DEVELOPMENT GUIDE

ENGINEERING SITEWORKS PLANS

Updated: 15/10/2021

When applying for Development Plan Consent (Planning Approval) a minimum level of information must be submitted with the application, in accordance with Schedule 8 of the *Planning, Development and Infrastructure (General) Regulations 2017.*

For new buildings, structures, or extensions to existing buildings, this information includes:

- Existing and proposed ground and floor levels
- The location of proposed and existing trees
- The location of carparking areas
- The location and width of driveways
- Levels at the start and end of driveways
- The location and capacity of stormwater tanks

In addition to supplying the minimum information above, it is also important that sufficient additional information be submitted in order to demonstrate that relevant *Planning and Design Code* (PDI Code) Assessment Provisions that apply to the development, have been addressed.

This may require additional information regarding:

- Stormwater quality and detention systems
- Water sensitive urban design (WSUD) measures
- Flood protection measure (sea and stormwater)
- Flow path management
- Earthworks, retaining walls, and site grading requirements
- Pedestrian, bicycle and vehicle manoeuvring, access, and parking
- Access for people with a disability
- Road traffic and safety

To determine what Assessment Provisions apply to a Development, it must first be confirmed what *Zones, Sub-Zones, Overlays,* and *General Development Polices* apply to the Development. This can be achieved by visiting https://code.plan.sa.gov.au/ or by engaging a Planning Consultant.

Each *Zone, Sub-Zone* and *Overlay* will have specific planning and design objectives (*Assessment Provisions)* that need to be addressed. These will be in addition to general Assessment Provisions that need to be addressed outlined in *General Development Polices.*

To review the various PDI Code Assessment Provisions please refer to Parts 2-4 of the PDI Code.

If there is uncertainty regarding which Assessment Provisions take precedence over others, the following rules generally apply. Further clarification can be obtained in Part 1 of the PDI Code:

(a) an assessment provision for an overlay prevails over all other policies
(b) a subzone policy prevails over a zone policy or a general development policy
(c) a zone policy will prevail over a general development policy.

This hierarchy is represented by the following diagram:

Where there are no specific requirements that need to be met in order to satisfy an Assessment Provision (i.e. the "*Deemed-to-Satisfy Criteria* (DTS)" or "*Designated Performance Feature* (DPF)" for the Assessment Provision states "none are applicable") recommended ways to demonstrate these Assessment Provisions have been met are provided in Table 1.

Please note that Table 1 provides recommendations only and should be treated as a guide. It is important that all Applicants and their Consultants determine appropriate siteworks outcomes on a case-by-case basis for each development.

In addition to demonstrating that Assessment Provisions have been satisfied, there are also specific requirements that must be complied with for certain works proposed on Council Land pursuant to the *Local Government Act 1999*, these are also referred to in Table 1.

Applicants should engage suitably qualified and experienced Engineers who can assist with the preparation of Engineering Siteworks Plans and any required calculations. It is important that Engineers, Building Designers, Architects and Planning Consultants work collaboratively from the very early stages of development, to ensure that developments are planned in a way that allows engineering related matters to be incorporated into the design of the development. Examples of this include; ensuring that sufficient area is available for stormwater management systems, and access driveways and carparking areas comply with relevant engineering standards.

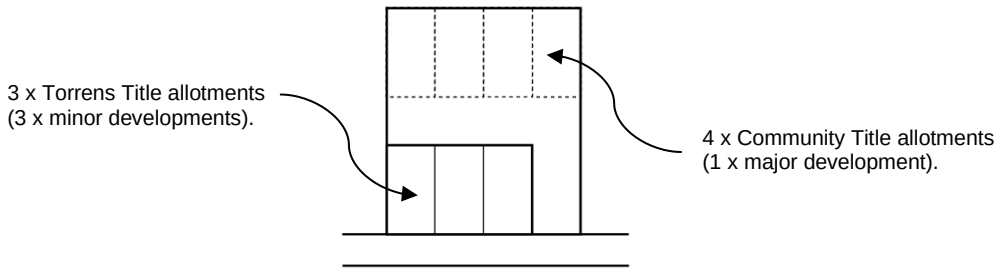
Table 1: Desired Siteworks Outcomes

GENERAL	
Plans	Engineering Siteworks Plans should be prepared at 1:100-1:250 scale (1:200 preferred) and include scale bar.
Existing Survey	Existing site survey information should be provided by a Surveyor and should include, but not be limited to existing spot levels within the site, inside adjacent allotments and the road reserve, kerb & gutters, footpaths, allotment boundaries, any easements, height and circumference of existing trees, and any other structures (e.g. stobie poles, street side entry pits, water meters and SAPN transformers).
Regulated / Significant Trees	The design of Engineering Siteworks Plans should give consideration to the construction requirement associated with regulated and significant trees. All siteworks should be designed and constructed using tree sensitive construction techniques, in strict accordance with Arborist recommendations and AS 4970:2009.
	Regulated and Significant Tree *Structural Root Zones* (SRZ) and *Tree Protection Zones* (TPZ) should be dimensioned and indicated to scale on Engineering Siteworks Plans.
Retaining Walls	The location of proposed and existing retaining walls should be indicated on Engineering Siteworks Plans consistent with the example shown on Council standard detail SK1024, located on Council's website. Top and bottom of retaining wall levels should be provided, along with the overall height of retaining walls and fences from levels taken within adjoining land.
Construction Details and Specifications	Engineering Siteworks Plans should include construction details and specifications for all works proposed to be constructed.

Works on Council Land	All works proposed on Council land shall be designed and constructed in accordance with Council's "Guidelines for Undertaking Works on Council Land" and standard Council engineering details & specifications located at: https://www.cityofpae.sa.gov.au/development/engineering-standards
Infrastructure to be vested to Council	The design and construction of all works proposed to be vested to Council shall be in accordance with Council's "Engineering and Infrastructure Statement of Requirements" (EISOR) available from Council's City Assets Department.
Verge Reinstatement	Notation should be provided on Engineering Siteworks Plans that all redundant stormwater outlets, driveway crossovers and inverts (or portions of) that are no longer required, shall be removed and reinstated with upright kerb and gutter, and footpath (where applicable) to match existing in accordance with Council standard details and specifications. Separate notation should be provided at all locations.
Easements / Rights of Way	A copy of all relevant Certificate of Titles, Deposited and/or Filed Plans and Transfer Documents should be obtained (available from the Lands Titles office or SAILIS website) to confirm the location and dimensions of all allotment boundaries and easements.
	The design and construction of all siteworks over Council easements shall comply with Council's "Easement Encroachment Application Form" located on Council's website.
	Where private easements are proposed, Engineers should include appropriate information to demonstrate that the width of proposed easements is sufficient to cater for all required services to be installed, achieving minimum horizontal clearances in accordance with relevant standards. Consideration should be given to the construction and maintenance requirements associated with removing, replacing or maintenance of all services. Easement widths should be sufficient in width to prevent undermining of adjacent structures should future excavation of the easement occur.
Community Title Developments with Common Driveway	Where Community Title developments with common driveway are proposed, a detailed engineering design should be prepared that provides full details of all siteworks requirements within the common driveway area. The design should be master-planned and confirm the stormwater management, vehicular access, and building servicing requirements for all allotments. All site works should be completed within 12 months from the date of approval or prior to occupation of any dwelling.
Developments spanning over multiple allotments	Where a development is proposed over multiple torrens title allotments, the design of services, parking areas, vehicle and pedestrian manoeuvring areas, and stormwater management systems (including drains and surface flow paths) should either: a) be designed such that they are either independent on each allotment, or b) have appropriate easements and/or rights of way provided, or c) allotments should be merged such that all services, parking areas, access paths, and stormwater management systems do not traverse over separate allotments. This is to ensure that the design of services, parking areas, access paths, and stormwater management systems is orderly, and does not result in issues should future sale of the land occur.
Staged Developments	When developments are proposed to be constructed in stages, Engineering Siteworks Plans should be clear in identifying the scope of works to be constructed at each stage of the development.
Other Approvals	The design of Engineering Siteworks Plans must ensure that the technical requirements of any other relevant non-Council regulatory authorities (where applicable), e.g. Department of Transport and Infrastructure (DIT), Environmental Protection Agency (EPA) and Coast Protection Board (CPB) have been met.
STORMWATER	
General	The design and installation of on-site stormwater systems should comply with the *National* Construction Code (NCC), AS/NZS 3500.3:2018, SA Planning and Design Code, and industry recognised Engineering best practices.
	The design of stormwater systems, site and floor levels, and site features (e.g. fences) should ensure that appropriate stormwater management system and/or overland flow paths are provided to effectively manage stormwater runoff during storms having an average recurrence interval of 100 years (1% AEP).

	Details of proposed site and stormwater system levels (inlet pit cover and pipe invert levels), site grading, any earthworks and retaining structures (including overall height and level at top and bottom of retaining walls) should be indicated on Engineering Siteworks Plans.
	Consistent with the requirements of the National Construction Code (NCC), a drainage system for the disposal of surface water resulting from a storm having an average recurrence interval of: a) 20 years must: i convey surface water to an appropriate outfall; and ii avoid surface water damaging the building; and 100 years must avoid the entry of stormwater into a building.
Future Development	Stormwater systems should be designed having consideration for future areas of the site to be developed (i.e. make allowance for site areas which are not yet intended to be developed) to ensure that: a) Any required modifications to existing drainage systems are identified to maintain the effective operation, b) All drainage infrastructure (both proposed and existing) is located only on appropriate allotments or have drainage easements provided, c) No allotments are created that prevent access to a legal point of discharge.
Tailwater Levels	The design of piped stormwater systems, site levels, and underground or surface detention systems should have consideration for downstream tailwater levels (i.e. assume receiving drainage system or gutters full during 1% AEP storm events). Unless otherwise approved or directed by Council, the following tailwater levels should be adopted: a) Non-tide affected outlets into piped Council drainage system or kerb: i 0.2 EY (5-year ARI) minor storm: assume 150mm below water table level at point of connection. ii 1% AEP (100 year ARI) major storm: assume 1% AEP (100 year ARI) water level at point of connection as indicated on Council flood modelling (where available), or top of kerb (where flood modelling is not available). b) Non-tide affected outlets into major drainage channels: i Storm frequencies equal to and above the capacity of the channel: assume channel is full or as indicated on Council flood modelling (where available), whichever is greater. ii Storms frequencies less than the capacity of channel: water level to be determined in consultation with Council. c) Tide affected outlets: i 0.2 EY (5-year ARI) minor storm: 2.50m AHD. ii 1% AEP (100-year ARI) major storm: 1.25m AHD. Where downstream tailwater levels need to be specified for other storm frequencies, tailwater levels should be determined in consultation with Council.
Existing Stormwater Systems	Where existing stormwater systems are located within a development that need to be retained, details should be provided to confirm how existing downpipes and stormwater systems will be incorporated into the proposed stormwater management system.
Boundary Levels	To protect developments against street stormwater, verges shall be graded towards the street water table. Site levels adjacent the street frontage should be no lower than the predicted 1% AEP (100-year ARI) flood level identified on Council flood modelling (where available) or a minimum 100mm above top of kerb (whichever is greater). Where existing Council footpaths are below this level, to prevent re-reconstructing footpaths, and only provided that existing verges fall towards the street water table, Council may accept raised site levels within the development that comply with the above. Alternatively, existing Council footpaths can be removed, and verge and footpath levels raised and reconstructed at the Developers expense. Engineering Siteworks Plans should include sufficient design levels and notation to clearly outline the extent of works required to protect the development against street stormwater flows.

Site levels & Flood Protection	To protect developments against nuisance and damage caused by stormwater flooding: a) With the exception of localised ramping at entrances, site levels should be designed and constructed: i at a suitable level to ensure that 1% AEP (100 year ARI) storm events can be managed within the development ii no lower than predicted 1% AEP (100-year ARI) flood levels identified on flood mapping (where available) b) Finished floor levels should be designed and constructed: i a minimum 300mm above the highest top of kerb measured immediately adjacent each building. ii a minimum 300mm above the design 1% AEP (100-year ARI) water level within the development. iii a minimum 300mm above the predicted 1% AEP (100 year ARI) flood levels identified on flood mapping (where available) Flood mapping can be found at either: • SA Property and Planning Atlas https://sappa.plan.sa.gov.au/ • Water Connect Flood Awareness Maps https://www.waterconnect.sa.gov.au/Systems/FAM/SitePages/Home.aspx
	Building floor levels should not be specified below top of kerb unless site levels adjacent the street frontage are constructed a minimum 100mm above top of kerb to prevent street flows entering the site. Where existing verge or footpath levels are below this level it is recommended that site levels be raised within the development to avoid works on Council land. Alternatively, the existing Council footpath can be removed, and verge and footpath levels raised at the Developers expense. Engineering Siteworks Plans should clearly indicate (i.e. with sufficient design levels and notation) the extent of works required, and how the development will be protected against street stormwater flows.
	SA Property and Planning Atlas (https://sappa.plan.sa.gov.au/) *Planning And Building > Planning And Design Code > Technical Numeric Variations* layer should be checked to determine if any site specific minimum site and floor level requirements exist.
	Developments located near tidal waters (e.g. less that 500m from Mean High Water Mark) should be assessed for potential long term sea flood risks. Reference to PDI code “Coastal Areas” and “Coastal Flooding” Overlays is recommended. It may also be desirable to discuss the proposed development with Council and/or the Coast Protection Board (CPB).
	Where an existing overland stormwater flow path passes through a development, Engineers should assess the extent and depth of stormwater flows by completing appropriate engineering calculations (e.g. HECRAS), in consultation with Council, to confirm what siteworks are required to protect the proposed development and buildings against potential flood risks, and to demonstrate that existing overland flow paths will not be unreasonably impacted by the proposed development.
	Council accepts no liability for any damage or inconvenience caused as a result of stormwater or seawater inundation due to site and/or floor levels, or stormwater systems being incorrectly designed and specified. Any future issues that arise as a result of inundation will be directed to and be the responsibility of the relevant Consultant or Engineer who specified site and building floor levels.
Stormwater Connection Points	Stormwater outlets discharging to the street water table should be designed and constructed in accordance with the Council standard engineering details located on Council’s website. Reference to the relevant Council standard engineering details should be indicated on Engineering Siteworks Plans.
	Grated inlets should be provided at the allotment boundary to provide a safe and controlled release of stormwater in the event of downstream pipe blockage.
	Stormwater outlets which are proposed between two joining driveway crossovers shall be installed using a section heavy galvanised steel and rollover kerb that transition to driveway crossover invert on either side.

	Calculations should be provided to confirm that the velocity of stormwater discharging from kerb outlets does not exceed 0.5m/s.
	The invert level at proposed stormwater connection points should be confirmed on-site prior to design.
Detention Systems (General)	Stormwater detention systems should be designed as follows: <u>Minor Developments</u> Residential developments on Torrens title allotments or community title allotments without a common driveway area: • Stormwater detention is required to ensure that the peak post-development 5-year ARI (0.2 EY) flow rates does not exceed the peak 5-year ARI (0.2 EY) pre-development flow rate. <u>Major Developments</u> Developments proposing multiple residential dwellings on a community title allotment with a common driveway area, or all Commercial and Industrial developments: • Stormwater detention is required to ensure that the peak post-development flow rates do not exceed the peak pre-development flow rate, or the capacity of Council's receiving drainage system. Where Rational Method calculation are undertaken, calculations should confirm that the peak post-development 100-year ARI (1% AEP) flow rate does not exceed the peak pre-development 5-year ARI (0.2 EY) flow rate. Where Dynamic Simulation (e.g. DRAINS) calculations are undertaken, calculations should analyse both; 5 year ARI (0.2 EY) and 100 year ARI (1% AEP) storm events and confirm that peak post-development flow rates do not exceed peak pre-development flow rates for all durations. Pre-development runoff calculations for all methods should be based on a coefficient of 0.35 (30% paved) unless otherwise approved by Council. Calculations shall be submitted to Council for approval. Where a residential development proposes a combination of torrens title and community title allotments with a common driveway area (as per the example below), the Community Title allotments would be considered a major development (with a shared stormwater system). The three torrens title allotments would be considered as separate minor developments (with separate stormwater systems). 
	Stormwater detention and orifice calculations shall be provided for each stormwater detention system, except where all inputs are identical, and a typical calculation can be used (i.e. multi-dwelling developments which have the same roof catchment area).
	Stormwater detention calculations should confirm critical storm durations and maximum required detention storage volumes.
	Stormwater detention calculations should confirm the flow rate that is generated from catchment areas which are proposed to be undetained. The flow rate from undetained site areas should be subtracted from the permitted pre-development site discharge rate to determine the remaining allowable outflow rate from detention systems.
	Stormwater detention calculations should make allowance for any additional inflow received from upstream systems (e.g. inflow received from above ground detention tanks or upstream pipes) in addition to runoff generated by the detention system catchment area.
	Stormwater detention calculations should be provided with a report which includes a summary of permitted pre-development site discharge rates, the discharge rate from proposed undetained site areas, discharge rates from proposed detention systems, required detention storage volumes, and orifice sizes for each detention system.

	Where it is proposed to direct major storm flows into proposed detention systems, calculations should be provided to confirm that upstream drainage systems (e.g. roof gutters, downpipes or pipe systems) have been appropriately sized to convey major flows into the proposed detention system.
	Detention systems should be designed to provide a safe and controlled release of stormwater in the event of outlet blockage.
	The location and volume of stormwater detention system storages should be indicated on Engineering Siteworks Plans and be specified consistent with stormwater detention calculations.
	The footprint of proposed storages (e.g. tanks) should be indicated accurately on plans to ensure there is sufficient site area available to install tanks at the proposed locations.
	Construction details should be provided on Engineering Siteworks Plans for all stormwater detention systems.
Detention Systems (Surface)	The design of surface stormwater and detention system needs to consider the effect of downstream tailwater levels. The invert of detention storages must be free-draining and not affected by downstream tailwaters which would restrict outflow and require increased detention storage volumes. The invert of storages should therefore be at least the same level as top of kerb (i.e. assume gutter full), or the 1% AEP flood level indicated on flood mapping (where available), except if a pump system is used to prevent tailwaters backflowing into the development.
	Surface detention systems should include measures to help prevent blockage (e.g. at-source pollutant filters fitted to inlet pits, and mesh screens or other pollutant control devices installed upstream of storages).
	Proposed surface levels need to be designed in a way that unintended overflow does not occur from the surface stormwater system that would prevent calculated underground or surface detention storage volumes from being achieved.
	To prevent nuisance ponding during minor storm events it is recommended that surface detention systems include sufficient underground storage to manage a minimum 10-20-year ARI (10-5% AEP) storm event.
	Consistent with the requirements of AS/NZS 3500.3:2018 clause 7.10.2 (a), the minimum diameter of surface detention system orifices should not be less than 25mm to prevent blockage.
	Consistent with the requirements of AS/NZS 3500.3:2018 clause 7.10.1, floor levels should be specified a minimum 300mm above the design flood level or overflow level of the proposed surface detention system.
Detention Systems (Orifices)	Calculations should be provided for all detention system orifices.
	The location and diameter of stormwater detention system outlet orifices should be indicated on Engineering Siteworks Plans and be consistent with stormwater detention calculations.
	The value nominated for head in stormwater orifice calculations should be determined using the difference between the maximum water level of the proposed detention system subtract the maximum downstream tailwater level during normal operating conditions (e.g. receiving gutter or piped drainage system full to top of kerb, or flood level indicated on Council flood modelling).
Retention Systems	Rainwater collection and re-use system should be provided on all residential developments. Where retention storage volumes are not specified in the Planning & Design Code, a suitably experienced Engineer should be engaged to calculate the most efficient rainwater tank volume based on local rainfall, available roof catchment, and building demand. Rainwater collection and re-use systems should include mains back-up and be connected to all toilets, irrigation systems, laundry cold water outlets, and where desirable, washing machines and hot water systems (where available).
	Rainwater collection and re-use systems should be provided for non-residential buildings where reasonable opportunities for re-use are available (e.g. greater than 4 toilets or irrigated landscaped areas greater than 50sqm). A suitably experienced Engineer should be engaged to calculate the most efficient rainwater tank volume based on local rainfall, available roof catchment, and building demand. Rainwater collection and re-use systems should include mains back-up and be connected to all toilets,

	irrigation systems, laundry cold water outlets, and where desirable, washing machines and hot water systems (where available).
	Rainwater collection and re-use system are not necessary where recycled mains water systems are available, and buildings are connected in accordance with relevant standards.
	Notation should be included on Engineering Siteworks Plans confirming the volume of proposed rainwater tanks, any required sources of re-use that are to be connected to, and any requirements for mains back-up.
	Retention tank overflow pipes should be indicated on Engineering Siteworks Plans and directed to the legal point of discharge.
Infiltration Systems	To help satisfy Water Sensitive Urban Design (WSUD) related planning objectives, developments located in areas with high infiltration soils (e.g. class A or S soil types as defined by AS 2870:2011) should have infiltration systems incorporated into the on-site stormwater system (e.g. permeable pavements, bottomless pits, basins with infiltration capabilities) to help reduce peak flows and stormwater volumes discharged from the site. Where permeable pavement systems are used Council will accept a design runoff coefficient of 0.3 to help reduce on-site detention storage volume requirements.
	Continuous simulation stormwater calculations and soil tests should be provided where infiltration systems are used. Calculations should confirm the proposed infiltration systems can effectively manage required design storm events, and empty within acceptable time frames to allow for repeat storm events.
	Infiltration systems should be located with adequate clearance away from allotment boundaries and buildings as to not compromise the structural stability of any structures, consistent with the requirements of “Water Sensitive Urban Design - Basic Procedures For Source Control of Stormwater” - J. Argue 2004.
Water Sensitive Urban Design (WSUD)	Water Sensitive Urban Design (WSUD) techniques should be incorporated into developments (e.g. bio-filtration trenches, drainage swales, slotted kerbs, permeable pavement, and/or retention systems) consistent with the examples provided in the "Water Sensitive Urban Design Technical Manuals for the Greater Adelaide Region".
Basins / Swales / Bio-filtration	Bio-filtration systems should be designed in accordance with the Adoption Guidelines for Stormwater Bio-filtration Systems: https://watersensitivecities.org.au/content/stormwater-biofilter-design/
	Specifications should be provided for the required depth and properties of bio-filtration system filter media layers, in accordance with Section 3.6.4 of the Adoption Guidelines for Stormwater Bio-filtration Systems: https://watersensitivecities.org.au/content/stormwater-biofilter-design/
	Planting schedules should be provided for bio-filtration systems and swales, and include appropriate species and planting densities in accordance with Water Sensitive SA guidelines for plant species selection: http://www.watersensitivesa.com/wp-content/uploads/Raingarden-Plant-Fact-Sheet-v5_FINAL-Dec16.pdf
	It is recommended that bio-filtration systems are specified to include irrigation to assist with both the establishment and long-term health of landscaping treatments.
	Where the invert of proposed stormwater basins and/or swales are proposed below street water table, it is recommended that backflow prevention devices be provided to prevent Council stormwater back flowing into the development.
	Basins and swales should be installed using appropriate liners or have sufficient clearance away from buildings and/or neighbouring allotments (depending on soil type) as to not affect the structural stability of buildings due to moisture.
Stormwater Quality	Current engineering best practices and South Australian WSUD policy *“Water Sensitive Urban Design - Creating more liveable & water sensitive cities in South Australia”* DEWNR, 2013 state that new developments should demonstrate a reduction of 90% gross pollutants greater than 50mm, 80% total suspended solids (TSS), 60% total phosphorus (TP), 45% total nitrogen (TN) and demonstrated reduction of hydrocarbons (oils and greases). To demonstrate these requirements and relevant Planning and Design Code Assessment Provisions relating to stormwater quality have been met,

	Engineers should use suitable modelling procedures (e.g. MUSIC) or other recognised methods to demonstrate that best practice stormwater quality reduction targets (BPSQRT's) have been met, and in the absence of them being met, prepare a report with suitable justification outlining why lesser performing stormwater quality treatment systems are considered fit for purpose. To demonstrate stormwater quality reduction targets have been met, calculations should be provided in the form of either: a) MUSIC calculations (https://ewater.org.au/products/music/). Where MUSIC calculations are undertaken, a copy of the MUSIC .SQZ and .MRT files should be submitted to Council. Independent verification of the MUSIC model should also be completed and submitted to Council in the form of a report which is prepared using the MUSIC Auditor tool for South Australia: https://www.musicauditor.com.au/auditor , or b) Where bio-filtration systems are implemented, calculations can be provided in the form of demonstrating compliance with chapter 5.2 of WSUD Engineering Procedures Stormwater, CSIRO June 2005. Where the area of a bio-filtration system is sized at 2% of the receiving impervious catchment area it is deemed to satisfy best practice stormwater quality reduction targets. Where bio-filtration systems are used: a) Specifications are required for the depth and properties of filter media layers, specified in accordance with section 3.6.4 of Adoption Guidelines for Stormwater Bio-filtration Systems: https://watersensitivecities.org.au/content/stormwater-biofilter-design/ b) Planting schedules are required outlining the species of plants that must be used in accordance with Water Sensitive SA guidelines for plant species selection: http://www.watersensitivesa.com/wp-content/uploads/Raingarden-Plant-Fact-Sheet-v5_FINAL-Dec16.pdf c) It is recommended that Engineering Siteworks Plans specify that bio-filtration systems are to include irrigation to assist with establishment and long-term health of landscaping treatments. Where proprietary treatment systems are used: a) SQIDEP certification (https://stormwater.asn.au/sqidep/about-sqidep) shall be provided to confirm MUSIC node data. In the absence of SQIDEP certification being available, default pollutant removal efficiencies shall be specified in accordance with table 6-3 and section 6.5.5 of the NSW MUSIC Modelling Guidelines, 2015. b) In accordance with the South Australian MUSIC Guidelines, Gross Pollutant Traps (GPT's) provide effective reduction of gross pollutants (GP) and total suspended solids (TSS) only. Reductions in total phosphorus (TP) and total nitrogen (TN) should not be assumed. Tertiary treatment devices (e.g. cartridge style devices) may be required to meet nutrient removal targets. c) Manufacturer specifications should be provided for proposed stormwater quality improvement device to confirm that the treatment and bypass flow rates (where applicable) of the nominated devices are sufficient to effectively manage design flow rates through the proposed system. d) Engineering plans should specify the precise manufacturer, model, and size of proposed propriety treatment devices, consistent with completed stormwater quality modelling. e) Notation “or similar approved” in relation to proposed stormwater quality improvement systems should not be included on plans. An assessment of the stormwater quality treatment systems forms a part of the relevant authorities planning assessment. Alternative devices must not be installed without obtaining approval from relevant approval authority. If alternative stormwater quality treatment system is proposed after Planning Consent is granted, a formal Development Application variation will need to be applied for.
	To comply with the EPA Water Quality Policy 2015 and National Water Quality Guidelines (ANZECC 2000), Engineers should implement best available technology to ensure that all reasonable and practical steps have been taken to prevent EPA listed Class 1 pollutants entering the public stormwater system. Where there is a high risk of hydrocarbons (oils, grease or lubricants) entering the public stormwater system (e.g. carparks and petrol filling stations), stormwater quality treatment systems capable of achieving Class 1 (<5mg/L) hydrocarbon separation should be provided.
	Notation “or similar approved” in relation to proposed stormwater quality improvement systems should not be included on plans. An assessment of the stormwater quality treatment systems forms an integral part of the relevant authority’s assessment. Alternative devices must not be installed without obtaining approval from relevant approval authority. If alternative stormwater quality treatment system

	are proposed after Planning Consent is granted, a formal Development Application variation will need to be applied for.
	Stormwater quality improvement systems should be installed upstream of stormwater detention storages and orifices to prevent blockage.
	Vehicle manoeuvring areas should be appropriately sealed or paved with appropriate surface drainage and stormwater quality treatment systems in order to minimise dust and mud nuisance.
	Maintenance requirements (i.e. recommended cleaning intervals and procedures) for stormwater quality treatment systems should be included with Engineering Siteworks Plans.
	A Soil Erosion and Drainage Management Plan (SEDMP) should be developed where a site exceeds 0.5 hectare or there is a high risk of sediment pollution to adjoining land or receiving waters. Such plan should be prepared in accordance with the EPA "Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry", March 1999.
Surface Drainage	Stormwater inlet pits should be provided in all paved and landscaped areas to limit nuisance ponding and prevent the entry of water into or affect the stability of a building and/or adjoining land consistent with National Construction Code (NCC) requirements. Stormwater inlet pit and site surface levels should be indicated on Engineering Siteworks plans to confirm the gradient and direction of fall.
	The minimum grade of paved surfaces should be 1% (1 in 100) to comply with recognised Engineering standards.
	The maximum grade of private open space should not exceed 10% (1 in 10) to ensure that private open space areas are useable.
	Where “wet” surface stormwater systems are proposed, or where pit surface levels do not achieve a minimum 0.5% grade from the maximum water level at point of discharge (e.g. top of kerb for a kerb outlet), hydraulic grade line (HGL) calculations should be provided to demonstrate that proposed surface levels and stormwater pipe sizes are sufficient to effectively manage stormwater when the receiving drainage system is full.
Stormwater Drains	The minimum cover to stormwater drains should comply with AS/NZS 3500.3:2018 table 6.2.5.
	The minimum gradient of stormwater drains should comply with AS/NZS 3500.3:2018 table 6.3.4.
	Stormwater pipe sizes shall be indicated on Engineering Siteworks plans and designed in accordance with AS/NZS 3500.3:2018 section 5.4.
Rear of Allotment Drains	Developments that propose rear of allotment drains and easements that are to be vested to Council will not be supported. Applicants may propose private drainage easements and rear of allotment drains subject to the approval of Council.
	The design of on-site stormwater systems and rear of allotment drains should ensure that 1% AEP (100 year ARI) storm events can be managed on-site or conveyed via the rear of allotment drain where overland flow paths cannot be provided.
Roof Drainage	Roof drainage systems should be designed and installed in accordance with AS/NZS 3500.3:2018 section 3.
	Roof drainage systems should be provided with surcharge openings to allow a safe and controlled release of stormwater in the event of downstream pipe blockage.
Pump Systems	Where pumped stormwater systems are proposed, systems shall be designed in accordance with AS/NZS 3500.3:2018 section 8. Pump rates and storage volumes should be clearly identified on Engineering Siteworks Plans.
	To prevent nuisance ponding during minor storm events it is recommended that pumped stormwater systems include sufficient underground storage to manage a minimum 10-20-year ARI (10-5% AEP) storm event below the surface.

	To prevent oversizing pumped stormwater systems, roof catchment areas should be directed to the legal point of discharge via sealed (pressurised) drainage systems (not via pump systems).
	Energy dissipation pits should be designed and installed at the allotment boundary to ensure that discharge velocities to the street water table do not exceed 0.5m/s.
Wash-down Areas	Washdown areas should be design and constructed in accordance with SA water vehicle washing trade water guidelines and EPA stormwater management guidelines for wash bays.
	Stormwater runoff generated on the surface of washdown areas is not permitted to discharge into the Council stormwater system.
Stormwater Calculations	Relevant calculations should be provided with Engineering Siteworks Plans. Calculations may include, but are not limited to: - Stormwater detention, retention or infiltration calculations - Stormwater quality improvement calculations - Roof gutter and downpipe calculations - Pipe, culvert and open channel flow calculations - Hydraulic grade line calculations - Road pavement calculations
	Minimum runoff coefficients should be adopted as shown below, unless suitable justification can be provided by an Engineer which confirms why lower coefficients would be considered acceptable: i Residential allotments: 75% impervious (paved) / 25% pervious (grassed). ii Industrial allotments: 90% impervious (paved) / 10% pervious (grassed). iii Road reserves: 80% impervious (paved) / 20% pervious (grassed).
	Stormwater calculations should adopt rainfall intensities obtained from the Bureau of Meteorology (BOM) website for the relevant region.
	Stormwater calculations should include a catchment plan and details of all calculation inputs used (e.g. runoff coefficients, time of concentration and site areas) along with a summary of calculation results in a format which is clear, concise and easy to interpret.
	Calculations should be provided to confirm the volume of any surface retention, detention or infiltration storages proposed on Engineering Siteworks Plans (e.g. underground tanks, basins, or surface ponding areas) is satisfactory to achieve the calculated retention, detention or infiltration storage volumes that are required.
	Calculations should be provided for surface detention, infiltration or pumped stormwater systems to confirm that there is sufficient underground storage volume within the proposed system to prevent nuisance ponding above the surface during minor storm events.
	Where stormwater calculations are completed using DRAINS software, a copy of the DRAINS .drn file should be submitted to Council. Alternatively, a report should be submitted to Council which includes all details of the proposed DRAINS model (i.e. layout and all program inputs and minor / major storm results).
	Where stormwater calculations are completed using MUSIC software, a copy of the MUSIC .sqz and .MRT files should be submitted to Council. Alternatively, a report should be submitted to Council which includes all details of the proposed MUSIC model (i.e. layout and all program inputs and results). Independent verification of the MUSIC model should also be completed and submitted to Council in the form of a report that is prepared using the MUSIC Auditor tool for South Australia: https://www.musicauditor.com.au/auditor
	Specifications should be provided for all stormwater quality treatment systems to confirm that the treatment flow rate (and bypass flow rate where applicable) of proposed systems is sufficient to effectively convey design flow rates through the proposed systems. Engineering Siteworks Plans should specify the precise manufacturer and model of proposed proprietary devices (where applicable) or include details and specifications for WSUD treatment systems.

TRAFFIC	
Driveway Obstructions	Street Trees: Every attempt should be made to retaining existing Council street trees. It should not be assumed that existing Council street trees can be removed. The suitability of removing existing Council street trees will be assessed using the criteria outlined in Council's tree management policy (https://www.cityofpae.sa.gov.au/council/corporate-documents/policies). It is strongly recommended that Applicants first contact Council to confirm their acceptance of removing existing Council street trees prior to finalising plans and lodging Development Applications. Should Council not support the removal of existing street trees, amended access details will be required. To discuss the potential removal of existing Council street trees, please contact Council's Parks and Gardens team on 8405 6600.
	Stormwater Pits: Every attempt should be made to not impact existing Council stormwater pits. It should not be assumed that existing Council stormwater pits can be altered. It is strongly recommended that Applicants first contact Council to confirm their acceptance of Council stormwater pit alterations prior to finalising plans and lodging Development Applications. Should Council not support alterations to existing stormwater pits, amended access details will be required. To discuss the potential alteration to Council stormwater pits, please contact Council's City Assets team on 8405 6600. Any alterations proposed to Council stormwater pits will need to be designed prior to Planning Consent, and in strict accordance with Council requirements.
	Council Street Lights: Prior to Planning Consent being granted, Applicants must obtain approval from Council's City Assets Department for any proposed relocations or removals to existing street light or pole obstructing the proposed access points. Any alterations proposed to Council street lighting will need to be designed to a PR5 lighting standard prior to Planning Consent, and in strict accordance with Council requirements.
	Bus Stops: Prior to Planning Consent being granted, Applicants should provide written confirmation from the Department of Infrastructure and Transport (DIT) Public Transport Services Division that they support any proposed relocations or alterations to existing bus stops that are affected by the proposed access points. Where bus stops are proposed to be relocated, Applicants must consult with all affected Land Owner's immediately adjacent the proposed bus stop location and provide written confirmation to Council that affected Land Owner's acceptance the proposed new bus stop location.
	Telecommunication Pits: Prior to Planning Consent being granted, Applicants should provide written confirmation from relevant service provider(s) that existing telecommunication pits that obstruct the proposed access points can be made trafficable or relocated.
	SAPN Stobie Poles: Prior to Planning Consent being granted, Applicants should provide written confirmation that SA Power Networks (SAPN) that they support any proposed removals or relocations of existing stobie poles obstructing the proposed access points.
	Other: Please contact Council's City Assets team on 8405 6600 to discuss.
Crossovers	Residential crossovers should be indicated on plans to scale and comply with the minimum dimensions outlined on Council standard detail SK1010. Alternatively, the Applicant can undertake a vehicle turning path assessment using the templates provided in AS/NZS 2890.1:2004, Austroads, or recognised computer design package to confirm that a B99 passenger vehicle can enter and exit the land when all on-street parking spaces are full, and on-street vehicles are parked at the edge of crossovers where on-street parking is possible. Reference to Council's standard details should be included on Engineering Siteworks Plans.
	Commercial crossovers should be indicated on plans to scale and comply with the minimum dimensions outlined in AS 2890.2:2018 section 3.4, figures 3.1 & 3.2. Alternatively, the Applicant can undertake a vehicle turning path assessment using the templates provided in AS 2890.2:2018, Austroads, or use recognised computer design package to confirm that the largest vehicle to access the site can enter and exit the land when all on-street parking spaces are full, and on-street vehicles are parked at the edge of crossovers where on-street parking is possible. Reference to Council's standard details should be included on Engineering Siteworks Plans.

	Crossovers should be designed ensuring that minimum site distances are achieved for vehicles entering a roadway in accordance with AS/NZS 2890.1:2004 section 3.2.4 (residential developments), or AS 2890.2:2018 section 3.4.5 (commercial developments).
	Crossovers should be designed ensuring that vehicles can exit the land without entering an opposing lane of traffic, consistent with the requirements of AS 2890.2:2018 section 3.4.1 (b).
	Crossovers should be designed ensuring that vehicles can enter the site from entirely within the kerbside lane on multi-lane roads, consistent with the requirements of AS 2890.2:2018 section 3.4.1 (c).
	Crossovers should be designed having consideration for any existing stormwater outlets. Details should be provided for any necessary stormwater outlet alterations.
	Crossovers should be paired to maximise on-street car parking spaces, manoeuvring area and sight distances.
	Crossovers should not be proposed within 6.0 metres of an intersection consistent with the requirements of the Planning and Design Code, and AS/NZS 2890.1:2004 section 3.2.3.
	Crossovers should not be proposed adjacent an existing speed hump, traffic control device, or within the marked lines or infrastructure dedicating a pedestrian crossing.
	Crossovers should be located 0.5 metres (minimum) or 1.0m (desirable) away from any street furniture, street pole, infrastructure services pit, or other stormwater or utility infrastructure.
	Crossovers should be located 2.0 metres (minimum) away from the base of existing Council street trees.
	Crossovers should be located as far as possible from nearby intersections to minimise conflict for road users.
Driveways	Driveways should be designed in accordance with the Planning & Design Code (https://code.plan.sa.gov.au/)
	Driveways providing access to more than one dwelling, or a dwelling on a battle-axe site, should be designed to allow a B85 passenger vehicle to enter and exit the garages or parking spaces in no more than a three-point turn manoeuvre.
	Driveways providing access to all non-residential developments should be designed to allow the largest anticipated vehicle to access the site to enter and exit the site in no more than a three-point turn manoeuvre.
	Driveways providing access to all non-residential developments, or residential developments with 3 or more dwellings, should be designed to allow simultaneous two way entry and exit from the roadway.
	The minimum width of driveways providing access to commercial facilities should comply with the Planning & Design Code and AS 2890.2:2018 table 3.1.
	The minimum width of driveways providing access to off-street car parking areas for passenger vehicles should comply with the Planning & Design Code and AS/NZS 2890.1:2004 section 3.2 and section 2.5.
	The design of long driveways should provide passing opportunities every 30 metres consistent with the requirements of AS/NZS 2890.1:2004 section 3.2.2.
	The design of long driveways should facilitate emergency service vehicle access.
Gradients	The maximum grade of driveways shall comply with AS/NZS 2890.1:2004 section 2.5.3 (passenger vehicles) or AS 2890.2:2018 section 3.3.3 (commercial vehicles). Vertical clearance diagrams should be provided, and appropriate design level information included on plans where driveway grades exceed 12.5% (1 in 8) to demonstrate that appropriate transitions have been provided to prevent vehicles bottoming or scraping.

	The maximum grade of carparking areas should comply with AS/NZS2890.1:2004 section 2.4.6.
	The maximum grade of queuing areas should comply with AS/NZS 2890.1:2004 section 3.3.c (passenger vehicles) and AS 2890.2:2018 section 3.4.4 (commercial vehicles).
	The maximum grade of areas providing access for people with a disability shall be designed in accordance with AS 1428.1:2009.
	Overhead clearances associated with vehicular access driveways and car parking areas should comply with AS/NZS 2890.1:2004 section 5.3.
Vehicle Swept Path Assessments	Vehicle swept path assessments and diagrams should be prepared in accordance with the following: a) Be undertaken using only the templates provided in AS/NZS 2890.1:2004, AS 2890.2:2002, Austroads, or recognised computer design package. b) Provide confirmation of the largest vehicle proposed to access the site. Vehicle details should be provided with reference to AS/NZS 2890.1:2004 appendix B (passenger vehicles) or AS2890.2:2018 figure 2.1 (commercial vehicles). Acceptance of the proposed design vehicle will be subject to the approval of Council's City Assets Department. c) Be designed for a minimum B99 vehicle (unless otherwise approved or directed by Council). d) Achieve a minimum a 0.3 metre clearance from all obstructions, and where required, additional clearances required from trees, stormwater pits, stobie poles etc. e) Be drawn to scale, identifying the precise layout of proposed and existing driveway crossovers, kerbing, line marking, road width, parking controls and obstructions. f) Demonstrate that driveways, crossovers and parking areas provide safe and convenient vehicle access (i.e. maximum 3-point turns off-street and from laneways, or 1-point turn to and from a Public Road). g) Demonstrate along minor collector or arterial roads with >3000 vpd, battle-axe or industrial allotments that vehicles can enter and exit the land in a forward direction. h) Demonstrate that consideration has been given to vehicles being parked on-street at the edge of crossovers and on both sides of the road (where possible) and has assumed that all on-street and off-street parking spaces are full. It is important to note that the edge of driveway crossovers also act as on-street parking controls. i) Demonstrate that an attempt has been made to pair and/or locate crossovers such that on-street parking spaces are maximised. j) Ensure that designs have consideration for all current Australian Standards and Road Rules.
	Physical treatments should be implemented where possible to restrict access into developments by vehicles larger than those designed to access the development in vehicle swept path assessments.
Parking (General)	Visitor car parking spaces should be designed to: a) serve users efficiently and safely (i.e. be located no further than 50 metres from a proposed development). b) be clearly delineated as visitor spaces and not specifically associated with any particular dwelling. c) ensure they are not sited behind locked garages and are always accessible to visitors.
Off-Street Parking	The design of off-street parking and vehicle manoeuvring areas should comply with the Planning & Design Code, AS/NZS 2890.1:2004 (passenger vehicle access, AS 2890.2:2018 (commercial vehicle access) and AS 2890.6:2009.
	The proposed number of off-street car parking spaces should comply with "Transport, Access and Parking" tables under the General Development Policies within the Planning & Design Code.
	Residential car parking spaces enclosed by fencing, walls or other structures have the following internal dimensions (separate from any waste storage area): Single width car parking spaces: a) a minimum length of 5.4 metre per space b) a minimum width of 3.0 metre

	c) a minimum garage door width of 2.4 metre Double width car parking spaces (side by side): a) a minimum length of 5.4 metre b) a minimum width of 5.4 metre c) minimum garage door width of 2.4 metre per space. Uncovered car parking spaces have: a) a minimum length of 5.4 metre b) a minimum width of 2.4 metre m c) a minimum width between the centre line of the space and any fence, wall or other obstruction of 1.5 metre.
On-street Parking	The design of on-street parking and vehicle manoeuvring areas should comply with the Planning & Design Code, AS/NZS 2890.5:2020 and any applicable Austroads guidelines.
	Where on-street parking is available abutting a developments street frontage, on-street parking should be retained in accordance with the following requirements: a) minimum 0.33 on-street spaces per dwelling on the site (rounded up to the nearest whole number) b) minimum car park length of 5.4 metre where a vehicle can enter or exit a space directly c) minimum carpark length of 6.0 metre for an intermediate space located between two other parking spaces or to an end obstruction where the parking is indented.
	The design of on-street car parking spaces should have consideration for existing parking controls and current Australian road rules. Any alterations required to existing parking controls shall be approved and completed by Council.
	For developments proposing more than three (3) crossovers, a detailed on-street car parking and crossover plan should be submitted to Council in accordance with the following: a) Indicates the exact location and layout of existing and proposed crossovers to scale. b) Confirms that driveway crossover dimensions comply with Council standard detail SK1010 (available on Council website) or where dimensions do not comply, provide swept path diagrams to confirm that the layout of driveway crossovers provide safe and convenient vehicle access. c) Confirms that the required number of on-street parking spaces have been provided in accordance with the Planning & Design Code requirements. d) Identifies any driveway obstructions that need to be modified if minimum clearances to obstruction have not been achieved. e) Demonstrates that an attempt has been made to pair and/or locate crossovers so that the available number of on-street parking spaces has been maximised. On-street car parking spaces should measure a minimum 5.4 metre for spaces which are unobstructed at one end or 6.0 metre where obstructed at both ends, consistent with the requirements of AS 2890.5:2020.
Bicycle Facilities	Bicycle parking facilities should be provided in accordance with the Planning & Design Code, AS 2890.3:2015, and applicable Austroads guidelines.
Footpaths	Footpath and pedestrian linkages should be provided in accordance with Austroads "Guide to Road Design Part 6A: Pedestrian and Cyclist Paths", 2009.
Access for People with a Disability	Car parking spaces for people with a disability should be located conveniently next to major building entrances and be provided in accordance with the National Construction Code (NCC) Volume One, Table D3.5., and AS 2890.6:2009.
	Access between buildings and parking areas should be designed in accordance with AS 1428 "Design for access and mobility", and the provisions contained within "Guidelines for disability access in the pedestrian environment", 2009.
Traffic Control Devices	Appropriate directional, informative, regulatory, and warnings signage, and linemarking should be provided in accordance with (in order of priority); DPTI "Code of Technical Requirements for Traffic Control Devices", DPTI "Pavement marking manual", AS/NZS 2890 and AS 1742.

	Wheel stops should be provided to carparking spaces in accordance with AS/NZS 2890.1:2004 section 2.4.5.4.
	Speed humps should be provided along car parking aisles and roadways that exceeds 100 metres in length, in accordance with AS/NZS 2890.1:2004 section 4.9.
	Bollards should be provided outside all doorways that open directly into vehicle manoeuvring or car parking areas.
Service Vehicles	All loading, unloading, and manoeuvring of services vehicles should occur entirely on the subject land.
	Industrial, commercial and service vehicle movements, loading areas and designated parking spaces are separated from passenger vehicle car parking areas to ensure efficient and safe movement and minimise potential conflict.
	The design and layout of service vehicle loading areas should be designed in accordance with AS 2890.2:2018 section 4.2 and 4.3.
	Vehicle swept path diagrams should be provided to confirm the manoeuvring area for all non-passenger (commercial) vehicles.
Waste Management	Waste storage and collection areas should be demonstrated in accordance with the Planning & Design Code, and South Australian Better Practice Guide "Waste Management for Residential and Mixed-Use Developments". Waste collection vehicle access must be safe and convenient, and comply with recognised traffic, manoeuvring and access standards to the satisfaction of Council.

Table one was developed having regards to the following documents which can be referred to for further information:

- Planning, Development and Infrastructure (General) Regulations 2017
  https://www.legislation.sa.gov.au/
- Planning & Design Code (PDI Code)
  https://code.plan.sa.gov.au/
- SA Property and Planning Atlas (SAPPA)
  https://sappa.plan.sa.gov.au/
- Water Connect (Flood Awareness Maps)
  https://www.waterconnect.sa.gov.au/Systems/FAM/SitePages/Home.aspx
- Australian (AS), New Zealand (NZS) and European Standards (EN):
  https://www.saiglobal.com/online/

  - AS 1428 - Design for Access and Mobility.
  - AS 1742 - Manual of Uniform Traffic Control Devices.
  - AS/NZS 2890 - Parking Facilities
  - AS/NZS 3500 - Plumbing and Drainage.
  - AS 4970 - Protection of Trees on Development Sites
  - EN 858 - Separator Systems for Light Liquids (e.g. Oil and Petrol)

- National Construction Code (NCC) - Australia
  https://ncc.abcb.gov.au/
- Austroads Road Design Guidelines
  https://austroads.com.au/publications/
- Australian Rainfall and Runoff (1987 & 2019)
  http://arr.ga.gov.au/arr-guideline

- Storm Drainage Design in Small Urban Catchments: A Handbook for Australian Practice (ARRB special report 34), 1986.
- Queensland Urban Drainage Manual (QUDM), 2013. https://www.ipweaq.com/qudm
- Water Sensitive SA https://www.watersensitivesa.com/
- Water Sensitive Urban Design – Creating more liveable and water sensitive cities in South Australia http://www.environment.sa.gov.au/files/516f3ac2-16ff-43fd-b078-a26900b99a81/water-sensitive-urban-design-policy-gen.pdf.
- Technical manual for Water Sensitive Urban Design Technical Manual - Greater Adelaide Region https://www.watersensitivesa.com/resources/guidelines/technical-manual-for-water-sensitive-urban-design-in-greater-adelaide/
- Adoption guidelines for stormwater biofiltration systems https://watersensitivecities.org.au/content/stormwater-biofilter-design/
- WSUD Engineering Procedures: Stormwater https://www.publish.csiro.au/book/4974/
- WSUD: “Source Control” of Stormwater - A Hand Guide for Australian Practice, 2004.
- MUSIC (Model for Urban Stormwater Improvement Conceptualisation) https://ewater.org.au/products/music/
- South Australian MUSIC Guidelines https://www.watersensitivesa.com/wp-content/uploads/SA-MUSIC-Guidelines-15Feb21-FINAL-DRAFT-for-website-22Mar21.pdf
- MUSIC model auditor tool https://www.musicauditor.com.au/auditor
- Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP) Process https://www.stormwater.asn.au/sqidep/about-sqidep
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC guidelines) https://www.waterquality.gov.au/anz-guidelines
- EPA Water Quality Policy 2015 https://www.legislation.sa.gov.au/
- EPA Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry, 1999.
- Bureau of Meteorology (BOM) rainfall data (1987 & 2016) http://www.bom.gov.au/water/designRainfalls/ifd/
- South Australian Integrated Land Information System (SAILIS) https://sailis.lssa.com.au/home/auth/login
- South Australian Better Practice Guide “Waste Management for Residential and Mixed-Use Developments”

The information contained herein is intended as a guide only. To discuss any of the information in this guide, or the preparation of an Engineering Siteworks Plans, please contact Council's City Assets department on 8405 6600.