

Removability Plan For Proposed Residence

40 Childe Street, Belongil
Lot 2 on RP862599

Our Ref: N17-203

For: David Trewern

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1 INTRODUCTION

Introduction

Westera Partners have been commissioned to design and document the structural engineering for the residence at Lot 2 DP 862599, Childe Street, Belongil which has been designed by Harley Graham Architects job number HG199-40CS.

It is noted that this project is located within the Byron Shire Council predicted coastal erosion and coastal hazard zone as defined by Council and as such our building design is compliant with the requirement of being “temporary and readily removable in the event of coastal erosion”.

Structures in this area are required by Byron Shire Council to provide an accompanying Removability Plan.

This Removability Plan is designed in accordance with AS1170 Structural Design Actions and AS1684, AS1720 Timber Framing and Tie Down Standards and AS4100 Steelwork Components and AS 3600 Concrete Code.

This particular site has restricted manoeuvrability for the towing of individual modules of approximately 4.5m in width. The main driveways reduced level is at a minimum of 3m below the ground floor level of the dwelling. For these reasons the property cannot facilitate the conventional method of towing individual pods away from site.

Westera Partners have designed a removability scheme capable of removing the individual modules in a safe and timely manner from site, meeting the council's prescriptive measures of the development standard. The structure of this scheme is comparable in methodology and procedure to that of the recent Council approved, 4/28 Childe Street dwelling addition & DA 10.2017.733.1 No. 3/28, Feb 2018. This Removability Plan does not apply to or include the existing housing structure. The additional structure once removed, will not impact on the existing dwelling's structural integrity.

2 DESIGN

The new house addition design is entirely modular in construction comprising of prefabricated manageable cassettes and structural panels, (excluding identified sacrificial elements).

These cassettes and panels are designed in such a way as to be easily dismantled and each carried by a maximum of 3 workers. The materials used are lightweight throughout the construction, all connecting fixings such as bolts and screws are 316 grade stainless steel and greased. The main steel bearers and supporting columns are hot dipped galvanised. Specialised hand tools are kept onsite with the relevant relocation documentation. Reference Westera Partners N17-203 set of drawings.

The architect has designed all the sanitary ware and joinery for easy and swift dismantle and removal. The electrical wiring design layout also minimises the amount of cutting when separating the modules.

3 DEVELOPMENT STANDARDS

3.1 Structure Location

The structure is located outside the 20 metres erosion escarpment. As displayed in the Byron Bay Coastal Zone Mapping document 2016.

3.2 Module Description

The modular system is elevated and set upon the ground floor of reinforced pad footings and bored piers. The first floor is elevated and cantilevered over the carport and storage area. There is also three demountable portal frames and various steel columns supporting the first floor.

Reference Harley Graham Architects HGA199 set of drawings. 2019

3.3 Modular Components

The modular components comprise of prefabricated manageable cassettes and structural wall panels, excluding identified sacrificial elements. Reference Westera Partners N17-203 set of drawings dated 2019 and Harley Graham Architects HGA199-40CS set of drawings. 2019

3.4 Maintenance and Monitoring Requirements

The maximum width of the modular components when loaded does not exceed 3.0 metres. The maximum height is less than 4.4 metres and the maximum weight per vehicle Load does not exceed 5,000kgs. Reference Harley Graham Architects HGA199-40cs 2019 set of drawings and Westera Partners Preliminary drawings N17-203. 2019 See appendix B for component weights and sizes

3.5 The Removal and Relocation Procedure Plan

The Removal and relocation procedure plan is designed to be completed in under 12 hours.

- a. The destination for the relocated residence is 28 Old Byron Bay Road, Newrybar and is 23 minute travel time.
- b. All of the relocated components will be safely stored on flat timber gluts and covered at this site indefinitely. Before reconstruction an engineer must design new footings and any other supports necessary.
- c. The whole procedure will utilise one large 4x4 flatbed utility vehicle with large car trailer or similar, with a maximum of three trips
- d. The vehicle will enter the concrete sealed private drive via Childe Street leading up to the residence in front of the carport See fig 1

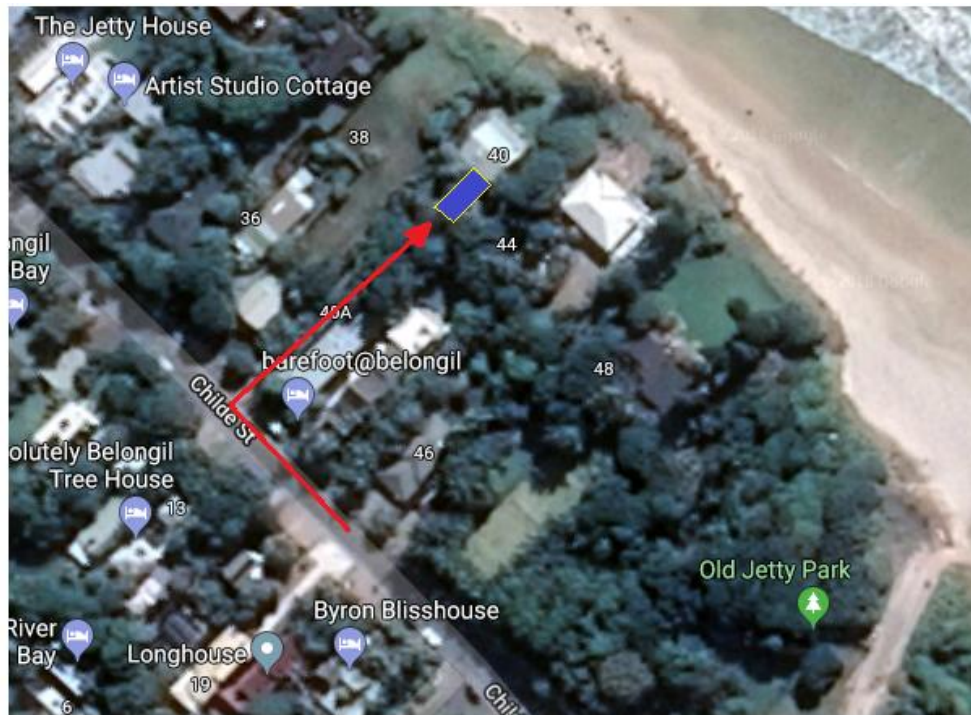


Fig1

- e. There are no current obstacles expected either at the residence site or relocation site.
- f. Westera Partners certification of plan see appendix A
- g. Sacrificial elements include;
 - Outdoor slab and landscaping retaining walls
 - Fibreglass in ground swimming pool and surrounding landscaping
 - Column bored piers and pad footings

3.6 Relocation Equipment Requirement

The whole relocation procedure will only use battery powered and hand tools. This will be accomplished with 3 workers with one worker acting as supervisor/worker

4 EQUIPMENT

All equipment required for the relocation activity is stored on site in a purpose made cupboard within the storage area including a written procedural document. See appendix C1 for tool list. And appendix C2 for procedure, together with the sourcing of 4x4 truck and trailer

5 SERVICES

No mains electricity is required during the deconstruction. The mains switchboard. Has one main circuit breaker located within the carport. This will remain after the removal. See Set of electrical plan drawings Harley Graham Architects HGA199-40CS.2019. All sewer plumbing will be cut and capped at ground level and the mains water shall be turned off at the meter. All of the remaining underfloor or exposed plumbing attached to the upper floor modules will be sacrificial.

6 APPENDICES

6.1 Appendix A – Modular components

Roof panelling. Quantity- 44

- Max Size 6.5m x 0.76m x 75mm (varying lengths)
- Max weight 30kg

Floor cassettes Quantity- 17

- Max Size 3.4m x 2300mm x 900mm (Varying lengths)
- Max weight 100kg

Wall panels. Quantity- 28

- Max Size 3m x 120mm x 900mm (Varying lengths)
- Max weight 115kg

Lintel box beams Quantity- 11

- Max Size 4.5m x 120mm x 650mm (Varying lengths)
- Max weight 110kg (min 30Kg)

Steel bearers and columns Quantity- 40

- Max Size 3.7m (Varying lengths)
- Max weight 140kg

Windows/doors Quantity- 11

- Max Size 3m x 2m (Varying lengths)
- Max weight 50kg

'H' Frame Quantity- 1

- Max Size 3m x 1.5m
- Max weight 90kg

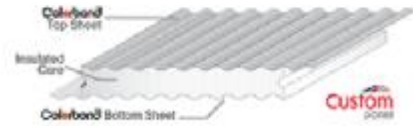
Deck Panels Quantity-6

- Max size 2.5 long x 1.35 wide x 200mm deep
- Max weight 115Kg

6.2 Appendix B- Tool list

Onsite tool kit (Tools stored in cabinet in garage)

- 4m Extension ladder
- 2 x Acro props
- Timber gluts
- 2 x 36" extension sockets
- Socket and driver bit needed 4 off each
- 8 x Ratchet strap tie downs (heavy duty)
- Step ladder
- Safety harness x 2
- Contact for 4x4 truck and trailer hire.
 - Kennards hire Byron bay 135 135
 - Hertz trucks and Busses Byron bay 02 6680 7925
 - Thrifty at Ballina 02 6686 7955



Typical Arcpanel width 760mm



Typical Posistrut layout max width 900mm



Typical 4x4 and car trailer



6.3 Appendix C – Relocation Steps

Relocation procedure steps within a 12 hour time frame with Minimum of 3 workers

1.
 - Secure 4x4 ute and trailer (refer tool list).
 - Cut power and remove all sanitary ware and joinery load onto vehicle 1Hrs total.
 - Dismantle roofing starting at childe street end working towards the beach side. Using cordless drills and supplied bits lowering to the ground load. Safety Harnesses must be worn. 1Hrs
 - Dismantle all supporting columns balustrades and lintels lower ready for loading. Remove and lower all doors and windows ready for loading 1.5 Hrs
 - Ø Tow sanitary ware, joinery, Doors & Windows off site Max load 3500kg 2.2m Wide x 2.6m High 1.5hours return.
2.
 - Unbolt all deck panels lower and load onto truck. 1 Hr
 - Dismantle floor cassettes using supplied socket set starting at Childe Street end working toward the beach side. Lower one section at a time, load. 1.5 Hrs
 - Unbolt walls starting at childe street end working towards the beach side, load 1.5 Hrs
 - Ø Tow deck, Wall panels and floor cassette's off site Max load 4,500kg, 3.0m high, 3.6m wide on trailer and 2.0m high 2.5m wide on truck bed.
3.
 - Start dismantling subfloor framing
 - a. Safely prop and Unbolt steel members parallel to building first lowering one member at time.
 - b. Safely prop and Unbolt horizontal portal members lowering one item at a time
 - c. Safely prop and Unbolt remaining supporting members
 - d. Unbolt all supporting columns
 - e. Load steel

Total time 1.5hours
 - Clean site. 0.5 Hours
 - Ø Total time 12 hour
 - Ø Tow Steel off site

6.4 Appendix D – Relocation Flow chart

6.5 Appendix E – Manoeuvring details

6.6 Appendix F – Westera Partners Drawings

Westera Partners N17-203 set of drawings

6.7 Appendix G – Harley Graham Drawings

Harvey Graham Drawings