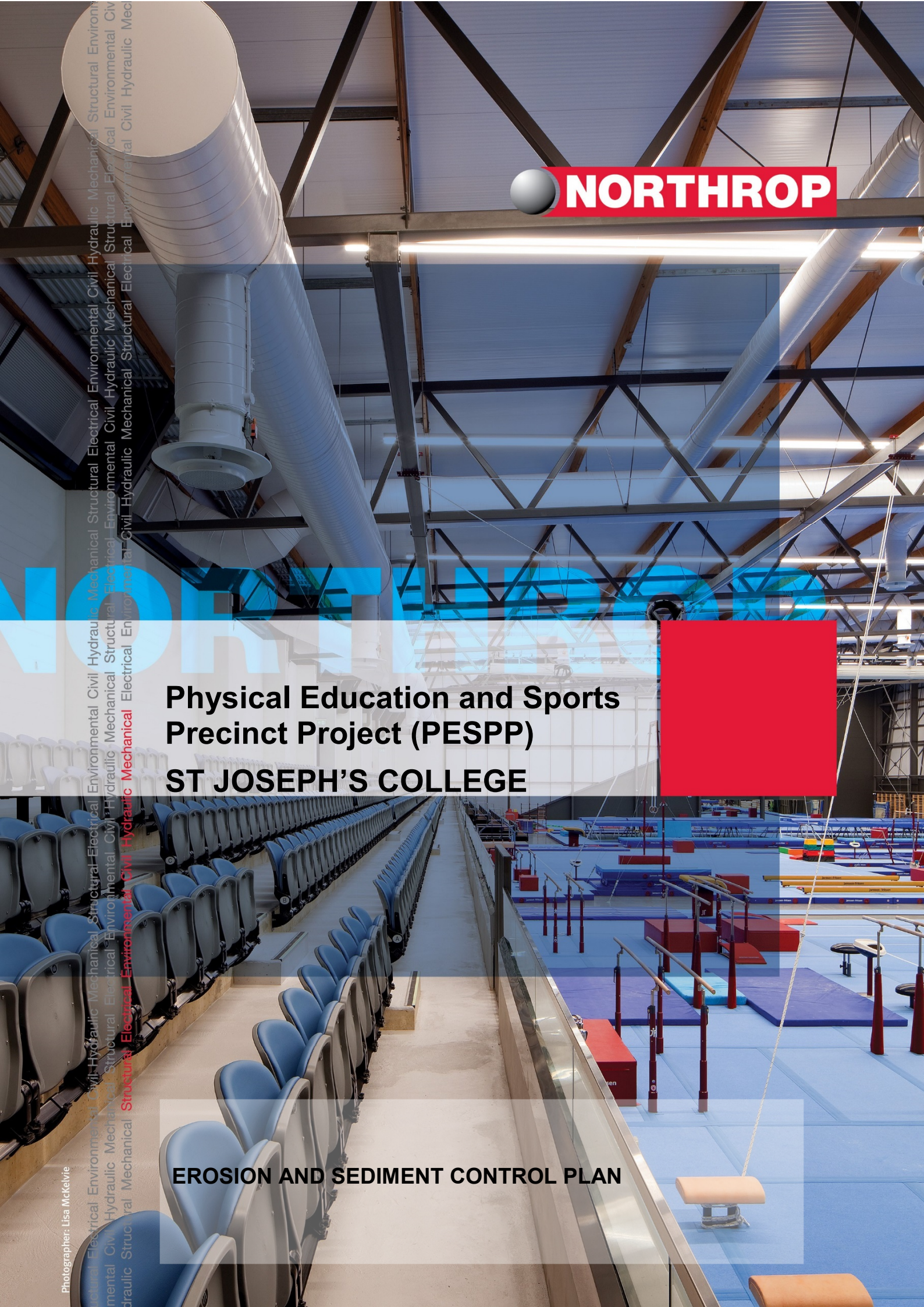

NORTHROP

Physical Education and Sports Precinct Project (PESPP)

ST JOSEPH'S COLLEGE

EROSION AND SEDIMENT CONTROL PLAN

Photographer: Lisa McKelvie

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S166502-CR01-1 St Joseph's College Sports Courts –Stormwater Management Report

Rev	Description	Prepared by	Reviewed by	Issue Date	Client App	Approval Date
1	Extracted from SWMP and Issued for inclusion in EIS	SN	SF	01.08.18		
2	Appendix added	SN	JN	08.08.18		

Electrical Environmental Civil Hydraulic Mechanical Structural Electrical Environmental Civil Hydraulic Mechanical Structural Electrical Environmental Civil Hydraulic Mechanical Structural

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Figures

1 Introduction

Northrop Consulting Engineers (Northrop) has been engaged by Bloompark Consulting Pty Ltd (Bloompark) to prepare documentation in support of a Development Application (DA) Submission to Hunters Hill Council (Council) for the St. Joseph's College, Physical Education and Sports Precinct Project (PESPP).

The proposed development is located at the southeast corner of St Joseph's College (Lot 2, DP527024). The proposed works includes the demolition of existing Sports Courts, Arts Centre, Healy Gym and Workshop Storage, and construction of sports courts and a driveway.

This report will outline the erosion and sediment control strategy developed for managing stormwater runoff and dust from the proposed development during construction, to meet Council's specifications and requirements within Part 5.6 'Stormwater Management' of the 2013 Hunters Hill Consolidated DCP.

2 Related and Documents

This report is to be read in conjunction with the following documents:

a. Development Application documentation prepared by Northrop:
   i. 166502_DAC03.01 Concept Sediment and Erosion Control Plan
   ii. 166502_DAC03.02 Sediment and Erosion Control Details
b. Hunters Hill Council Consolidated Development Control Plan 2013;

3 Site Description

The site is located in the Sydney Lower North Shore suburb of Hunters Hill, bounded by Mary Street to the west, Mark Street to the north, Luke Street to the east, and Gladesville Road to the south. The area yellow highlighted is the overall St. Joseph's College Hunters Hill site; the area highlighted in green is the area where construction work will occur as part of this package.

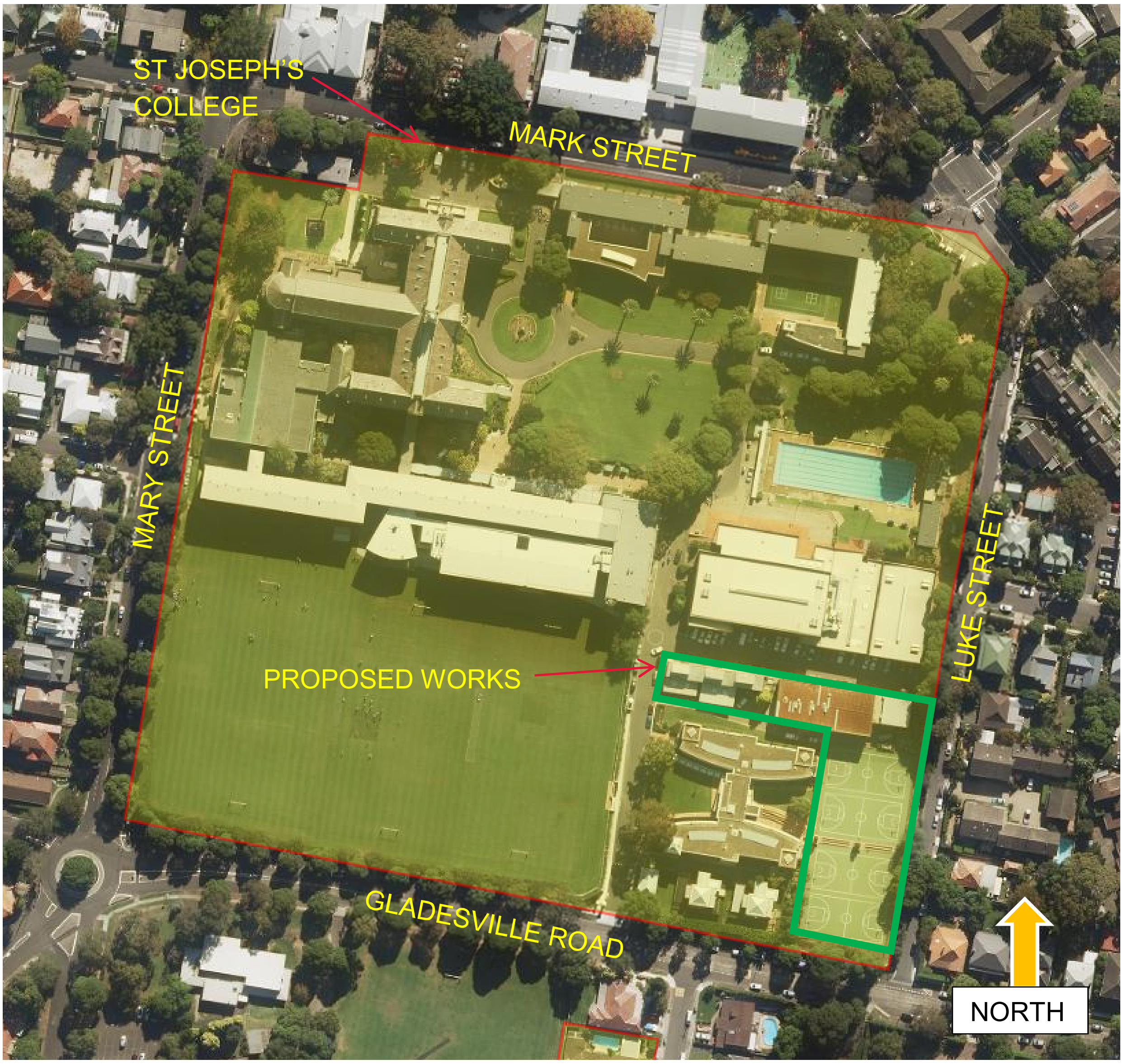


Figure 1 - Locality Plan

The proposed development is located at the southeast corner of St Joseph's College. It covers an area of approximately 0.48 ha. The proposed works is enclosed by Gladesville Road on the south, existing dormitory on the west, existing Br Emilian Hall and Sports Hall on the north, and

Luke Street on the east. Access to the proposed Sports Courts is provided by the proposed driveway.

The site generally falls from north to south. Surface grades within the site range between 1% and 5%. This has been attained by the provision of retaining walls and site filling. The difference in elevation across the site is approximately 7.5m – with surface levels varying from 38.6m AHD to 31.1m AHD. The site consists of significant impervious areas included paved roadways, footpaths, roof and hardstand for sports courts. Landscaped or impervious areas occupy approximately 6.4% of the site.

The proposed development will involve:

1. Demolition of the following existing buildings (which are not heritage significant) near the intersection of Luke Street and Gladesville Road:
   (a) College Shop
   (b) Healy Gym and Maintenance Workshop
   (c) Outdoor Sports Courts
   (d) Workshop/Storage and Shed.

2. Construction of the Physical Education and Sports Precinct Project (PESPP) comprising the following facilities:
   (a) Lower Ground Floor: New car parking, maintenance workshops, storage, offices, amenities etc. A net increase of 55 car parking spaces is proposed (85 new spaces to be provided in the SCP basement less 30 at grade spaces to be removed)
   (b) Ground floor: Three indoor sports courts, amenities, kitchen and entry lobbies
   (c) First Floor: Void over sports courts, bench seating (180 seats), staff facilities, two general learning areas and foyer
   (d) Driveway entry to the PESPP (no new vehicular cross overs)
   (e) Landscaping and tree removal/replacement.

3. Construction of a new single storey building to accommodate the relocated Healy Gym in the north-western corner of the site near the intersection of Mary Street and Mark Street.

4. New kiosk substation and landscaping in the north-eastern corner of the site

5. Use of the completed works as an educational establishment.

Staging which would facilitate completion of the PESPP in up to two stages (noting that the entire project may be completed in one stage).

Refer to the architectural drawings prepared by TKD Architects for more details.

4 Erosion and Sediment Control

The objectives of the erosion and sediment control for the development site are to ensure:

- Adequate erosion and sediment control measures are implemented prior to the commencement of construction and are maintained during construction; and
- Construction site runoff is appropriately treated in accordance with the requirements of The Hills Shire Council.

As part of the works, the erosion and sedimentation control will be constructed in accordance with Council requirements and the NSW Department of Housing Manual, "Managing Urban Stormwater Soil & Construction" 2004 prior to any earthworks commencing on site. The Concept Sediment and erosion control measures are documented in Northrop's Development Application drawing 166502-DAC03.01 and 166502-DAC03.02.

4.1 Sediment Basin

A sediment basin has been designed to capture site runoff during construction and has been located towards the southwest corner of the site, in the lowest point. The construction of the basins will be done in stages to enable maximum runoff capture assisted by the diversion of swales to capture and direct runoff to the basins.

Calculations to determine concept design basin sizes have been based on available geotechnical information regarding soil types and through the use of the Soils and Construction Volume 1 Manual.

To ensure the sediment basins are working effectively they are to be maintained throughout the construction works. Maintenance includes water to be removed by pumping to reach the minimum storage volume at the lower level of the settling zone. The settling zone will be identified by pegs to clearly show the level at which design storage capacity is available.

The pumped water from the sediment basins will be reused to irrigate areas of hydromulch and for dust control during construction.

Overflow weirs are to be provided to control overland flows for rainfall events in excess of the design criteria which is to cater for a storm event up to and including the 10 year ARI storm event.

Table 1 - Concept Sediment Basin Volumes

Basin	Catchment Area (Ha)	Volume Required (m^3)	Volume Provided (m^3)
	0.48	110	110

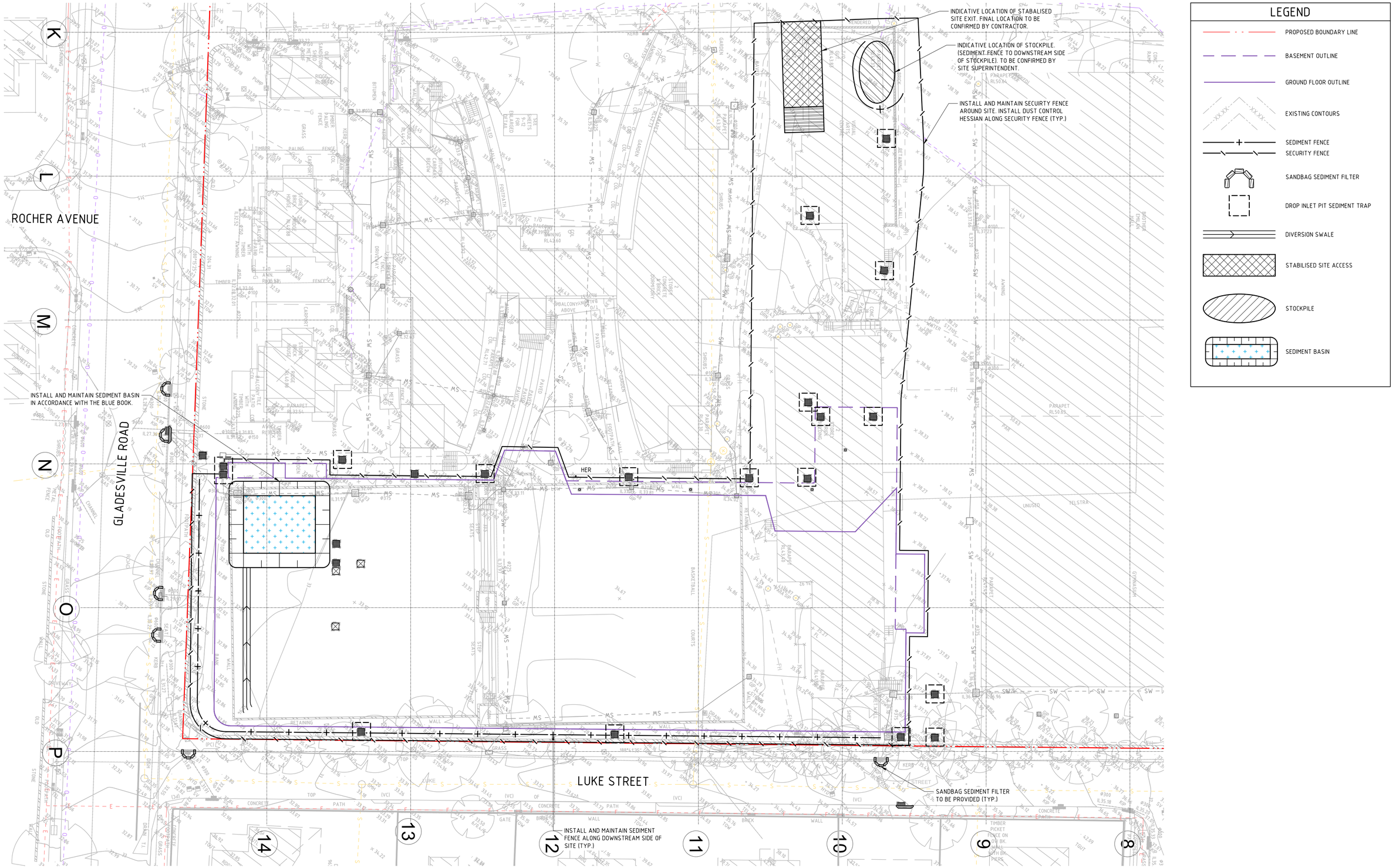
4.2 Construction Sequence

Prior to any earthworks commencing, construction erosion and sediment control measures will have to be implemented in accordance to the approved drawings. The measures shown on

the drawings describe the minimum treatment requirements. The contractor will be required to modify the erosion and sedimentation control measures to suit the construction program, sequencing and techniques. Construction measures include:

- A security fence surrounding the site office area and the proposed sediment basins as required;
- Sediment fencing downstream and surrounding disturbed areas, including any topsoil stockpiles;
- Installation for silt arrestors to collect site runoff and retain suspended particles;
- Dust control measures which includes covering stockpiles, maintain site fences and watering exposed areas;
- Placement of drop inlet sediment traps around stormwater inlets pits;
- Installation of stabilised site access; and
- The construction of temporary sediment basins as noted above in Section 5.1.

Appendix A – Erosion and Sediment Control Plan DAC01.01



LEGEND

- PROPOSED BOUNDARY LINE
- BASEMENT OUTLINE
- GROUND FLOOR OUTLINE
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- SANDBAG SEDIMENT FILTER
- DROP INLET PIT SEDIMENT TRAP
- DIVERSION SWALE
- STABILISED SITE ACCESS
- STOCKPILE
- SEDIMENT BASIN

VERIFIER:
JOB MANAGER: S. FRYER
DESIGNED: C. GAO
DRAWN: C. BEHETS

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	CB	-	SF	23.02.18
2	RE-ISSUED FOR INFORMATION	CB	-	SF	02.03.18
3	RE-ISSUED FOR INFORMATION	CB	-	SF	13.07.18

CLIENT
ST JOSEPH'S COLLEGE HUNTERS HILL

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ARCHITECT
TKDArchitects
Tanner Kibble Denton

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PROJECT
ST JOSEPH'S COLLEGE PHYSICAL EDUCATION AND SPORTS PRECINCT PROJECT

DRAWING TITLE
STORMWATER MANAGEMENT PLAN DEVELOPMENT APPLICATION

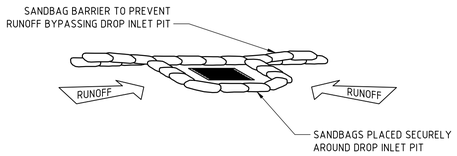
CONCEPT SEDIMENT AND EROSION CONTROL PLAN

JOB NUMBER **166502**

DRAWING NUMBER **DAC03.01**

REVISION **3**

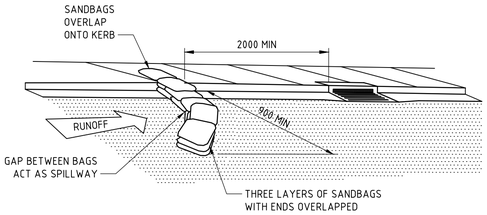
DRAWING SHEET SIZE = A1



DROP INLET PIT SEDIMENT TRAP

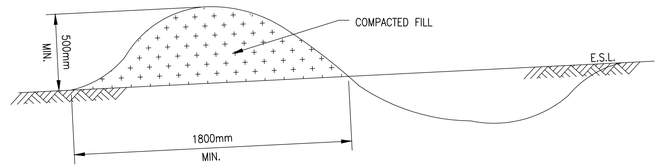
NOT TO SCALE

NOTE:
GROUND LEVEL AT END OF SANDBAG BARRIER MUST
BE HIGHER THAN DROP INLET SANDBAG LAYER.



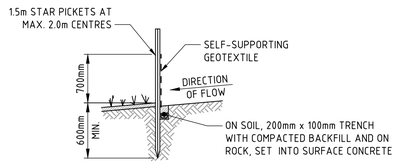
SEDIMENT TRAP FOR KERB INLET (ON GRADE - SANDBAG)

NOT TO SCALE

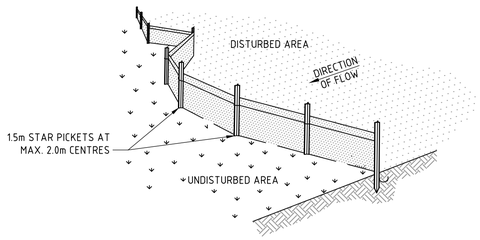


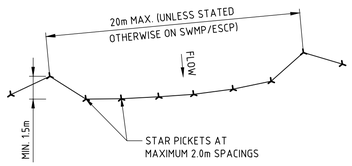
DIVERSION SWALE

N.T.S



SECTION DETAIL





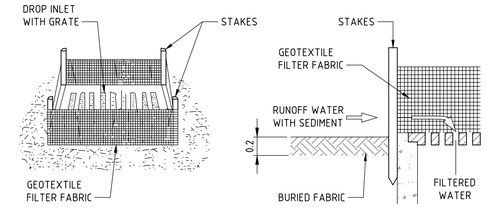
PLAN

SEDIMENT FENCE

NOT TO SCALE

NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50L/s IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 200mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT 2.0m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

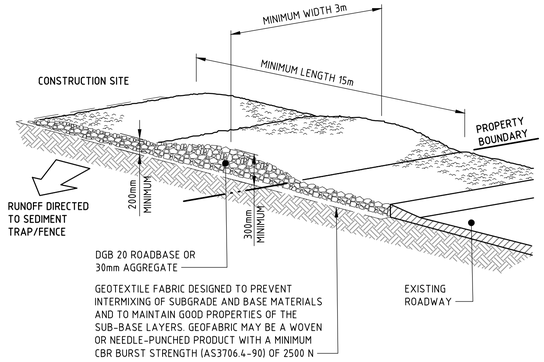


GEOTEXTILE INLET FILTER DROP INLET SEDIMENT TRAP

NOT TO SCALE

NOTES:

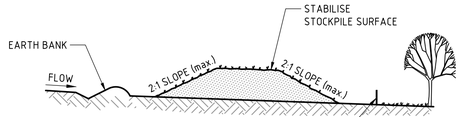
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. CUT A 200mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.0m LONG STAR PICKETS INTO GROUND AT THE FOUR CORNERS OF PIT WALLS. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)

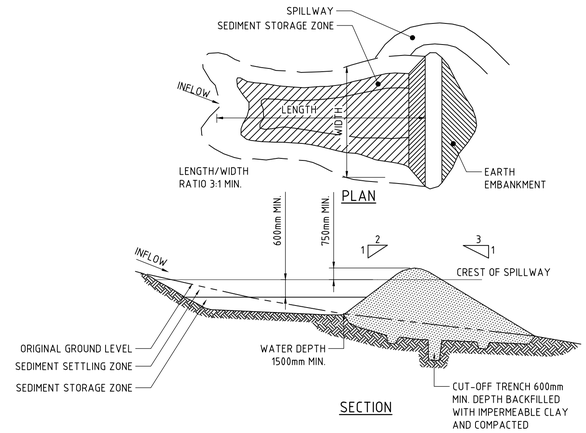


STOCKPILE

NOT TO SCALE

NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT. 4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.



SEDIMENT BASIN DETAIL

NOT TO SCALE

NOTES:

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1,200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95% STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

DRAWN: C BEHETS
DESIGNED: C GAO
JOB MANAGER: S. FRYER
VERIFIER:

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PROJECT
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DRAWING TITLE
STORMWATER MANAGEMENT PLAN DEVELOPMENT APPLICATION

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JOB NUMBER **166502**
DRAWING NUMBER **DAC03.02**
REVISION **3**
DRAWING SHEET SIZE = A1