

BLACKWOOD RIVER FORESHORE

BRIDGETOWN, WA

RECTORY TRAIL PATH UPGRADE

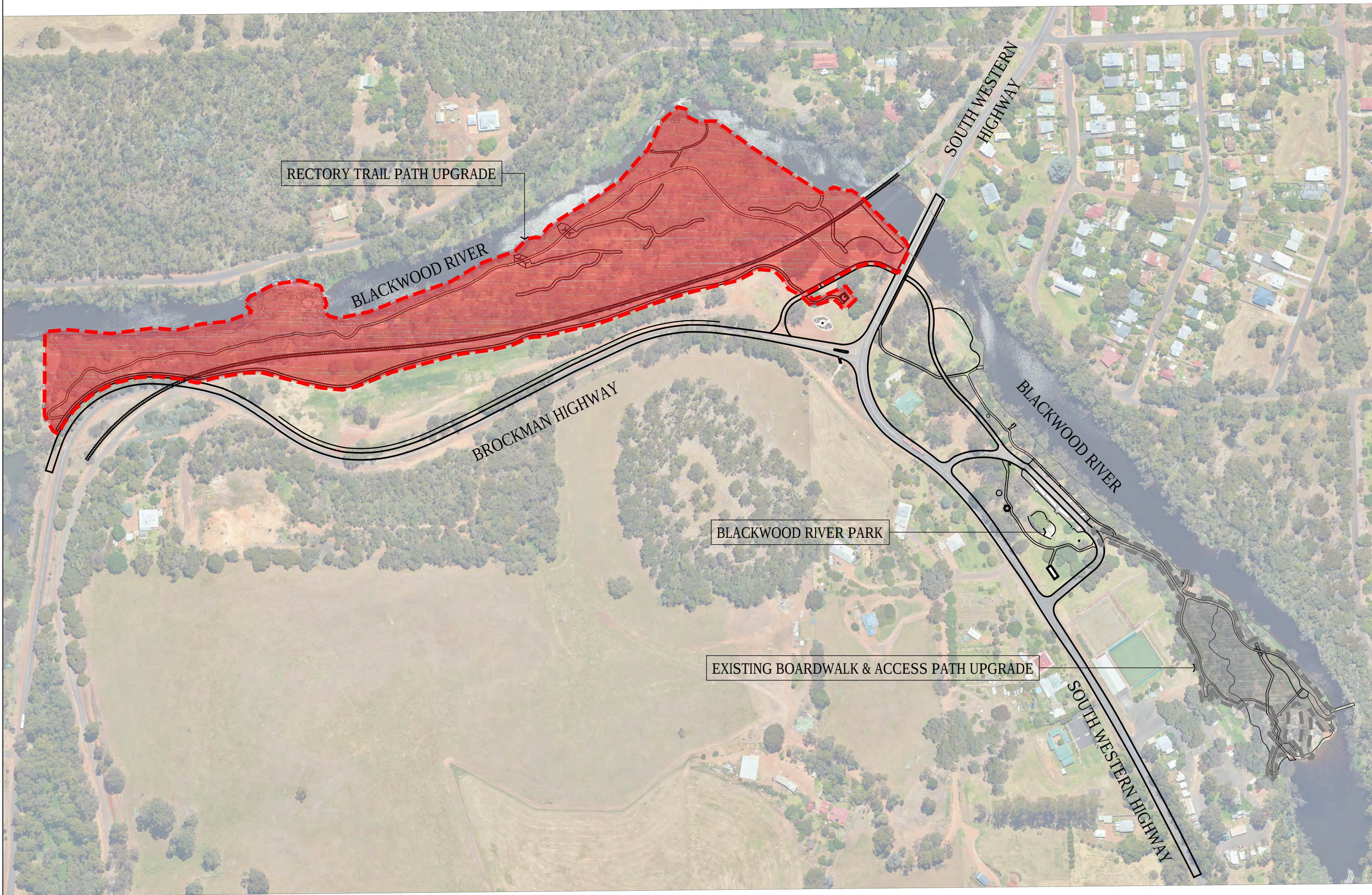
LANDSCAPE CONTRACT: SOBG-03

LANDSCAPE CONSTRUCTION WORKS

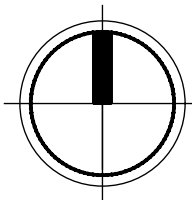
CLIENT:SHIRE OF BRIDGETOWN-GREENBUSHES

ISSUE FOR: *COMMENT*

DATE: **NOVEMBER 2019**

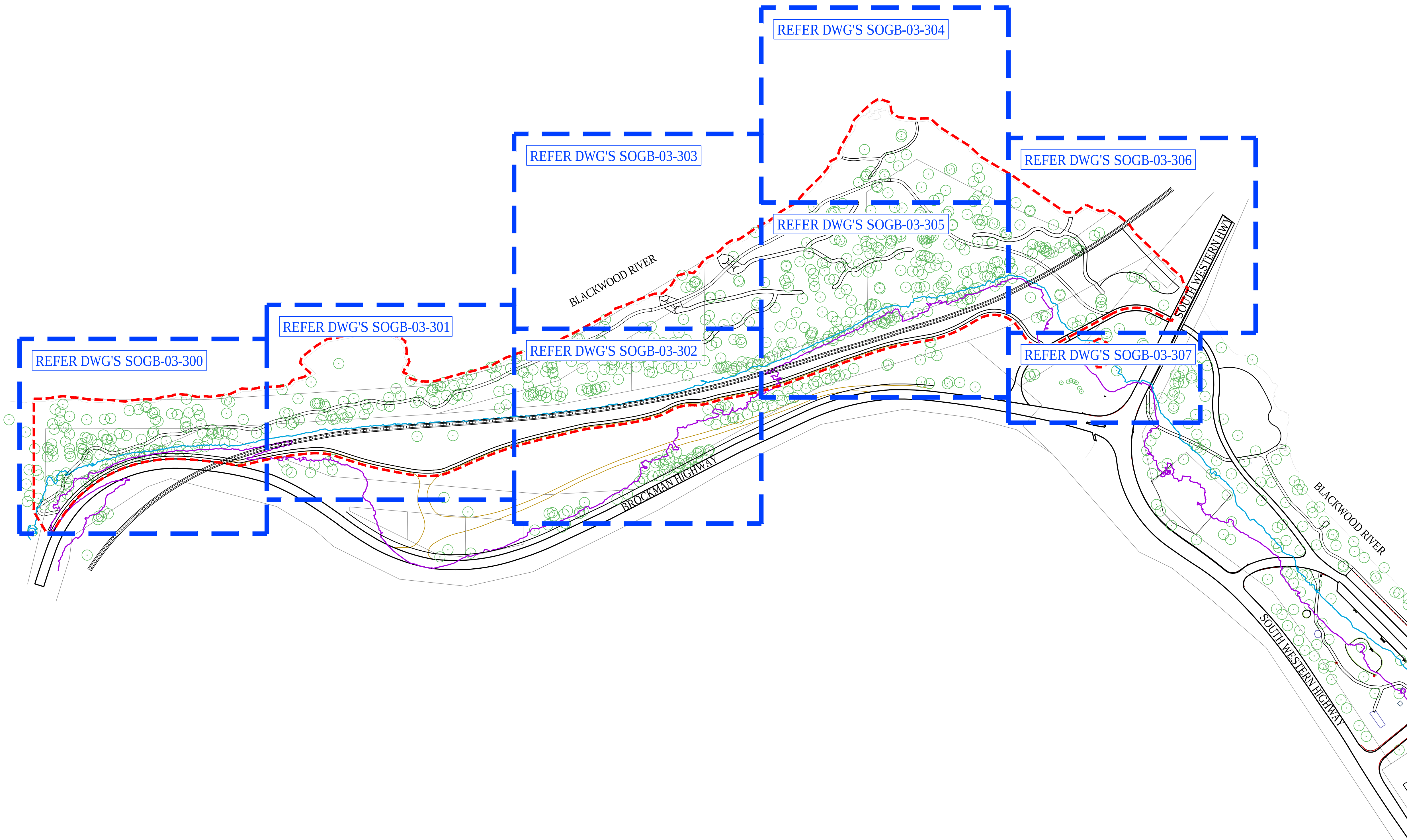


LOCATION PLAN
1:3000 @ A1



Sheet List Table

SHEET	REVISION	TITLE
SOBG-03-000	A	COVER PAGE
SOBG-03-100	A	LAYOUT PLAN
SOBG-03-300	A	EARTHWORKS & GRADING PLAN
SOBG-03-301	A	EARTHWORKS & GRADING PLAN
SOBG-03-302	A	EARTHWORKS & GRADING PLAN
SOBG-03-303	A	EARTHWORKS & GRADING PLAN
SOBG-03-304	A	EARTHWORKS & GRADING PLAN
SOBG-03-305	A	EARTHWORKS & GRADING PLAN
SOBG-03-306	A	EARTHWORKS & GRADING PLAN
SOBG-03-307	A	EARTHWORKS AND GRADING PLAN
SOBG-03-900	A	SHELTER CONSTRUCTION DETAILS
SOBG-03-901	B	SHELTER CONSTRUCTION DETAILS
SOBG-03-902	B	LANDSCAPE CONSTRUCTION DETAILS
SOBG-03-903	B	LANDSCAPE CONSTRUCTION DETAILS
SOBG-03-904	A	CONSTRUCTION NOTES



LEGEND

- EXTENT OF WORKS
- EXTENT OF DETAIL PLANS
- 1:100 YEAR FLOOD LEVEL
- 1:25 YEAR FLOOD LEVEL
- EXISTING TREE TO BE RETAINED & PROTECTED

- NOTES:**
- NO TREES SHALL BE REMOVED OR CLEARED AS PART OF THESE WORKS. ANY EXISTING NATIVE SHRUB OR GROUNDCOVER PLANTING SHALL BE REVIEWED ON SITE AND APPROVED BY SUPERINTENDENT PRIOR TO ANY CLEARING WORKS TAKING PLACE SHOULD IT BE REQUIRED.
 - THESE DESIGNS ARE BASED ON SURVEY INFORMATION AND BASE INFORMATION PROVIDED BY THE SHIRE OF BRIDGETOWN-GREENBUSHES. ALL LEVELS AND INFRASTRUCTURE LOCATIONS SHALL BE REVIEWED ON SITE AND APPROVED BY SUPERINTENDENT PRIOR TO ANY WORKS TAKING PLACE.
 - THESE DESIGN ARE NOT ISSUED FOR CONSTRUCTION. STRUCTURAL REVIEW AND CERTIFICATION IS REQUIRED PRIOR TO ANY WORKS PROCEEDING ON SITE.
 - THIS DESIGN SCOPE OF WORKS IS TO REPLACE EXISTING PATHS, BOARDWALKS AND DRAINAGE INFRASTRUCTURE ON THEIR EXISTING ALIGNMENTS AND LOCATIONS WHERE POSSIBLE OR AS AGREED TO CHANGE WITH THE SHIRE. CONTRACTORS SHALL NOTE THAT ALL INFRASTRUCTURE INCLUDED ON THESE DESIGN PLANS ARE SUBJECT TO FLOODING AND INUNDATION DURING FLOOD EVENTS BEING LOCATED WITHIN THE BLACKWOOD RIVER FLOOD AREA.

- STANDARD NOTES**
- SET OUT & DIMENSIONS.** THE CONTRACTOR SHALL SET OUT ALL PATHS, WALLS, BARRIERS AND ELEMENTS EITHER ON OR OFFSITE PRIOR TO CONSTRUCTION AND SHALL OBTAIN THE SUPERINTENDENT'S SET OUT APPROVAL PRIOR TO WORKS COMMENCING. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE. CHECK ALL DRAWING SCALES IN CONJUNCTION WITH DRAWING SIZE.
 - SERVICES & SITE ASSETS.** THE CONTRACTOR SHALL INVESTIGATE THE NATURE AND LOCATION OF ALL EXISTING SERVICES AND RETAINED SITE ASSETS AFFECTED BY THEIR WORKS. FAILURE TO TAKE DUE CARE SHALL NOT LIMIT THE CONTRACTOR'S LIABILITIES.
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 - SERVICE LOCATOR.** THE CONTRACTOR SHALL UNDERTAKE A DIAL BEFORE YOU DIG PROCESS PRIOR TO COMMENCING WORKS ON SITE. THE CONTRACTOR SHALL ENGAGE A SERVICE LOCATOR TO MAP THE SPECIFIC LOCATIONS AND DEPTH OF ALL SERVICES AND ADVISE ALL RELEVANT STAFF AND SUBCONTRACTORS IN WRITING PRIOR TO COMMENCING WORKS ON SITE.

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EMERGE DIRECTOR			DATE

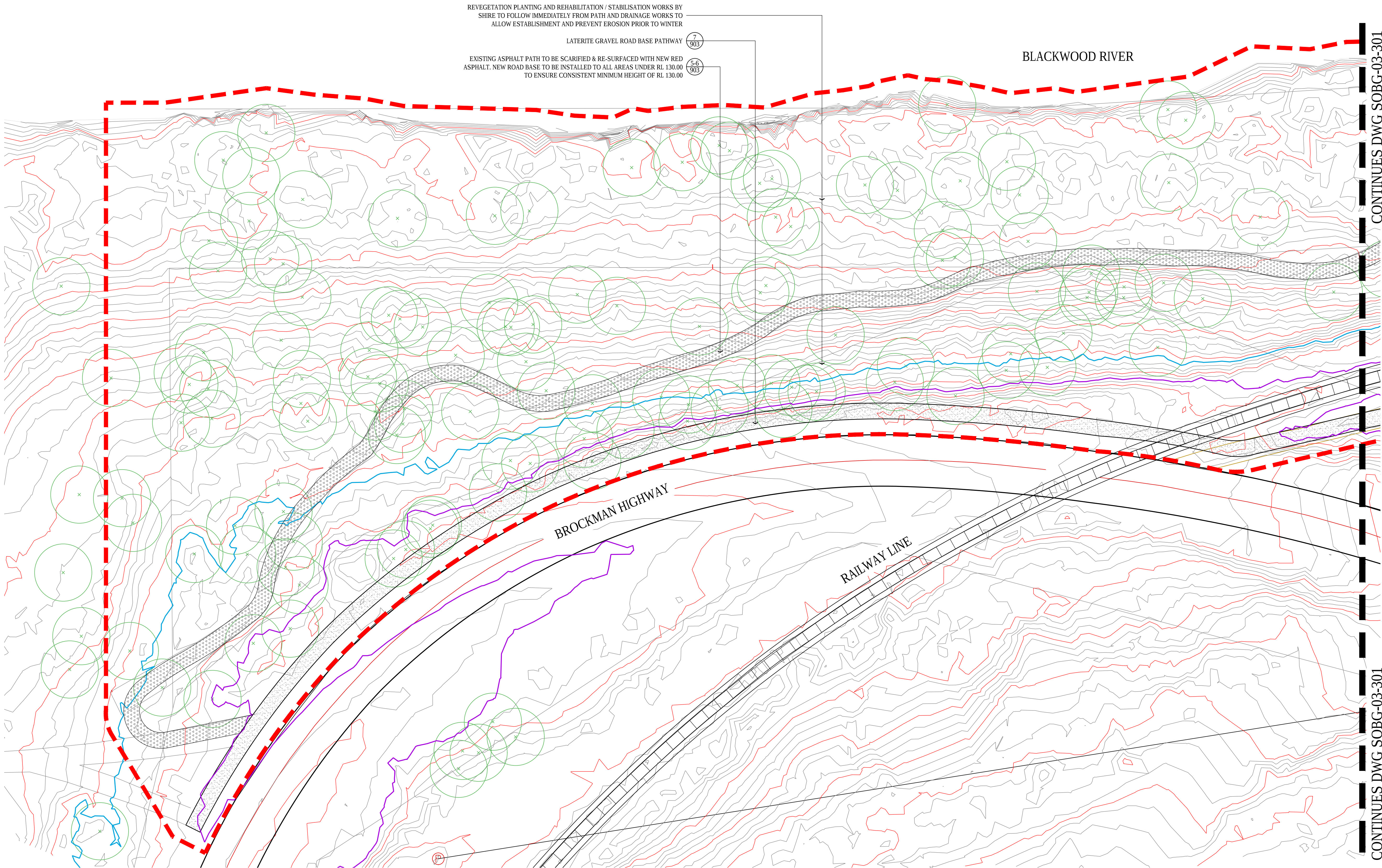
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Integrated Science & Design
PERTH (08) 9380 4988 • MARGARET RIVER (08) 9758 8159

PROJECT
BLACKWOOD RIVER FORESHORE
BRIDGETOWN, WA
STAGE OR PHASE
RECTORY TRAIL PATH UPGRADE
DRAWING TITLE
LAYOUT PLAN
CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

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DRAWN BY	BM	PRELIM DWG REVIEWED BY	CE
DATE INITIALLY DRAWN	16.07.19		
SCALE	1:1500 @ A1		
DRAWING NUMBER	SOBG-03-100		
REV	A		

SEE EXHIBIT PROJECTS/SOUTHWEST PROJECTS/BLACKWOOD FORESHORE/LAYOUT PLAN



LEGEND

- EXTENT OF WORKS
- EXISTING CONTOURS AT 1m INTERVALS
- EXISTING CONTOURS AT 0.25m INTERVALS
- PROPOSED CONTOURS AT 0.25m INTERVALS
- LATERITE GRAVEL ROAD BASE PATHWAY
- MORTARED STONE PITCHING
- TURF BY OTHERS
- EXPOSED AGGREGATE CONCRETE
- EXISTING RAILWAY LINE
- RE-SURFACED RED ASPHALT PATH, CURRENTLY AT OR ABOVE RL130
- LIFTED & RE-SURFACED RED ASPHALT PATH, CURRENTLY BELOW RL130
- NEW RED ASPHALT PATH
- EXISTING TREE TO BE RETAINED & PROTECTED
- 1:100 YEAR FLOOD LEVEL
- 1:25 YEAR FLOOD LEVEL

STANDARD NOTES

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BLACKWOOD RIVER FORESHORE
BRIDGETOWN, WA
RECTORY TRAIL PATH UPGRADE

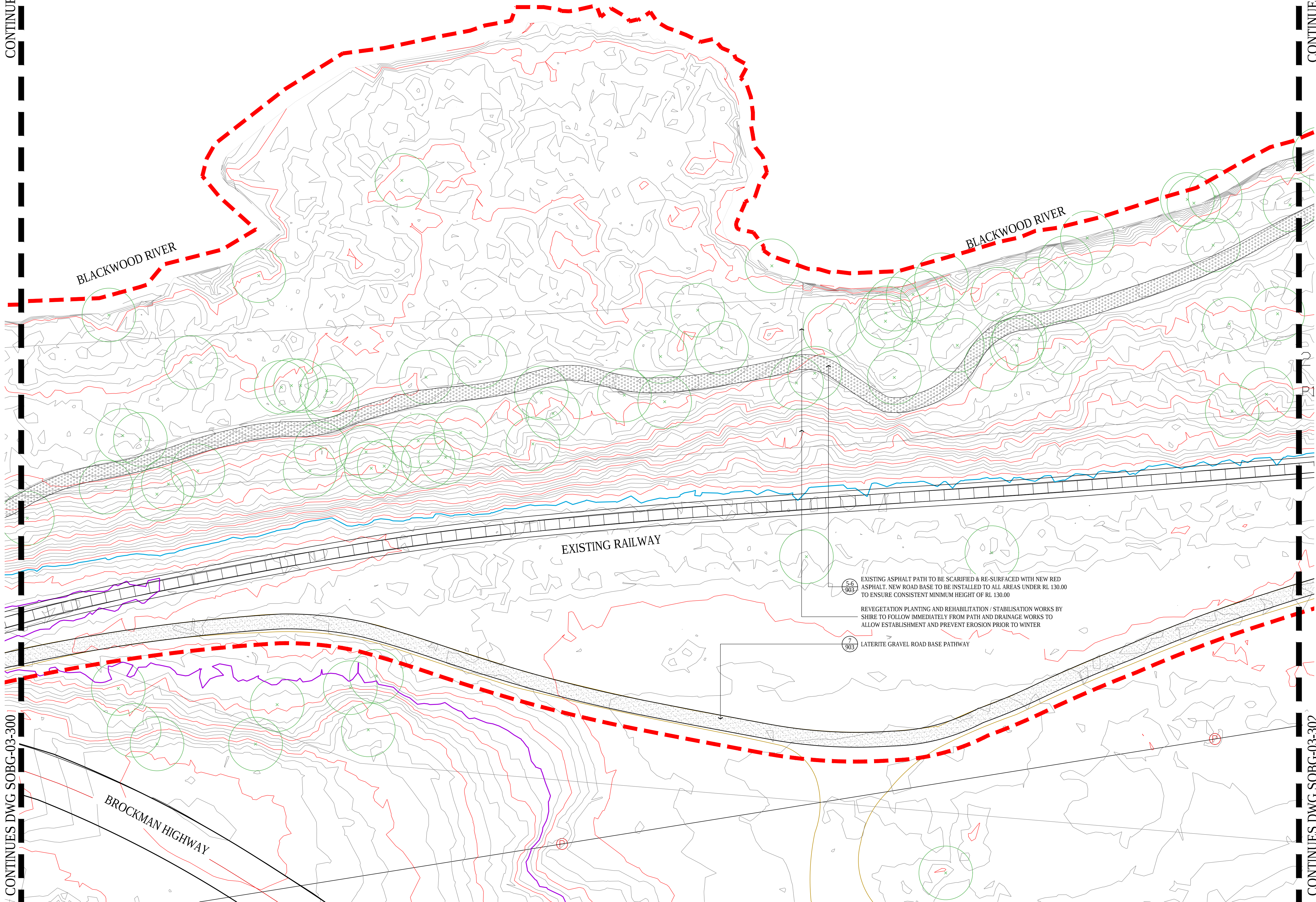
DRAWING TITLE
EARTHWORKS & GRADING PLAN

CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

DESIGNED BY MH PRELIM DESIGN REVIEWED BY CE
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CONTINUES DWG SOBG-03-300

CONTINUES DWG SOBG-03-300



CONTINUES DWG SOBG-03-302

CONTINUES DWG SOBG-03-302

LEGEND

- EXTENT OF WORKS
- EXISTING CONTOURS AT 1m INTERVALS
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- PROPOSED CONTOURS AT 0.25m INTERVALS
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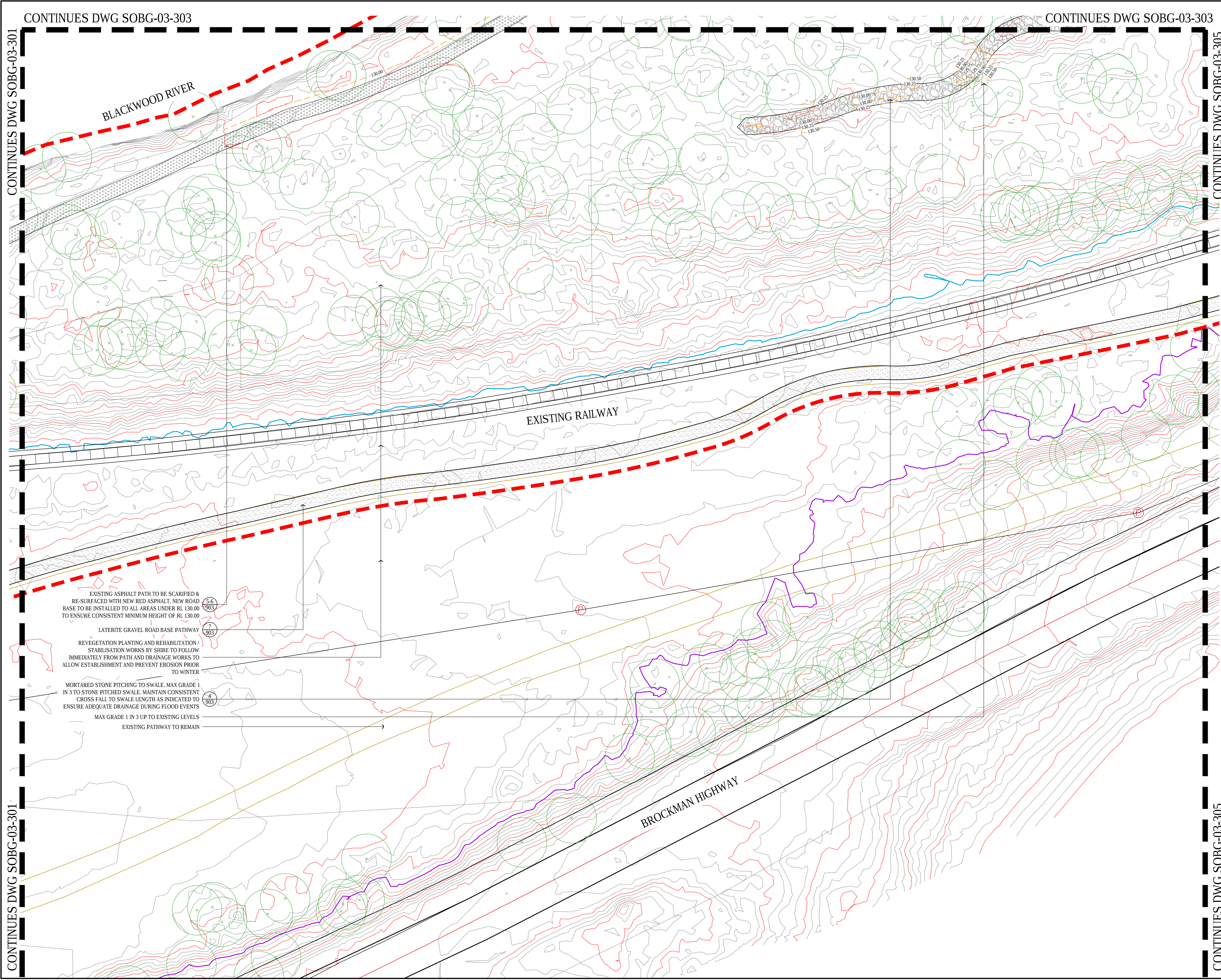
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PROJECT
BLACKWOOD RIVER FORESHORE BRIDGETOWN, WA
STAGE OR PHASE
RECTORY TRAIL PATH UPGRADE

DRAWING TITLE
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CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

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LEGEND

EXTENT OF WORKS

EXISTING CONTOURS AT 1m INTERVALS

EXISTING CONTOURS AT 0.25m INTERVALS

PROPOSED CONTOURS AT 0.25m INTERVALS

LATERITE GRAVEL ROAD BASE PATHWAY

MORTARED STONE PITCHING

TURF BY OTHERS

EXPOSED AGGREGATE CONCRETE

EXISTING RAILWAY LINE

RE-SURFACED RED ASPHALT PATH, CURRENTLY AT OR ABOVE RL130

LIFTED & RE-SURFACED RED ASPHALT PATH, CURRENTLY BELOW RL130

NEW RED ASPHALT PATH

EXISTING TREE TO BE RETAINED & PROTECTED

1:100 YEAR FLOOD LEVEL

1:25 YEAR FLOOD LEVEL

7

903

4

903

9

903

8

903

6

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9

903

5

903

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PROJECT

BLACKWOOD RIVER FORESHORE BRIDGETOWN, WA

STAGE OR PHASE

RECTORY TRAIL PATH UPGRADE

DRAWING TITLE

EARTHWORKS & GRADING PLAN

CLIENT

SHIRE OF BRIDGETOWN-GREENBUSHES

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SCALE

1:250 @ A1

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DRAWING NUMBER

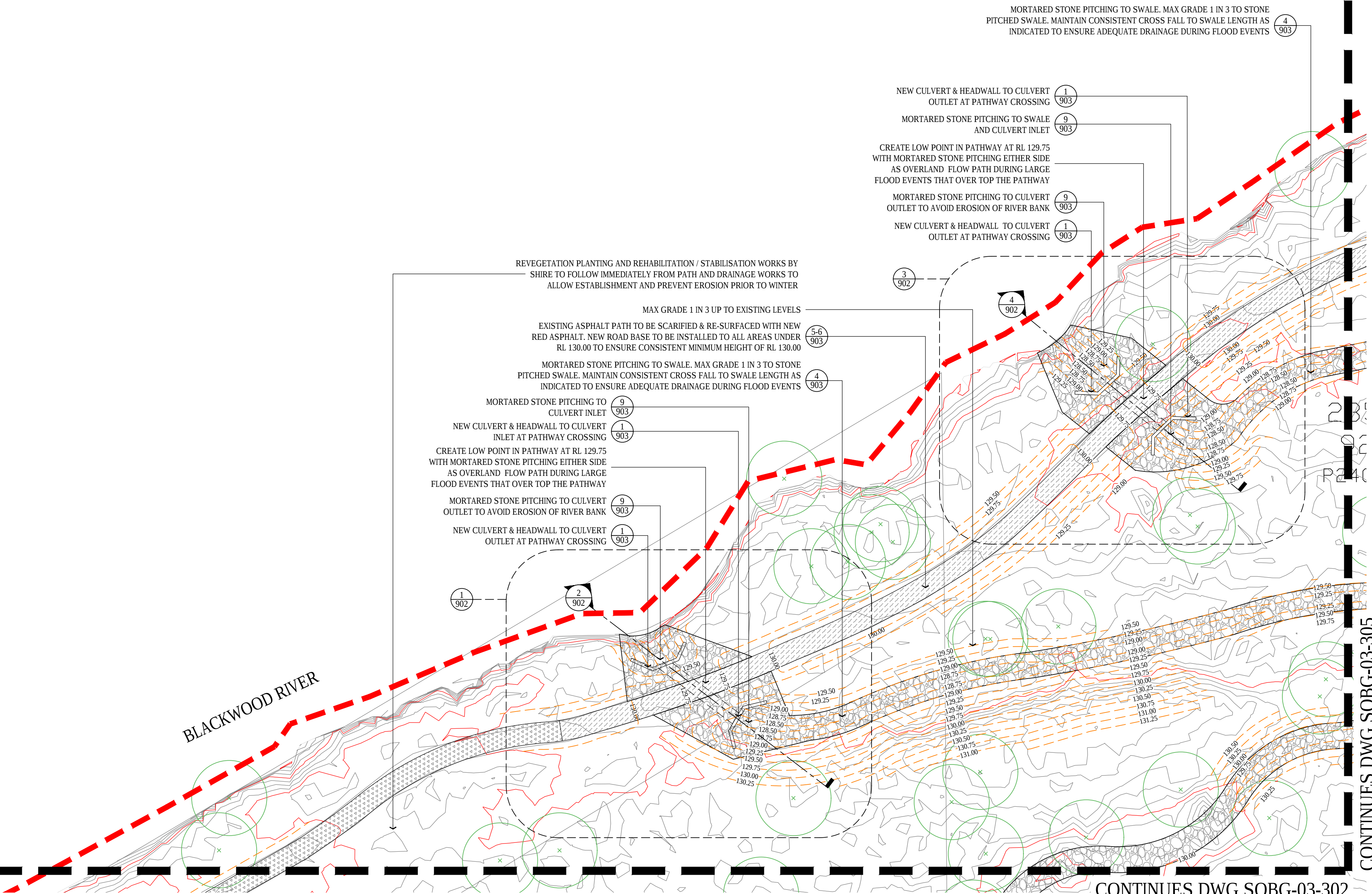
SOBG-03-302

REV

A

SEE EXISTING PROJECTS SOUTH WEST PROJECTS AND ROAD REFERENCE ARE DWG

CONTINUES DWG SOBG-03-302



CONTINUES DWG SOBG-03-304

LEGEND

- EXTENT OF WORKS
- EXISTING CONTOURS AT 1m INTERVALS
- EXISTING CONTOURS AT 0.25m INTERVALS
- PROPOSED CONTOURS AT 0.25m INTERVALS
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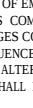
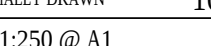
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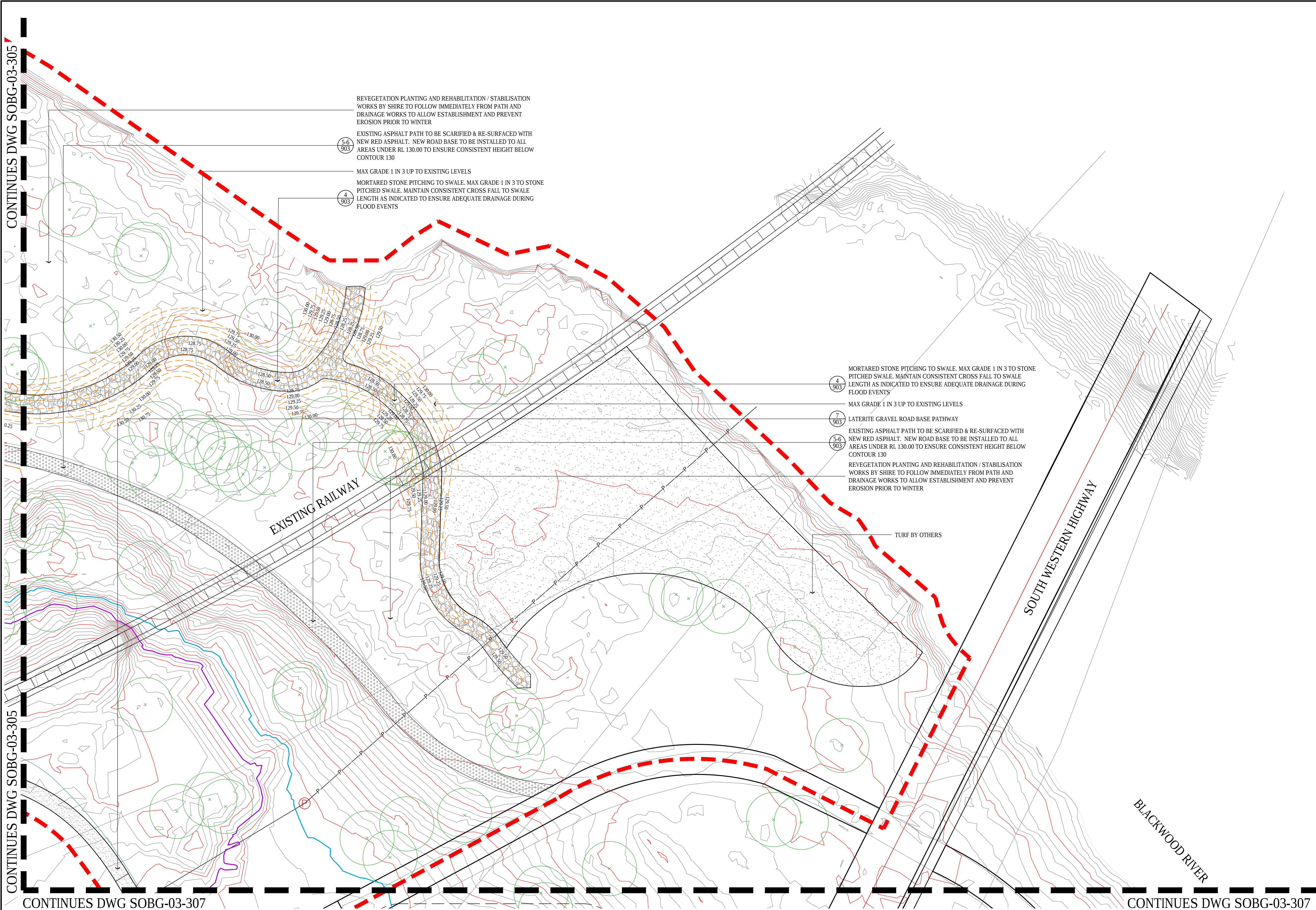
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EARTHWORKS & GRADING PLAN

CLIENT
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DATE INITIALLY DRAWN 16.07.19
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DRAWING NUMBER SOBG-03-303
REV A



			
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PROJECT BLACKWOOD RIVER FORESHORE BRIDGETOWN, WA			
STAGE OR PHASE RECTORY TRAIL PATH UPGRADE			
DRAWING TITLE EARTHWORKS & GRADING PLAN			
CLIENT SHIRE OF BRIDGETOWN-GREENBUSHES			
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REV A			
(SEE EXHIBIT PROJECT SOUTH WEST PROJECT BLACKWOOD RIVER SOBG-03-304.DWG)			



LEGEND

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- 1:25 YEAR FLOOD LEVEL

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REV	DATE	BY	CE	ISSUE FOR COMMENT
A	29.08.19	CE		ISSUE FOR COMMENT

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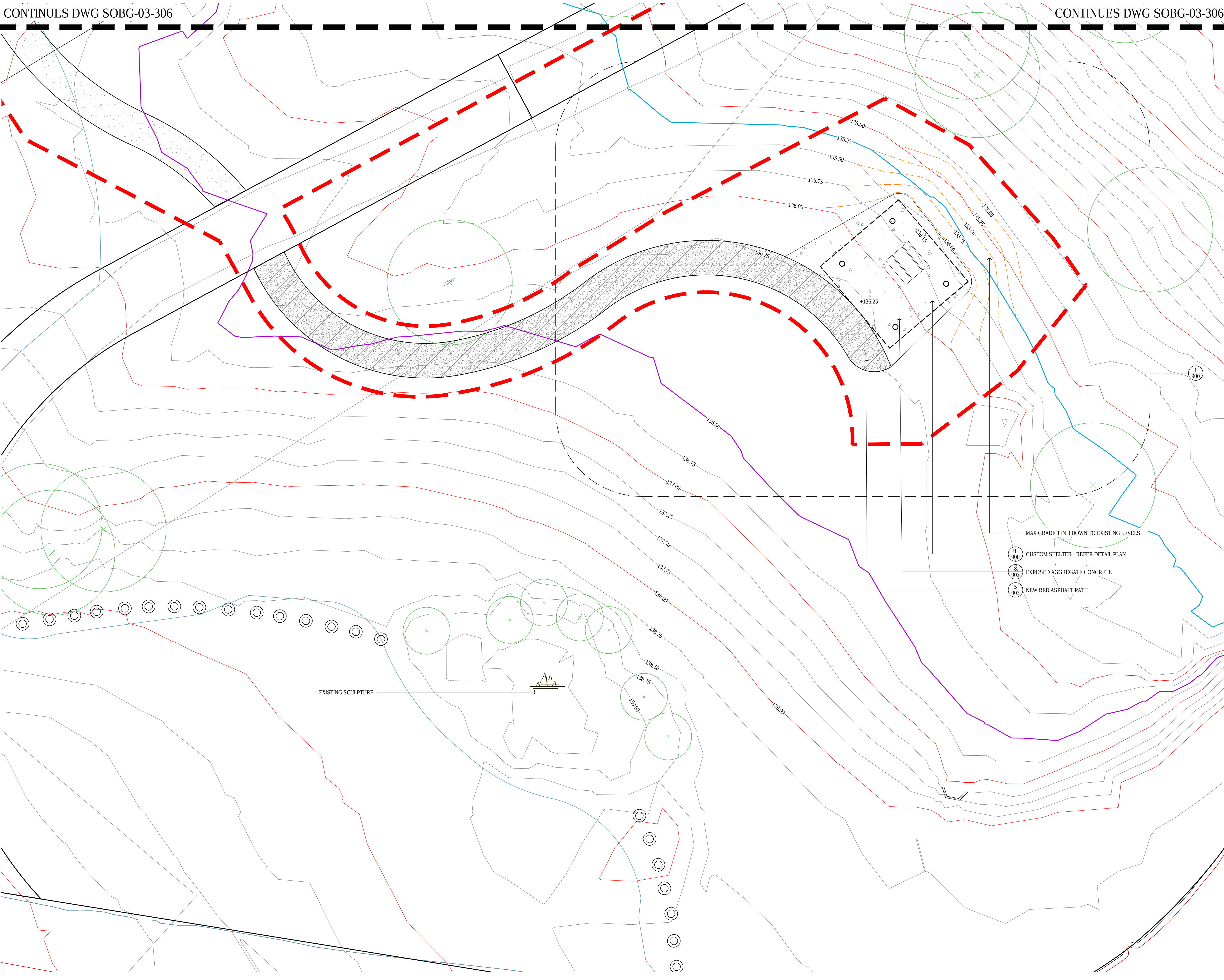
emerge ASSOCIATES
Integrated Science & Design
PERTH (08) 9380 4988 • MARGARET RIVER (08) 9758 8159

PROJECT
BLACKWOOD RIVER FORESHORE BRIDGETOWN, WA
STAGE OR PHASE
RECTORY TRAIL PATH UPGRADE
DRAWING TITLE
EARTHWORKS & GRADING PLAN
CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

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DESIGNED BY	MH	PRELIM DESIGN REVIEWED BY	CE
DRAWN BY	BM	PRELIM DWG REVIEWED BY	CE
DATE INITIALLY DRAWN	16.07.19		
SCALE	1:250 @ A1		
DRAWING NUMBER	SOBG-03-306		
REV	B		

SEE EXISTING PROJECTS/SOUTHWEST PROJECTS FOR PREVIOUS WORKS/REVISIONS/REVISED WORKS



LEGEND

- EXTENT OF WORKS
- EXISTING CONTOURS AT 1m INTERVALS
- EXISTING CONTOURS AT 0.25m INTERVALS
- PROPOSED CONTOURS AT 0.25m INTERVALS
- LATERITE GRAVEL ROAD BASE PATHWAY
- MORTARED STONE PITCHING
- TURF BY OTHERS
- EXPOSED AGGREGATE CONCRETE
- EXISTING RAILWAY LINE
- RE-SURFACED RED ASPHALT PATH, CURRENTLY AT OR ABOVE RL130
- LIFTED & RE-SURFACED RED ASPHALT PATH, CURRENTLY BELOW RL130
- NEW RED ASPHALT PATH
- EXISTING TREE TO BE RETAINED & PROTECTED
- 1:100 YEAR FLOOD LEVEL
- 1:25 YEAR FLOOD LEVEL

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A	24.10.19	CE	ISSUE FOR COMMENT

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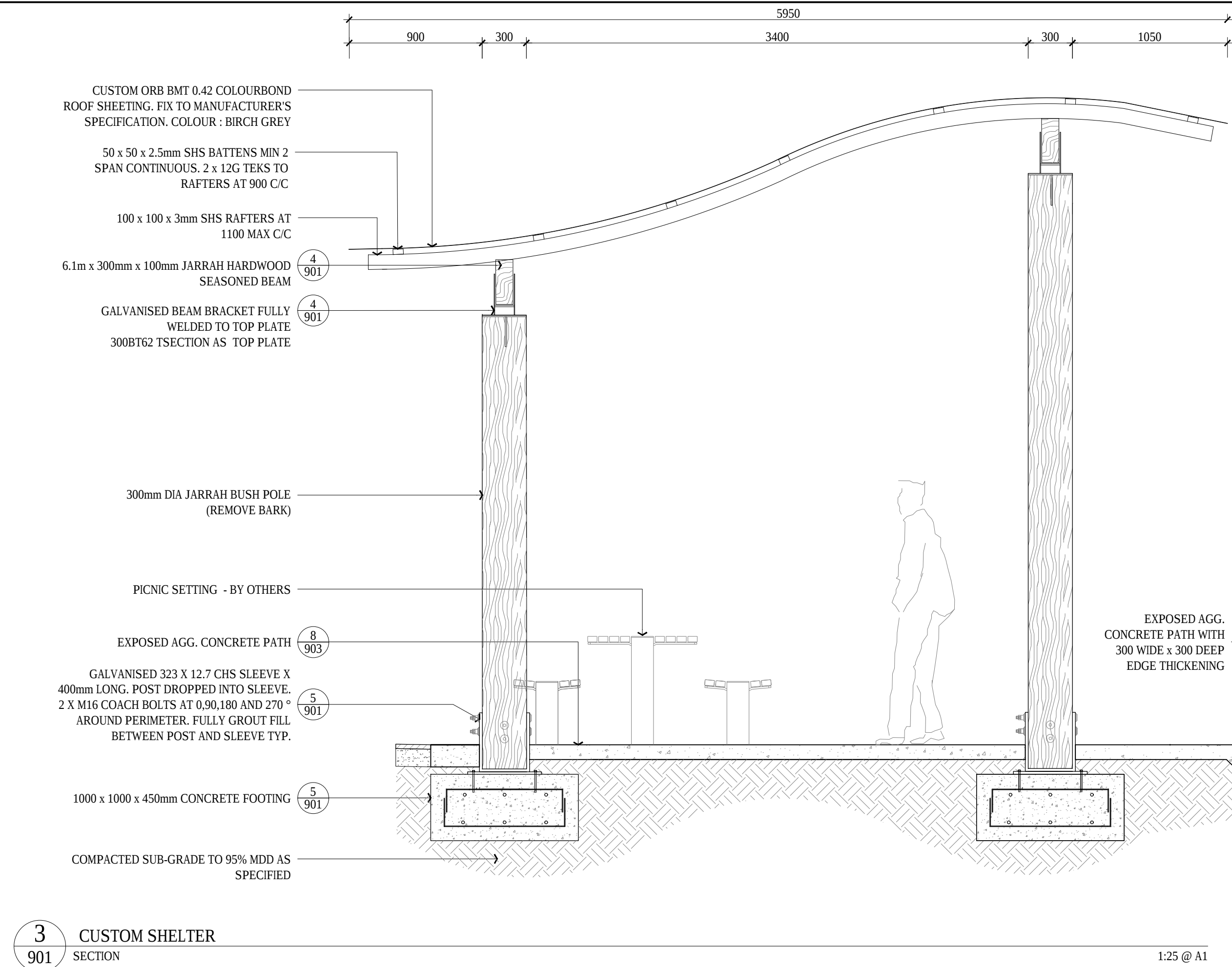
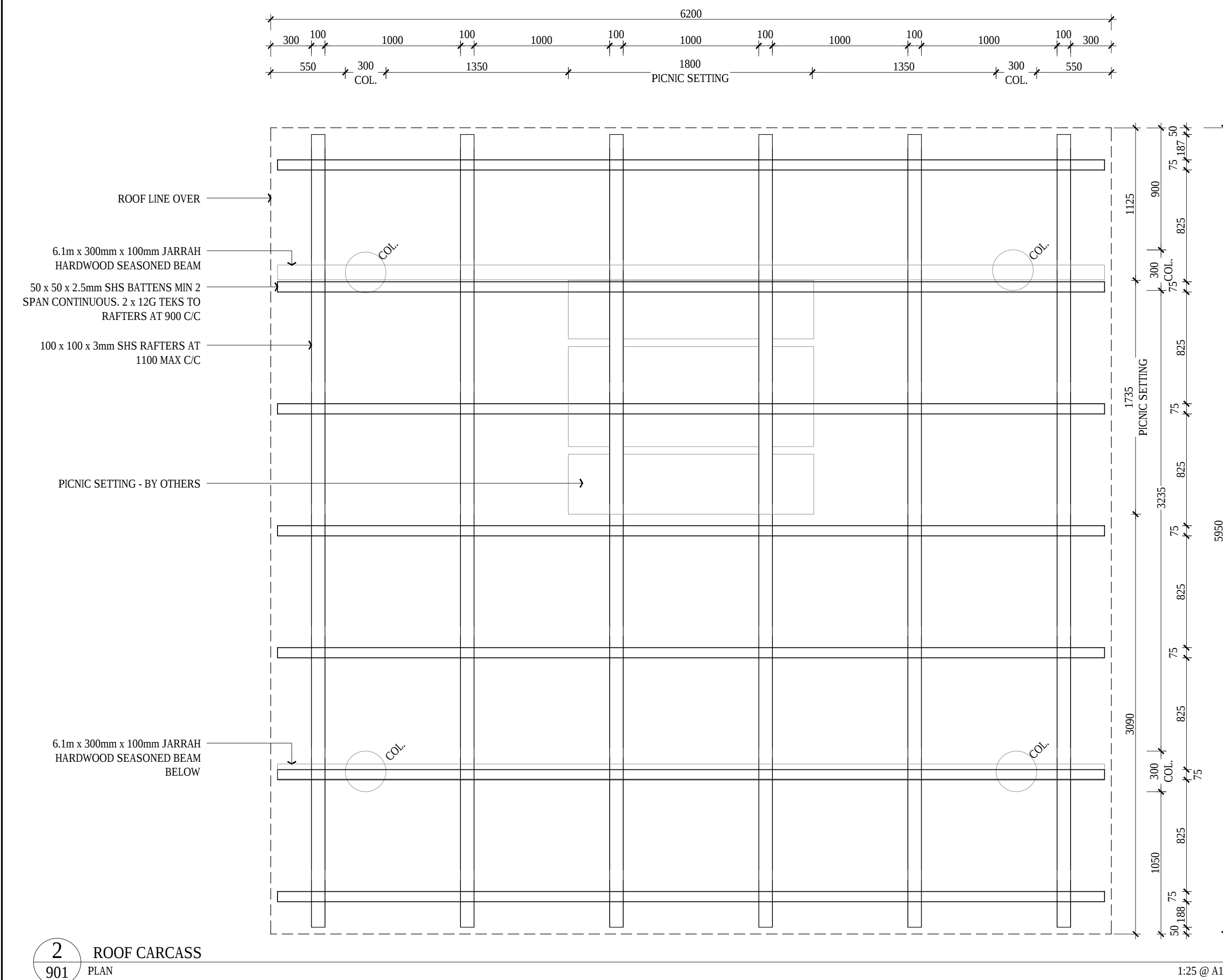
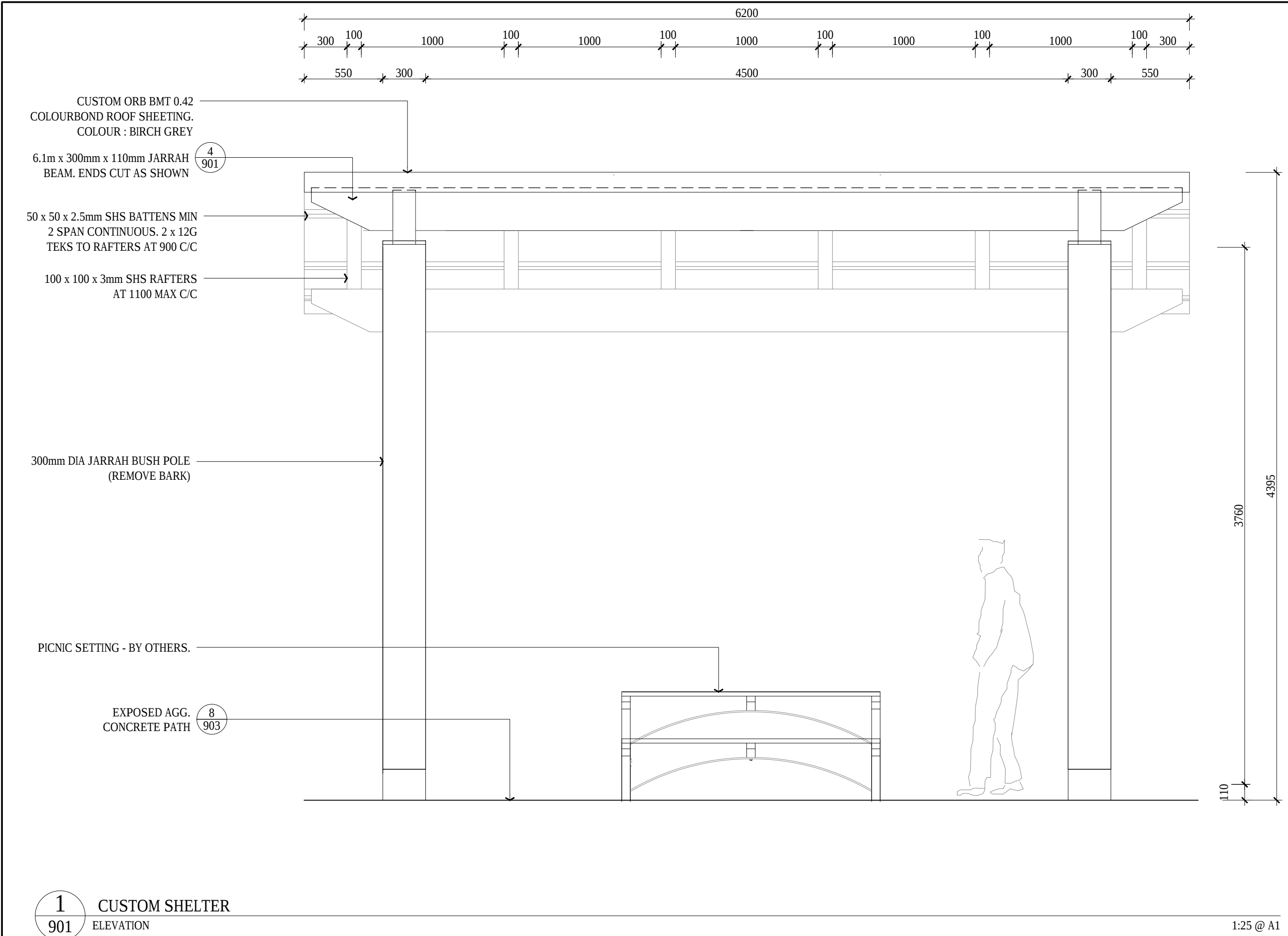
PROJECT
BLACKWOOD RIVER FORESHORE
BRIDGETOWN, WA
STAGE OR PHASE
RECTORY TRAIL PATH UPGRADE

DRAWING TITLE
EARTHWORKS AND GRADING PLAN

CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

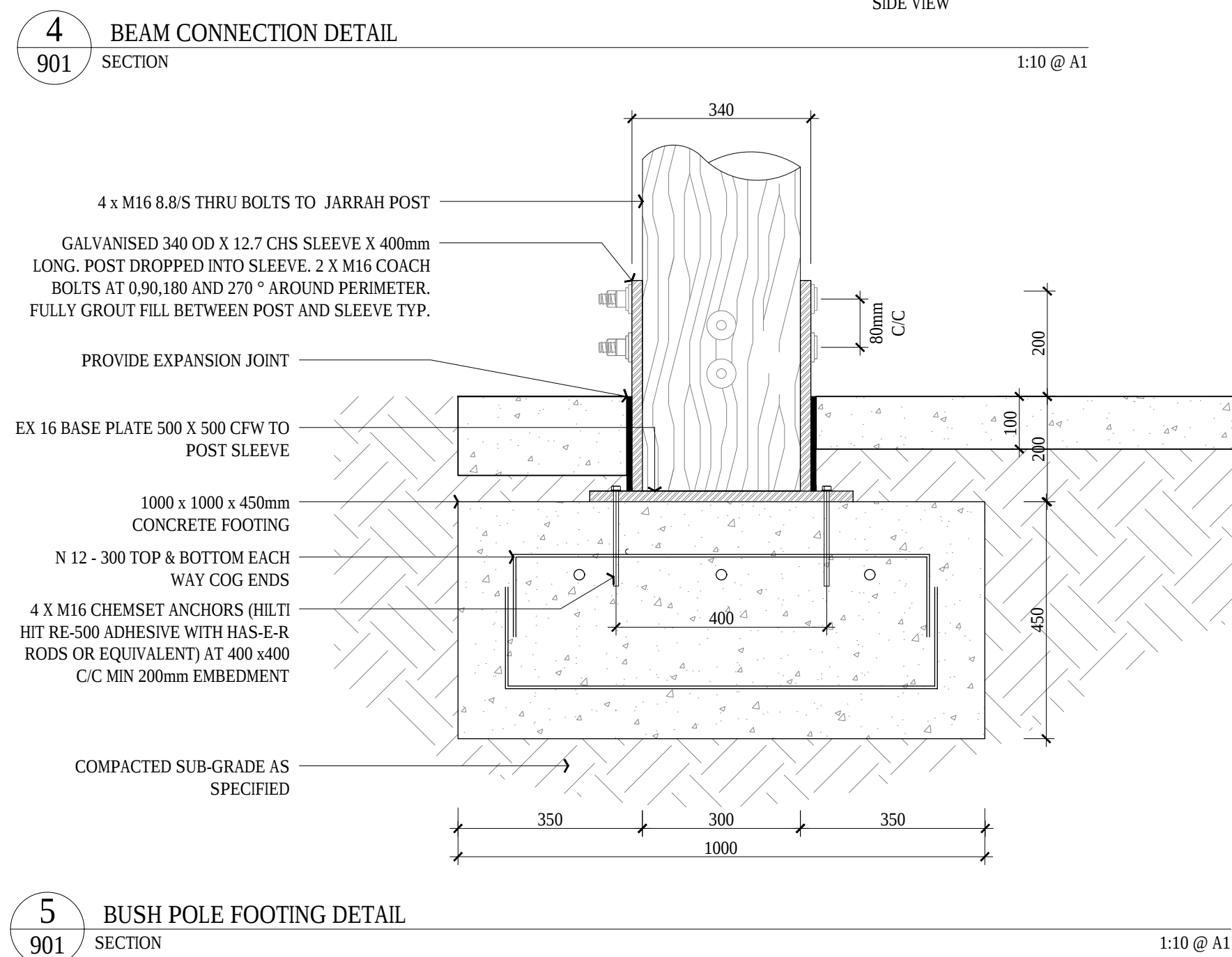
DESIGNED BY MH PRELIM DESIGN REVIEWED BY CE
DRAWN BY BM PRELIM DWG REVIEWED BY CE
DATE INITIALLY DRAWN 10.07.19
SCALE 1:100 @ A1
DRAWING NUMBER SOBG-03-307
REV A

SEE EXISTING PROJECTS/SOUTHWEST PROJECTS/MARGARET RIVER FORESHORE AREAS



WA STRUCTURAL CONSULTING ENGINEERS PTY LTD
PO BOX 118 NORTH BEACH WA 6920
PROJECT NUMBER S19759

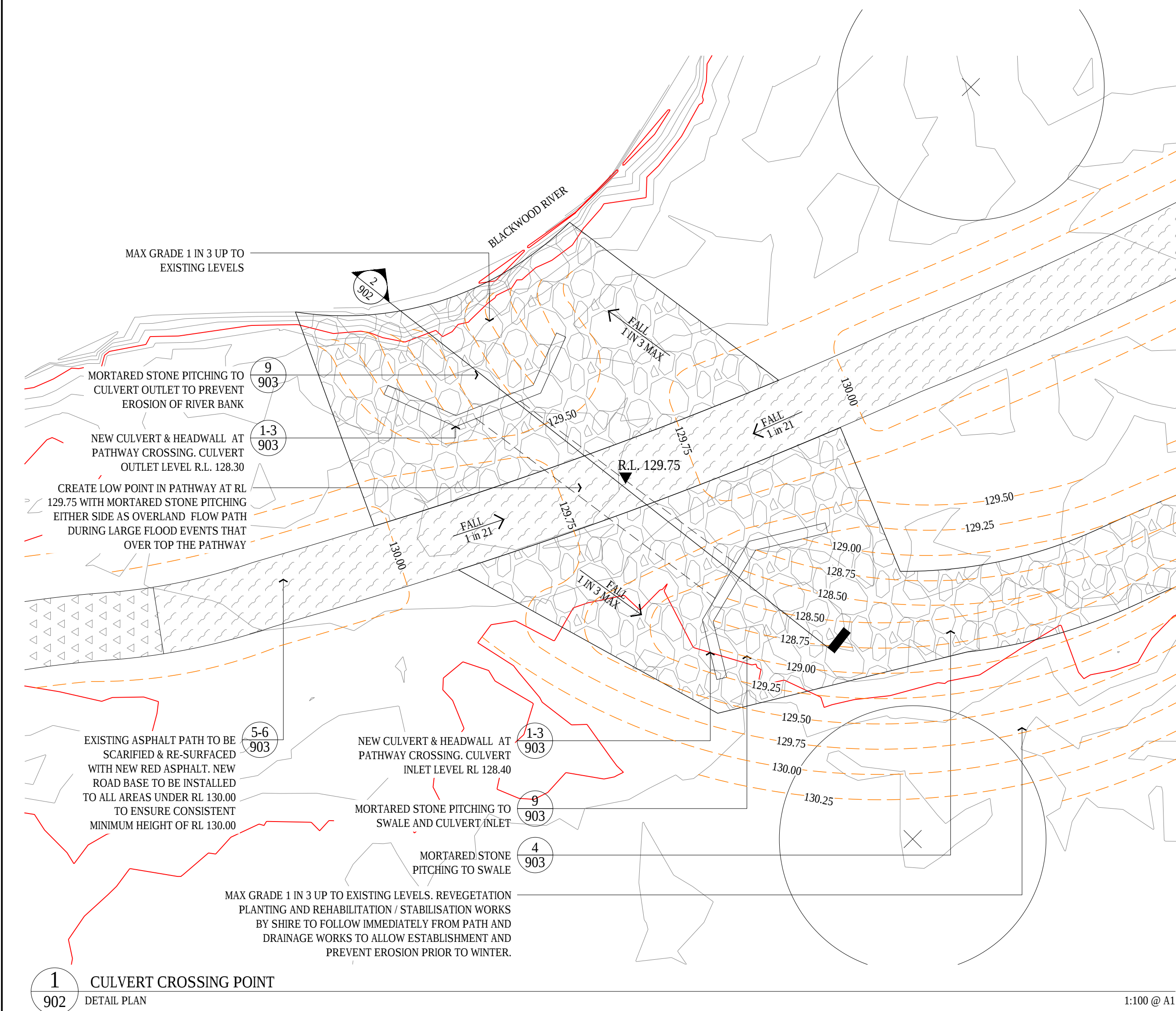
WA STRUCTURAL
SEYRIN CLEMENTS
B. Eng. & Structural Engineering
MIE (Aust) 121448A



STANDARD NOTES				
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EMERGE DIRECTOR				
DATE				

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PROJECT BLACKWOOD RIVER FORESHORE BRIDGETOWN, WA STAGE OR PHASE RECTORY TRAIL PATH UPGRADE	
DRAWING TITLE SHELTER CONSTRUCTION DETAILS	
CLIENT SHIRE OF BRIDGETOWN-GREENBUSHES	
DESIGNED BY MH PRELIM DESIGN REVIEWED BY CE DRAWN BY BM PRELIM DWG REVIEWED BY CE	
DATE INITIALLY DRAWN 16.07.19	
SCALE AS SHOWN	
DRAWING NUMBER SOBG-03-901	REV B

SEE EXISTING PROJECTS SOUTH WEST PROJECTS BLACKWOOD RIVER FORESHORE DETAILS DWG



REVEGETATION PLANTING AND REHABILITATION / STABILISATION WORKS BY SHIRE TO FOLLOW IMMEDIATELY FROM PATH AND DRAINAGE WORKS TO ALLOW ESTABLISHMENT AND PREVENT EROSION PRIOR TO WINTER.

MAX GRADE 1 IN 3 UP TO EXISTING LEVELS

MORTARED STONE PITCHING TO CULVERT OUTLET TO PREVENT EROSION OF RIVER BANK

NEW CULVERT & HEADWALL AT PATHWAY CROSSING. CULVERT OUTLET LEVEL R.L. 128.30

CREATE LOW POINT IN PATHWAY AT R.L. 129.75 WITH MORTARED STONE PITCHING EITHER SIDE AS OVERLAND FLOW PATH DURING LARGE FLOOD EVENTS THAT OVER TOP THE PATHWAY

NEW CULVERT & HEADWALL AT PATHWAY CROSSING. CULVERT INLET LEVEL R.L. 128.40

MORTARED STONE PITCHING TO SWALE AND CULVERT INLET

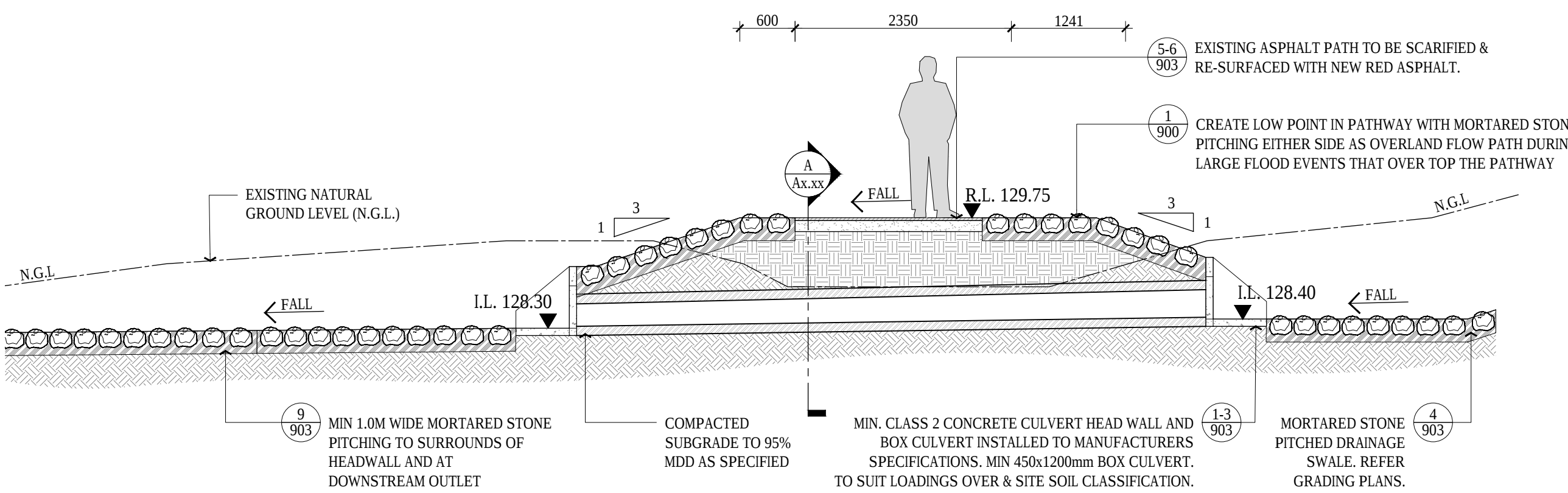
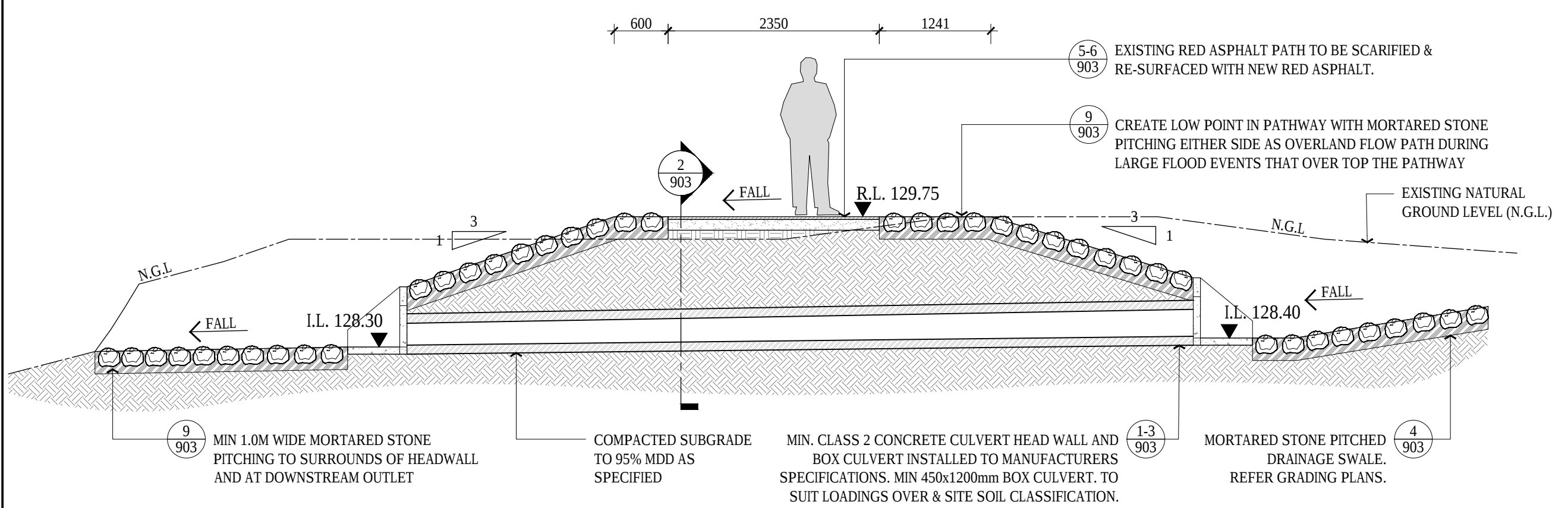
MORTARED STONE PITCHING TO SWALE

MAX GRADE 1 IN 3 UP TO EXISTING LEVELS

EXISTING ASPHALT PATH TO BE SCARIFIED & RE-SURFACED WITH NEW RED ASPHALT. NEW ROAD BASE TO BE INSTALLED TO ALL AREAS UNDER R.L. 130.00 TO ENSURE CONSISTENT MINIMUM HEIGHT OF R.L. 130.00

3 902 CULVERT CROSSING POINT DETAIL PLAN

1:100 @ A1



4 902 CULVERT CROSSING POINT DETAIL PLAN

1:100 @ A1



WA STRUCTURAL CONSULTING ENGINEERS PTY LTD
PO BOX 118 NORTH BEACH WA 6920
PROJECT NUMBER 519759

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REV	DATE	BY	ISSUE OR AMENDMENT
B	07.11.2019	MH	ISSUE FOR STRUCTURAL REVIEW
A	26.18.2019	MH	ISSUE FOR COMMENT

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PROJECT
BLACKWOOD RIVER FORESHORE
BRIDGETOWN, WA
STAGE OR PHASE
RECTORY TRAIL PATH UPGRADE

DRAWING TITLE
LANDSCAPE CONSTRUCTION DETAILS

CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

DESIGNED BY MH PRELIM DESIGN REVIEWED BY CE
DRAWN BY BM PRELIM DWG REVIEWED BY CE

DATE INITIALLY DRAWN 16.07.19

SCALE AS SHOWN

DRAWING NUMBER SOBG-03-902
REV B

SEE CULVERT PROJECTS SOUTH WEST PROJECTS BLACKWOOD RIVER FORESHORE, DETAIL 500

1. These drawings are to be read in conjunction with all architectural and other consultants' drawings and specifications and with such other written instructions as may be issued. Any discrepancies shall be referred to the superintendent for clarification before proceeding with work.
2. All dimensions are in millimetres and those relevant to setting out (excavation finishes) and offsets work shall be verified by the contractor before construction and fabrication are commenced. The engineer's drawings shall not be scaled.
3. All levels and grid co-ordinates are in metres.
4. During construction the contractor shall be responsible for maintaining the structure in a stable condition and no part shall be over stressed under construction activities.
5. All relationships and materials shall be in accordance with the current editions of the relevant SAA codes and the by-laws and ordinances of the relevant building authority, except where varied by the contract documents.

1. Dead, live, wind and earthquake loads to AS1170.
2. Design Wind Speed
Region A
Terrain Category 2.5
Regional Gust Wind Speed = 45m/sec (ULTIMATE LIMIT STATE)
Regional Gust Wind Speed = 37m/sec (SERVICE LIMIT STATE)
3. Earthquake
kp = 1.0
Hazard Factor Z = 0.09 (Perth)
4. Foundations
Site classification 'A' to AS2870 minimum allowable bearing pressure 150KPa.
5. Live Loads
Decking: 3kPa to AS1170.1
Balustrade: C3 to AS1170.1
Roof construction load: 0.25kPa to AS1170.1
Retaining Wall Surcharge: 3kPa to AS1170.1

1. As part of the building licence for this project, the builder may be required to have the structural engineer certify the completed structure has been built in accordance with the approved drawings &/or with any subsequent written instructions.
2. If WA Structural Consulting are to provide this certification, the builder must arrange for WA Structural Consulting to inspect each of the structural items at appropriate stages. These items and stages include, but are not limited to the following:
 - 2.1. Concrete reinforcement, prior to pouring of concrete in:
 - 2.1.1. Footing Excavations
 - 2.1.2. Slabs on ground
 - 2.1.3. Suspended slabs and beams
 - 2.1.4. Concrete columns and walls
 - 2.1.5. Retaining walls
 - 2.2. Structural steelwork prior to any cladding being fixed.
 - 2.3. Concrete wall panel connections.
3. The builder must provide appropriate evidence that the specified concrete has been supplied for each concrete element.
4. The builder must provide evidence that the required levels of foundation compaction have been achieved.
5. Where a geotechnical engineer has made specific recommendations, evidence that these have been followed must be provided.
6. Unless fees for our inspections and certifications have been previously negotiated with WA Structural Consulting by others, these fees will be the builder's responsibility. It is required that the builder negotiate these fees with the engineer at a tender stage.
7. If the builder requires the fabrication drawings to be checked & certified by the project engineer, the costs associated with this will be the builder's responsibility, unless these fees have been previously negotiated with WA Structural Consulting by others. This must be confirmed by the builder.

1. All concrete works shall be in accordance with AS3600.

Concrete specification shall be U.N.O.:

● Location	FC (MPA)	MAX.AGG SIZE (mm)	SLUMP (mm)
● Footings	25	20	65
● Slab on Ground	25	20	65
● In Situ Retaining Walls	32	20	60
● Precast	32	20	80
● Cavity Fill	15	10	100

Cover to Reinforcement shall be:

● Location	Bottom (mm)	Top (mm)	Sides (mm)
● Footing	70	50	50
● Slab on Ground	50	40	50
● In Situ Retaining Walls	32	20	60
● Precast	50	40	40
● Cavity Fill	50	50	20 U.N.O

1. Design is based on an allowable bearing pressure of 150kPa. It is the builder's responsibility to confirm the foundation type prior to commencing construction. Should the foundation type or bearing capacity not satisfy the above criteria the builder shall immediately contact engineer prior to construction proceeding.
2. Builder to grub out and remove all organic material and debris from the building platform.
3. Any soft areas shall be dug out and replaced with approved non-plastic fill.
4. All site preparation works shall be in accordance with Site Geotechnical Report or to AS2870 requirements to achieve min class 'A' site with 150KPa allowable bearing pressure.
5. Ensure a minimum of 8 blows per 300mm is achieved with a calibrated Perth Sand Penetrometer in accordance with AS1289.6.3.3
6. The building platform is to be shaped to ensure it drains to its perimeter and that such drainage is taken away from the platform area.
7. Footings at the lowest level must be the first footings constructed.
8. Located plumbing lines over top of footings and step footings.

1. All blockwork and brickwork shall be in accordance with AS3700
2. Concrete blocks shall be in accordance with AS2733
3. Reinforcement and concrete core filling shall comply with the notes on "concrete and reinforcement".
4. Mortar shall be classification M3 or M4 within 1km of open water or other severe corrosive environments. All mortar mix to AS3700.
5. Masonry units shall have a minimum compressive strength of 15MPa.
6. As follows:
 - a. Band beam reinforcement shall be continuous at intersecting walls and bars anchored and lapped to develop full tensile stress.
 - b. Support reinforced brick lintels for 14 days minimum.
7. Cleanout blocks shall be provided at the base of all cores to be concrete filled. Alternatively the builder shall open such cores for cleaning by an approved method.
8. All cores to be concrete filled shall be cleaned out by hosing prior to final setting or mortar at all lifts or by rodding prior to concrete filling.
9. Retaining walls shall be fully core filled. Backfill to retaining walls shall not be carried out until 14 days after core filling.
10. Provide 10mm sand bonded control joints where shown. Control joint to consist of flexible masonry anchors every 3rd course. Brunswick type MFA 3/3. Apply flexible sealant over backing rod.
11. Cross walls shall be fully bonded for the full height of intersecting wall.
12. Horizontal chasing is not permitted without written approval from the engineer.
13. Lap wires 500mm at splices and around corners and COG 500mm into intersecting walls. 20mm cover to all wires.
14. All wires in external face of external leaf to be galvanised to AS/NZS4680.
15. Masonry ties are to be provided at no more than 600mm spacing in each direction, and max 300mm from top of wall, side of control joint or perimeter of opening.
16. Ties to be grade 316 stainless steel in corrosive environments.
17. Masonry abutting concrete footings to typically be isolated with 10mm Ableflex expansion foam or similar approved product UNO.

1. All steelwork shall be in accordance with:
 - a. AS4100 steel structures
 - b. AS4500 cold formed steel structures
2. Fabricator to check all dimensions before cutting materials or manufacturing, fabrication to AS4100 UBC. These drawing are to be read in conjunction with the project architectural and other consultants' drawings.
3. Unless noted otherwise all steel shall be:
 - a. AS3678 grade 250 hot rolled plates
 - b. AS3679.1 grade 300 hot rolled UB, PFC, TFC, FEA, UA and FLATS
 - c. AS3679.2 grade 300 WB and WC
 - d. AS1163 grade 250 for circular hollow sections Ø165mm and less
 - e. AS1163 grade 350 for circular hollow sections larger than Ø165mm and rectangular hollow sections.
 - f. AS1397 500MPa for 1.2mm thick purlins and girts
 - g. 450MPa for 1.6mm thick purlins and girts
 - h. 450MPa for 1.0 thick CF Channels
 - i. 450MPa for 1.6mm thick CF Channels
 - j. Galvanising shall be hot dipped to AS/NZS 4680
4. Bolts shall be galvanised and of sufficient length to exclude the thread from the shear plane. A suitable washer shall be used under all nuts, when tensioning is specified high strength bolts shall be fully tensioned with load indicating washers to the requirements of AS4100.
5. Bolt legged 4.6/S commercial grade 4.6 bolts snug tightened 8.8/S high strength grade 8.8 bolts snug tightened. 8.8/TF high strength grade 8.8 bolts tensioned bearing connection. 8.8/TF high strength grade 8.8 bolts tensioned friction connection.

- b. Welding to be carried out in accordance with AS/NZS 1554. 1:1995 welding consumables to be E48XX or W50X U.N.O. all welds to be 6MM CFW SP category U.N.O CPBW to be SP category U.N.O.
- c. Inspection to be carried to AS/NZS 1554.1:1995. All GP/SP welds to be 100% visually scanned. SP welds allow for 25% visual examination U.N.O.
 - a. 6mm end plates to all hollow sections (seal weld).
 - e. Bolts to be G 8.8/S
 - f. Bolt hole clearance 2mm
 - f. Hold down bolt clearance 4mm
 - g. GROUT - a space for 40mm of 2:1 sand: cement mortar of damp earth consistency under all base plates.
 - i. Connections - minimum of 2-M16 8.8/S bolts
 - j. Bracing intersects on centrelines and centre of gravity for angles.
8. Fabricator shall allow for all cleats and other fixings required by the supervisor.
9. All column base plates shall be set on 20mm min. of 1:2 cement and sand grout.
10. Seal all open ends of pipes and RHS members. Grind off all visible welds and brand marks to neat appearance where specified.

11. See below:

- a. The contractor shall remain responsible at all times for providing all necessary temporary bracing and other supports during erection, to stabilise the partially constructed building.
- b. Particular attention must be paid to the buckling stability of beams and columns prior to the installation of purlins, girts, fly braces and other bracing elements.
- c. It is the responsibility of the builder to obtain proper technical advice wherever necessary to ensure the partially completed structure is safe from collapse.

12. Treatment:

- a. All steel connection plate and bolts to be hot dip galvanize (600 g/sqm)
Holding down bolts - hot dip galvanize (600 g/sqm)

13. Bitumen paint all steelwork for 50mm above ground level / top of footing and 100mm into footing depth with Taubmans Interzone or equivalent

1. Structural timber shall comply with AS1720 timber structure code.
2. All timber to be seasoned F14, class 2, strength group SD5, joint group JD2 and treated with creosote to hazard class H4 unless noted otherwise.
3. All timber work to be in accordance with :
 - AS1684 - SAA timber framing code.
 - AS1720 - SAA timber structures code.
4. All timber and steel connections to be in accordance with AS1720.
5. Ensure no knots or gum veins in timber used.
6. Coat all timber in contact with ground with bitumen paint or similar approved.
7. All structural details to be confirmed, checked and site measured by builder prior to construction. Report any discrepancies to structural engineer.
8. Treatment :

- H6 - Exposed to marine water.
9. Required bending stress:
 - MGP10 lb = 16 MPa
 - MGP12 lb = 28 MPa
 - F14 lb = 36 MPa
 - GL17 lb = 40 MPa
 - LVL13 lb = 48 MPa
 - LVL15 lb = 59 MPa
 - All bolted lb = 72 MPa
 10. All bolted timber connections to be re-tightened at end of project prior to completion, ensure no splitting of timber occurs.
 11. All proprietary systems (floor/wall/roofing) to be installed in strict accordance with manufacturer's specifications and details.
 12. Bush Poles :
 - All timber to AS1720.
 - Minimum F11 grade CCA / H4 treated seasoned softwood. S6 strength group.
 - Free from decay, shakes & fractures, resin pockets and surface damage.
 - Heartwood not to exceed 50% of the diameter at each end or be within 35mm from the surface.
 13. Bitumen paint all timber posts/columns for 50mm above ground level / top of footing and 100mm into footing depth with Taubmans Interzone or equivalent

1. Width 'b' any height to be no less than half of retained height 'h', step wall to suit
2. Walls to be built on compacted sand, compact ground under footing to resist 7 blows per 300mm of a standard 15mm dia penetrometer over a depth of 600mm.
3. The walls are applicable to well drained sandy soil conditions only.
4. Walls resisting clay soil pressures and/or hydrostatic pressures to be referred to the engineer.
5. All reconstituted limestone to be first grade quality & free from soft pockets.
6. Rubble shall not be used to fill voids.
7. Reconstituted limestone to have a dry density of at least 1600 kg/m³ and a crushing strength of at least 50 MPa.
8. Mortar shall be classification M3 or M4 within 10m of open water or other severe corrosive environments. All mortar mix to AS3700. All mortar joints to be 20mm thick and fully mortared.
9. All topsoil, vegetation and deleterious matter shall be removed from the foundation area.
10. Vertical thickness of wall to be adequately bonded by building in header blocks - refer cross section
11. No backfilling until 7 days after walls have been built.
12. All backfilling shall be carried out using material which shall generally be sandy in nature and free from large pieces of rock to the extent that the material can be compacted using a vibrating plate compactor to meet the requirements of the specification.
13. Backfill shall not be dumped behind wall in a manner which will cause shock loading on the wall
14. Backfill shall be clean sand compacted in shallow (300) layers using light compacting equipment
15. In all cases the backfill material shall be selected such that once compacted, the standard of compaction can be measured using a standard perth penetrometer.
16. Compaction of the backfill material to the front and back of the wall to be compacted 95% modified max dry density.
17. Prior to practical completion the contractor shall provide written certification from a practising structural engineer that the wall construction & backfill compaction has been carried out in accordance with this specification and the specification.
18. Construction Joints (CJ) shall be constructed within the retaining wall where noted below:
 - (i) at max. 10m centres along wall face
 - (ii) where the angle between faces of two walls exceeds 180 degrees, in which case the CJ is to be located on one side of the change in direction, at a distance away from the direction change equal to the base width of the wall.
19. Construction joints shall be 15mm wide and filled with expanded polyethylene (100mm deep) covered with a 25mm deep massitic of colour to match wall mortar, joints are to extend through wall and any fences, but need not extend through base course of limestone wall.
20. Select blocks to ensure intact faces only visible in facework.

1. All Aluminum shall be in accordance with AS1664.
2. All Aluminum welding shall comply with AS1664.
3. Unless noted otherwise, all aluminum to be:
 - Plates: Grade 5083 H116312 or 5083 H112 Aluminum
 - SHS/RHS CHS, Grade 6060-6 aluminum
 - Folds: Grade 316 stainless steel
 - Welds: 5mm continuous fillet, category sp, filler allow to be grade 5186,5356 or 5556 aluminum
4. All fixings into Aluminum members to be stainless steel (SS316) or equivalent capacity aluminum fixings.
5. Provide nylon washers and packers for all and any connections between steel and aluminum.
6. Adequate protective coatings are to be applied to aluminium cast into concrete.

1. All precast units shown are for service conditions only. The contractor is responsible for all casting, lifting, transportation and propping requirements and must satisfy himself that they have been constructed to meet the design criteria noted. Any queries regarding precast concrete units shall be flagged during the tender process. If in doubt, ask.
2. Contractor obtain Engineer's Design Certification for all elements of precast concrete work as required to the relevant Australian Standards (Lifting, bracing, propping as required).
3. Panels are to be securely propped until designed connections have been installed and are sufficiently restraining panels.
4. UNO all chemical anchors fixed into concrete panels to be galvanised HILTI-HAS-E-F rods with HILTI-HIT-HY-200 adhesive.
5. All grout used for panels shall be not shrink high strength grout to achieve min 40mpa compressive strength.
6. Precast concrete strength is for final position. Contractor to confirm required lifting strength in accordance with lifting engineers requirements. Shall be no less than 15 MPa.

1. All HDPE battens and other HDPE members to be supplied and installed in strict accordance with manufacturers specification.



SEVRIN CLEMENTS
(B. Eng.) Structural Engineer
MIEAust. 1734486

STANDARD NOTES

- 1. SET OUT & DIMENSIONS.** THE CONTRACTOR SHALL SET OUT ALL PATHS, WALLS, HARD SURFACES AND ELEMENTS EITHER ON OR OFFSITE TO THE SATISFACTION OF THE SUPERVISOR. THE CONTRACTOR SHALL NOT APPROVE PRIOR TO WORKS COMMENCING. WRITING DIMENSIONS SHALL BE PROVIDED TO THE SUPERVISOR. CHECK ALL DRAWING SCALES IN CONJUNCTION WITH DRAWING SIZE.
- 2. SERVICES & SITE ASSETS.** THE CONTRACTOR SHALL INVESTIGATE THE NATURE AND LOCATION OF ALL EXISTING SERVICES AND RETAINED SITE ASSETS PRIOR TO THE WORKS. FAILURE TO TAKE THE CARE SHALL NOT LIMIT THE CONTRACTORS LIABILITIES.
- 3. REFERENCE.** THE CONTRACTOR SHALL REFER TO ALL CONTRACT DOCUMENTS, THE SPECIFICATION AND DRAWINGS PRIOR TO AND DURING THE WORKS.
- 4. DISCREPANCIES.** NOTIFY SUPERINTENDENT OF ANY SUSPECTED OR KNOWN DISCREPANCIES OR ERRORS PRIOR TO THE ORDERING OF AFFECTED MATERIALS AND/OR CONSTRUCTION OF AFFECTED WORKS.
- 5. RELEVANT STANDARDS.** THE CONTRACTOR SHALL UNDERTAKE ALL WORKS IN ACCORDANCE WITH THE CURRENT AUSTRALIAN BEST PRACTICE AND ALL RELEVANT AUSTRALIAN STANDARDS.
- 6. SERVICE LOCATOR.** THE CONTRACTOR SHALL ENGAGE A SERVICE LOCATOR TO IDENTIFY ALL UTILITIES PRIOR TO COMMENCEMENT OF WORKS ON SITE. THE CONTRACTOR SHALL ENGAGE A SERVICE LOCATOR TO MAP THE SPECIFIC UTILITIES TO BE EXPOSED. THE CONTRACTOR SHALL ADVISE ALL RELEVANT STAFF AND SUB-CONTRACTORS IN WRITING PRIOR TO THE WORKS.

[illegible]

A	26.18.2019	MH	ISSUE FOR COMMENT
REV	DATE	BY	ISSUE OR AMENDMENT

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PROJECT
BLACKWOOD RIVER FORESHORE
BRIDGETOWN, WA
STAGE OR PHASE
RECTORY TRAIL PATH UPGRADE

DRAWING TITLE
CONSTRUCTION NOTES
CLIENT
SHIRE OF BRIDGETOWN-GREENBUSHES

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DESIGNED BY	MH	PRELIM DESIGN REVIEWED BY	CE
DRAWN BY	BM	PRELIM DWG. CHECKED BY	CE

DATE INITIALLY DRAWN	10.07.19
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SCALE

AS SHOWN

DRAWING NUMBER	REV
SOBG-03-904	A

REF U:\CURRENT PROJECTS\SOUTH WEST PROJECTS\BLACKWOOD RIVER\SOBG-03 DETAILS.DWG