



COASTAL VULNERABILITY ASSESSMENT REPORT

SITE: TREVERBYN, GWEL AN GARREK, MULLION

Issue Record			
Issue	Date	Reason	Prepared by
Rev0	07/12/2023		Tim Green

Our Ref: TJG / C VA / G 015.Treverbryn.Rev0

7th December 2023

This report is confidential to the named recipient (Paul Harrison). No assurance should be extended, or legal liability accepted by Slope Stability Southwest (SlopeGeo Ltd), to any parties not named on this report.

[Re: Coastal Vulnerability Assessment \(CVA\) works](#)

[Proposed renovation works at Treverbryn, Gwel an Garrek, Mullion, Cornwall, TR12 7EW](#)

Introduction

Slope Stability Southwest (SSSW) have been requested to undertake a Coastal Vulnerability Assessment for proposed renovation at Treverbryn, located off Polurrian Road in Mullion. A site inspection was undertaken by a Chartered Engineering Geologist on Thursday 30th November 2023.

Treverbryn (The Property) is located off Polurrian Road and at the southwestern extent of Mullion and close to the southern end of Polurrian Cove, the property is located off an unnamed access track that runs south of the western extent of Polurrian Road. The site is on a plot approximately 1020 m² in size and at an elevation of approximately 55 metres above Ordnance Datum (aOD (mean sealevel)).



Figure 01: Site location plan (property (Treverbryn) in green).

Proposed development

The proposed development is a refurbishment of the existing property (Treverbryn) to include the following:

Widening the front entrance with a full width single storey extension replacing an existing extension on the front (seaward) elevation.

A single storey extension is proposed to the rear elevation which will replace an existing small extension.

The detached garage to the rear of the dwelling is to be demolished and rebuilt, and

New access to the road running to the rear of the property (Gwel an Garrek) is to be constructed.

Please refer to Appendix A and Appendix B for the proposed development plan and sections.

Report limitations

This report is based on desk study information from a variety of published sources and a walkover inspection of the site. This methodology is non-intrusive and does not include ground investigation works (digging or drilling) which may be necessary to make a definitive assessment of ground conditions. Evidence of deep-seated global instability may not be visually evident within the areas inspected as part of the walkover. The potential for such is considered low and has therefore not been considered further in this report.

Readers of this report should be aware of the limitations of this report as presented at the end of this document.

Planning guidance

National Planning Policy Framework (NPPF)

This report is compiled in accordance with guidance from the NPPF¹ and the *Cornwall Council Climate Emergency Development Plan*² so as to demonstrate the proposed development:

Is consistent with policy statements for the local policy unit in the current Shoreline Management Plan,

Will not impair the ability of communities and the natural environment to adapt sustainably to the impacts of a changing climate,

Will be safe through its planned lifetime, without increasing risk to life or property, or requiring new or improved coastal defences,

Provides safe access and egress for the site and its users,

Would not affect the natural balance and stability of the coastline or exacerbate the rate of shoreline change to the extent that changes to the coastline are increased nearby or elsewhere, and

Where applicable makes provision for coastal access and the Southwest Coast Path.

¹ National Planning Policy Framework. Ministry of Housing, Communities and Local Gov (2021) (Para 170-173)

² Cornwall Council Climate Emergency Development Plan. February 2023.

Cornwall and Isles of Scilly Shoreline Management Plans

The *Shoreline Management Plan for Cornwall and the Scilly Isles*³ is a non-statutory policy document for coastal defence planning and sets out the recommended approach to managing the shoreline over the next 100 years. This is done by considering location, time and policy. The SMP 2 document was adopted by Cornwall Council in 2011 and is the current shoreline management plan (inclusive of a midterm review in 2016⁴).

The property falls within Management Area MA16 (Policy unit 16.1 – Lizard Point to Baulk Head) as part of Policy Development Zone 6, (PDZ-6)⁴. The specific policies for MA 16.1 are 'No Active Intervention (NAI)' to 2105.

The property falls outside of the 'Erosion Risk Zone (with no active intervention) 2105', suggesting the proposed development site is not considered to be at risk over these time periods (up to 2105). The SMP2 report makes the following statement regarding the ongoing and future policy of 'No Active Intervention' at Polurrian Cove:

The policy plan should '*satisfy the high-level objectives (of the SMP) and those relating to the Cornwall AONB, Heritage Coast and Lizard SAC designations.*'⁴

Cornwall Coastal Vulnerability Zone

The Cornwall Coast Vulnerability Zone⁵ is a constraint area, published by Cornwall Council, where land and development may be susceptible to coastal change over the next 100 years.

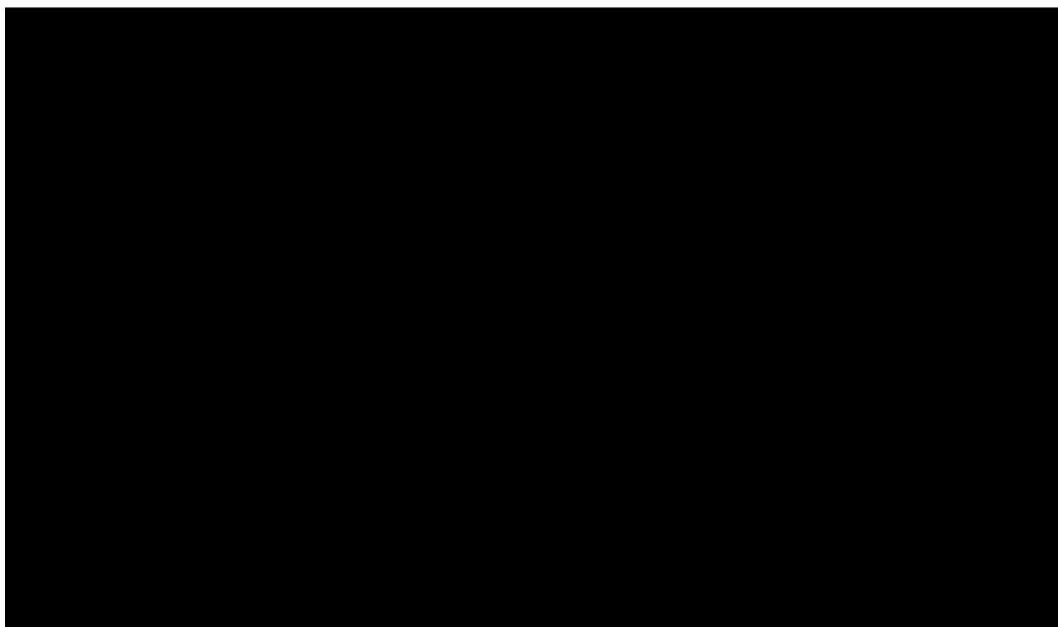


Figure 02: Cornwall Coastal Vulnerability Zone (in red, property in green).

³ Cornwall Isles of Scilly SMP2 – Final report (Feb 2011)

⁴ Cornwall Isles of Scilly SMP2 – Mid Term Review (2016)

⁵ <https://map.cornwall.gov.uk/website/ccmap/> (accessed 06/12/23)

Coastal Change Management Area (CCMA)

CCMAs are defined as areas 'likely to be affected by physical changes to the coast, such changes include erosion and coastal landslip.'⁶ CCMAs may be defined where rates of erosion are expected to be significant over the next 100 years, and where the accepted shoreline management plan is not 'Hold The line'.

At the time of writing, the coastline adjacent to the property is not within a designated CCMA or candidate CCMA.

Neighbourhood Development Plan

According to the Cornwall Council Interactive Map⁵, at the time of writing the property does not fall within a designated Neighbourhood Development Plan.

Desk Study

Published geology

Published geology indicate the prevailing geology underlying the property to be schist and hornblende schist of the Traboe Hornblende Schist Formation (Lizard Complex),⁷ There are no recorded superficial soils underlying the site.⁸

There are no linear structural geological features in the immediate vicinity of the site, the nearest is a northeast to southwest trending fault which is located approximately 200 metres to the north of the site. The fault is recorded as 'inferred' and any displacement and downthrow are not recorded.

Hydrology (ground and surface water)

There are no surface water or springs recorded in the vicinity of the property. The nearest freshwater course is an unnamed watercourse discharging onto the beach at the northern end of Polurrian Cove.

Historical records: Landslides

According to the BGS Landslides Database⁹, there are several recorded landslide events in the vicinity of the property and Polurrian Cove. These may be summarised as follows:

⁶ Guidance: Flood Risk and Coastal Change. Dept for Levelling up, Housing and Communities. August 2022

⁷ British Geological Survey dataset – Sheet 359 Lizard 1:50,000 (1975)

⁸ British Geological Survey dataset – Sheet 359 Lizard Superficial 1:50,000 (1975)

⁹ <http://mapapps2.bgs.ac.uk/geoindex/home.html> (accessed 06/12/2023)

Landslide – Polurrian Cove (2013). Landslide ID 19766. Located 280 metres north of the property,
Landslide – Mullion Harbour (2018). Landslide ID 20445. Located 720 metres south-southwest of the property.

Landslide – Mullion Cove (2014). Landslide ID 19422. Located 790 metres south-southwest of the property.

Landslide – Mullion Cove (2013). Landslide ID 19765. Located 1.02 kilometres south-southwest of the property.

In addition, Slope Stability Southwest are aware of a large landslide event that occurred at the southern end of Polurrian Cove, in early 2023, this event occurred approximately 200 metres north-northwest of the property.

Historical records: Ordnance Survey

Table 1: Summary of historical Ordnance Survey datasets.¹⁰

Date of OS dataset	Changes to the site	Changes to the surrounding area
1880	Undeveloped agricultural land	The surrounding area is extensively undeveloped with the exception of Trenance Farm approximately 150 metres to the east and southeast of the property. There is an access track located to the north of the property at the approximate location of Trenance Lane and Polurrian Road. There is an annotation to the north of the site for Wheal Fenwick (disused), with several relict mounds and depressions indicating historic features, the nearest of which is located approximately 60 metres to the north and northwest. There are no buildings or relict structures indicated within the Wheal Fenwick site.
1908	No change.	Further residential and commercial development in the vicinity of the property, including the development of the Polurrian Hotel to the north of the site and the residential properties of Kittiv and Carrag-luz to the south and southwest of the property. The former Wheal Fenwick workings are no longer annotated.

¹⁰ National Library of Scotland. Cornwall (LXXX.SW Mullion)—Published 1880, 1908, 1963

1963	Residential development with the property, the access road on the northwestern elevation of the property is present.	Further residential development within the vic of the property, including to the west and northwest of the access road.
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Historic rates of coastal erosion

An inspection of the historical OS maps and satellite aerial photography has enabled an approximation of shoreline erosion and regression to be made from 1880 to the present day. The distance was measured along the coastline and the cove around Pedn-y-ke and Sandy-y-ke, which represent the nearest point of coastline to the western boundary of the property.

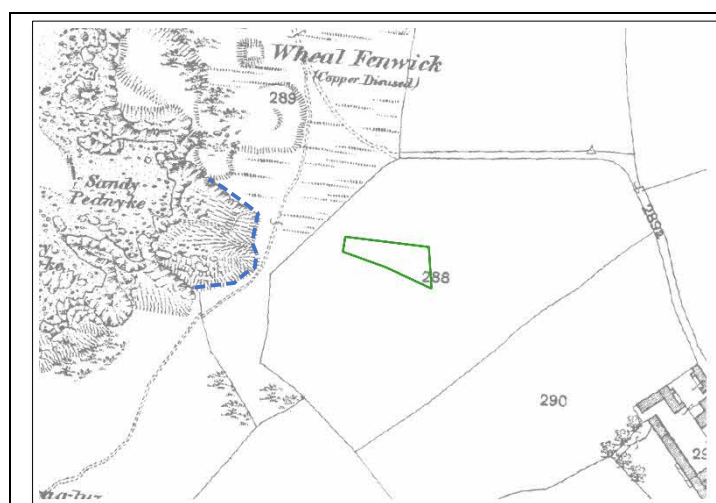


Fig 3a: Historic Ordnance Survey map (1880) – blue hatching indicates ‘collapse lobe’.



Fig 3b: Modern aerial imagery – blue hatching indicates ‘collapse lobe’.

The historical OS maps indicate a maximum measurable extent of erosion and regression of the shoreline at this location of < 43 metres since 1880, as indicated by the blue hatching in Figure 3a and 3b. The point of maximum coastal erosion and regression (< 43 m) is located approximately 20 metres to the south of the southwest corner property.

The shoreline immediately adjacent and to the west to the property has eroded and regressed approximately 39 metres since 1880, and the coastline (sea cliffs) are approximately 16 metres from the western boundary of the property at the closest point.

An assessment of the aerial imagery¹¹ of the site, available from 2001 to 2023, suggests that the rate of erosion and regression over the recent time period (since 2001), and immediately adjacent to the western boundary of the property, has slowed and become negligible.

¹¹ Google Earth (Copyright Inforterra Ltd & Bluesky)

National Coastal Erosion Risk Mapping

The National Coastal Erosion Risk Mapping (NCERM)¹² was published in 2018, and is intended to provide an up to date and reliable benchmark dataset indicating estimated erosion extents and rates, around the coastline of Cornwall, for three time periods:

- Short term (0 – 20 year),
- Medium term (20 – 50 Year), and
- Long term (50 – 100 year).

The dataset shows the 2018 coastal baseline in sections which show consistent characteristics based on the geology, topography and shoreline defences. The dataset provides the estimated erosion rate based on a 'No Active Intervention' (NAI) policy scenario and 5% percentile confidence (most conservative).

For the site, the NCERM (assuming a NAI policy) may be summarised as follows:

- Shoreline feature / type: Erodible,
- Defence type: Natural,
- Short term erosion extent (5% percentile confidence): 1.32 m retreat distance,
- Medium term erosion extent (5% percentile confidence): 3.3 m retreat distance, and
- Long term erosion extent (5% percentile confidence): 6.6 m retreat distance.

Estimated sea level rise

In accordance with the recommendations set out in the Planning Practice Guidance – Flood Risk and Coastal Change,¹³ SSSW have used the EA Guidance on Climate Change Allowances (Table 1)¹⁴ to predict net sea level rise due to climate change.

The predicted cumulative sea level rise due to climate change in the southwest is 1.45 metres based on the conservative 'upper end' scenario (95th percentile confidence). This projection is based over a 100-year period from 2017 (datum year).

Flood Risk

The site is within Flood Zone 1¹⁵. The probability of flooding from river and the sea is therefore considered to be **Low**.

¹² Environment Agency National Coastal Erosion Risk Map: <https://www.arcgis.com> (accessed 06/12/23)

¹³ Ministries of Housing, Communities and Local Government (DCLG). April 2015.

¹⁴ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> (accessed 04/10/23)

¹⁵ <https://flood-map-for-planning.service.gov.uk/flood-zone-results> (accessed 04/10/23)

Site Inspection

A site inspection was undertaken by a Chartered Engineering Geologist on Thursday 30th November 2023. The weather at the time of the inspection was cold and overcast, with some wet weather in the preceding days.

Treverbyn (The property)

Treverbyn is located on an unnamed access track that runs from the western extent of Polurrian Road, in an approximately southerly direction along the coastline. The property is within a residential estate around Gwel an Garrek road, and the property itself is bordered by residential properties to the north, east and south, with the unnamed access track and coastline adjacent to the western boundary of the property.

The property is on a plot approximately 1020 m² in size and at an elevation of approximately 55 metres above Ordnance Datum (aOD (mean sealevel)). The property is a single storey bungalow with dormer style accommodation within the roof space. The property has a pitched tiled roof, with cement pebble dash render to the exterior. The property is believed to have been constructed since the 1960s, and it appears to be contemporary to the neighbouring property to the south (Journeys End). There is a driveway and planted garden to the front of the house and the boundary walls of the property are constructed of masonry and concrete block.

At the time of the inspection, the property, gardens and boundary walls were observed to be in a good state of structural repair and appeared to be well maintained, the building and garden areas were observed to be structurally intact with no evidence of significant damage (cracking) that may be indicative of ground movement or bearing failure.



Figure 04: Treverbyn – image taken from the site entrance / driveway off Cliff Road, looking east.

Surrounding properties

As part of the site inspection, the properties surrounding the site were also subject to limited visual inspection.

The site is bordered by residential properties to the north, east and south, though the residential property on the northern boundary of the property had been demolished and the site was in a process of redevelopment. On the basis of limited visual inspection of the exterior of the neighbouring structures (where publicly accessible), there was no observation of significant structural damage (cracking) to the exterior that may be indicative of ground movement or ground bearing failure.

The sea cliffs – Pedn-y-ke and Sandy Pedn-y-ke

It is apparent from the walkover inspection of the site, that the land to the west of the unnamed access track has fallen away, and there has been significant collapse of material from the sea cliffs, and towards the beach below. This collapse has occurred as an elongate lobe (collapse lobe), extending eastwards from the shoreline and towards the residential properties to the south of Treverbyn. The collapse lobe is between approximately 30 and 40 metres in width and 110 metres in length (as presented in Figure 3b).

The base of the collapse lobe is extensively obscured by vegetation but it forms a relatively consistent slope down to beach level at a gradient of between 25 and 35 degrees (from horizontal). The sides of the collapse lobe are between approximately 60 to 80 degrees (from horizontal, giving the collapse lobe a U-shape in section. There is exposed bedrock within the sides of the collapse lobe, suggesting the collapse has occurred within the bedrock. It was not possible to access the bedrock outcrops, however they were observed from the access track and appeared to be extensively destructured.



Figure 05: Sandy Pedn-y-ke – the ‘collapse lobe’ adjacent to the access track, derelict structure in foreground. Image taken from the unnamed access track, looking west.

The size, shape and orientation of the collapse lobe suggests it has formed as a result of the collapse of an erosional structure (possibly a sea cave) which has formed along an unrecorded linear structural feature (fault), striking from the coastline in an approximately west-northwest to east-southeast orientation. This would account for the elongate shape and orientation of the collapse lobe.

There is a partially collapsed derelict structure immediately adjacent to the unnamed access track, which is constructed of concrete block, and appears to have partially fallen into the collapse lobe. The presence of this structure is consistent with imagery from the 1963 Ordnance Survey dataset which indicates structures on the west side of the access track at this approximate location. This suggests that the collapse has occurred at least in part since 1963.

The unnamed access track and the surrounding boundary walls were subject to limited visual inspection. The boundary wall on the western side of the access track comprised of a large Cornish hedge that was obscured by bushes and overgrowth. The access track was unsurfaced and in a moderate to poor state of repair, with numerous shallow potholes and some observation of shallow wheel rutting, however the road surface and the surrounding boundary walls on the eastern side were observed and did not show any indication of subsidence, bulging, or structural damage such as cracking or tension cracking, that might be indicative of ground movement as a result of slope failure or further collapse of the lobe structure.



Figure 06: The unnamed access track on the western boundary of the property. Cornish hedge (o on the western boundary. Concrete wall demarks the western boundary of the property (Treverb taken from the access track, looking north.

The sea cliffs – Polurrian Cove

As part of the inspection the sea cliffs at Polurrian Cove were inspected to better understand the rock mass at Pedn-y-ke, which is not accessible at beach level. The inspection was undertaken at the southern end of Polurrian Cove and what part of Pedn-y-ke was accessible at low tide. These areas are nominally recorded to be within the schist and hornblende schist of the Traboe Hornblende Schist Formation.

The sea cliffs at this location are < 30 metres in height, with a variable slope face gradient of approximately 40 to 60 degrees from horizontal. The base of the sea cliffs are within the intertidal zone and will therefore be affected by wave and tidal activity, however the base of the sea cliffs are made up of a dark green, finely crystalline hornblende and hornblende schist. The bedrock at the base of the sea cliffs is strong and very strong in situ. There was no observation of erosional features such as platforms or wave cut features at the base of the sea cliffs.

The upper and middle part of the sea cliffs at this location appear to comprise a different lithology, which was observed to be brown and dark brown, destructured, and within an unconformable contact with the underlying hornblende / hornblende schist. On the basis of limited visual inspection, it is considered likely that this represents a weathered basalt, likely to be of the Roseland Breccia Formation, which is not recorded at this location. The basalt bedrock is destructured, though with abundant secondary fracturing. The bedrock appears to be medium strong to strong in-situ but becomes locally weak when weathered.



Figure 07: The sea cliffs at Polurrian Cove (southern end) with green hornblende schist at the base over darker basalt / breccia. Image taken from southern end of the cove looking southeast.

Observations of groundwater

At the time of the inspection, the sea cliffs were observed to be extensively dry, There was no record or observation of waterflow or discharge of surface or groundwater onto the beach or close to the property.

Coastal Stability Assessment

The principal mechanism for shoreline erosion and regression along the Polurrian Cove and Pedn-y-ke frontage, and in the vicinity of the property, is considered to be the erosion of the base of the sea cliffs as a result of wave and tidal activity. Over significant time, this results in the formation of erosional features within the sea cliffs such as wave cut features and ultimately sea caves. This may then lead to progressive collapse of material from the cliff face and ultimately the erosion and regression of the shoreline.

In this case the process of erosion and regression of the shoreline appears to have been exacerbated by the likely presence of a fault structure or linear plane of weakness within the rock mass, this has resulted in the preferential erosion and formation of suspected sea caves, and ultimately the collapse of these structures to form the collapse lobe to the west and southwest of the property.

The formation of the collapse lobe is apparent from assessment of the historic Ordnance Survey and aerial imagery. The progression of the collapse lobe has been significant since 1880 (< 40 metres), though analysis of the aerial imagery suggests progression has slowed and even stalled since 2001. The ground to the west of the access track and immediately adjacent to the western boundary of the property does not appear to have been subject to ground movement or collapse.

It is very difficult to predict the rate of future erosion and regression of the shoreline at the point of the collapse lobe, however it is likely the rate will reduce through the intermediate to long term. The rationale for this assessment are as follows:

There is significant rock mass within the sea cliffs at this location and underlying the property. This rock mass is likely to be considered competent and to be medium strong to strong in-situ, and

The eastern extent of the collapse lobe, where it is adjacent to the access track, is now well clear of the intertidal zone and the erosional effect of tides and wave impacts.

It should also be noted that the orientation and strike of the collapse lobe is to the south of the property and can be observed to intersect the access track approximately 20 metres to the south of the southwestern corner of the property. In the event of further future collapse and progression of the collapse lobe, it is considered likely that this will affect the access road and properties to the south of Treverbyn. The access to the property and the structural integrity of the dwelling (Treverbyn) are not considered likely to be affected.

The results of this inspection and assessment therefore indicate that the overall stability of the coastline adjacent to the site is not considered unacceptable in terms of the proposed renovation of the property (Treverbyn). It is accepted that coastal erosion and regression will occur as sea levels rise in the future, however it is considered that the rates and extent of erosion projected in the NCERM data (5th percentile confidence) are appropriately conservative. It is recognised that the access track may

be subject to damage, or even complete loss in the event of further collapse and regression of the collapse lobe, however it is likely that any such collapse would occur to the south of the property, and so ongoing access to the property would not be affected.

The dwelling and proposed renovation are not expected to be impacted (structurally) by coastal erosion and regression within a 100-year design life, in the unlikely event of the loss of the access track and vehicle access to the property (Treverbryn) in what would be considered a worst-case scenario over this time period, this would be mitigated by the planned construction of alternative vehicle access to the site off Gwel and Garrek, on the eastern (landward) side of the property.

It is also recognised that the proposed refurbishment area does lie within the Coastal Erosion Vulnerability Zone (CEV) will therefore require a Coastal Vulnerability Assessment (CVA).

Coastal Vulnerability Assessment

This report is compiled in accordance with guidance from the NPPF¹ and the *Cornwall Council Climate Emergency Development Plan*² so as to demonstrate the proposed renovation of the property (Treverbyn):

1. *Is consistent with policy statements for the local policy unit in the current Shoreline Management Plan?*

The property falls within Management Area MA16 (Policy unit 16.1 – Lizard Point to Baulk Head) as part of Policy Development Zone 6, (PDZ-6)¹⁶. The specific policies for MA 16.1 are ‘No Active Intervention (NAI)’ to 2105.

Discussion

The planned works involve renovation and improvements to an existing residential structure (Treverbyn). No additional coastal defences or stabilisation infrastructure is planned or anticipated, and the proposed renovation (structural footprint) is clear of maximum projected levels of coastal erosion and regression as presented in the published NCERM data and supported by the findings of the coastal stability assessment in this report.

The risk of the proposed development impeding or affecting the natural coastal realignment process are therefore considered to be acceptably low. The planned development is considered to be consistent with the strategy of ‘no active intervention’ presented in the Shoreline Management Plan.

2. *Does the development impair the ability of communities and the natural environment to adapt sustainably to the impacts of a changing climate?*

The principal impacts of changing climate to the community off Polurrian Cove and the Mullion area, and the natural environment are considered to be:

Increased storm activity.

Loss of beach amenities, rearshore and intertidal areas as sea level rises.

Coastal erosion and shoreline regression leading to possible future loss of beach access and access to coastal area.

Disruption of natural coastal processes of erosion and deposition, with the risk of sediment starvation and / or accretion (accumulation of sediment), and

Loss of habitat within the coastal environment.

The priorities of a coastal community such as Mullion in the sustainable management of a changing climate are likely to include:

¹⁶ Cornwall Isles of Scilly SMP2 – Mid Term Review (2016)

Protection of property and community assets along the shoreline, likely to include beach access, commercial areas (Polurrian Hotel) and residential properties around Gwel an Garrek and Carrag-luz

Access Polurrian Cove and coastal areas, and
The maintenance of coastline sustainability.

Discussion

The planned works involve renovation and improvements to an existing residential structure (Treverbyn). No additional coastal defences or stabilisation infrastructure is planned or anticipated, and the proposed renovation (structural footprint) is clear of maximum projected levels of coastal erosion and regression as presented in the published NCERM data and supported by the findings of the coastal stability assessment in this report. The impact of the development on natural coastal process is therefore considered to be negligible.

There is no net change in land use and no net impairment of access to the coastline or coastal areas, and the impact on the community or natural environment is considered to be negligible, other than the proposed renovation represents investment in the community and surrounding area and will extend the residential utilisation of the property (Treverbyn) into the future.

- 3. Will the development be safe through its planned lifetime (100 years) without increasing risk to life or property, or the requirement of new or improved coastal defences?*

The principal risk factor to the proposed development is considered to be coastal erosion as a result of projected sea level rise in line with climate change. The desk study component of this assessment report has highlighted the following:

According to the Shoreline Management Plan³ the property (structural footprint) falls outside of the 'Erosion Risk Zone 2105' indicating the site is not considered to be at risk of shoreline erosion through this time period (to 2105).

The structural footprint of the property falls outside of the Cornwall Coast Vulnerability Zone, though it is recognised the western extent of the property, and the access track falls within this zone (Refer to Figure 02).

The National Coastal Erosion Mapping dataset indicates (based on 5th percentile data), that there will be a maximum projected long term erosion extent of 6.6 metres of the coastline adjacent to the development site, over the design life of the proposed development (assuming no active intervention).

The historical OS maps indicate a maximum measurable extent of historic erosion and regression of the shoreline at this location of < 43 metres over the preceding 140-year period (since 1880). This erosion and regression has occurred as an elongate 'collapse lobe' which is located close to the access track, approximately 20 metres south of the property.

Estimated sea level rise over the 100-year design life period, published by the Environment Agency gives a predicted cumulative sea level rise (due to climate change in the southwest) of 1.45 metres (based on the conservative 'upper end' scenario (95th percentile)).

The site is at 'Low' risk of surface water flooding.

Discussion

The results of desk study assessment and the coastal stability assessment indicate that the overall stability of the coastline adjacent to the property is not considered unacceptable in terms of the proposed long-term renovation and residential usage of the property (Treverbryn). It is accepted that coastal erosion and regression will occur as sea levels rise in the future, however it is considered that the rates of erosion extent projected in the NCERM data (5th percentile confidence) are appropriately conservative.

It is recognised in the coastal stability assessment that the loss of the access track and some garden area at the western extent of the property may occur, as a considered worst-case scenario over the planned lifetime of the renovated property. As part of the proposed works, alternative access to the property is planned via Gwel an Garrek Road on the eastern (landward) side of the property, therefore ongoing safe access to the property would be assured.

The property should therefore be considered safe through its planned lifetime (100 years) without increasing risk to life or the requirement of new or improved coastal defences.

4. Will the development provide safe access and egress for the site and its users?

As part of the proposed works, alternative access to the property is planned via Gwel an Garrek Road on the eastern (landward) side of the property, therefore ongoing safe access and egress to the property would be assured.

5. *Will the development affect the natural balance and stability of the coastline or exacerbate the rate of shoreline change to the extent that changes to the coastline are increased elsewhere?*

The planned works involve renovation and improvements to an existing residential structure (Treverbryn). No additional coastal defences or stabilisation infrastructure is planned or anticipated, and the shoreline will therefore remain in a 'natural' state.

The risk of the proposed development interfering with natural coastal processes so as to affect the natural balance and stability of the coastline, are therefore considered to be negligible.

6. Where applicable makes provision for coastal access and the Southwest Coast Path.

Access to the coastline and foreshore off the western boundary of the site is not affected or impeded by the planned renovation works.

7. Proposed development 'end of life plan'.

At the end of the design life of the proposed renovation (100 years), or in the event that the property or any part of the property has become structurally compromised for any reason, then the property owner shall acknowledge a duty of care to ensure the structure, or any part of the structure deemed at risk of collapse, be safely dismantled and removed from the site.

The 'end of life plan' should be undertaken in accordance with the guidance and recommendations provided in *Planning Policy Statement 25 Supplement: Development and Coastal Change Practice Guide*¹⁷.

Coastal Vulnerability Assessment – Conclusion

On the basis of the findings of this report, it is the opinion of Slope Stability Southwest that the proposed renovation to the property is in accordance with Planning Practice Guidance. The proposed works may be considered sustainable and safe within the prescribed design life, and in taking appropriate account of the anticipated effect of climate change.

The risk of the proposed renovation works impacting on coastal processes is considered acceptable.

Yours faithfully

for **Slope Stability Southwest**

Tim Green – Chartered Engineering Geologist. BSc, MSc, FGS, CGeol, APMP.

¹⁷ Planning Policy Statement 25 Supplement: Development and Coastal Change Practice Guide. Dept for Communities and Local Govt. March 2021. ISBN 978 1 4098 2323

Limitations

1. This report has been produced in compliance with the agreed scope of works between Slope Stability Southwest (SSSW) and the client (**Paul Harrison**).
2. This report is confidential to the client(s) named on the report and the client's solicitor and/or mortgage lender and/or agent(s) and does not confer or purport to confer any benefits or any right pursuant to the Contracts (Rights of 3rd Parties) Act 1999. It may not be reproduced or further distributed without the permission of Slope Stability Southwest. We shall not be under any liability to any undisclosed party who has not been named on the report. The report may be reassigned to a new client by ourselves, on payment of an appropriate administration fee).
3. The scope of this report is limited to the current proposed development site boundaries. No assurances may be extended outside of this area and SSSW accept no responsibility for the use of this report for any purpose or any project except that for which it was commissioned and prepared.
4. The conclusions and advice provided in this report are based on:
 - a. Current best practice and legislation (SSSW accept no responsibility or liability for any change in best practice guidance or statute). In the event of additional information becoming available, improved practice or changes in legislation, then amendment and re-interpretation of this report may be necessary.
 - b. Sound engineering judgement by qualified and experienced engineers. This does not take into account the perceptions of other involved and interested parties.
5. This report is not a structural assessment and should not be considered as such. Where visual observations are made of structures (the dwelling, retaining walls etc), they are made in the context of a slope or coastal stability assessment, and should not be considered as (or supersede) a structural assessment undertaken by a qualified assessor.
6. Any information and data supplied by third parties has been interpreted in accordance with guidance notes and limitations provided by those third parties. Although this information has been reviewed and is considered relevant, no guarantee can be given to its accuracy and SSSW can give no assurance to the accuracy of data supplied by third parties. In addition, interpretation of historic datasets should be considered as indicative only.
7. The findings of this appraisal report are advisory and based on a visual site inspection undertaken on a specific date. Should conditions on site change as a result of further development, severe weather conditions, animal activity or other activity or circumstances, then Slope Stability Southwest should be notified, and a re-appraisal of ground conditions may be required.
8. The findings of this report are based on a walkover survey and inspection of the site. The works undertaken are extensively non-intrusive and do not represent (nor are they intended to represent) a full and comprehensive investigation of the nature and state of the ground conditions or bedrock underlying the site (should such works (intrusive ground investigation) be required, it may be undertaken under a separate scope of works). The findings of this report should not be used for design or construction purposes.
9. Unless otherwise stated, comments made relating to groundwater are based on observations made at the time of site assessment. Groundwater may vary as a result of seasonal effects or other variable factors.

Appendices:

Appendix A: Block and Location Plans

Appendix B1: Proposed Plans

Appendix B2: Proposed Elevations

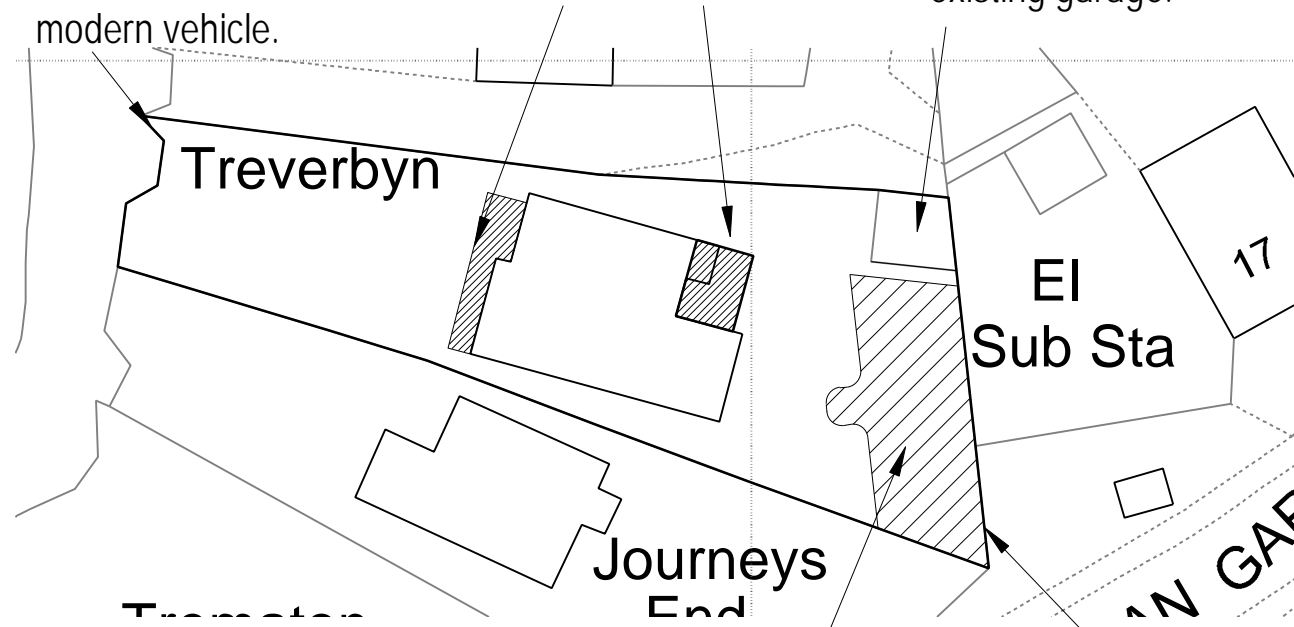
Appendix A: Block and Location Plans

Ref: Site Location and Block Plans - Drawing Ref TTR127/EW/LBC/Planning/01.
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Driveway entrance widened to accommodate modern vehicle.

Location of proposed single storey extensions.

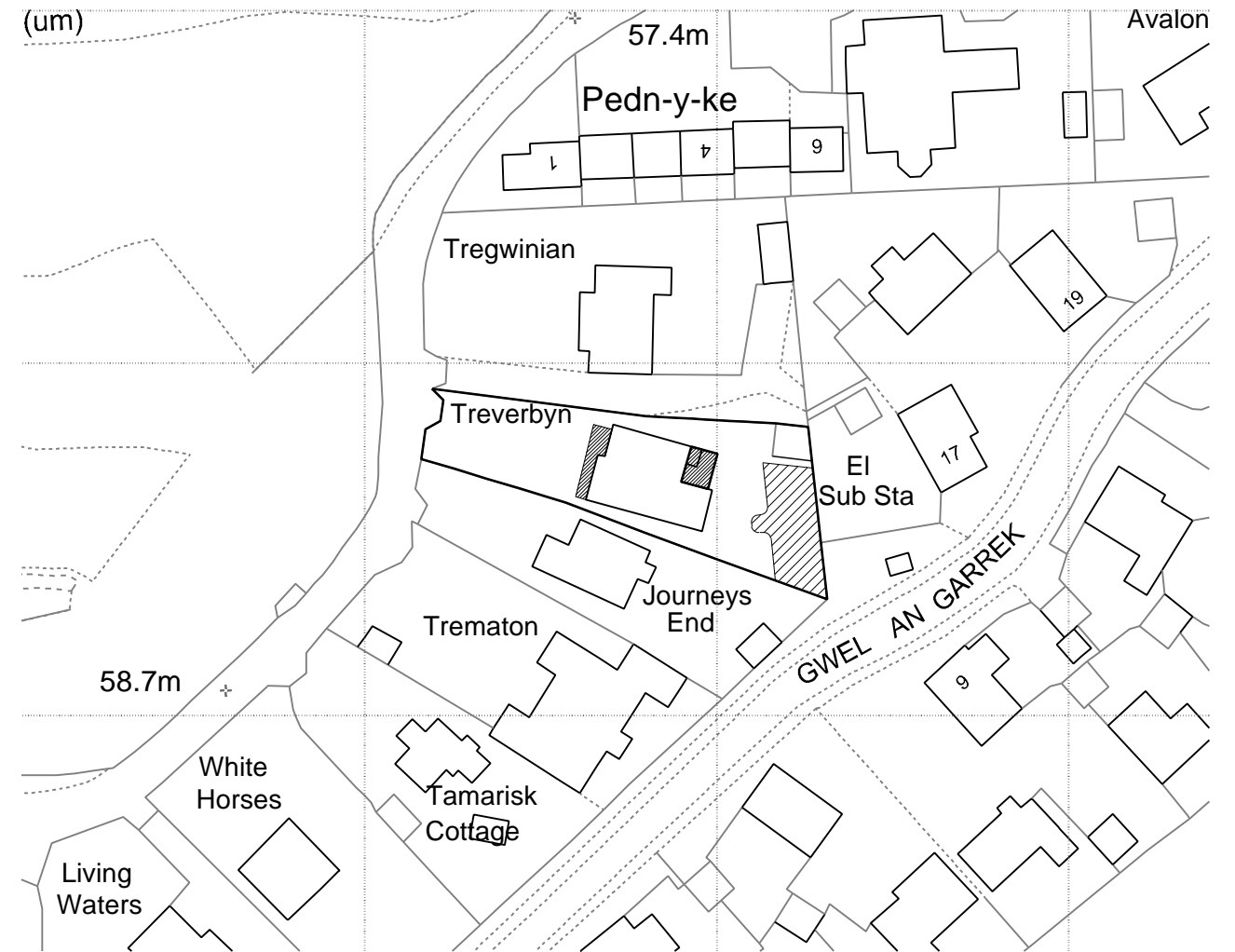
Demolish and rebuild existing garage.



Block Plan
1:500

Proposed new driveway with turning area. Surface to be permeable or drained into a soakaway.

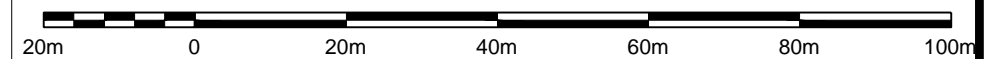
Proposed new vehicular access on to unclassified road (Gwel an Garrek).



Site Location Plan
1:1000

LBC
Leyshon Building Consultancy
Tel 07796173210
houseplansdrawn@hotmail.com

1:1000



Revision	Date	Description

Do not scale from this drawing for construction purposes.

It is to be noted that all dimensions are approximate and must be checked on site by the Contractor prior to the commencement of any fabrication or building works and where applicable, all dimensions and details are to be read in conjunction with any specialist consultants' drawings; any disparity between drawings is to be brought to the attention of the client prior to the commencement of any fabrication or building works. All Dimensions in mm.

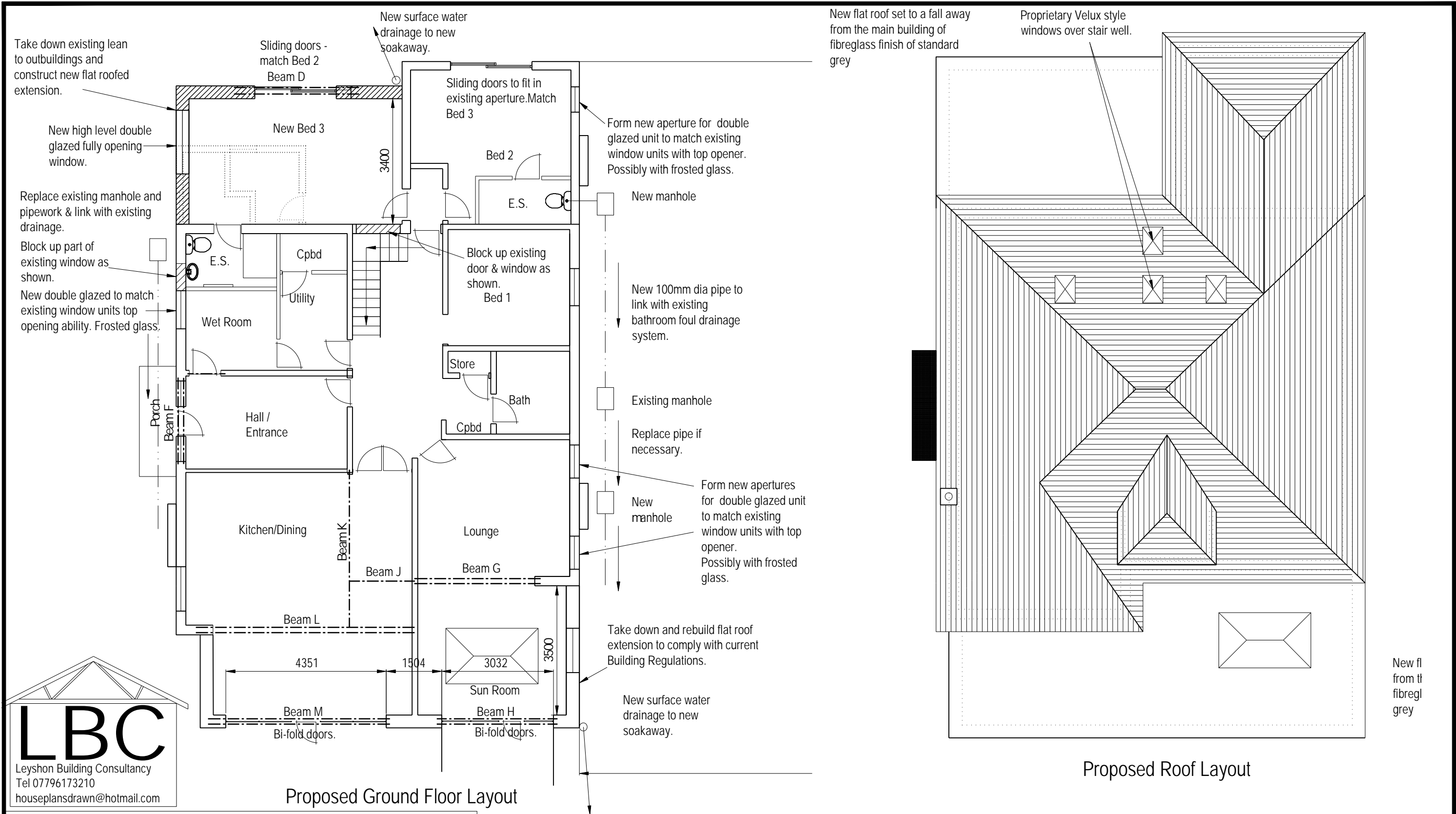
All Legal Boundaries to be confirmed by client prior to commencement of any works.

This drawing is to be used for its intended purpose and must not be duplicated other than for the project identified in the title block without written approval from Leyshon Building Consultancy (LBC). The original drawing remains the property of LBC.

Address: Treverbyn Polurrian Cliff Mullion TR12 7EW		Drwg No. TTR127EW/LBC/Planning/01
Description: Proposed Front and Rear Single Storey Extensions, Internal Alterations & New Access Site Location and Block Plan		
Scales (if A3) 1:500 & 1:1000	Date Aug 2023	
Client: Mr P & Mrs S Harrison		

Appendix B1: Proposed Plans

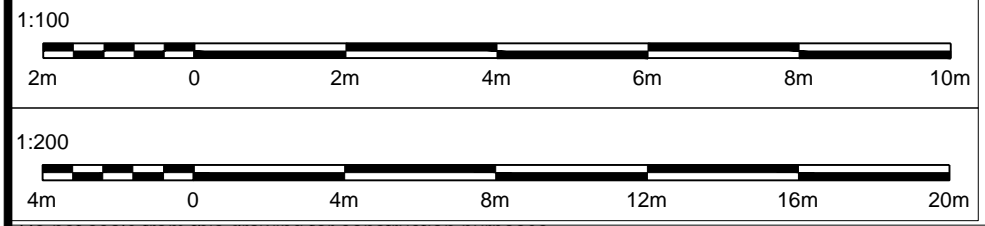
Ref: Proposed ground floor and roof layout - Drawing Ref TTR127/EW/LBC/Planning/04.
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 Leyshon Building Consultancy
 Tel 07796173210
 houseplansdrawn@hotmail.com

Proposed Ground Floor Layout

Proposed Roof Layout

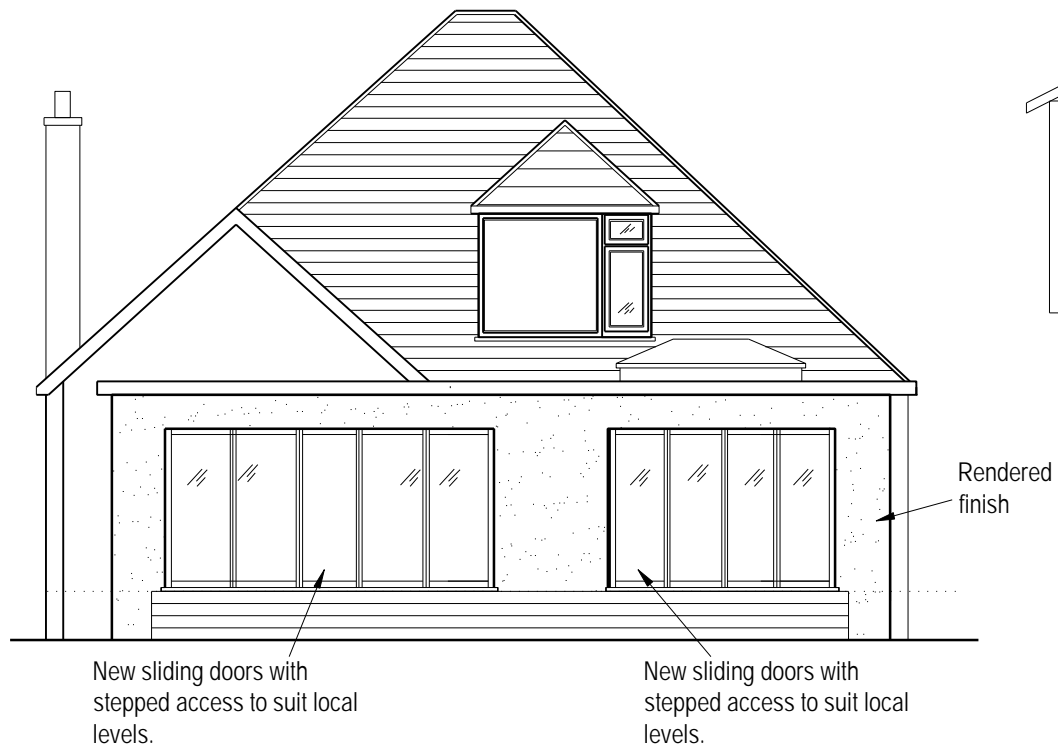


Do not scale from this drawing for construction purposes.
 It is to be noted that all dimensions are approximate and must be checked on site by the Contractor prior to the commencement of any fabrication or building works and where applicable, all dimensions and details are to be read in conjunction with any specialist consultants' drawings; any disparity between drawings is to be brought to the attention of the client prior to the commencement of any fabrication or building works. All Dimensions in mm.
 All Legal Boundaries to be confirmed by client prior to commencement of any works.
 This drawing is to be used for its intended purpose and must not be duplicated other than for the project identified in the title block without written approval from Leyshon Building Consultancy (LBC). The original drawing remains the property of LBC.

Revision	Date	Description
Address: Treverbyn Polurrian Cliff Mullion TR12 7EW		
Description: Proposed Front and Rear Single Storey Extensions, Internal Alterations & New Access Proposed Ground & Roof Layouts including Drainage Provision		
Scales (if A3) 1:100 & 1:200	Date June 2023	Drwg No. TTR127EW/LBC/Planning/04
Client: Mr P & Mrs S Harrison		

Appendix B2: Proposed Elevations

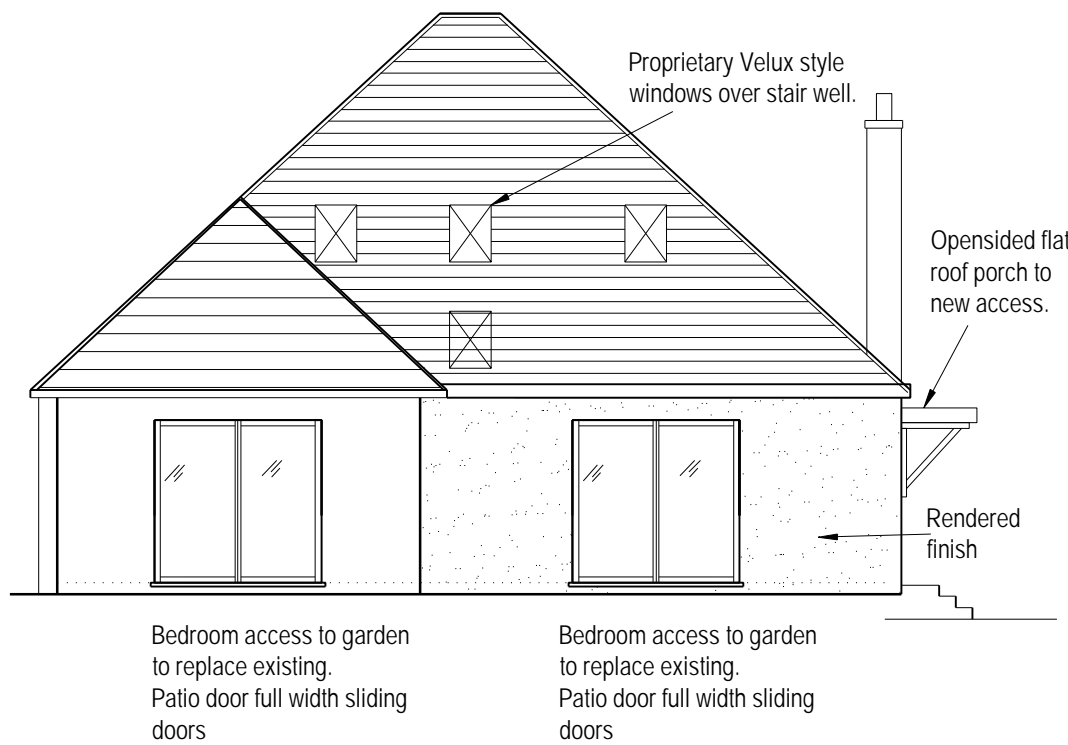
Ref: Proposed Elevations - Drawing Ref TTR127/EW/LBC/Planning/05.
Leyshon Building Consultancy Ltd



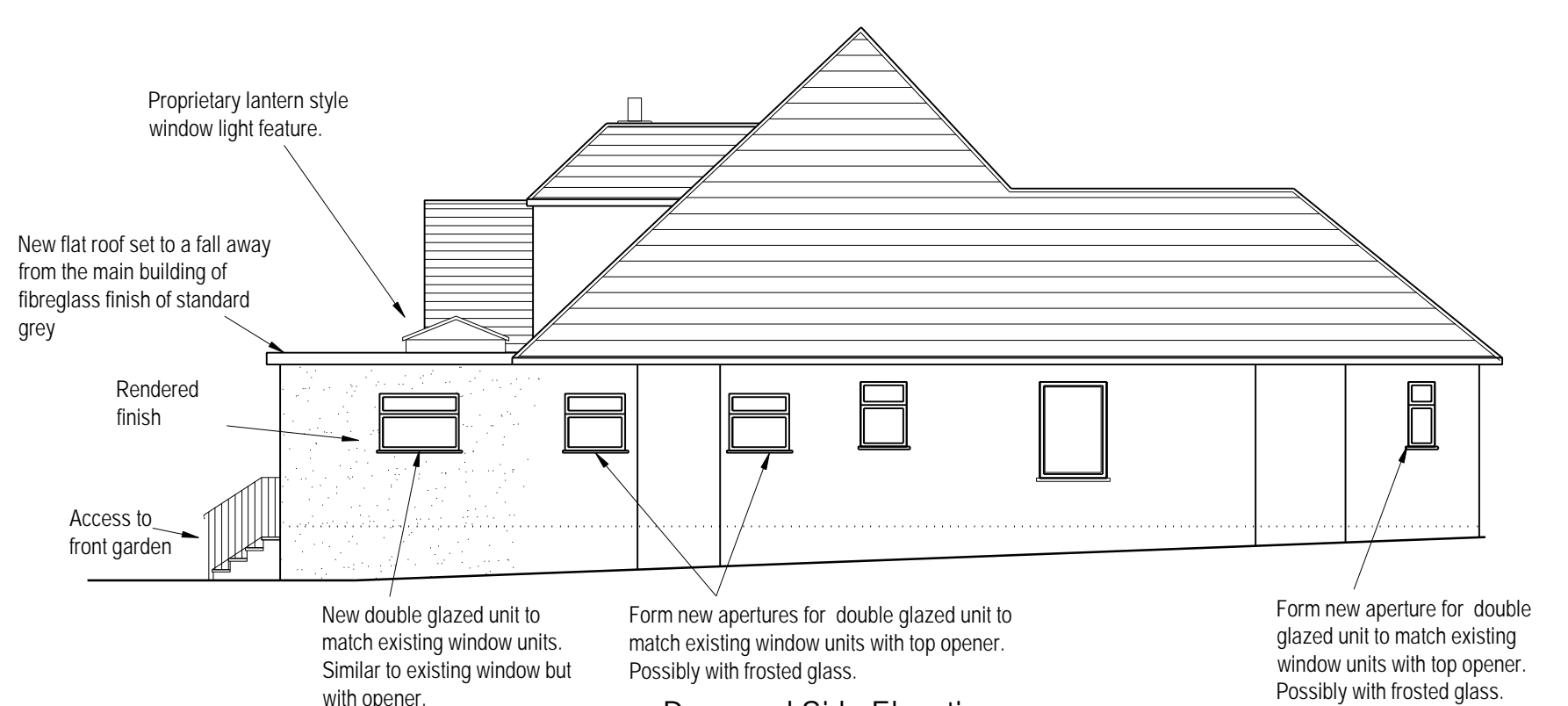
Proposed Front Elevation



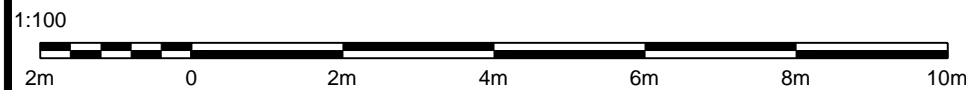
Proposed Drive Side Elevation



Proposed Rear Elevation



Proposed Side Elevation



Do not scale from this drawing for construction purposes.

It is to be noted that all dimensions are approximate and must be checked on site by the Contractor prior to the commencement of any fabrication or building works and where applicable, all dimensions and details are to be read in conjunction with any specialist consultants' drawings; any disparity between drawings is to be brought to the attention of the client prior to the commencement of any fabrication or building works. All Dimensions in mm.

All Legal Boundaries to be confirmed by client prior to commencement of any works.

This drawing is to be used for its intended purpose and must not be duplicated other than for the project identified in the title block without written approval from Leyshon Building Consultancy (LBC). The original drawing remains the property of LBC.

Revision	Date	Description
Address: Treverbyn Polurrian Cliff Mullion TR12 7EW		
Description: Proposed Front and Rear Single Storey Extensions, Internal Alterations & New Access Proposed Elevations		
Scales (if A3) 1:100	Date June 2023	Drwg No. TTR127EW/LBC/Planning/05
Client: Mr P & Mrs S Harrison		