



Stormwater Management Report

826 Victoria Road, Ryde
Issue A

Prepared For The Trustees of the Roman
Catholic Church For the Diocese of Saint
Maron Sydney

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2 Introduction

2.1 Brief

S&G Consultants Pty Ltd (SGC) have been engaged by The Trustees of the Roman Catholic Church for the Diocese of Saint Maron Sydney (the Client) to prepare a stormwater management report in support of the proposed childcare centre development at 826 Victoria Road, Ryde.

Altis Architecture have prepared the architectural documents showing the proposed site layout.

The following tasks were carried out:-

- Supplied documents and previous studies were reviewed;
- A stormwater drainage design involving the setting up of hydrology & water quality models was carried out;
- Conceptual design drawings have been prepared; and
- This report has been compiled.

2.2 Objectives

The purpose of this report is to outline the stormwater strategy for the proposed development and respond to the requirements of the guidelines by the relevant authorities.

The report addresses the following matters:-

- On-site stormwater management including:
- Authorities requirements;
- Internal drainage and discharge;
- On-site detention;
- Water quality;
- Soil and water management; and
- Maintenance Strategy.

2.3 Limitations

This report is intended solely for The Trustees of the Roman Catholic Church for the Diocese of Saint Maron Sydney as the Client of SGC and no liability will be accepted for use of the information contained in this report by other parties than this client.

This report is limited to visual site observations and to the information including the referenced documents made available at the time when this report was written.



2.4 Reference Documents

The following documents are referenced in this report:

1. WorkCover Authority of NSW Occupational Health & Safety Act 1983 and Confined Spaces Regulation;
2. Occupational Health & Safety Act 2000;
3. Occupational Health & Safety Regulation 2001; and
4. Workers Compensation Act 1987.

3 Natural & Built Environment

3.1 Existing Site

The site is made of Lots 3 & 4 in DP 219163 and Lot 2 in DP 205390 along Victoria Road. The site is surrounded by adjoining properties.

The site itself can be best described as a large irregular shaped mid-block allotment located on the southern side of Victoria Road and northern side of Yerong Street, between Belmore Street and Shepherd Street.

The site contains an existing heritage listed monastery that will remain on the site with the area of the existing tennis court and hardstand area being used to develop part of the site for the childcare facility. The site slopes from Victoria Road down to the rear with existing levels varying between RL39.53 and RL 34.61. Refer to survey plan included in Appendix 1 for more details.

Figure 3.1 shows the location of the site.



Figure 3.1 Locality Plan

3.2 Proposed Development

The proposed development involves the demolition of the existing development and the re-development of the site into a childcare centre as follows:-

- Lower ground level floor as car parking, classrooms and outdoor play area;
- Upper ground floor level;
- Roof plan;

Reference should be made to the architectural drawings by Altis Architecture.

4 On-Site Stormwater Management

4.1 General

The management of the stormwater on site covers several aspects of the design. It is divided into the following sections:

- Internal drainage design including provision of on-site detention and discharge into Council's infrastructure;
- Roof water collection; and
- Water quality control.

These components have been designed to address the requirements of Holroyd City Council.

4.2 Authorities

The Council requirements for the Victoria Road precinct are included in Part 8.2 of DCP 2014. Section 1.4.2 details these requirements as follows:-

- a) The OSD system should be located prior to the point of discharge, generally in the lowest point of the site and located in a common area to facilitate access. This can possibly include a car park, open space area or even roof top areas where no underground storage is possible.
- b) As much as possible of the site area is to drain through to the OSD system(s). A portion of the impervious area may discharge directly to Council's system if it cannot be drained to the storage facility, provided the PSD is reduced and SRR increased to compensate for the smaller catchment.
- c) The maximum desirable extent of impervious surfaces bypassing the OSD system is 25% of the total impervious site area.
- d) Where it is proposed for the site to discharge to the kerb and gutter, the PSD shall be restricted to 30L/s.
- e) A positive covenant must be executed and registered against the title of the lots containing OSD systems to require maintenance of the system. This positive covenant must be on any linen plans for subdivision of the development. If no subdivision is proposed, the covenant shall be prepared prior to finalisation of the development.

Sections 7 of Part 8.2 (DCP 2014) outline Council's requirements in relation to Soil And Water Management, These requirements are summarised below:-

- Minimise Cut & Fill;
- Maintain access to drainage easements;
- Do not erect walls and/or filling over easements and natural drainage depressions;
- Minimise disturbance caused by erosion and sedimentation;

- Minimise the potential for sediment and silt-laden waters coming off the site or contributing to watercourses;
- Progressively stabilise and/or revegetate all disturbed areas as soon as practicable;
- Erect a sediment fence(s) along or adjacent to the downslope boundary(s) of the site before work begins;
- Divert upslope water around the work site and stabilise channels;
- Protect all stormwater entry points with approved filtration device e.g. – sand bags, geotextile fabric installed under the stormwater grate, hay bales wrapped in geotextile fabric;
- Provide an all weather site access pathway for vehicles;
- Manage flooding and Minimise urban run-off impacts on watercourses and downstream properties;
- Incorporate effective measures to improve the water quality of stormwater leaving the site;
- Reduce mains water consumption by capturing stormwater;
- On-site detention systems shall be provided for all new developments;

4.3 Internal Drainage

4.3.1 Roof Drainage

The roof drainage system is a conventional gutter and downpipe system designed to cater for 20-year ARI storm event. The system is a series of outlets and downpipes to be coordinated with the architectural layout in future detailed design stages.

The roof drainage from the towers drain into on site detention tank prior to overflowing into the stormwater system.

Where eaves gutters are proposed, the roof drainage will be designed to cater for 100-year ARI storm event.

4.3.2 Surface Drainage

The internal drainage system will be generally designed in accordance with Council's guidelines.

The internal drainage system would generally be designed to cater for 20-year ARI storm event where overland flow path can be provided for storms in excess of the design storm. Otherwise, the system will be designed to cater for the 100-year ARI storm event.

The proposed impervious areas cover approximately the whole site except the frontage area on Victoria Road, 2m wide proposed setback around the outdoor play area on the lower ground floor and the 1.5m proposed setback to on grade garage.

The runoff from the buildings and the open areas will be directed to the On-Site Detention (OSD) systems and the water quality treatment measures prior to discharging into the receiving Stormwater infrastructure and/or the existing easement.

The subsoil discharge and any runoff from the basement car park ramps will be collected in pits and pipes inside the lower ground floor prior to being grading into the OSD systems.

4.4 On-Site Detention

On-Site Stormwater Detention is a Council requirement to reduce the runoff from the site and its impact on public infrastructure and main waterways.

4.4.1 Sizing

The design of the OSD is controlled by Council's "On-Site Stormwater Detention Policy" (May 2015),

4.5 Water Quality

4.5.1 Objectives

The quality of the discharge from the site is controlled by Council's requirements in water Sensitive Urban Design Guidelines (adopted 2015).

The following pollutants and reduction targets are required

Table 4.1 Pollutants Reduction Targets

Pollutant	Description	Reduction in Load
GPTs	Gross Pollutant Traps	90%
TSS	Total Suspended Solids	85%
TP	Total Phosphorus	65%
TN	Total Nitrogen	45%

4.5.2 Approach

A treatment train approach is proposed to achieve the water quality targets. The approach is as follows:-

- Roof water runoff to be collected in the gross pollutants devices;
- Car parking ramp runoff to be collected in GSIP with Oceangard devices to collect litter and fine particles prior to discharging into the receiving system; and
- Surface water runoff passes through the storm filter champer to collect litter and fine particles prior to discharging into the receiving system.



5 Public Infrastructure

As per the survey plan included in Appendix 1 the subject site is falling to the rear and as per the conceptual Stormwater plans provided in Appendix 4, clarify that the existing stormwater drainage infrastructure towards Yerong Street Through Existing surface inlet pits inside the subject site and connected to the existing 1.10m wide easement with 300mm uPVC drainage pipe all the way to boundary 600x600mm pit 2 and then connected to Existing kerb inlet pit on Yerong Street Through 300mm uPVC pipe.

This proposal is subject to Council's approval and the detailed design in the future will be made in liaison and agreement with Council's Development Assessment Engineer.

6 Soil & Water Management

6.1 Construction Stage

A Soil and Water Management Plan (SWMP) has been prepared for the Masterplan DA submission. The implementation of the SWMP shall be in accordance with the guidelines of the NSW Department of Housing publication “Managing Urban Stormwater: Soils & Construction” (The Blue Book) and Sections 6.3 & 6.4 of Part A of the DCP.

The SWMP outlines the erosion and sediment control processes for the duration of the project. Emphasis should be placed firstly on minimising erosion then on preventing movement of sediment.

The clearing of the site leaves the land surface susceptible to increased erosion. The eroded particles can be transported off site and into natural waterways causing siltation, loss of hydraulic capacity and environmental stress. The SWMP aims to minimise the extent of erosion of the site, restrict movement of soil particles and mitigate the impacts of the works on the natural environment.

The SWMP provides for the:-

- Protection of disturbed ground through devices such as temporary vegetation, diversion banks and sediment fences;
- Early installation and progressive implementation of erosion controls;
- Early construction of permanent drainage structures, culverts, sediment basins traps and catch drains;
- Progressive revegetation of disturbed areas;
- Use of geotextile to stabilise disturbed surfaces during construction of culverts;
- Control of runoff from embankments through shaping of fill and construction of temporary windrows and batter drains;
- Implementation of erosion control measures at associated sites, including access tracks, roads, office/compound site and extraction sites;
- Progressive and continual implementation of temporary sediment controls;
- Diversion of runoff from disturbed areas to sediment control structures;
- Management of turbid water in basins after rain through flocculation or extraction and use for construction or dust suppression;
- Construction of temporary sediment traps at strategic locations;
- Routine maintenance of sediment control devices to ensure that they remain fully functional at all times;
- Removal of sediment from basins and other structures and placement in secure locations where further movement will not occur;



- Minimisation of transportation of mud and soil by vehicles onto Erskine Drive, through the use of shakers and wash-bays;
- Provision for regular inspections of the control measures by a trained personnel to review and update control measures. Inspections should be conducted weekly and immediately after every significant storm event;
- Dust control through progressive revegetation and application of water;
- A procedure to ensure that water is not released from basins until achieving the appropriate quality standard; and
- Meeting EPA requirements & the guidelines of the Department of Housing publication "Managing Urban Stormwater: Soils & Construction" (Blue Book).

7 Maintenance Strategy

The maintenance strategy relating to the internal drainage system involves inspecting and maintaining the following structures:-

- On-Site Detention systems including the orifice plates and the mesh screens;
- The Ocean guard trap; and
- Psorb Storm-filters on the Storm-filter Chamber.

The corporate body managing the development, or their contractors have the obligation to inspect and maintain these structures.

The following table indicates the minimum requirements for the inspection of the above structures and the maintenance procedures to be adopted.

Table 7.1 Maintenance Strategy Requirements

Item	Inspection Frequency	Inspection Check Items	Maintenance Procedures
OSD Tanks	6m	Clogging and blockage of mesh screen. Sediment depth in trap.	Leaves and debris to be removed from screen. Trap flood to be cleaned out
Psorb Storm-filter	6m	Sediment and oil depth in Chamber.	Clean out device as per manufacturer's specifications.
Ocean guard Trap	3m ⁽¹⁾	Sediment and oil depth in pits.	Clean out device as per manufacturer's specifications.

Inspection Frequency Key:-

6m six monthly

3m three monthly

A1 Appendix 1

Survey Plans

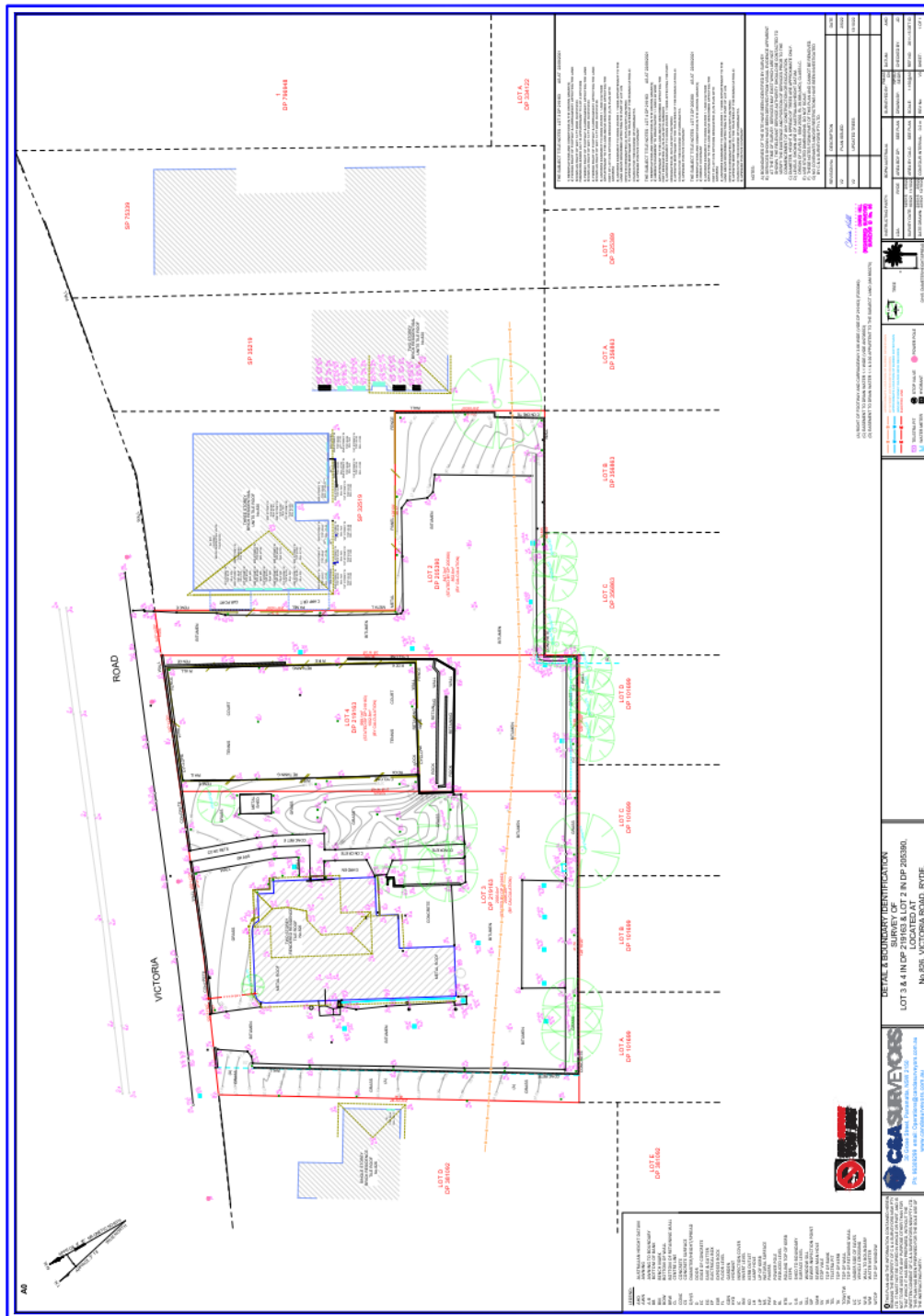


Figure A 1.1 Survey Plan

Architectural plans

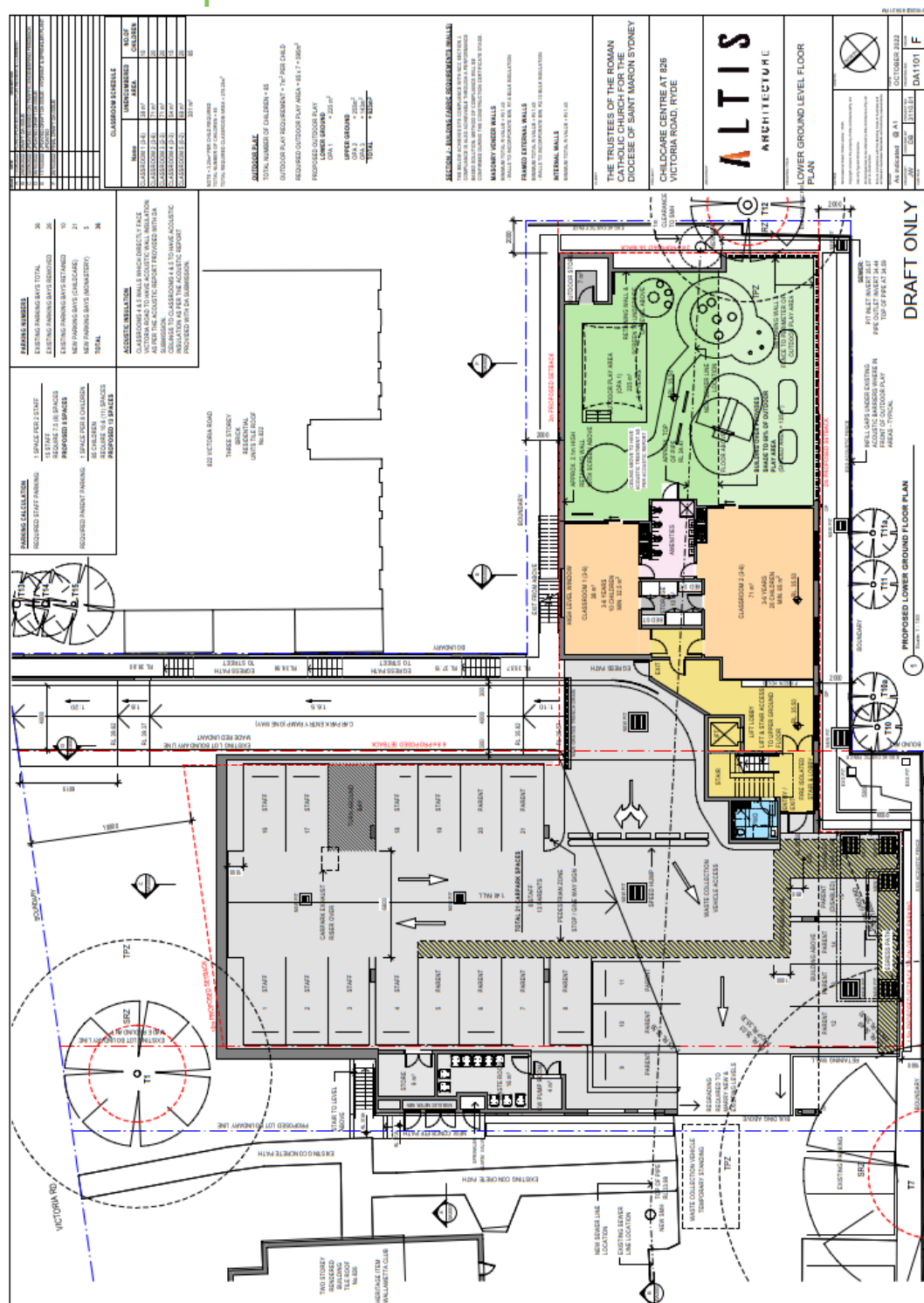


Figure A 2.2 Lower Ground Floor Plan

Architectural plans

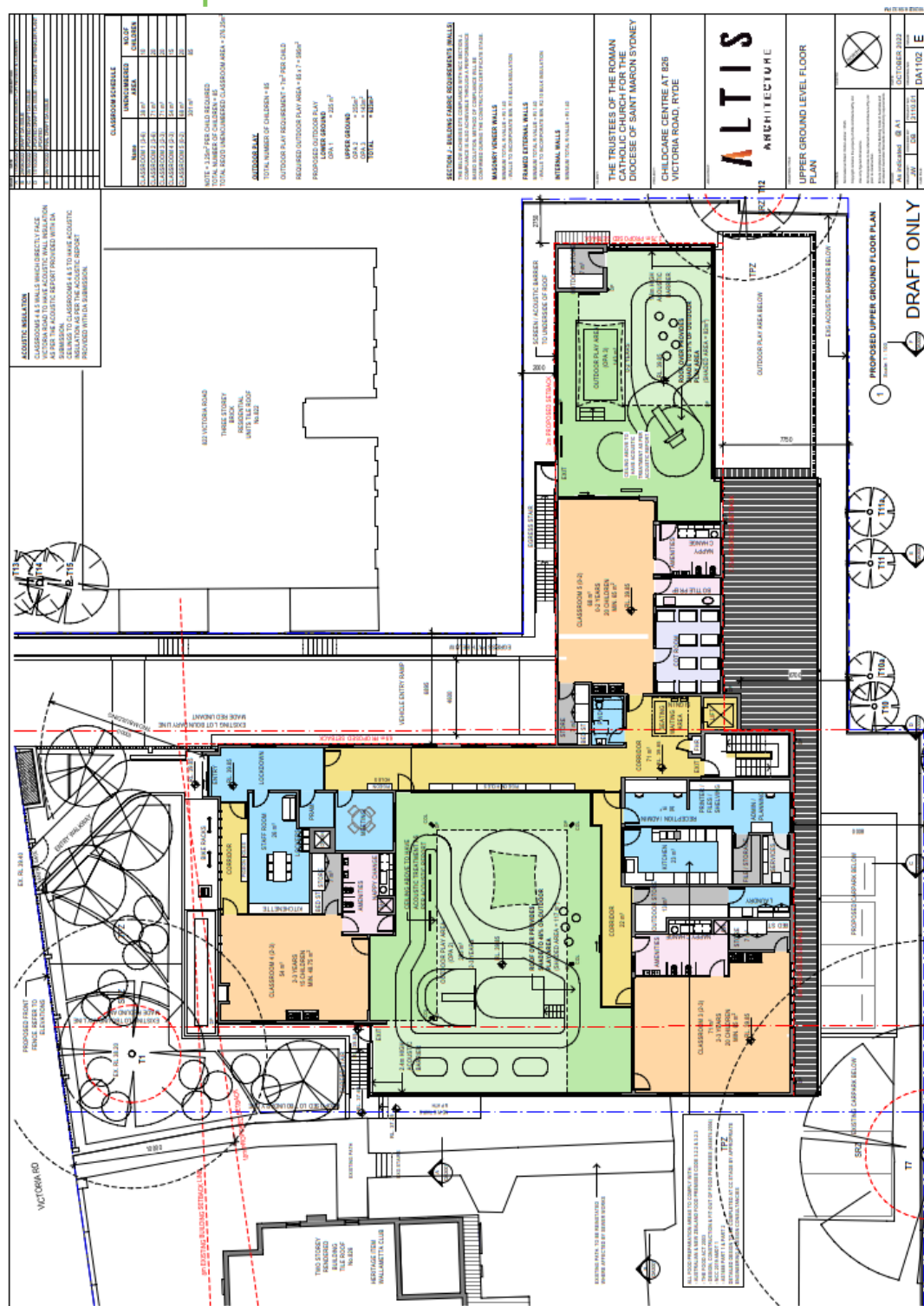


Figure A 2.3 Upper Ground Floor Plan



A3 Appendix 3

Stormwater Concept Plans

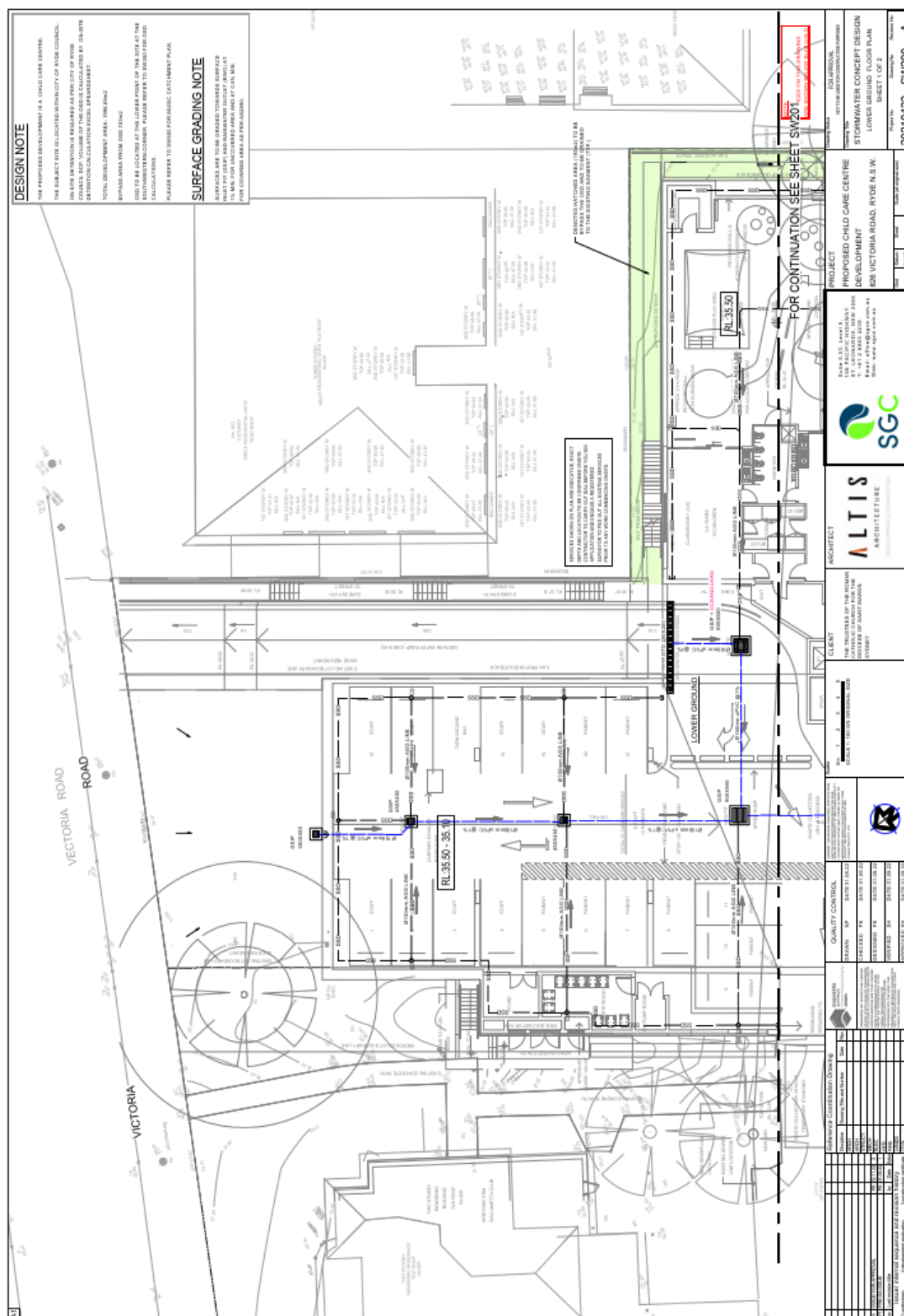


Figure A 3.1 SW Concept Lower Ground Floor Plan 1 of 2

Stormwater Concept Plans

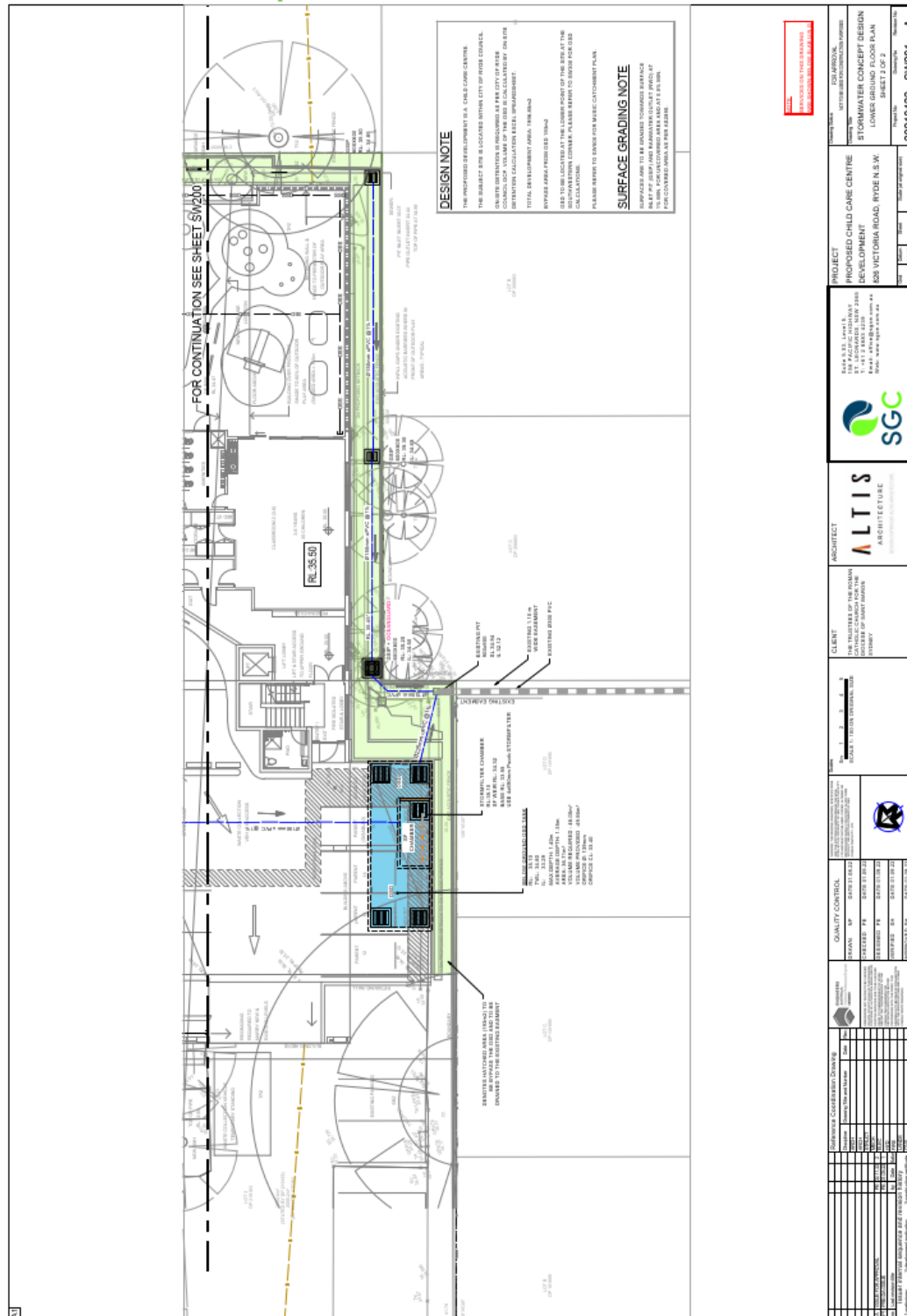


Figure A 3.2 SW Concept Lower Ground Floor Plan 2 of 2

Stormwater Concept Drawings Done by others (Monastic Residence)

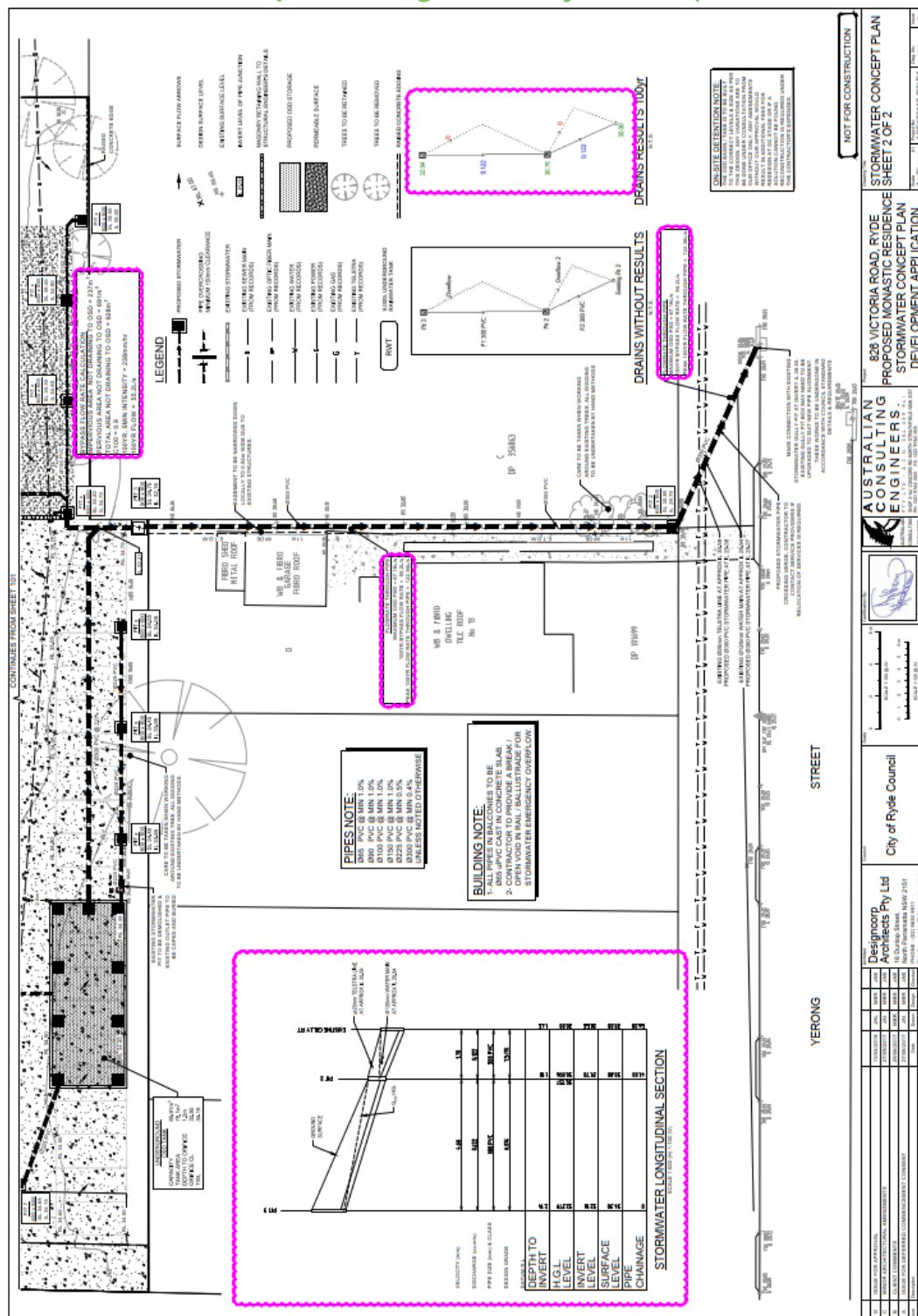


Figure A 4.2 Stormwater Concept Plan 2 of 2

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