# 

# SHIRE OF AUGUSTA / MARGARET RIVER PREVELLY - GNARABUP BEACH COASTAL ADAPTATION WORKS



#### ABBREVIATIONS

UON - unless otherwise noted. SAA - Standards Association of Australia

#### BASIS OF DESIGN

- Design drawings based on Coastal Planning and Adaptation Concept Design Report (SCR1803B, May-2018) for Gnarabup Beach.
- Design life for realigned walking track (Option 2, mixed coastal walkway) was assumed to be 25 years from 2017 coastal vegetation line at historic rates of coastal erosion (0.3m/yr).
- Design life for boardwalk could be less than 15 years with accelerated future coastal erosion, and should be assessed based on latest coastal monitoring data prior to tendering.
- Maintenance of structure and fore dune is required to achieve the nominated design life for Walking Track.
- toesign in virtuality, including the state of the state o
- Shire requirement is a 2m width Walking Track.
- Boardwalk design does not allow for vehicle access. Loads as per AS2156.2 & AS1170.1. 7.
- Type C barrier on boardwalk if height 1.0 1.5m.
- 9. Information signage to be provided by the Shire.
- 10. Shire's material requirement for boardwalk and fixed stairs is timber.

#### **STAGING**

- 1. Sections of the existing path damaged or undermined by coastal erosion should be closed and path materials removed from foredune.
- Temporary path diversions should be installed on the new alignment with connection to the existing track following inspection by coastal engineer, as occurred in 2018 (refer photo).
- 3. Surface of path diversion to be sand initially, with consideration of crushed limestone where access reasonable.
- Fencing, brushing and signage to be installed to control access.
- Sand nourishment (1803–01-10) will defer requirement for south entrance to realigned walking track. 5.
- Sand nourishment around boat ramp highest priority.

#### **GENERAL NOTES**

- These NOTES to be read in conjunction with Structural Drawings AND Architectural Drawings.
- Timber structures to comply with all relevant, current Australian Standards, particularly AS1720 and AS1684.
- Instructions on drawings take precedence over these notes. All relevant, latest SAA codes and amendments must be complied with.
- All dimensions mm UON, do not scale from drawings.
- Contractor/Tenderers to note that levels and dimensions are approximate only. Contractors/Tenderers are to check all dimensions and levels onsite prior to tendering and prior to carrying out any construction in order to assess actual details required.
- The details provided in these drawings refer to timber construction, Recycled plastic/wood composite walking surface to boardwalks/treads is an option in feu of hardwood, Contact Shire AMR for details,
- All fixings are to be grade 316 stainless steel UON.
- Contractor is to ensure structures are stable at all times, including during construction.
- Inspection carried out by the Superintendent do not absolve the Inspection carries out by the Superintendent do not absolve the Contractor of compliance with the Drawings, Specification and suitable level of workmanship. Responsibility for compliance rests with the Contractor at all times.
- Contractor is to ensure all public and private property and services protected, Damage to public or private property or services, as a rof the Works, is to be made good at the expense of the Contractor
- Soil and water management protection measures are to be implemented so as to protect surrounding areas from contamination.
- Contractor is to ensure that a smooth transition is provided between: new work carried out by the Contractor, and existing areas; and new work constructed by others.
- All bolts and other fixings are to be re-tensioned at completion of work, and again just prior to expiration of the twelve month Defects Liability Period.
- Span means centre of support to centre of support unless otherwise
- Section sizes may be greater and spans/heights smaller than those specified.
- Section sizes a x b where a is depth, b is width.

#### sts to be fixed top & bottom. **EARTHWORKS**

- Earthworks are to be kept to a minimum. Obtain approval from the Superintendent prior to carrying out any earthworks.
- All works are carried out in a fragile coastal environment, regard is to be had for this at all time. Any damage resulting from lack of regard by the contractor is to be made good at the contractor's expense.
- Vegetation is to be protected at all times. Obtain approval from Superintendent prior to clearing of any vegetation.
- Where fill material, rock, sand or similar is required it is to match the local environment to the satisfaction of the Superintendent. If doubt exists contractor is to obtain the prior approval of the Superintendent.

#### **TIMBER NOTES**

- All timberwork to be in accordance with AS1684 and AS1720.1.
- Stress grade F8 generally indicates unseasoned jarrah or equivalent. Stress grade '1'0' indicates seasoned pine grade MOP10. Stress grade '712' indicates seasoned pine grade MOP10. Stress grade '712' indicates seasoned pine grade MOP12. 20' filmber sizefyrade. ... denotes two members laminated to act as one, eg' 20' flox/610' denotes two 90x45 seasoned pine MOP10 members laminated to form a 90x50 member (or a sold 90x90 member).
- External timber to be suitable for, or suitably treated for external conditions
- All ground immersed timbers are to be suitable for, or suitably treated for ground
- Timberwork is to be finished to a suitable standard. All exposed edges are to be suitably arised, exposed surfaces are to be left splinter free, to the satisfaction of the Superintendent.
- Exposed timberwork is to be treated using the following systems:
  Jarrah walking surfaces Rg Lamnotec
  Other exposed jarrah surfaces Aussie Clear Exterior Oil Finish
  (Jarrah tint) 6.

Pine is to be treated

s to be treated:
In contact with the ground - H5,
All other pine - H3,
All exposed Pine to to be treated with two coats of Aussie Clear
Exterior Oil Finish (Jarrah tint)

#### LIMESTONE RETAINING WALLS

- Provide mass imestone block retaining walls at all interfaces between limestone path and timber boardwalks. Actual locations to be determined onsite. May also be used to reduce the cut width where paths run through areas of cut.
- Natural or re-constituted limestone blocks are suitable provided minimum density of 15kN/cub m is achieved.
- Walls as drawn are valid for earth and minor pedestrian loads only, no surcharge allowed.
- Surface run-off is to be re-directed away from all parts of the wall, including top of walls and base of walls.
- Do not place any walls so that they will surcharge any other structures.
- Backfill behind wall to be free-draining coarse granular, suitably
- Foundation for walls to have adequate bearing capacity (150KPa min.), density testing to be carried out as required.
- 8. Fill and compact in front of wall prior to backfilling
- 9. Ensure rear of wall is adequately drained.
- Walls are to extend minimum 500mm both sides of boardwalks to ensure adequate clearance for placement of compacted limestone 10.

#### MAINTENANCE

- 1. Design assumes at least 3 monthly inspections of path
- Coastal monitoring (inspections / survey) required to assess erosion buffers and requirement for sand nourishment and / or path inspection
- The initial management trigger for nourishment should be when the vegetation line is within 2m of the path and there is a steep dune in front. Inspection by coastal engineer advised prior to placement



SHIRE OF AUGUSTA / MARGARET RIVER PREVELLY - GNARABUP BEACH COASTAL ADAPTATION WORKS

SC 1803-01-02



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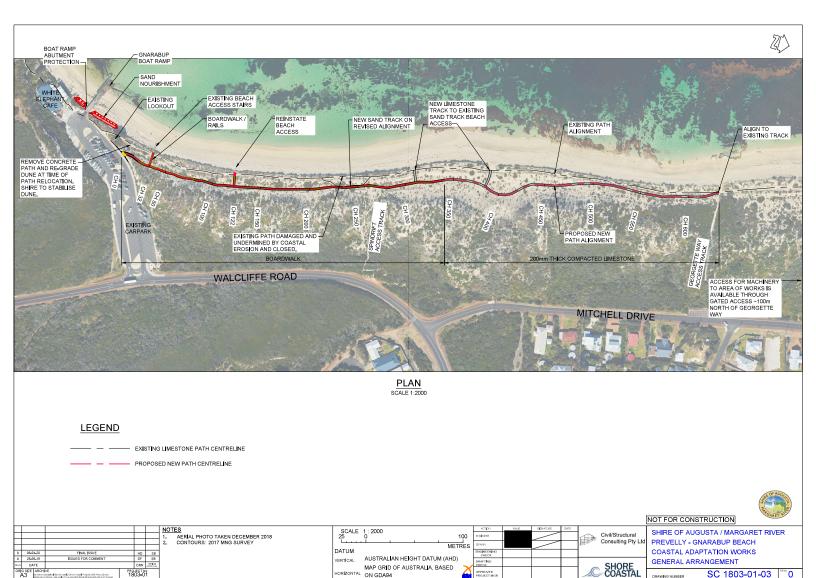
NOTES AERIAL PHOTO TAKEN DECEMBER 2018 CONTOURS: 2017 MNG SURVEY

DATUM

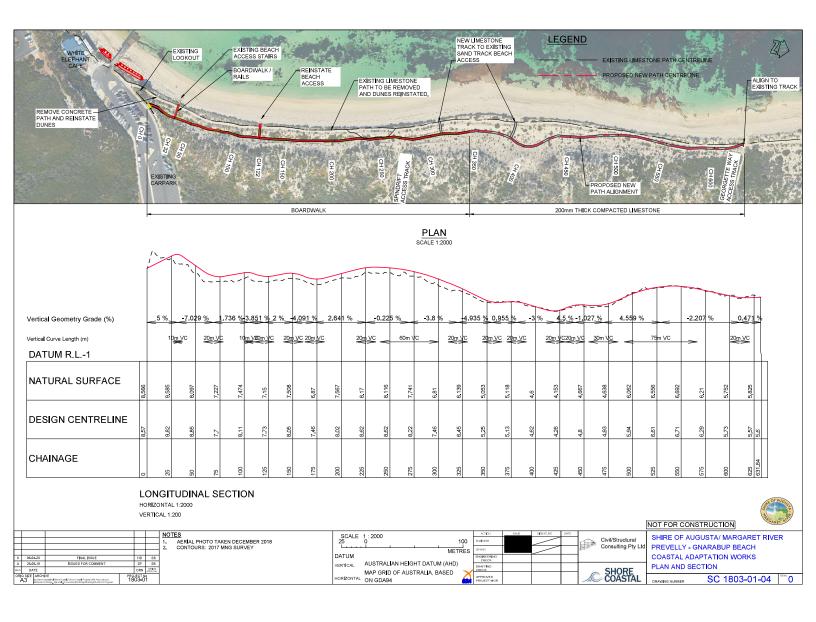
AUSTRALIAN HEIGHT DATUM (AHD) VERTICAL MAP GRID OF AUSTRALIA, BASED

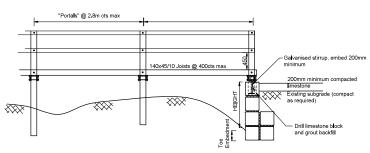
ON GDA94

SHORE



SC 1803-01-03





Double Bearers 140x45/10.

"let-into" post 10mm, 2M16

-150Ø poles OR 125x125 posts, both H5 pine

TYPICAL BOARDWALK LONG SECTION

140x45/10 Jo (450 max)

TYPICAL BOARDWALK CROSS SECTION

BRACING PACKED OUT TO MEET POST FLUSH AND BOLTED USING MIO STAINLESS STEEL (316): WHERE HEIGHT LESS THAN 900 - NOT REQUIRED WHERE HEIGHT 5001-500 - 90X35MGP10 WHERE HEIGHT GREATER THAN 1500 -90x54MGP10 AT 45" TO 95T, REPEATED FROM DECK TO GROUND LEVEL

#### BOARDWALK/LIMESTONE PATH INTERFACE

AVAILABLE SIZES OF RECONSTITUTED LIMESTONE BLOCKS

1000 x350 x350 x350 x170 500 x350 x350 x240 x170 x350 x110 x240 x170 x240 x170 x240 x170 x247 x170

NOTE: Drainage through wall not required unless wall is constructed in poor draining soils

Retained	Width at Ground Leve	Min Toe		
Height	(min)	Embedment		
To 600	350	200		
To 1200	700	280		

# NO SURCHARGE (SOIL BATTER LESS THAN 5°)

Retained Height	Width at Ground Level (min)	Min Toe Embedmer		
To 700	350	200		
To 900	460	250		
To 1100	520	280		

# SURCHARGE (SOIL BATTER UP TO 25°)

Retained	Width at Ground Level	Min Toe
Height	(min)	Embedmer
To 600	350	200
To 800	460	250
To 1000	520	280

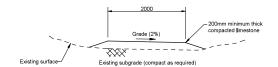
#### GENERAL NOTES (BOARDWALKS)

- 3. 4.
- To be read in conjunction with Drawing SC1803-01-02 (NOTES)
  All fixings grade 316 stainless steel UON,
  All materials supplied by Contractor,
  Minor variations in levels and alignment may be required, exact details to be confirmed

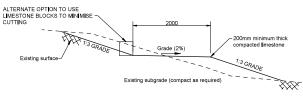
- onsite,
  Pine in contact with the ground to be H5 treated, all other pine H3 treated.
  Minimum depth of post embedment 700mm.
  Base of excavations for posts to be suitably compacted (equivalent to 7 blows to 300mm penetration with a Standard Penetrometer).
  Where doubt exists for density of post foundation, overexcavate and provide 150mm of
- 8.
- 20mm aggregate, hand compacted.
  9. Hand compact backfill to posts during backfilling.

#### **GENERAL NOTES LIMESTONE PATHS**

- Geometry of proposed limestone paths to match existing limestone paths (minimum width
- Geometry of proposed limestone paths to match existing limestone paths (minimum wire 20m), Fully compact path subgrade prior to placement of limestone (minimum 7 blows per 300mm penetration of a Standard Sand Penetrometer). Limestone is to be at Optimum Moisture Content for compaction during placement and compaction. Achieve 95% MDD (Modified) densite.
- Minimum depth of limestone 200mm after compaction
- Proposed limestone type is to match existing limestone type.



#### TYPICAL LIMESTONE PATH DETAIL **IN FLAT AREAS**



# TYPICAL LIMESTONE PATH CUT / FILL AREAS

SCALE 1:50



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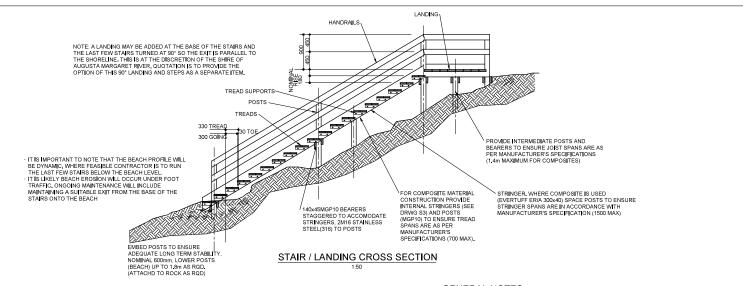
Appropriate hardwo decking to suit joist centres

NOTES AERIAL PHOTO TAKEN DECEMBER 2018 CONTOURS: 2017 MNG SURVEY SB SB DESTA

DATUM AUSTRALIAN HEIGHT DATUM (AHD) /ERTICAL MAP GRID OF AUSTRALIA, BASED ON GDA94

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NOT FOR CONSTRUCTION SHIRE OF AUGUSTA / MARGARET RIVER PREVELLY - GNARABUP BEACH COASTAL ADAPTATION WORKS TYPICAL DETAILS - SHEET 1 SC 1803-01-05



### TABLE 1 - MATERIAL CHOICE vs MEMBER SIZES

MEMBER	DETAILS	JARRAH	TREATED PINE
Post	Evertuff ES/P 125x125	125 square	125 square OR 125 round
Handrail, Top Rail and Mid-Rail	All Evertuff ER/D 140x40	100x50	90x45
Toe-Rail	N APP	N APP	N APP
Stringer	Evertuff ER/A 300x40	250x50	240x45
Joist @ 450cts	Evertuff ER/D	150x50	140x45
Deck	Everdeck ES-ED 33x165	150x50	140x45
Bearer	2off 140x45MGP10	150x50	2off 140x45
Bracing (if rqd)	90x35MGP10	100x38	90x35
M12 bolts	Stainless Steel, grade 316	316 Stainless	316 Stainless
Minor Fixings	Stainless Steel, grade 316	316 Stainless	316 Stainless

## **GENERAL NOTES**

- To be read in conjunction with Drawings 1803-01-02 and 05.
- Stairways and landings to comply with AS1657.
- Maximum number of stairs per flight is 18, add intermediate landing(s) as necessary.
- Measurements shown on plans are approximate only. Contractors to check and confirm relevant dimensions onsite as required.
- 5. All fixings grade 316 stainless steel UON.
- Three material options are provided:

  1) Recycled composite timber/plastic,
  - Jarrah and
     Treated Pine.

Decision as to what material(s) are to be used is to be made by the Shire of Augusta / Margaret River.

- All materials, including fixings and finishings are to be supplied by Contractor.
- Minor variations in levels and alignment may be required, exact details to be confirmed onsite.

SHIRE OF AUGUSTA / MARGARET RIVER PREVELLY - GNARABUP BEACH COASTAL ADAPTATION WORKS TYPICAL DETAILS - SHEET 2

SC 1803-01-06

- 9. Nominal tread width 330 (300 going with 30 toe), nominal rise 180.
- 10. Nominal width:

Stairs - 1.2m (composite requires 1 internal stringer). NOT FOR CONSTRUCTION

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