WGA

WALLBRIDGE GILBERT AZTEC

Water Sensitive SA

# ENVIRONMENTAL STORMWATER MANAGEMENT AT NEWENHAM MT BARKER

Joe La Spina

Principal Stormwater Engineer

12th February 2019

# Discussion Points

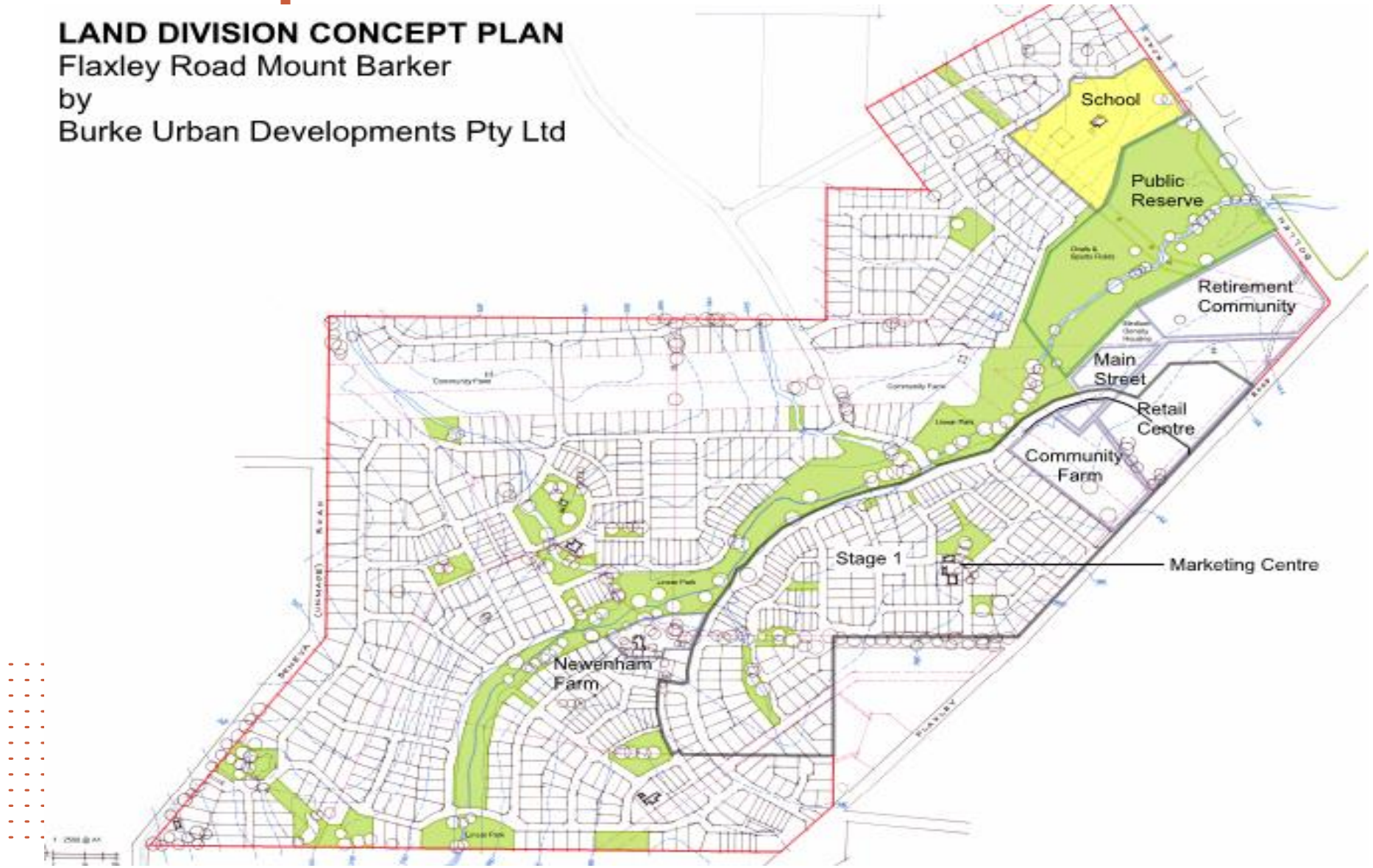
1. The Development
2. WSUD Philosophy
3. Challenges – Constraints and Opportunities
4. Why and how are we doing this? Enablers
5. Overall Strategy and Techniques
6. Technical Focus Points

# Development

- Burke Urban Developments
- Over 130 Hectare Greenfield site – on farming land
- Over 700 allotments
- Varying sized allotments
- Several precincts - Residential, School, Sporting, Reserves, Retail
- Linear reserve corridor along Western Flat Creek

# Development

**LAND DIVISION CONCEPT PLAN**
Flaxley Road Mount Barker
by
Burke Urban Developments Pty Ltd



# WSUD Philosophy

- Flood management
- Stormwater treatment
- Disconnect the urban catchment from receiving waterway
- Manage frequent flows from urban catchment
- Reduce catchment response
- Environmental value
- Biodiversity corridor
- Urban greening
- Community benefits

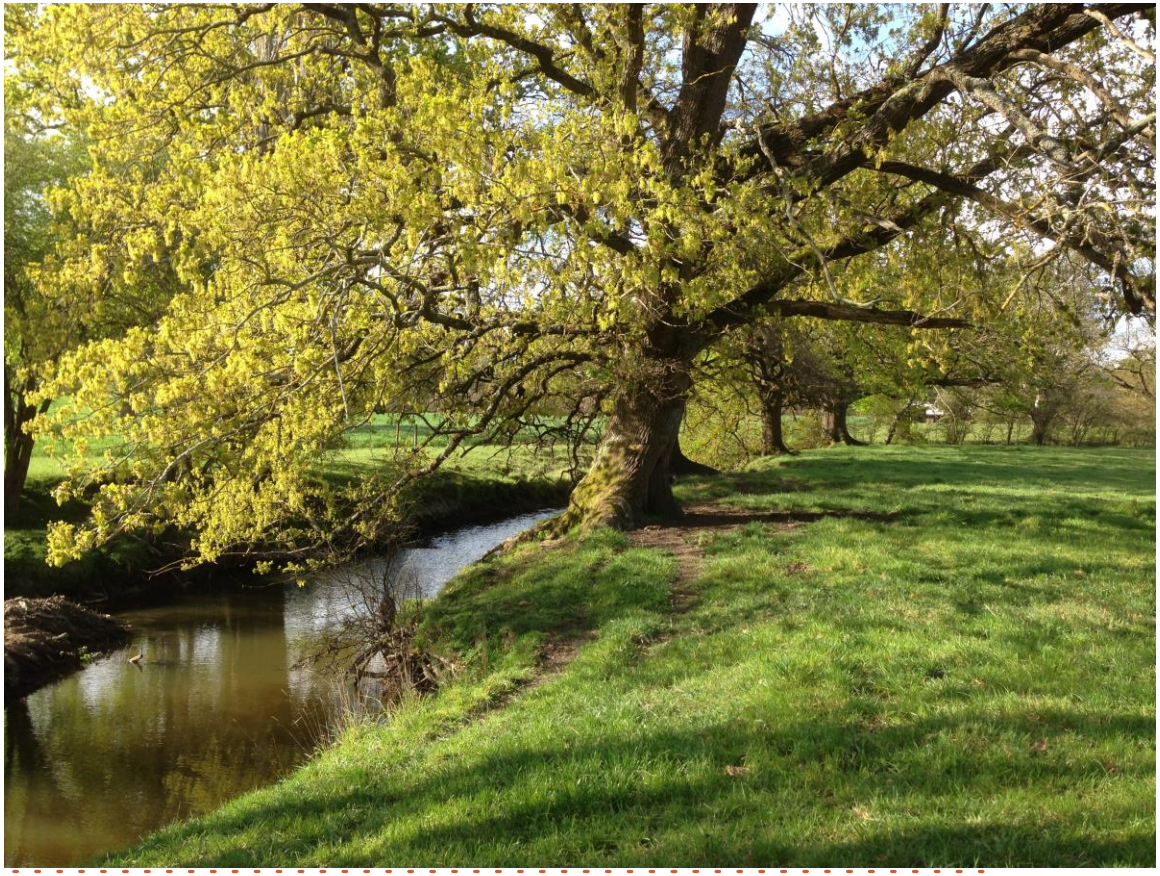
# Challenges

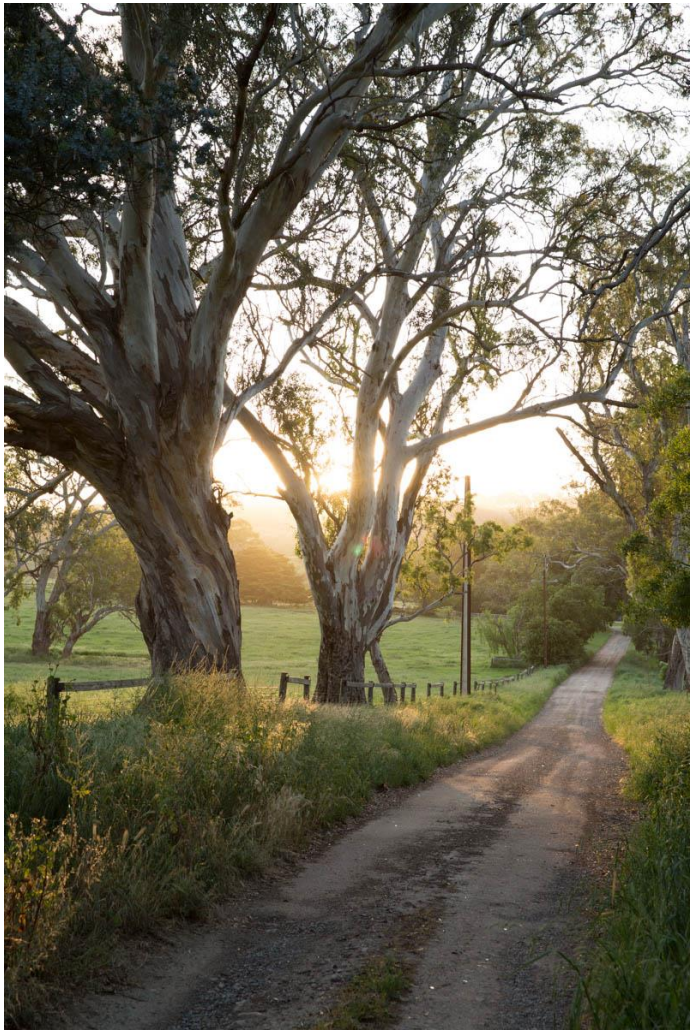
- Urban development = Impacts!
- Topography
- Geotechnical
- Western Flat Creek
- Trees (Native + Exotic)
- Existing infrastructure
- Land use and densities
- Spatial requirements for systems

➢Work out and plan how to deal with the challenges!

➢WSUD not always easy – be pragmatic!

# Challenges – Constraints or Opportunities?





# Challenges – Constraints or Opportunities?

WGA
WALLBRIDGE GILBERT AZTEC

# Challenges – Constraints or Opportunities?

# Why and how are we doing this? The Enablers

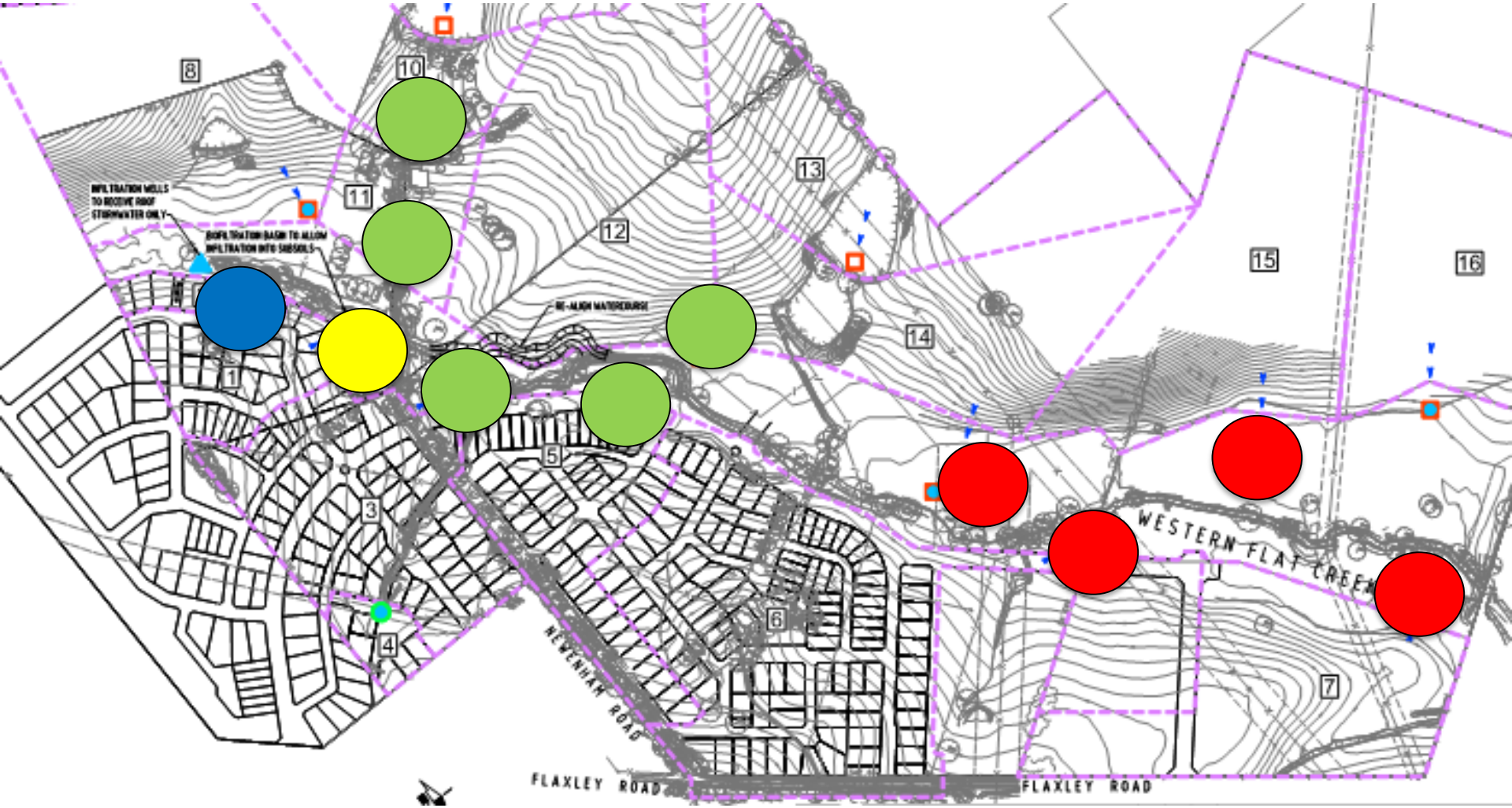
- Professional responsibility
- Protect integrity of Western Flat Creek
- Burke Urban – Focus on sustainability and place making
- Collaborative and integrated planning process
- Focus on the opportunities and make them integrate into other uses
- Council support for this strategy

# Overall Strategy

- Soakage wells – Residential roofs only
- Small scale soakage wetlands – Ecological sponges
- Wetlands – Integrated into detention basins
- Biofiltration basin – Infiltration

# Overall Strategy

WGA
WALLBRIDGE GILBERT AZTEC



# Technical Focus Points

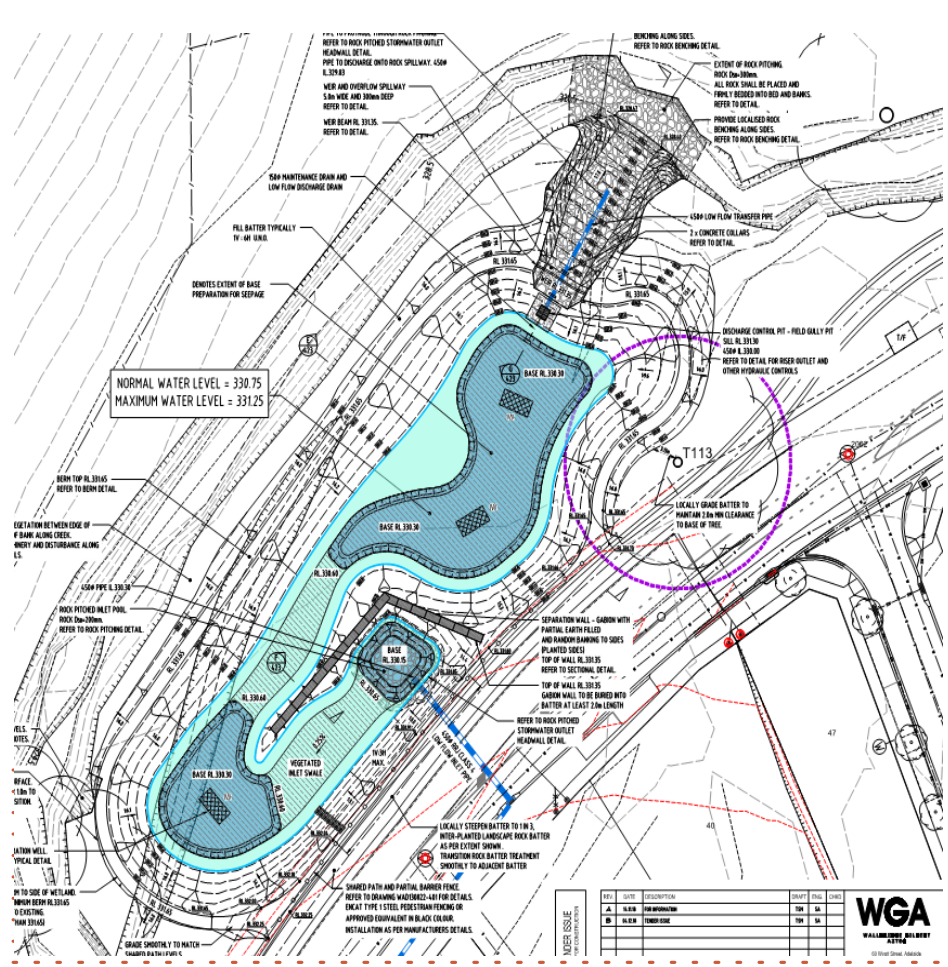
Design basis

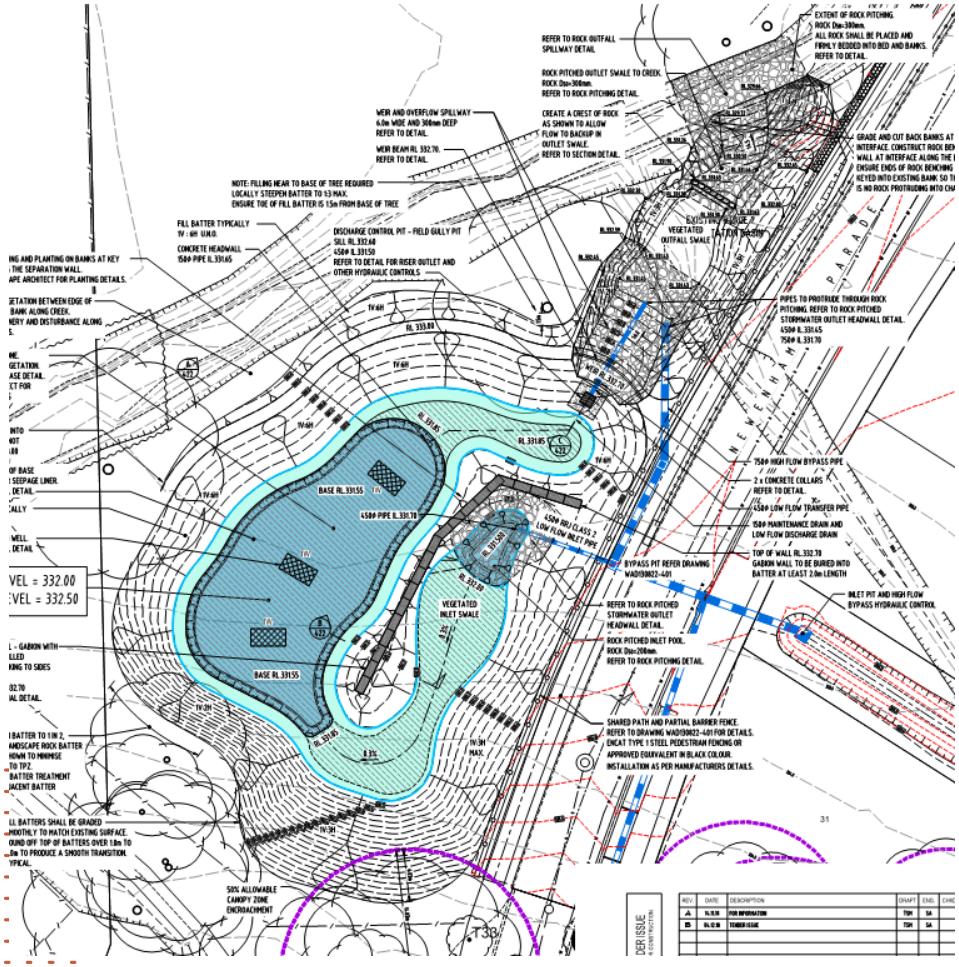
- Use WSUD measures where feasible – Note land is steep
- Reduce catchment connectivity to the Creek
- Reduce the response time of urban catchment
- Detain and retain – limited by topography and soils
- Ecological sponges and infiltration systems – 1 in 1.5yr retention / detention
- Protect environment and increase values – biodiversity corridor
- Create community value

# Technical Focus Points

WGA
WALLBRIDGE GILBERT AZTEC

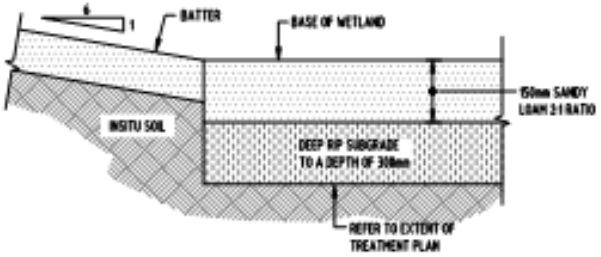
## Small scale wetland – Ecological sponge



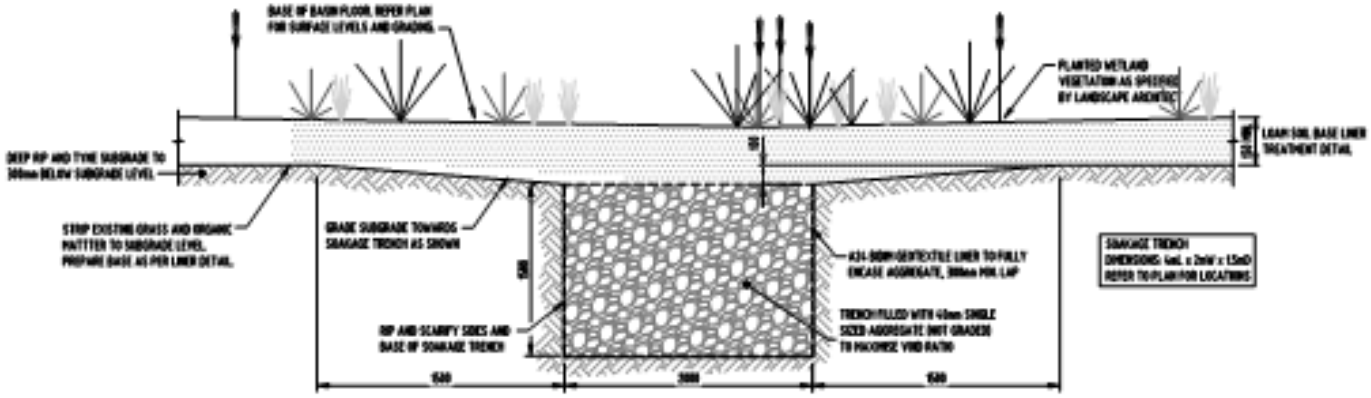
# Technical Focus Points

Small scale wetland – Ecological sponge: Leaky liners




LINER TREATMENT DETAIL

SCALE 1:20




INFILTRATION WELL (I.W.)

SCALE 1:20

# Technical Focus Points

WGA
WALLBRIDGE GILBERT AZTEC

Small scale wetland – Ecological sponges: Located within riparian zones

# Technical Focus Points

WGA
WALLBRIDGE GILBERT AZTEC

Small scale wetland – Ecological sponges: Located within riparian zones

# Technical Focus Points

Ecological sponge – example image (not from site)

# Technical Focus Points

Roadside vegetated swales – bring stormwater into the landscape where feasible

# Technical Focus Points

Roadside vegetated buffer – sheet flow to waterway

# Technical Focus Points

Urban Greening – extensive tree planting: Tree watering wells

- Strong working relationship with Burke Urban
- Integrated planning process
- Willingness to innovate
- Strong sustainability focus
- Commitment
- Tree watering wells

# Technical Focus Points

Urban Greening – extensive tree planting and green verges

WALLBRIDGE GILBERT AZTEC


**ADELAIDE**
60 Wyatt St
Adelaide SA 5000
Telephone: +61 8 8223 7433
Facsimile: 08 8232 0967

**DARWIN**
Suite 7/9 Keith Ln
Fannie Bay NT 0820
Telephone: 08 8941 1678
Facsimile: +61 8 8941 5060

**MELBOURNE**
Level 2, 31 Market St
South Melbourne VIC 3205
Telephone: +61 3 9696 9522

**WHYALLA**
1/15 Darling Tce
Whyalla SA 5600
Phone: +61 8 8644 0432

**PERTH634 MURRAY ST**
West Perth WA 6005
Telephone: +61 8 9336 6528

**NEW ZEALAND**
4 Ash Street
Christchurch NZ 8011
Phone: +64 29 201 2996

**WALLBRIDGE GILBERT AZTEC**

www.wga.com.au

www.wganz.co.nz