

MACQUARIE GOODMAN MANAGEMENT

**ENGINEERING REPORT
M7 BUSINESS HUB, MINCHINBURY
SEPP 34 ESTATE MASTERPLAN**

**Revision 1
APRIL 2005**

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1. INTRODUCTION

1.1 General

This engineering report has been prepared to supplement the Statement of Environmental Effects (SEE) for the proposed Development Application for the proposed industrial development at Old Wallgrove Road, Minchinbury.

It is considered that the proposed infrastructure works including roads, stormwater drainage, sewerage, water supply and utility services comply with the principles outlined in Blacktown City Council's DCP 1992 and Engineering Guide for Development 2004.

The following issues have been addressed in the report:

- Roads and transportation,
- Stormwater management,
- Soil and Water Management,
- Earthworks, and
- Utility services, including sewer, water, electricity, and telecommunications.

1.2 The Site & Its Context

The description of the site and its context as well as current planning instruments are described comprehensively in the SEE. It is intended to not reiterate these items in this report.

2. ROADS AND TRANSPORTATION

2.1 General

This Section of the report addresses the public roads requirements within the industrial development. For internal parking and access within individual lots, a separate Traffic and Parking Report accompanied by each Development Application may be required.

Access to the Central Precinct will be via three intersections with Old Wallgrove Road, while access to the East Precinct will be via direct access from Wallgrove Road (refer Drawing M7 CDA.01 (Rev 2) in Appendix A for details).

The proposed development includes:

- Road construction,
- Existing road upgrades,
- Road drainage works,
- Installation of services.

The drawings provided in Appendix A are in a conceptual form for the Development Application. The detailed design of the industrial development will be provided as part of the Construction Certificate submission and will be in accordance with the requirements of Blacktown City Council's Draft Engineering Guide for Development, 2004.

2.2 Road Hierarchy

The proposed hierarchy of the road system is shown on Drawing M7 CDA.01 (Rev 2) in Appendix A. The road widths proposed generally comply with the requirements of Blacktown City Council's DCP 1992 (refer to the traffic study "Traffic Impact Assessment of the Proposed M7 Business Hub, April 2005" by Traffix for further details). The width of the distributor roads varies according to the geometry on the approaches to Old Wallgrove Road and Wallgrove Road. The distributor roads generally will be divided road with two through lanes in each direction with a landscaped median at least three metres wide. No direct access to lots will be provided from any of the distributor roads.

Road Type	Carriageway	Median	Road Verge	Total Road Reserve
Distributor	15.5m	3.0m	3.75m	26.0m
Collector	15.5m	Nil	3.75m	23.0m
Local Industrial	13.5m	Nil	3.5m	20.5m

All roads will have concrete kerb and gutter and surface finished with asphaltic concrete as per the requirements of Blacktown City Council.

2.3 Roundabout and Cul-de-sacs

It is proposed to provide roundabouts for all intersections within the internal road system (excluding the intersections with Old Wallgrove Road). Roundabouts have been designed in accordance with Austroads' requirements.

Cul-de-sacs will be provided for all dead ends within the development site. All cul-de-sacs will have a radius of 15m which is larger than Council's requirement of 13.5m. The larger radius was required for an articulated truck to manoeuvre without having to reverse.

2.4 Old Wallgrove Road Reconstruction

Old Wallgrove Road that runs along the north of the development site is a sealed road that will provide access to the Central Precinct of the site and serves as the main linking road to the site from the M7 Motorway, Great Western Highway, and Wallgrove Road. This road is a two-way two lane rural road with unsealed shoulders on both sides. The pavement is in a reasonable condition.

It is proposed to upgrade Old Wallgrove Road as part of the development. The upgrade of Old Wallgrove Road will include the following:

- Pavement widening
- Kerb and gutter construction
- Piped stormwater
- Intersection upgrades

A traffic report was prepared for this development that addresses the traffic implications of the M7 Business Hub development including the Old Wallgrove Road upgrade. For further details relating to traffic issues for the development, refer to the traffic study "Traffic Impact Assessment of the Proposed M7 Business Hub, April 2005" by Traffix.

3. STORMWATER MANAGEMENT

3.1 Stormwater Management Plan

A Stormwater Management Plan (SMP) for the M7 Business Hub site has been prepared by Henry & Hymas and is included as part of the Development Application submission (refer Appendix C). The SMP is a conceptual 'big-picture' management plan, which deals with the principles of the flood mitigation, water quality control, salinity, and environmental flows into Reedy Creek.

This section of the report addresses site specific issues in more detail whilst maintaining the same philosophical principles outlined in the SMP.

For the majority of the site, post developed catchments will closely mimic the pre-developed catchment boundaries. In the south west corner of the site however, due to the proposed building platforms and prior to the mining lot being developed, an increase in the overland flow catchment area draining to the south of the site will result. It is not expected that a detention basin will be required, because the 20 year flow will be piped directly to a designated bio-retention basin/detention basin, hence the difference between the post developed 100 year overland flow and the post developed 20 year flow is less than the pre developed 100 year overland flow.

A Stormwater Masterplan has been included as part of the Development Application submission and is included in Appendix A (Drawing M7 CDA.03 (Rev 2)).

3.2 Soil and Water Management Plan

A Soil and Water Management Plan (SWMP) has been prepared in accordance with the "Managing Urban Stormwater - Soils and Construction, Edition 3, (1998)" by the NSW Department of Housing as part of the Development Application submission for the M7 Business Hub site. The SWMP deals with issues such as sedimentation and erosion control and the implementation and maintenance of temporary sediment basins. This document can be found in Appendix B and should be referred to for issues relating to sediment and erosion control.

3.3 Batter Encroachment

Connell Wagner (David Kennewell) has confirmed that their flood study of Reedy Creek was modelled using the toe of the battered embankment located outside the 40m riparian zone to determine the extent of the 1 in 100 year flood levels and extents. These flood levels and extents are shown on Drawing 1219 in Connell Wagner's "Flood Investigation Report – M7 Business Hub". These levels and flood extents were transferred onto our plan and sections in order to demonstrate there is no encroachment within the 40m riparian corridor.

4. EARTHWORKS

4.1 Introduction

The proposed M7 Business Hub development will involve a significant amount of bulk earthworks operations. This will include cut and fill to achieve desired road levels and building platforms and bio-retention basin excavation. Refer Drawing M7 CDA.05 (Rev 2) in Appendix A for details of bulk earthworks.

It will be necessary to ensure that all earthworks are adequately stabilised during construction and that all embankments/batters remain stabilised once construction activities have ceased. As previously stated, a Soil and Water Management Plan has been prepared that addresses issues relating to sediment and erosion control during construction. This report deals with issues relating to methods of construction that will ensure that earthworks remain stabilised post construction.

4.2 Compaction

To assist in the prevention of settlement of the site soils, it is necessary to adequately compact all fill layers. A geotechnical report was prepared for the western area of the site by Douglas Partners that made recommendations for compaction requirements of the site soil. The recommendations for placing of fill are summarised below.

- Minimum of 8 passes with a smooth drummed roller
- Placed in loose layers not exceeding 250mm
- Compaction to at least 98% SMDD
- Top 1m compacted to 100%SMDD
- Moisture content within 2% of optimum

4.3 Embankment Stability

To assist in maintaining embankment stability (both temporary and permanent), batters slopes will be no steeper than 2 horizontal to 1 vertical as specified in the geotechnical report.

Permanent batters will also be adequately vegetated or turfed which will assist in maintaining embankment stability.

4.4 Reedy Creek Channel Stability

In relation to the minimising disturbance and impact of the discharge structures within the riparian corridor, it should be noted that the low flow discharge pipes discharging into Reedy Creek from the bio-retention basins are buried for almost the entire length below natural ground level. Discharge scour protection and headwall structures are to be constructed using hand-packed large (400mm) stone.

5. BRIDGE SCOUR PROTECTION

The proposed bridges across Reedy Creek are subject to detail design, however any supporting piles/foundations that are to be situated within the 100 year flood zone will require scour protection.

As these bridges are subject to final design, specific details of the piles/foundations are not available at this time, however, from an engineering perspective all piles would be either concrete or concrete encased from ground level to a minimum depth of 800mm. A minimum thickness of concrete of 300mm with 100mm cover to reinforcement is proposed to provide adequate protection against corrosive action of potential saline soils and scouring. Surface treatment of this encasement is a landscaping matter. Should the salinity investigation indicate an aggressive environment, unprotected steel piles will not be used.

6. SERVICES

6.1 Introduction

The proposed services locations for the M7 Business Hub were prepared by Roz Engineering. A brief description of the services to be provided is provided below. Refer Drawing M7 CDA.06 in Appendix A for details of proposed service locations.

6.2 Sewer

The design and construction of the trunk sewer main to service the entire SEPP 59 site is being managed by Sydney Water Corporation (SWC). Construction of the trunk sewer main is scheduled to be completed by the end of 2005.

Sewer reticulation to the proposed M7 Business Hub development will be provided to SWC requirements and connected to the trunk main constructed by SWC. Refer to Drawing M7 CDA.06 in Appendix A for proposed sewer reticulation details.

6.3 Water

Trunk water mains will be provided to the development area in conjunction with SWC, in accordance with the water servicing strategy in Sydney Water's Development Servicing Plan.

Water reticulation to the proposed M7 Business Hub development will be provided to SWC requirements (Refer to Drawing M7 CDA.06 for details).

6.4 Electricity and Telecommunications

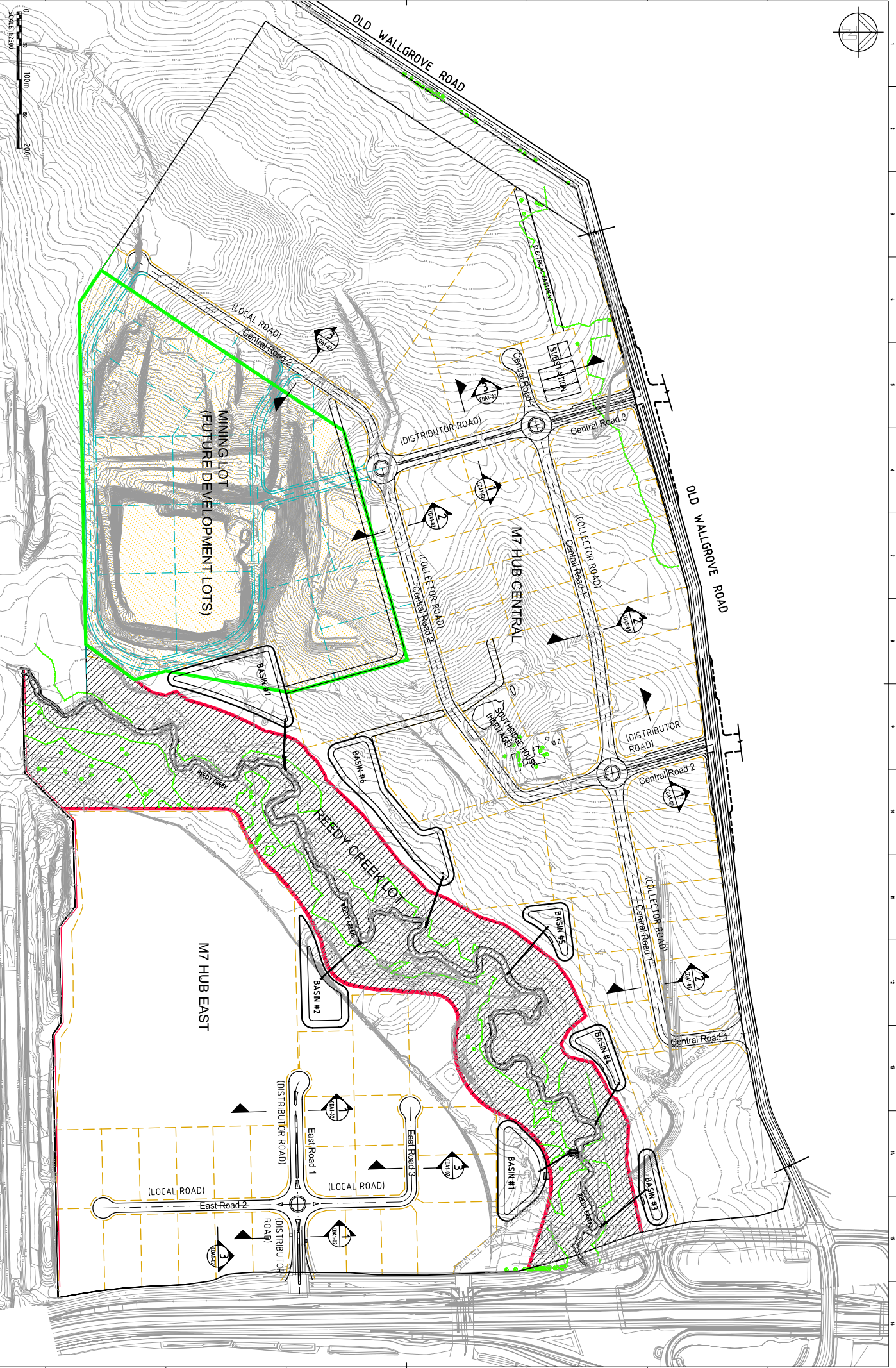
Electricity and telecommunications (Telstra) services are all readily available from Old Wallgrove Road and Wallgrove Road, and should not present any restrictions to the proposed development. All power, telecommunication and gas services within the development will be provided as underground services and will most likely be in shared trenches in accordance with a shared trenching arrangement between the various authorities.

APPENDIX A

DEVELOPMENT APPLICATION DRAWINGS

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Site Plan – Road Layout	M7 CDA.01 (Rev 2)
Typical Road Cross Sections	M7 CDA.02 (Rev 2)
Stormwater Masterplan	M7 CDA.03 (Rev 2)
Typical Detention Basin Details	M7 CDA.04 (Rev 2)
Bulk Earthworks Plan	M7 CDA.05 (Rev 2)
Estate Services Plan	M7 CDA.06 (Rev 2)



NO.	REVISION	DATE	BY	APP'D
01	ISSUED FOR PERMIT	12/12/2015		
02	RE-DESIGN FOR M7	01/21/2016		
03	ISSUED FOR PERMIT	02/12/2016		

CLIENT
MACQUARIE GOODMAN

START DATE
HARD & FORESTER

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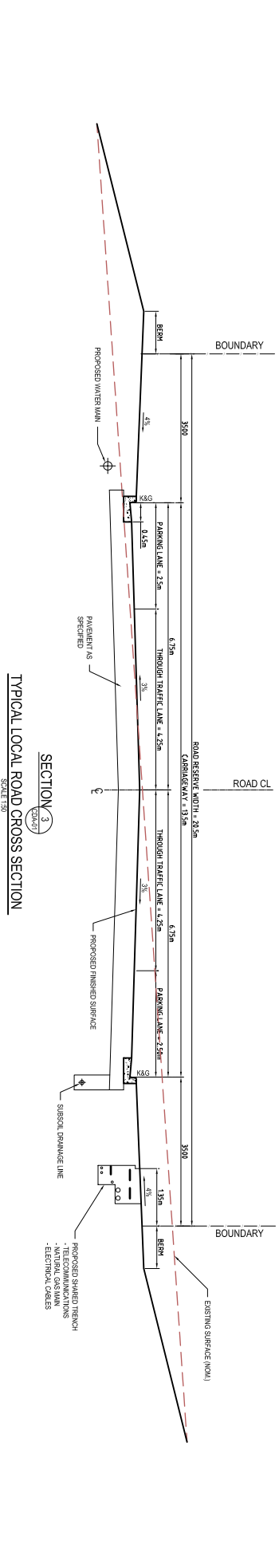
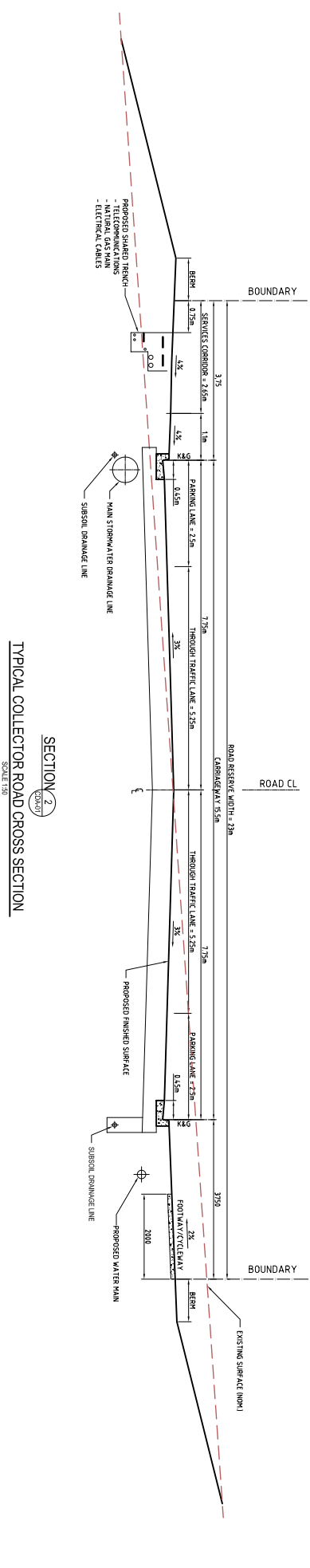
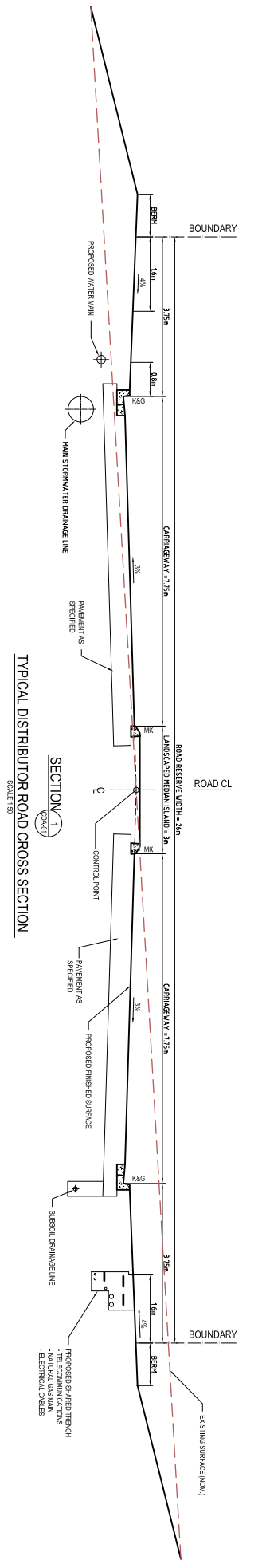


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PROJECT
M7 BUSINESS HUB WALLGROVE RD, MURCHINGSURRY

TITLE
SERP94 ESTATE MASTERPLAN SITE PLAN/ ROAD LAYOUT

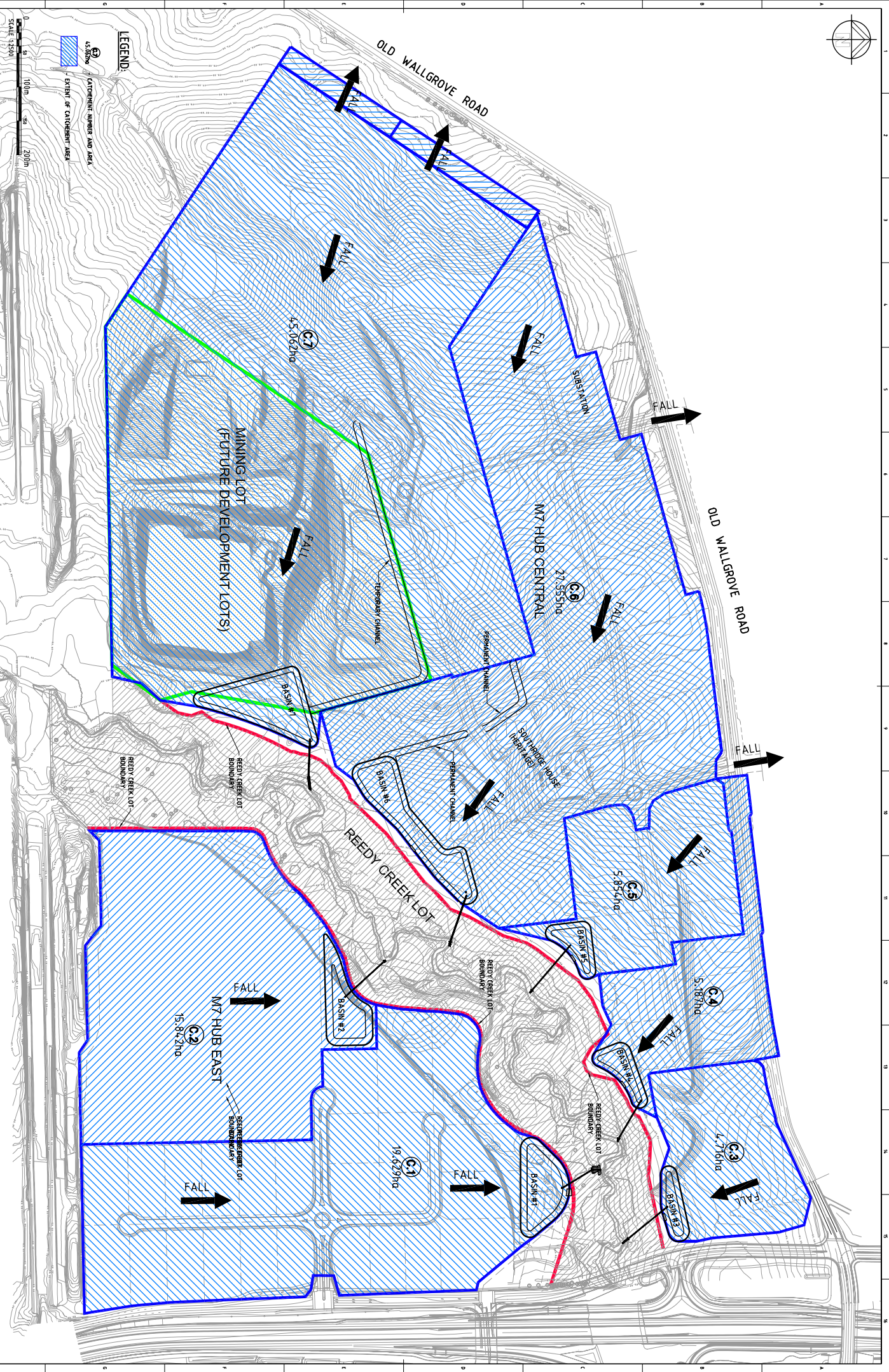
DESIGNER	PK	SCALE
DISIGNED	ES	1:2500 & A1
DRAWING NO.	M7 CDA.01	
DATE	APRIL 2016	
REV.	02	



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<p>DATE 15/04/2015</p> <p>SCALE AS SHOWN @ A1</p>		<p>PROJECT M7 BUSINESS HUB WALLGROVE RD, MIMCHINDURRY</p> <p>TITLE SEPP34 ESTATE MASTERPLAN TYPICAL ROAD CROSS SECTIONS</p>	
<p>DESIGNED BY ES</p> <p>DRAWN BY MW</p> <p>DATE 15/04/2015</p>		<p>DATE APRIL 2015</p> <p>SCALE AS SHOWN @ A1</p> <p>REV 02</p>	



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LEGEND:

(C1) 45.062hd
CATCHMENT NUMBER AND AREA

(Blue hatched area)
EXTENT OF CATCHMENT AREA



NO.	REVISION	DATE	BY	CHKD	APP'D
01	ISSUED FOR PERMITS	12/23/11			
02	ISSUED FOR PERMITS	12/23/11			

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MACQUARIE GOODMAN

PROJECT
HAND & FORESTER

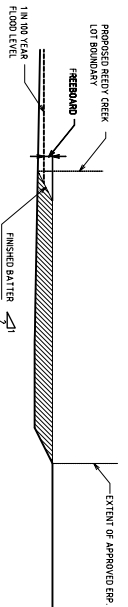
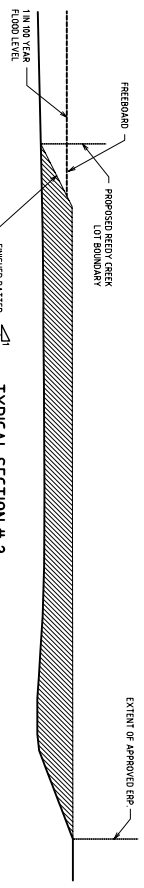
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PROJECT
M7 BUSINESS HUB
WALLGROVE RD, WINCHINGBURY

TITLE
SEPP 34 ESTATE MASTERPLAN
STORMWATER MASTERPLAN

DATE
L2
DESIGNED
ES
MARCH 2015
SCALE
1:250 @ A1
REV
M7 CDA.03
02



NOTE: THE TOP OF ALL BATTERS OUTSIDE OF REEDY CREEK LOT BOUNDARY SHALL BE AT LEAST 1.5m ABOVE THE FINISHED BATTER LEVEL.
SCALE 1:2500

NO.	REVISION	DATE	BY	CHKD.	APP.
01	ISSUED FOR PERMIT	12/12/2015	AS	AS	AS
02	REVISED FOR PERMIT	12/12/2015	AS	AS	AS
03	ISSUED FOR PERMIT	12/12/2015	AS	AS	AS

CLIENT
MACQUARIE GOODMAN
SUBMITTER
HARD & FORESTER

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PROJECT
M7 BUSINESS HUB WALLGROVE RD, MANCHINGURY
TITLE
SERP34 ESTATE MASTERPLAN BULK EARTHWORKS PLAN

DATE: APRIL 2015
SCALE: AS SHOWN @ A1
DRAWING NO: **M7 CDA.05**
REV: 02

APPENDIX B

SOIL AND WATER MANAGEMENT PLAN

Macquarie Goodman Management

SOIL & WATER MANAGEMENT PLAN
M7 BUSINESS HUB
WALLGROVE ROAD, MINCHINBURY
SEPP 34 ESTATE MASTERPLAN

April 2005

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