Woolacotts.
CONSULTING ENGINEERS

Gledswood Hills Public School Stormwater Management Report

19 October 2017 | 16-238

Contents

Document control

Rev No	Date	Revision details	Approved	Verified	Prepared
A	10.8.2017	Approved Issue	CMW	KEC	CMW
B	17.8.2017	Drawings SW1-3 amended	CMW	KEC	CMW
C	10.10.2017	Plans updated to include additional parking	CMW	KEC	CMW
D	19.10.2017	Plans updated	CMW	KEC	CMW

1. Introduction

Gledswood Public School is a proposed new primary school, to be located on The Hermitage Way, Gledswood Hills. See Figure1 for the approximate location of the site. The school will be developed in stages and will eventually cater for 1,000 students in Kindergarten to Year 6.

The area in which it will be located is currently under development, with the construction of The Hermitage Way only completed in early 2017.

This report has been prepared to comment on stormwater management issues for the new school.

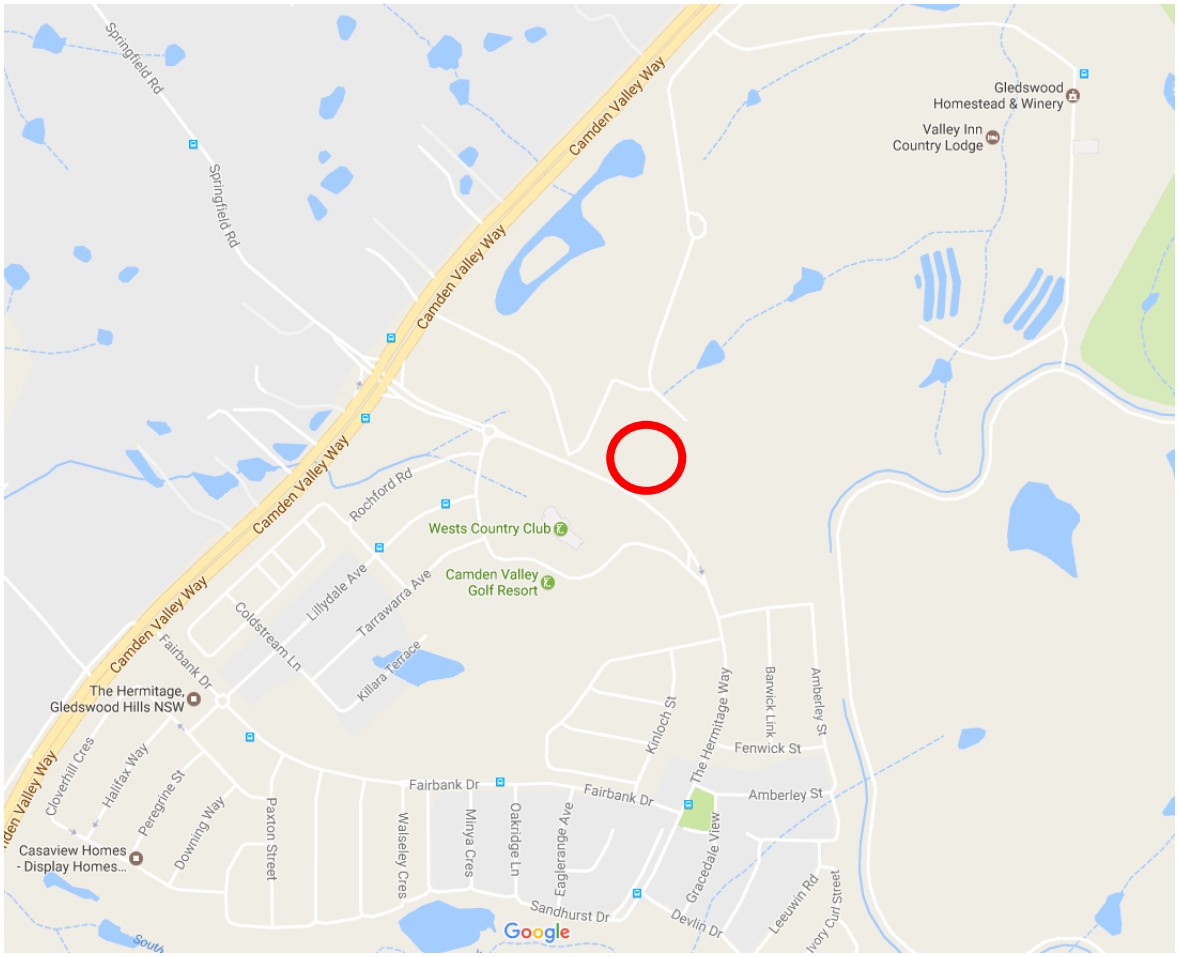


Figure 1 – Approximate Site Location

2. Existing site

The existing site is currently undeveloped. The Hermitage Way has recently been constructed along the south-western boundary of the site, and the roads to the east and west of the school site are yet to be constructed.

The site falls to the east. Currently there is no stormwater drainage system on site. As part of the development of the precinct, three stormwater pits will be constructed along the eastern boundary by the precinct developer. These pits and the downstream pipe network have been sized to convey the flow from the site and will connect to the precinct drainage system in new road MC06, to the east of the site. The designer has adopted that the site will be 40% impervious.

A trunk stormwater main will be located on the northern boundary. This will carry flow from the Entertainment Precinct, located to the west of the site. This connects to the street drainage system in new road MC06 and then to a precinct wide drainage system.

An existing precinct wide detention / water quality basin is located to the east of the site. The engineer responsible for the design of the precinct drainage system advised that the basin has been designed for the following requirements:

- To provide stormwater detention for storms up to a 1 in 100 year storm event
- To provide stormwater treatment for a 1 in 3 month storm event.

From design drawings for the catchment, the basin has been sized to cater for the entire catchment, including the school site. The design assumed that the school site is 40% impervious.

3. Proposed development

The works proposed for the site consist of new public school, which will eventually cater for 1,000 students from kindergarten to Year 6. As such, the works on the site will include”

- General learning areas
- A library
- A hall and COLA
- Administration areas
- Games courts
- Parking for 75 vehicles in two parking areas.
- Grass and landscaped areas

4. Stormwater management

Drainage

The site developer has provided three connection points to the main stormwater system for the site, located along new road MC06, located on the eastern side of the site. All drain to the detention basin for the development. The design engineer for the precinct system allowed for the site to be 40% impervious. (Refer to design catchment plan in Appendix A) As the impervious area of the school will not exceed 40%, the precinct stormwater drainage system has capacity to carry the stormwater flow from the site.

Within the site a network of pits and pipes will be provided to capture stormwater and drain to the connection points provided by the developer. Pipe systems throughout the site will be designed for a 1 in 20 year ARI storm event. Overland flow paths will be provided to cater for the 1 in 100 year storm event. For details of the proposed drainage system for the site, refer to Drawings SW1 and SW2 in Appendix A.

A precinct wide detention and water treatment basin is located to the east of the site. The basin has been designed as a detention basin for storms up to a 1 in 100 year ARI storm event and as a water quality basin for a 1 in 3 month ARI storm. The design of the basin includes the catchment area of the school. Therefore, no additional treatment measures or detention are proposed for the school site, as the precinct wide basin meets Council's requirements for detention and treatment.

The site drainage system and the precinct wide basin also comply with the requirements of *Guidelines for developments adjoining land managed by the Office of Environment and Heritage* and Council's relevant policies.

Erosion and sediment control

During construction, erosion and sediment control measures will be provided in accordance with the "Blue Book" (*Managing Urban Stormwater – Soils and Construction*) and *Guidelines for developments adjoining land managed by the Office of Environment and Heritage.* Measures will include silt fences on the low side of the site, sediment basins, silt traps at existing and new pits and construction exits for vehicles and will comply with guidelines detailed above. Refer to Drawing SW3 in Appendix B for a plan detailing the measures proposed.

5. Flood risk

The site is located near the top of a hill, well above nearby drainage channels. Council's flood map for the area does not identify the site as flood affected. While the map does note that the site is in an area subject to development and flood conditions may change, the location of the site is such that even with changes in the precinct, it will not become flood affected.

6. Integrated water management

The following measures will be provided on the site, to minimise water usage and to reduce energy consumption:

- A rainwater tank will collect runoff from roofs. The collected water will be used to flush toilets and to provide irrigation water for nearby landscaped areas.
- All tapware will be AAA rated, to minimise flows. As per Schools Standards, taps on basin will be timed, to minimise water loss from taps
- Typically, all basins will have cold water only, unless hot or tempered water is required under the Educational Facilities Standards and Guidelines (EFSG)
- All toilets will be dual flush.
- Within landscaped areas, the selected plants will have low water requirements.

7. Conclusion

Stormwater drainage from the site will connect to the precinct wide drainage system, as allowed in the design of the stormwater system for the precinct. This drains to a major stormwater basin, which has been designed by the engineer for the precinct to provide stormwater detention for a 1 in 100 AEP storm event and water quality improvement for a 1 in 3 month AEP event. This is in compliance with Council's requirements for the precinct and the requirements of *Guidelines for developments adjoining land managed by the Office of Environment and Heritage.*

The site is located close to the top of a hill and is not flood affected.

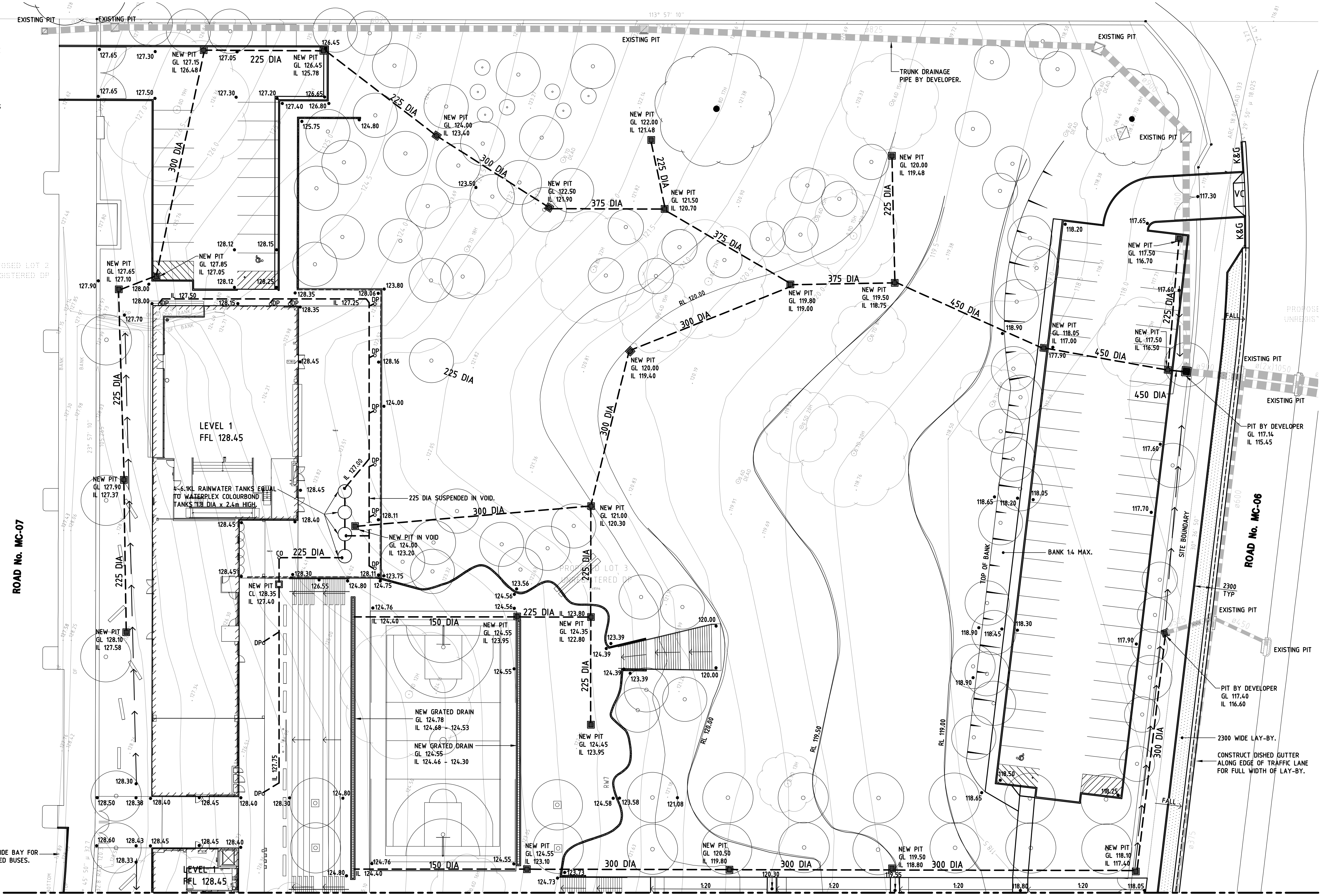
Erosion and sediment control measures will be provided in accordance with the "Blue Book" (*Managing Urban Stormwater – Soils and Construction*) and *Guidelines for developments adjoining land managed by the Office of Environment and Heritage*

Within the development, water saving measures will be provided. Water collected be the rainwater tanks will be used for toilet flushing and irrigation, all toilets will be dual flush and taps will be timed operation.

Appendix A
Drawings

LEGEND

Symbol	Description
- - - -	NEW STORMWATER PIPE
▀▀▀▀	EXISTING STORMWATER PIPE
→ →	OVERLAND FLOW PATH / FORMED SWALE
▣ ▣	NEW STORMWATER PITS
	EXISTING STORMWATER PITS
RWT	RAINWATER TANK
127.25 •	DESIGN SPOT LEVELS
○CO	CLEAR OUT
○DP	DOWNPIPE



FOR CONTINUATION REFER TO DRAWING SW2

REFERENCE DRAWINGS:
FOR STANDARD NOTES REFER TO DRG. No. S1.

No.	Date	Description	Ver.	Appr.
A	17.08.17	UPDATED LAYOUT		
B	06.10.17	LAYBACK, BANK & KERB & GUTTERS ADDED		

Architect
PERUMAL PEDAVOLI
LVL 2, 458-468 WATTLE STREET
ULTIMO, NSW, 2007

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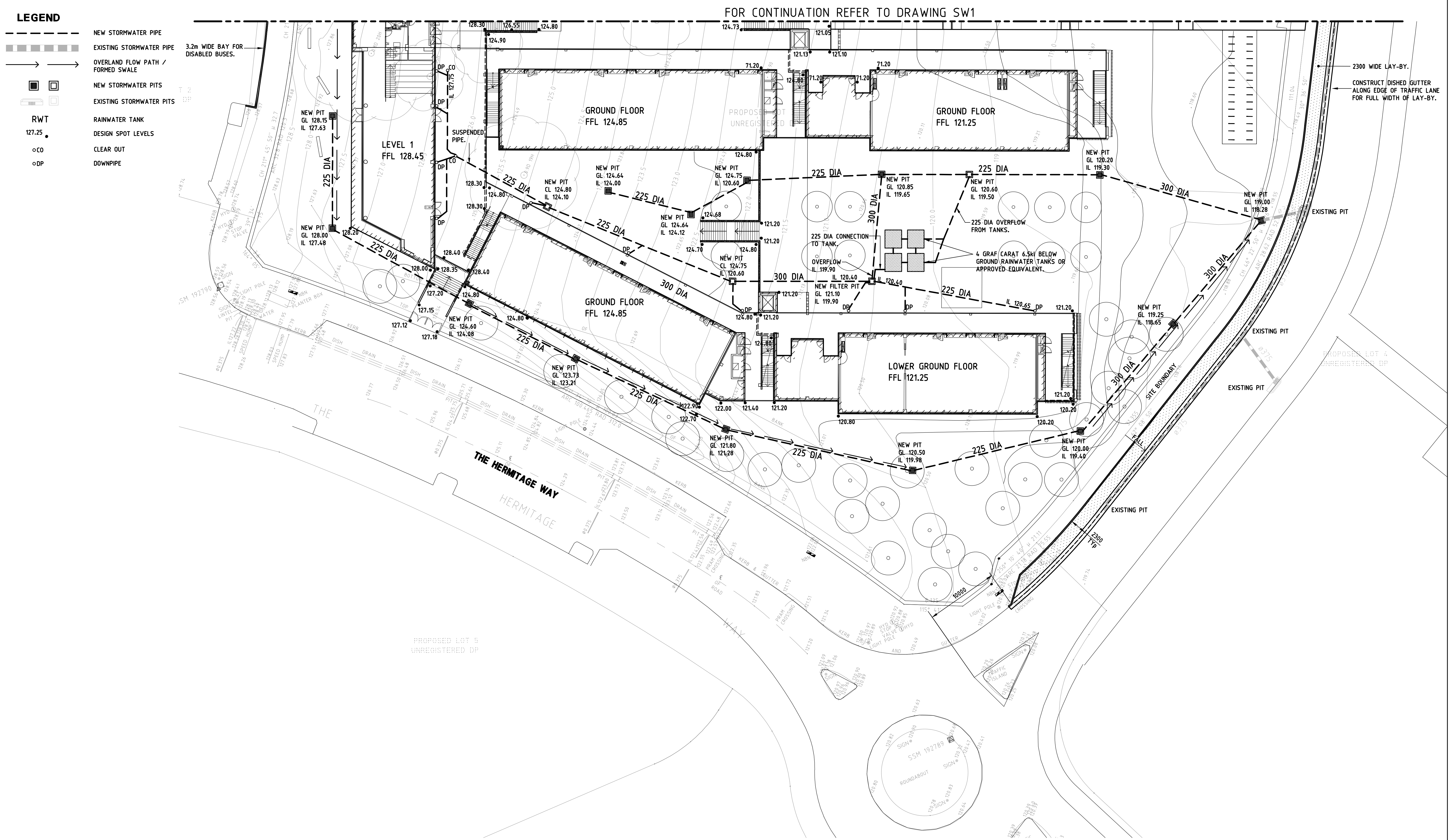
GLEDSWOOD HILLS
PUBLIC SCHOOL

STORMWATER MANAGEMENT PLAN - SHEET 1

Date	Approved	Verified	Prepared
JUNE 2017		J.L 09.08.17	J.K 09.08.17

Scale @ A1	Job number	Drawing number	Amendment
1:250	16-238	SW1	C



No.	Date	Description	Ver.	Appr.
A	17.08.17	UPDATED LAYOUT		

Architect
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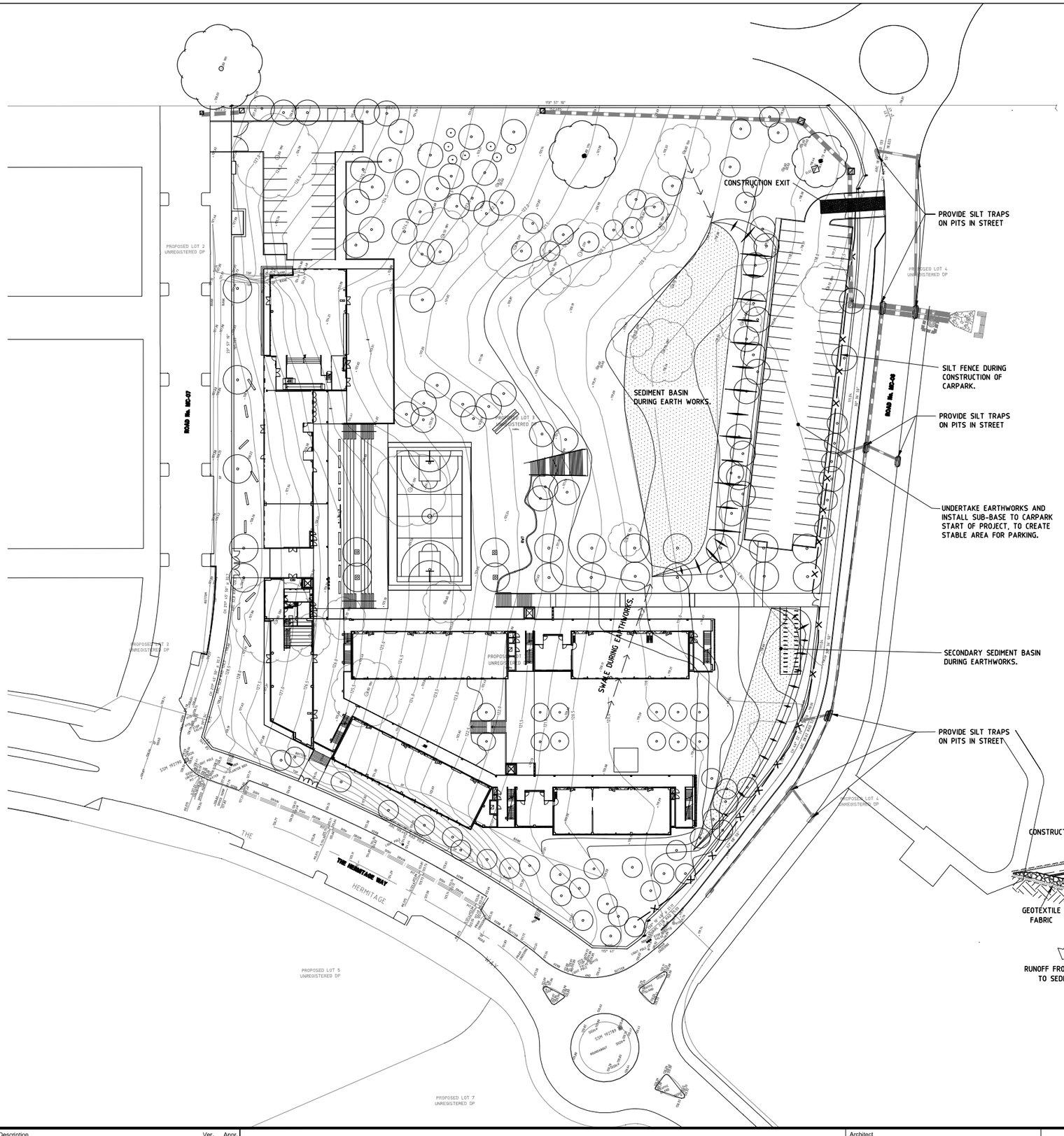
GLEDSWOOD HILLS
PUBLIC SCHOOL

STORMWATER MANAGEMENT PLAN - SHEET 2

Date	Approved	Verified	Prepared
JUNE 2017		J.L 09.08.17	J.K 09.08.17

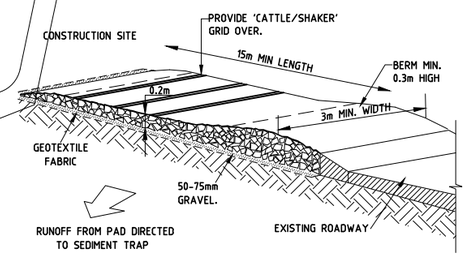
Scale @ A1: 1:250

Job number	Drawing number	Amendment
16-238	SW2	B



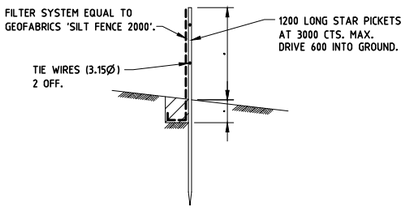
LEGEND

- STORMWATER PIT
- STORMWATER PIPE
- SILT FENCE
- CONSTRUCTION EXIT
- HEADWALL



TEMPORARY CONSTRUCTION EXIT

TO BE PROVIDED WHERE CONSTRUCTION VEHICLES LEAVE SITE.



SILT FENCE DETAIL

TO BE PLACED AROUND LOW SIDE OF WORKS AND AS REQUIRED TO PREVENT SOIL WASHING OFF SITE.

EROSION AND SEDIMENT CONTROL DETAILS

PROVIDE AS REQUIRED TO PREVENT SILT FROM LEAVING THE SITE.

No.	Date	Description	Ver.	Appr.
A	17.08.17	UPDATED LAYOUT		

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EROSION AND SEDIMENT CONTROL PLAN

Date	Approved	Verified	Prepared
JUNE 2017		J.L 09.08.07	J.K 09.08.17
Scale @ A1: 1:500			
Job number: 16-238	Drawing number: SW3		Amendment: B

REFER DRAWING TRHW-CI-300 FOR CONTINUATION

N.B. ROAD MC07 WILL BE CLOSED TO TRAFFIC UNTIL IT IS CONNECTED TO A THROUGH OR TURNING FACILITY

SWALE REFER TO DRAWING TRHW-CI-603 FOR DETAILS

SWALE REFER TO DRAWING TRHW-CI-603 FOR DETAILS

PROVIDE TEMPORARY 1:4 BATTER TO EXISTING

RAISED PLATFORM CROSSING 3 REFER TO DETAIL ON DRAWING TRHW-CI-605

INSTALL TEMPORARY PLANTER BOXES TO PROHIBIT USE OF RAISED THRESHOLD AS CROSSINGS (TYP).

THE HERMITAGE WAY (MC05)

MC07

MC06

PROVIDE CYCLE RAMP

PROVIDE CYCLE EXIT RAMP AND WIDEN PATH TO 2.5m

TEMPORARY CATCH DRAIN REFER TO DRAWING TRHW-CI-601 FOR DETAILS

N.B. ROAD MC06 WILL BE CLOSED TO TRAFFIC UNTIL IT IS CONNECTED TO A THROUGH ROAD OR TURNING FACILITY

DEMOLISH EXISTING HEADWALL CONNECT TO EXISTING PIPE

SWALE REFER TO DRAWING TRHW-CI-603 FOR DETAILS

CONSTRUCT 3.5m WIDE ACCESS PATH

CONSTRUCT 10m WIDE 10m LONG HEAVY DUTY REINFORCED CONCRETE WORK PLATFORM

ENERGY DISSIPATOR REFER TRHW-CI-603 FOR DETAILS

MB01

MB02

FILTER MEDIA AREA = 477 m²

ENERGY DISSIPATOR REFER TRHW-CI-603 FOR DETAILS

CONSTRUCT 4.0m WIDE 10m LONG HEAVY DUTY REINFORCED CONCRETE WORK PLATFORM

PROVIDE TEMPORARY 1:4 BATTER TO EXISTING

INSET

CAMDEN COUNCIL
Approved by the Council of Camden under the provisions of the Environmental Planning and Assessment Act 1979
APPROVAL
27/06/2016
CONSTRUCTION CERTIFICATE
CC16.2015.1230.1

Issue	Description	Date
07	ISSUE FOR CONSTRUCTION CERTIFICATE	13/06/16
06	ISSUE FOR CONSTRUCTION CERTIFICATE	09/06/16
05	ISSUE FOR CONSTRUCTION CERTIFICATE	02/06/16
04	ISSUE FOR CONSTRUCTION CERTIFICATE	23/05/16
03	ISSUE FOR CONSTRUCTION CERTIFICATE	11/04/16
02	ISSUE FOR CONSTRUCTION CERTIFICATE	07/04/16
01	ISSUE FOR CONSTRUCTION CERTIFICATE	26/02/16

100mm on Original

0 5 10 20 30 40 50m

1 : 500

Client: SEKISUI HOUSE

Status: CONSTRUCTION CERTIFICATE
NOT TO BE USED FOR CONSTRUCTION

Scales	1:500	Current Issue Signatures	
Original Size	A1	Drawn J. VARGAS	
Height Datum	AHD	Designed M. PEREZ	
Grid	MGA	Checked A. KALAJZICH	
Filename:		Approved R. SMITH	

Project: THE HERMITAGE
HERMITAGE WAY

Title: SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 2

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Drawing No.	Project No.	Issue
TRHW-CI-301 —AA007442CC—		06

Edit by: JVAN0894

Date Plotted: 10 Jun 2016 - 04:35PM File Name: K:\MP000909-The_Hermitage_BBS\E-OurDrawings\C-Civil\D-Final\B-CC\TURNER ROAD\Hermitage Way\TRHW-CI-301-SiteworksAndStormwaterDrainagePlanSheet2.dwg V1