued enhancement of the Swansea Valley Holiday Cottages business. The project will concentrate on the final two unconverted buildings, which will complete the programme of regeneration works to the existing farm buildings.

This project will therefore reflect the sensitive nature in which the conversion works have so far been finished, and promote the authenticity of this special rural environment.

This listed concrete outbuilding is to be restored and re-purposed to accommodate:

- 1 bed holiday flat at first floor level
- Farm reception room
- Recreation facilities including Gym, Sauna and Spa.

The proposals aim to :

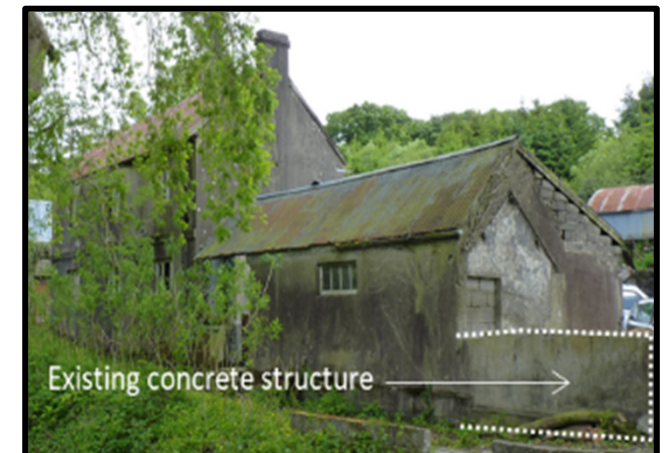
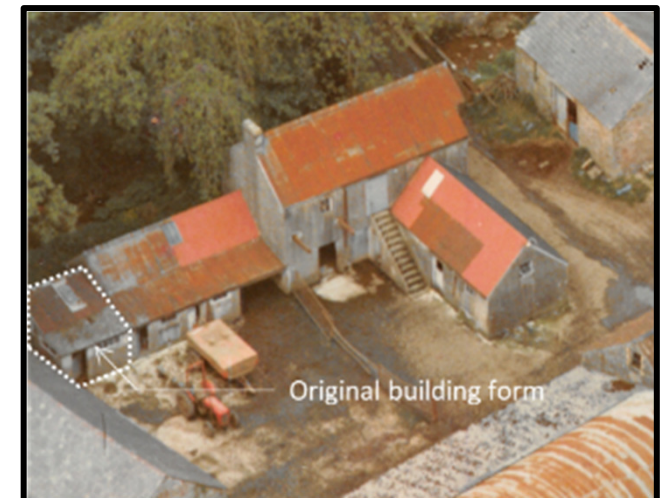
- Retain and reuse existing fabrics and features where possible;
- Use high quality and locally sourced materials where possible
- Be designed in line with the comments and recommendations made in the Pre Application Enquiry response.
- Be designed to echo the architectural language of the recently converted farm buildings.
- Optimise relevant measures for a sustainable development

The restoration works will reinstate the external appearance of the building as close to the original as possible, but will include:

- Replacement of the existing corrugated metal roof and rainwater goods
- Replacement (like for like) of existing timber windows.
- Replacement of existing doors.
- Placement of new windows and doors within existing openings that currently have no windows or doors.
- Replacement of existing ground and first floor structures (including all necessary waterproofing and insulation.
- Specialist repair and recoating of the external wall finishes.
- Internal lining of the external walls to include insulation.
- Replacement of existing handrail to external stair
- Reinstating the full extents of the building form and footprint*.
- Accommodation for Bat roosting within the new roof design.

*It is noted within the Pre Application feedback report from NPT Council (ref: Q2020/0157) that the proposals include an extension to the building. This is not accurate as the proposals are merely reinstating the original form of the building, some of which has partly collapsed. The photos in the adjacent column support this as they show the original building in the aerial photo taken in 1981, and also the concrete structure which still exists

It is intended to retain all of the existing original concrete structure intact, albeit some areas of the concrete structure around the single storey element will be overclad, as the current condition means that it cannot be adequately repaired to provide a suitable external wall construction.



Explanation of Proposed Interventions

Design Proposals

The proposals include for the complete renovation of this existing building to provide safe and secure internal spaces to develop the existing holiday business. These spaces are currently envisaged to be:

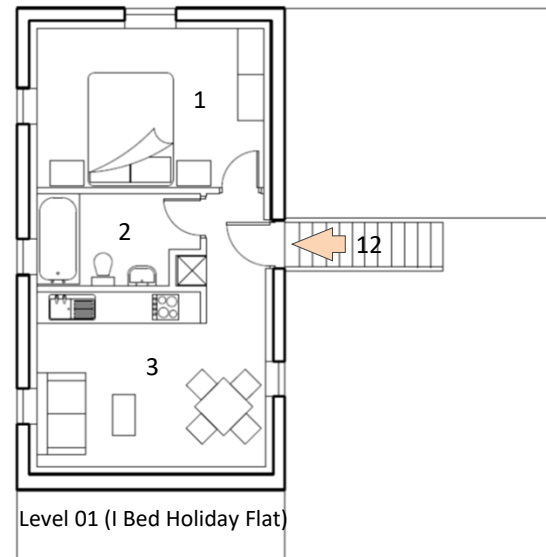
- 1 Bed holiday flat (Level 01)
- Reception Room
- Storage
- Gymnasium / Health Room
- Health Spa and Sauna
- Treatment Room

The provision of these spaces are anticipated to enhance the experience of holiday tenants as well as provide necessary management and amenity facilities.

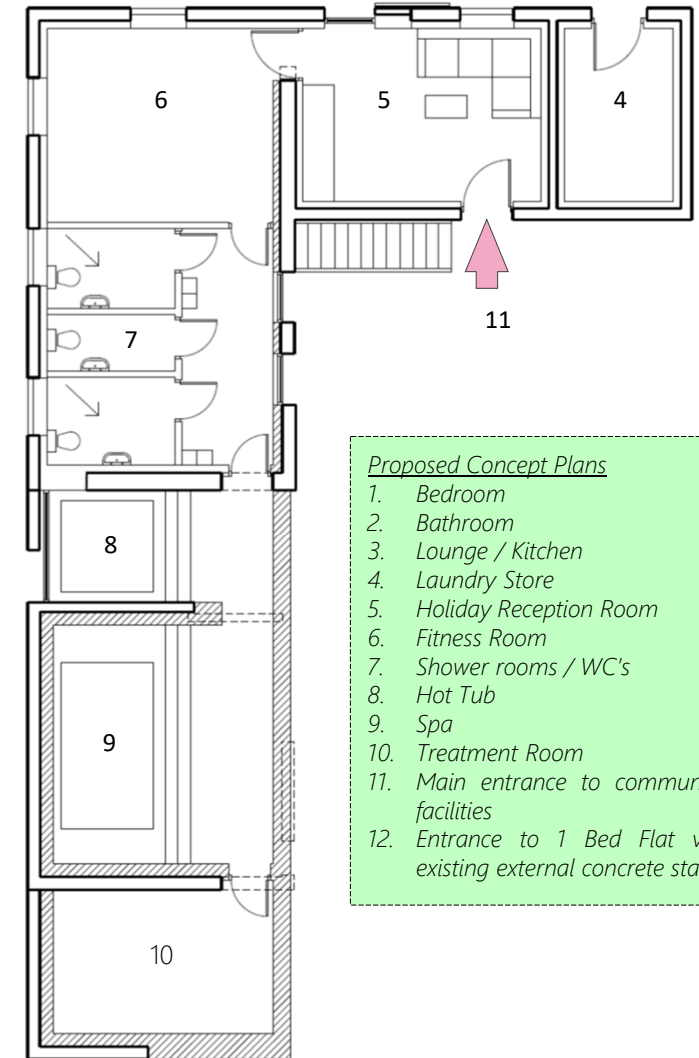
Internal Works

The location of a new 1bed self-catering holiday flat at first level will require the existing timber floor construction to be lowered to give suitable headroom room within the flat. The new level will also align with the top of the existing external concrete stair and door threshold as was almost certainly the original design. It should be noted that the existing floor construction is not part of the original fabric.

A new plasterboard lining system (including insulation) will be applied to the internal face of the external concrete walls to improve u values and reduce heat loss.



The existing concrete ground floor will be broken up and removed. Areas of existing floor with interesting channel markings will be retained for future use externally. A new insulated concrete ground floor will be constructed to finish level with existing door thresholds.



Proposed Concept Plans

1. Bedroom
2. Bathroom
3. Lounge / Kitchen
4. Laundry Store
5. Holiday Reception Room
6. Fitness Room
7. Shower rooms / WC's
8. Hot Tub
9. Spa
10. Treatment Room
11. Main entrance to communal facilities
12. Entrance to 1 Bed Flat via existing external concrete stair

Explanation of Proposed Interventions

Architecture and Character

The external renovation works have been detailed in line with the guidance of the current Building Regulations where possible, and conceived sensitively to maintain as close as possible the original appearance of the building.

Where new materials are introduced to the external envelope, these have been selected and detailed to echo those of adjacent farm buildings and particularly those of the recently completed holiday cottages.

As aforementioned, the existing concrete frame has been assessed by a structural engineer and recommendations for repair and renovation are included in this report.

Existing doors and windows will be replaced with new treated timber frame designed to reflect the original designs.

The existing corrugated roof finish will be removed. The proposals include a new dark grey PPC coated profiled steel panel system including ridge and verge flashings, and steel gutter, fascia and downpipes. A new timber roof structure is anticipated to replace the existing structure.

New build of external walls will be more extensive to the Southern single storey part of the existing building as large areas of the existing concrete walls are now missing. The areas of new wall will be designed with timber cladding to reflect the aesthetic of the recently completed and adjacent converted cottages.

The final designs re-establish to a large extent the original appearance of the building, and ensure that all areas of the original concrete frame are retained. The necessary enhancements will pay deference to the original building as well as the surrounding context and strengthen the unique quality of this special environment.

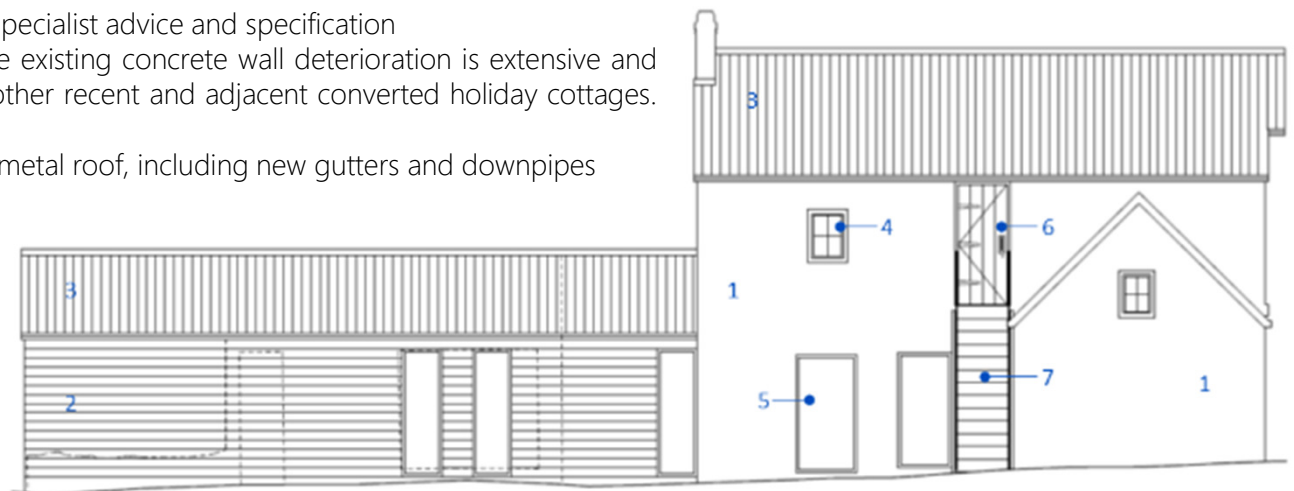
Access and Movement

Existing access points into the building at ground floor will be re-established and detailed to provide level threshold where possible. The new ground floor will be level throughout.

The existing external concrete stair will provide access to the first floor holiday flat. Due to its current condition, the existing balustrade will be replaced with a new PPC steel design.

Proposed East Elevation – Highlighting Renovation and Design Strategy

1. Existing concrete walls to be repaired and recoated to specialist advice and specification
2. New timber cladding and wall structure to areas where existing concrete wall deterioration is extensive and beyond reasonable repair. New cladding reflective of other recent and adjacent converted holiday cottages. Existing concrete walls to be retained.
3. New profiled metal roof to replace existing corrugated metal roof, including new gutters and downpipes
4. New timber windows to replace existing windows designed 'like for like'.
5. Existing openings to be fitted with new timber frame fixed glazing.
6. Existing opening to be fitted with new timber door and frame
7. Existing concrete stair to be repaired to specialist advice and specification. Including new metal balustrade.



Explanation of Proposed Interventions

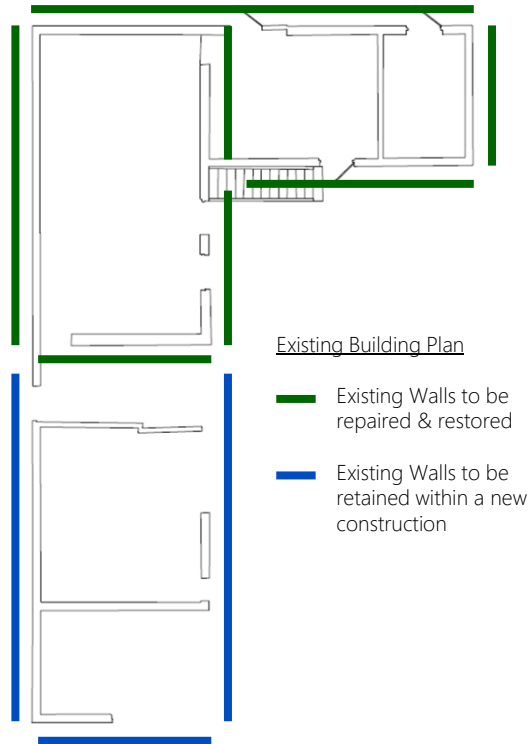
Architectural Materials & Construction

External Walls

The existing concrete walls will require an element of repair works including infilling of holes, gaps and cracks which have developed over time. The internal and external surfaces will be cleaned of any organic growth and loose objects removed.

The primary elevations where the existing walls are largely intact (as highlighted on the plan shown here) are intended to be restored to their original appearance externally, and will be subject to specialist sub-contractors proposals for water proofing and final re-coating. Internally new timber walls will be constructed to support the new upper floor and roof construction and lined with plasterboard.

The areas of external walls which are beyond repair (highlighted) will be retained within a new (lightweight & removable) external wall construction. The external cladding will be timber to reflect other recent building conversions, and the internal lining will be a removable insulated plasterboard.



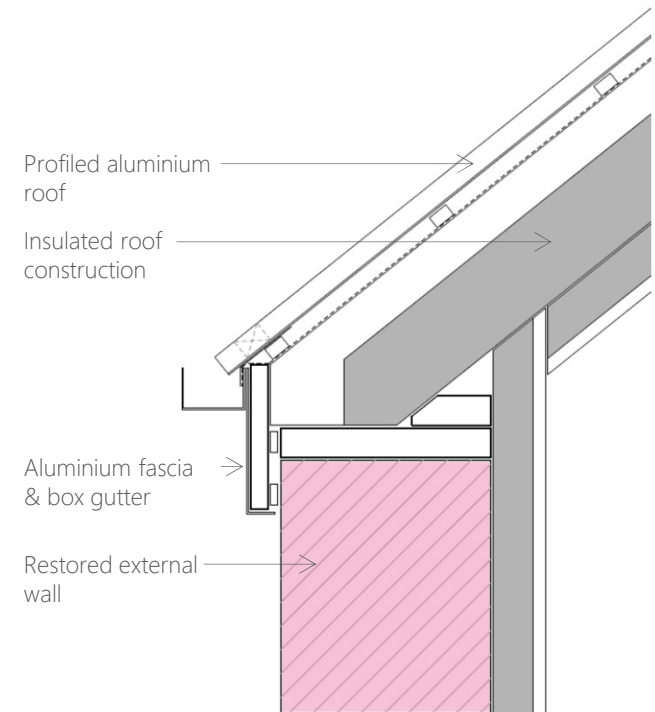
Photograph of existing typical façade to be restored highlighting necessary repair, cleaning and recoating



Roof

The existing profiled metal roof finish is beyond its natural life and beyond repair (and in some areas is missing altogether), and will therefore be removed and replaced.

The replacement roof construction will be an insulated system with a PPC steel or aluminium profiled outer lining, including flashings & rainwater goods to match. The detailing has been designed to provide a crisp and clean appearance in deference to the original design.



Proposed Eaves Detail

Explanation of Proposed Interventions

Existing Windows & Doors

The existing windows are to be removed as in their current condition they are considered to be beyond reasonable repair.

The replacement windows will also be timber frame and the new design will replicate the existing configuration as close as possible.



Photographs of existing typical timber windows which have deteriorated considerably and are deemed beyond reasonable repair



New Windows & Doors



Photo of existing openings which do not currently have doors or windows within them

New windows which are to be positioned into existing openings that do not currently have a window or door within them (note below) are to be simple fixed aluminium frame windows. The frame will be partly concealed behind the check reveal and therefore appear as frameless glass within the existing opening.

A large opening (above) has developed on the rear elevation following some partial collapse. A new glazed wall will be constructed behind the opening. The original partially collapsed structure will be retained in its current condition and appearance.

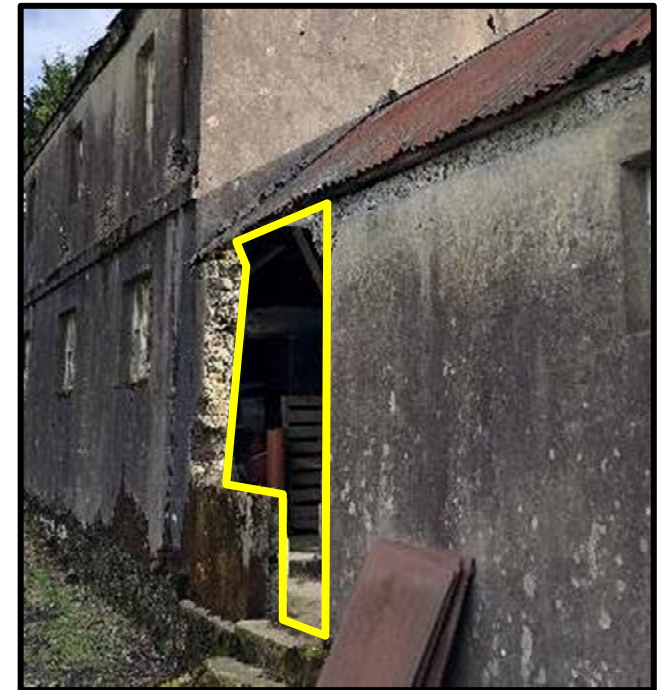


Photo of existing opening. New aluminium frame fixed window to be fixed behind and independently of the existing opening