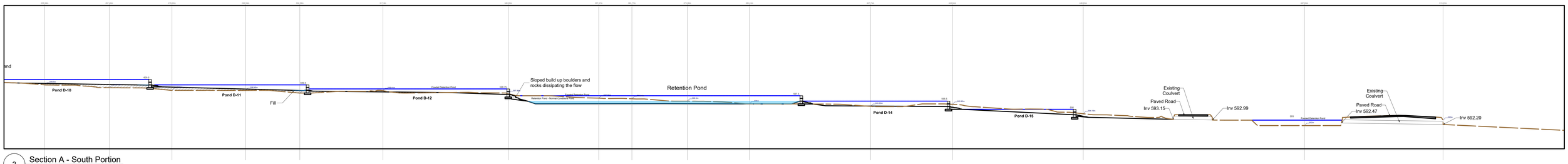
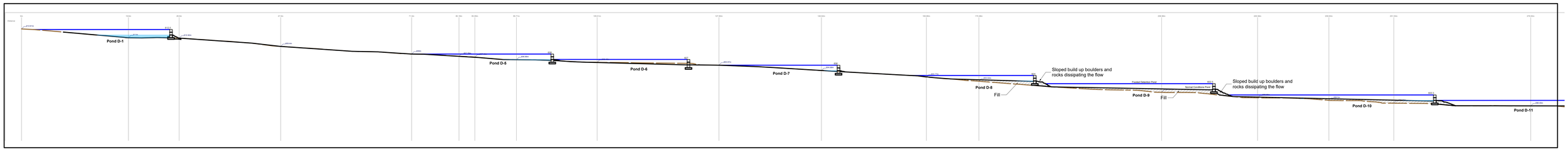


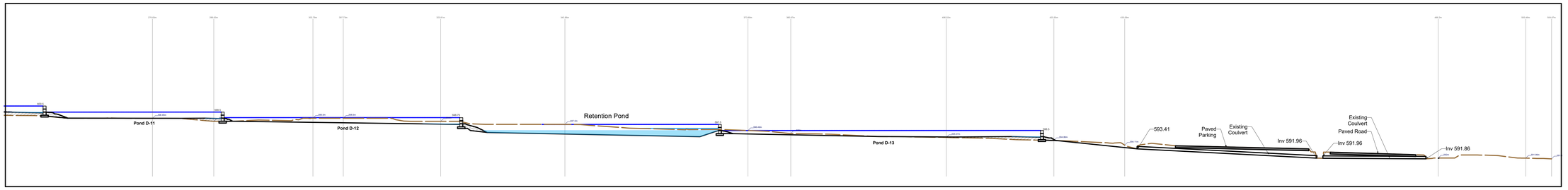
1 Section A - North Portion
Scale: 1:250



2 Section A - South Portion
Scale: 1:250



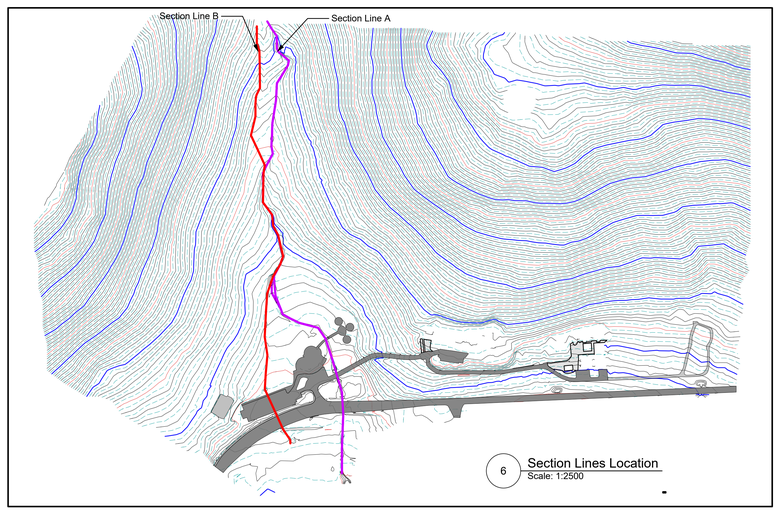
3 Section B - North Portion
Scale: 1:250



4 Section B - South Portion
Scale: 1:250

LEGEND:

- Existing grade
- Proposed grade
- Detention pond max. water level
- Water accumulation in normal conditions
- Fill in the stream bed
- Sloped build up boulders and rocks dissipating the flow
- Dam/Weir



6 Section Lines Location
Scale: 1:2500

No.	Date	Issue Notes
E	11 Nov 2026	Issued for Coordination
D	21 Oct 2026	Issued for review
C	19 Oct 2026	Issued for Review

Client:

TRITERON INFRASTRUCTURE

Approved by:
Name:
Signature:
Date:

Design Firm:

SILVER HORNS CONSULTING

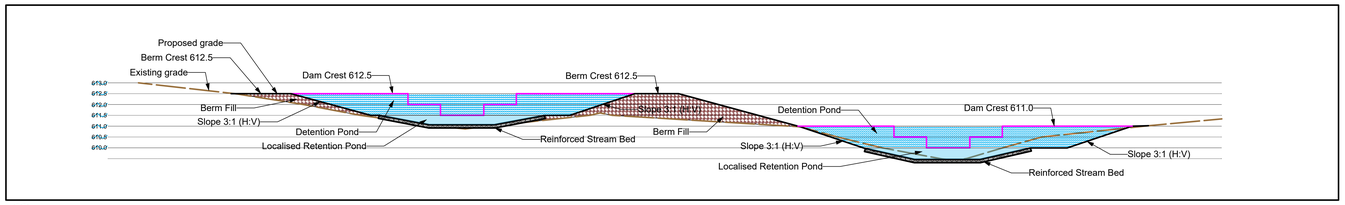
Project Title:
Thohoyandou National Botanical Garden
SANBI

Sheet Title:
Sections Stream

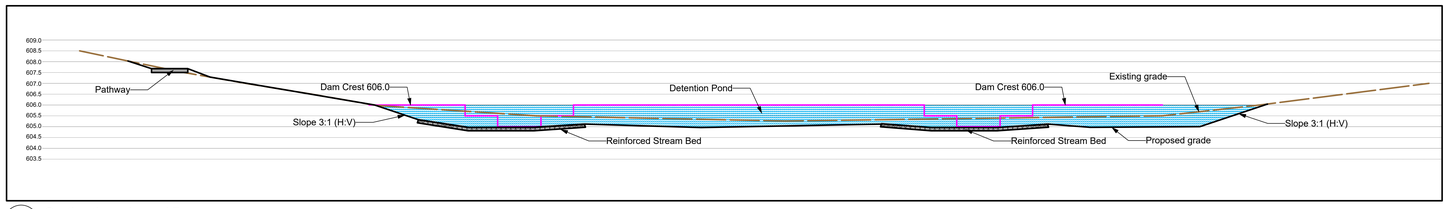
Scale	1:750
Drawn By	PMG
Date	20 Sept 2026
Project ID	2610

Sheet No.
L-9 of 11

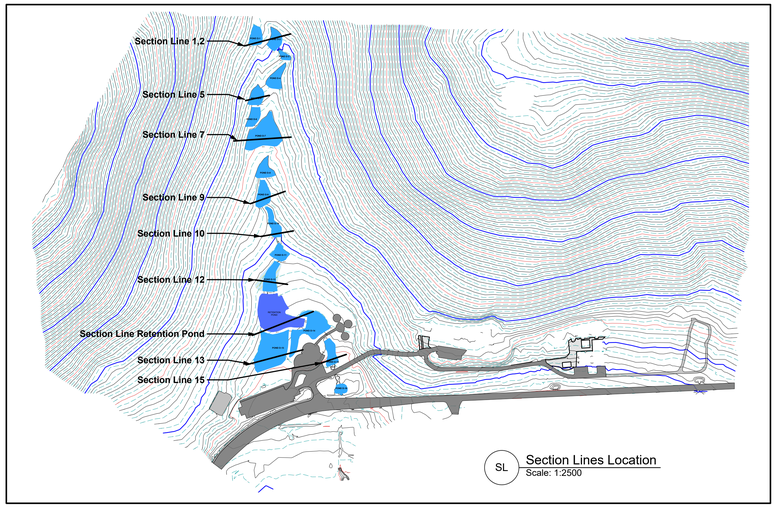
File: 2610_SANBI_LAS_Detailed_Design.vwx



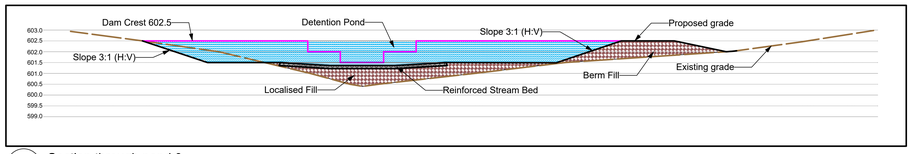
S 1-2 Section through ponds 1 and 2
Scale: 1:100



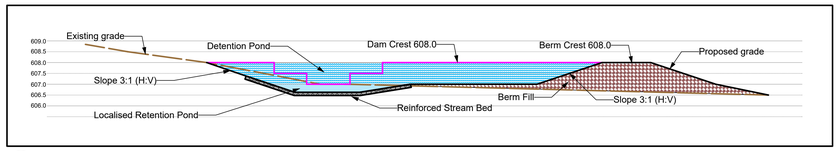
S-7 Section through pond 7
Scale: 1:100



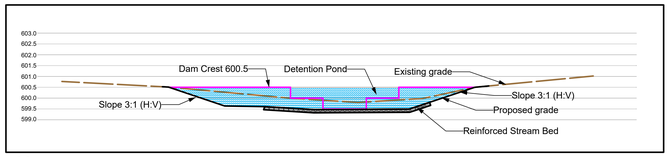
SL Section Lines Location
Scale: 1:2500



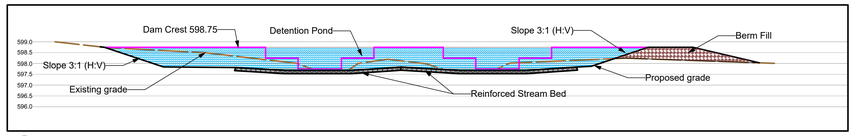
S-9 Section through pond 9
Scale: 1:100



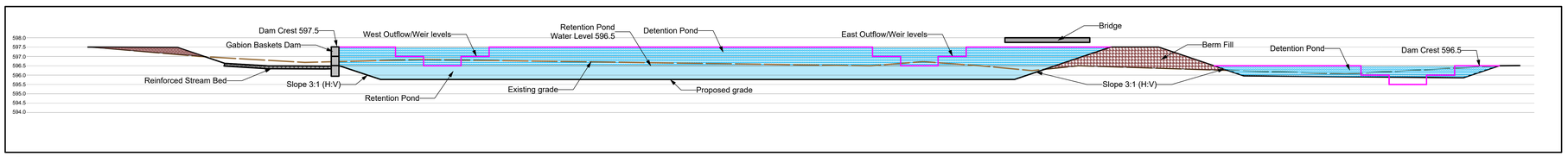
S-5 Section through pond 5
Scale: 1:100



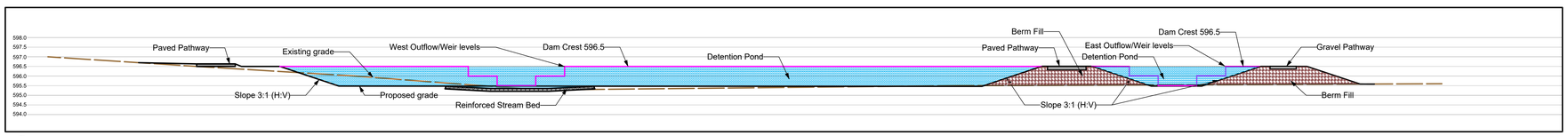
S-10 Section through pond10
Scale: 1:100



S-12 Section through pond 12
Scale: 1:100



S-R Section through the retention pond
Scale: 1:100



S-13 Section through pond 13
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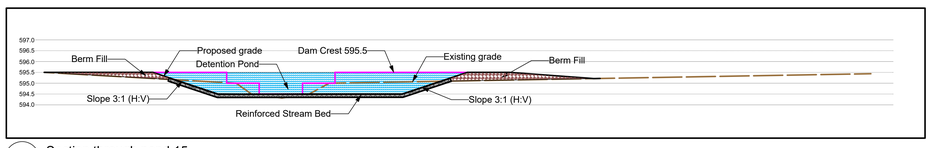

S-15 Section through pond 15
Scale: 1:100

	INPUTS				RESULTS							
Pond ID	Water surface area (m²)	Perimeter at water level (m) - optional	Depth, water surface to flat base (m)	Shore slope 1 (H in H:V)	Perimeter used (m)	Average slope (H:V)	Corner factor used	Bottom area (m²)	Bottom as % of surface	Volume (m³)	Volume (ML)	Mean depth (m)
Pond D 1	290.0	67.0	1.00	3.0	67.0	3.00	3.140	117.3	40.4%	198.9	0.199	0.69
Pond D 2	301.0	72.0	1.00	3.0	72.0	3.00	3.140	113.3	37.6%	202.4	0.202	0.67
Pond D 3	100.0	43.0	0.98	3.0	43.0	3.00	3.140	0.7	0.7%	44.9	0.045	0.45
Pond D 4	350.0	86.0	1.00	3.0	86.0	3.00	3.140	120.3	34.4%	230.4	0.230	0.66
Pond D 5	303.0	69.0	1.00	3.0	69.0	3.00	3.140	124.3	41.0%	208.9	0.209	0.69
Pond D 6	266.0	69.0	1.00	3.0	69.0	3.00	3.140	87.3	32.8%	171.9	0.172	0.65
Pond D 7	1,092.0	141.0	1.00	3.0	141.0	3.00	3.140	697.3	63.9%	889.9	0.890	0.81
Pond D 8	324.0	80.0	1.00	3.0	80.0	3.00	3.140	112.3	34.6%	213.4	0.213	0.66
Pond D 9	400.0	82.0	1.00	3.0	82.0	3.00	3.140	182.3	45.6%	286.4	0.286	0.72
Pond D 10	316.0	92.0	1.00	3.0	92.0	3.00	3.140	68.3	21.6%	187.4	0.187	0.59
Pond D 11	271.0	63.0	1.00	3.0	63.0	3.00	3.140	110.3	40.7%	185.9	0.186	0.69
Pond D 12	444.0	97.0	1.00	3.0	97.0	3.00	3.140	181.3	40.8%	307.9	0.308	0.69
Retention Pond	1,548.0	178.0	1.00	3.0	178.0	3.00	3.140	1,042.3	67.3%	1,290.4	1.290	0.83
Pond D 13	1,400.0	160.0	1.00	3.0	160.0	3.00	3.140	948.3	67.7%	1,169.4	1.169	0.84
Pond D 14	995.0	192.0	1.00	3.0	192.0	3.00	3.140	447.3	45.0%	716.4	0.716	0.72
Pond D 15	341.0	84.0	1.00	3.0	84.0	3.00	3.140	117.3	34.4%	224.4	0.224	0.66
Pond D 16	150.0	48.0	1.00	3.0	48.0	3.00	3.140	34.3	22.8%	87.4	0.087	0.58
Total	**10,205.2**							**4,798.6**		**7,988.4**	**7.988**	

Preliminary water detention volume calculations

LEGEND:

- Water temporarily accumulating in detention ponds
- Water prtmanently accumulating in retention ponds
- Relocated fill from cut area to form berms or required fills
- Reinforced stream bed as per Hydrological and/or Structural Eng
- Evelation of the associated dam/weir shown for orientation only
- Proposed grades
- Existing grades
- Adjacent paving or structures

NOTES:

1 The estimated volume of water that can be temporarily stored within the detention ponds has been calculated based on the following assumptions:
- All pond side slopes are constructed at an approximate gradient of 3H:1V.
- Gabion dam/weir walls will be installed to allow temporary water storage up to 1.0 m above the crest level of the lower 2m wide weir of the detention dam.
- Pond excavations will be undertaken to maximise the available detention storage volume.
- Dam berms will be constructed to safely accommodate water detention to a minimum level of 1.0 m above the crest of the lower 2m wide weir of the detention dam.

2. All gabion walls, weirs, and stream reinforcement works shall be designed and constructed in accordance with the recommendations and specifications of:
- The Hydrological Engineer; and
- The Structural Engineer.

3. The dimensions of the weir openings may be adjusted by the Hydrological Engineer as required to ensure that discharge rates through the dams comply with the design flow criteria and prevent overtopping of the dam or berm crests.

4. The detention ponds shall be planted with vegetation suitable for periodic inundation and temporary submersion.

5. The detention pond design assumes that:
- Existing culverts beneath roads and parking areas have been adequately sized to accommodate the required stormwater flows; and
- Existing downstream drainage infrastructure located south of the road is capable of safely conveying the maximum anticipated site discharge.

6. The retention pond is intended to provide a permanent water body with a normal operating water depth of approximately 0.5 m to 1.0 m.

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Approved by:
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Design Firm: SILVER HORNS CONSULTING

Project Title: Thohoyandou National Botanical Garden SANBI

Sheet Title: Sections Ponds

Scale: 1:750
Drawn By: PMG
Date: 20 Sept 2026
Project ID: 2610
Sheet No.: L-10 of 11
File: 2610_SANBI_LAS_Detailed_Design.vwx