Appendix I: WSUD Memo

File Note

Date	27 June 2011
Project No	VE23421
Subject	**Desktop and Site Assessment of WSUD Opportunities throughout Hahndorf**

A desktop and site assessment of the Hahndorf township area was completed to identify areas where there is potential for implementing WSUD treatments.

Considerations that were made when determining the suitability of different WSUD options include (SA Government, 2009):

- Slope of land. For successful application of pervious pavements, infiltration trenches, buffer strips and swales the grade should be less than 4%.
- Availably of space. For retrofit of WSUD treatments, there must be adequate space alongside existing roadways. Throughout Hahndorf, many of the roads and verges are relatively narrow, limiting the space available to retrofit WSUD.
- Location of water table. For WSUD treatments which aim to provide infiltration of stormwater the location of the water table will determine how applicable the treatment is. High water tables would prevent infiltration; hence the WSUD treatment would not have the desired effect.
- Soil types. For WSUD treatments which aim to provide infiltration of stormwater the in situ soil conditions will determine how applicable the treatment is. Shallow bedrock or soils with low permeability will reduce applicability.

Table 1 summarises the locations that were assessed, including a description of WSUD options that may be applicable for retrofit for each location in the future. The photos, as well as a map indicating their locations are provided in Figures 1 – 51.

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- **Table 1: Applicability of WSUD Treatments throughout Hanhndorf Urban Areas**

Location	WSUD Treatment						Comment	Photo numbers
	Swales	Permeable pavement	Bioretention System	Infiltration Trench	Buffer Strip	Rain Garden		
(a) Roads								
Auricht Road	X	X	-	X	X	-	Slope generally <4%, space constrained in some areas as properties face directly onto road however some sections have relatively wide verges enabling potential for roadside WSUD.	44 - 47
Mount Barker Road	-	X	-	X	-	-	Slope generally <4%, high traffic volume road, paving could be replaced by pervious pavement along the length of the road, space constrained so limited opportunity for swales or buffer strips, opportunity to provide infiltration trenches within existing verge where there is a line of trees.	55-58, 82-84
Pine Ave	X	X	-	X	X	-	Slope generally <4%, space constrained in some areas as properties face directly onto road however some sections have relatively wide verges enabling potential for roadside WSUD.	67-69
Theile Grove	-	X	-	X	-	-	Slope generally <4%, space constrained so limited opportunity for roadside swales.	97-99
Church St	-	X	-	X	-	-	Slope generally <4%, space constrained so limited opportunity for roadside swales.	70, 104
Strempel Ave	X	X	X	X	X	-	Slope generally <4%, relatively wide verges throughout, enabling potential for roadside WSUD. Potential for bioretention system and restoration of creek at corner of Strempel and Balhannah Road.	105-107
Collins St	-	X	-	-	-	-	Slope generally <4%, space constrained so limited opportunity for roadside WSUD.	-
Molens Rd	-	X	-	-	-	-	Slope generally <4%, space constrained so limited opportunity for roadside WSUD.	111 - 113
Windsor Ave	X	X	-	X	X	-	Slope <4% to west of Collins St, >4% to east of Collins St, relatively wide verges throughout enabling potential for roadside WSUD on the north side of the road.	121, 122
Bernhardt Cr	-	X	-	-	-	-	Slope generally <4%, space constrained so limited opportunity for roadside swales.	114
English St	X	X	X	X	X	-	Slope <4% to west of Molens rd, >4% to east of Molens Rd, space	100, 101,

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Location	WSUD Treatment						Comment	Photo numbers
	Swales	Permeable pavement	Bioretention System	Infiltration Trench	Buffer Strip	Rain Garden		
							constrained in some areas as properties face directly onto road however some sections have relatively wide verges enabling potential for roadside WSUD. Space available upstream of the creek crossing for a swale, infiltration trench or bioretention system (photo 100).	103
Balhannah Road	-	X	-	X	-	-	Slope <4% to west of Strempel rd, >4% to east of Strempel Rd, space constrained so limited opportunity for roadside swales.	71, 72, 73
Johns Lane	-	-	-	-	-	-	Slope >4%, so limited applicability for WSUD	-
Hereford Ave	-	-	-	-	-	-	Slope >4%, so limited applicability for WSUD	-
Kaveel Road	-	-	-	-	-	-	Slope generally <4%, space constrained so limited opportunity for roadside swales.	102
Kaesler Rd	-	X	-	-	-	-	Slope generally <4%, space constrained so limited opportunity for roadside swales.	108
(b) Car parks								
West of Mount Barker Road, between Braun Dr and English St	-	x	x	x	-	x	Potential for retrofit of infiltration device due to available space.	49-54
West of Mount Barker Road, between English St and pine Ave	-	x	x	x	-	x	Potential for retrofit of infiltration device due to available space.	-
East of Mount Barker Road, next to Alec Johnston Park	-	x	x	x	-	x	Potential for retrofit of infiltration device due to available space.	95, 96
(c) Ovals and Open Spaces								
Oval near Thiele Grove	X	-	X	X	X	-	Creek passes alongside oval, and there is potential to utilise open space to retrofit WSUD features. Creek line alongside the oval has already had revegetation as part of the 'Million Trees' program, and some creek restoration works.	92-94
Oval North of	X	-	X	X	X	-	Creek passes alongside oval, and there is potential to utilise open space to	74, 75,

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Location	WSUD Treatment						Comment	Photo numbers
	Swales	Permeable pavement	Bioretention System	Infiltration Trench	Buffer Strip	Rain Garden		
Balhannah Road							retrofit WSUD features	76-81
Open space between Strempel Ave and Molens Road	X	-	X	X	X	-	Space for WSUD feature, highly vegetated allotment would already be providing significant infiltration.	110, 111
Alec Johnston Park	X	X	X	X	X	-	Space available for WSUD feature, and potential for restoration of creek line through the park.	85 - 91
Open Space at Eastern end of Braun Drive	X	-	X	X	X	-	Open space available alongside creek at empty lot at the eastern end of Braun Drive.	123
Open space along creek line along Southern side of Byard Place	X	-	X	X	X	-	Open space available alongside creek in reserve along Southern side of Byard Place	127, 128

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300,000

301,000

6,121,000

Locality
1:857,000

Hereford Av
Mount Barker Rd
Haebich La
Johns La
Hunt Rd
Eliza Ct
Nicholas Paech Dr
Aurich Rd
Byard Pl
South Eastern Fwy
Pine Av
Echunga - Hahndorf Rd
Paechtown Rd
Spring Ct
Church St
Balhannah Rd
Strempel Av
Molens Rd
Thiele Gr
English St
Kavel Dr
Bernhardt Cr
Braun Dr
Willow End
Valma Av
Windsor Av
Collins St

Legend

PhotoPoints

SKM

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REVISIONS

REV	DESCRIPTION	DATE	DRAWN
A	.	April 2010	J Muller

DATUM GDA94
Map Grid MGA Zone 54

0 0.025 0.05 0.1 0.15 0.2
Kilometres

- **Figure 1: Map Showing Location of all Photos**

CLIENT	District Council of Mt Barker		
PROJECT	Integrated Water Management Plan		
DRAWN: J Muller	CHECKED: .	REVIEWED PROJECT MANAGER: .	APPROVED PROJECT DIRECTOR: .
DATE: Jan 2011			

TITLE

Hahndorf Photo Points

SCALE	PROJECT NO.	DRAWING NO.	REVISION
1:3,900	VE23421	.	A

I:\VESA\Projects\VE23421\Technical\Spatial_Data\ArcGIS

- **Figure 2: Auricht Rd, Ph 44**

- **Figure 3: Auricht Rd, Ph 45**

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- **Figure 4: Auricht Rd, Ph 46**

- **Figure 5: Auricht Rd, Ph 47**

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- **Figure 6: Mount Barker Road, Ph 55**

- **Figure 7: Mount Barker Road, Ph 57**

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- **Figure 8: Mount Barker Road, Ph 58**

- **Figure 9: Mount Barker Road, Ph 83**

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- **Figure 10: Pine Ave, Ph 67**

- **Figure 11: Pine Ave, Ph 68**

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- **Figure 12: Tiele Grove, Ph 97**

- **Figure 13: Tiele Grove, Ph 99**

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- **Figure 14: Church Street, Ph 104**

- **Figure 15: Strempel Ave, Ph 105**

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- **Figure 16: Corner of Strempel Ave and Balhannah Road, Ph 107**

- **Figure 17: Molens Rd, Ph 112**

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- **Figure 18: Molens Rd, Ph 113**

- **Figure 19: Creek Crossing at Windsor Ave, Ph 121**

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- **Figure 20: Windsor Ave, Ph 122**

- **Figure 21: Bernhardt Court, Ph 114**

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- **Figure 22: English St, Ph 100**

- **Figure 23: Creek crossing at English St, Ph 101**

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- **Figure 24: English St, Ph 103**

- **Figure 25: Balhannah Rd, Ph 71**

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- **Figure 26: Balhannah Rd, Ph 73**

- **Figure 27: Kaveel Rd, Ph 102**

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- **Figure 28: Kaesler Rd, Ph 108**

- **Figure 29: Car Park West of Mount Barker Road, between Braun Dr and English St, Ph 50**

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- **Figure 30: Car Park West of Mount Barker Road, between Braun Dr and English St, Ph 53**

- **Figure 31: Car Park West of Mount Barker Road, between Braun Dr and English St, Ph 52**

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- **Figure 32: Car Park West of Mount Barker Road, between Braun Dr and English St, Ph 54**

- **Figure 33: Car Park East of Mount Barker Road, next to Alec Johnston Park, Ph 95**

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- **Figure 34: Car Park East of Mount Barker Road, next to Alec Johnston Park, Ph 96**

- **Figure 35: Oval near Thiele Grove, Ph 92**

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- **Figure 36: Oval near Thiele Grove, Ph 94**

- **Figure 37: Oval North of Balhannah Road, Ph 74**

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- **Figure 38: Creek alongside Oval North of Balhannah Road, Ph 75**

- **Figure 39: Drainage to Creek alongside Oval North of Balhannah Road, Ph 77**

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- **Figure 40: Revegetated creek alongside Oval North of Balhannah Road, Ph 80**

- **Figure 41: Oval North of Balhannah Road, Ph 81**

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- **Figure 42: Open space between Strempel Ave and Molens Road, Ph 111**

- **Figure 43: Entrance to Alex Johnston Park, Ph 85**

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- **Figure 44: Creek through Alex Johnston Park, Ph 87**

- **Figure 45: Alex Johnston Park, Ph 91**

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- **Figure 46: Open space at Eastern end of Braun Drive, 123**

- **Figure 47: Open space along creek line along Southern side of Byard Place, Ph 128**

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- **Figure 48: Location of GHD flood protection, Ph 118**

- **Figure 49: Location of GHD flood protection, Ph 61**

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- **Figure 50: Location of GHD flood protection, Ph 62**

- **Figure 51: Location of GHD flood protection, Ph 63**

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