



Oakdale West Estate Development Kemps Creek

Civil, Stormwater and Infrastructure Services Report

SSDA 7348 - Modification No. 7

CLIENT/ GOODMAN PROPERTY SERVICES (AUST) PTY LTD

DATE/ JUNE 2021

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Abbreviations

DPIE	Department of Planning, Industry and the Environment
OWE	Oakdale West Estate
TfNSW	Transport for NSW
OEH	Office of Environment and Heritage
EP	Equivalent Persons
ET	Equivalent Tenancy
IWM	Integrated Water Management
GPS	Goodman Property Services (Aust) Pty Ltd
STP	Sewerage Treatment Plant
SWC	Sydney Water Corporation
WELS	Water Efficiency Labelling
EIS	Environmental Impact Statement
SSDA	State Significant Development Application
RMS	Roads and Maritime Service
EPLR	Erskine Park Link Road
SEPZS	South Erskine Park Zone Substation

Executive Summary

Goodman Property Services (Aust) Pty Ltd is developing the Oakdale West site for the purposes of providing a warehouse and distribution complex. The Oakdale West development has been approved by DPIE, and 6 (six) Modifications have been lodged and approved after. This report is for the Modification No. 7 changes requested to the development consent.

Purpose of Report:

The Oakdale West Infrastructure Civil Engineering Report was originally prepared to address the Secretary's Environmental Assessment Requirements (SEARs) for the project relevant to earthworks, stormwater, roadworks and infrastructure servicing. This report is provided to supplement the original report, covering changes of the modification where relevant and required under the original SEARs.

The report outlines changes to the proposed components of the design including: earthworks, erosion and sediment, road geometry, stormwater management (on site detention, piped and overland flows, catchments, water sensitive urban design), servicing and staging.

This SSDA Modification (No. 7) seeks approval for:

- Changes in arrangement of Precinct 3 allotments;
- Adjustment and inclusion of additional retaining wall works in Precinct 3;
- Adjustments to proposed sewer servicing arrangements in Precinct 3;
- Minor stormwater changes along Road 3 to suit the new Precinct 3 layout;
- Changes in arrangement of Precinct 4 allotments;
- Adjustment and inclusion of additional retaining wall works in Precinct 4;
- Adjustments to proposed Roads and services in Precinct 4 to suit the new Precinct 4 allotment arrangement at the Road 6/Road 7 intersection;
- Driveway for Lot 4A to be constructed in Stage 1.

1 Introduction

This report has been prepared to inform a State Significant Development Application (SSDA 7348) for the staged development of the Oakdale West Estate (OWE), specifically to assess the potential impacts of the Modification No. 7 changes to the infrastructure design of the approved development.

This SSDA Modification (No. 7) seeks approval for:

- Changes in arrangement of Precinct 3 allotments;
- Adjustment and inclusion of additional retaining wall works in Precinct 3;
- Adjustments to proposed sewer servicing arrangements in Precinct 3;
- Minor stormwater changes along Road 3 to suit the new Precinct 3 layout;
- Changes in arrangement of Precinct 4 allotments;
- Adjustment and inclusion of additional retaining wall works in Precinct 4;
- Adjustments to proposed Roads and services in Precinct 4 to suit the new Precinct 4 allotment arrangement at the Road 6/Road 7 intersection;
- Driveway for Lot 4A to be constructed in Stage 1.

For Modification No. 7 changes, refer to updated civil drawings Masterplan (0000 Series) and Infrastructure (1000 Series). These proposed changes will amend the Stage 1 consent originally approved by way of SSD 7348 and subsequently approved Modifications 1 to 6 inclusive.

1.1 Scope of Report

Objective of Report

The objective of this civil, stormwater and infrastructure services report is to outline the design criteria used for the Engineering design of all components of the development and compare to the requirements of the Penrith City Council Development Control Plans (DCP) and the existing SSDA 7348 approval and subsequent modifications.

This report should be read in conjunction with the AT&L Civil Engineering drawings as indicated within Appendix A.

Summary

This report generally discusses the design philosophy behind the following components of the design for Oakdale West Estate (OWE) Modification No. 7 including:

- Earthworks;
- Sedimentation and Erosion Control;
- Road Design;
- Stormwater Management;
- Servicing;
- TransGrid impacts.

The proposed site plan covering the entire Oakdale West development, along with all proposed lot layouts, are attached 0000 Series and 1000 Series Drawings Attached to the application.

Civil Engineers & Project Managers

2 Earthworks

2.1 Changes to Cut/Fill Requirements of Stage 1 (SSD 7348)

The Precinct 3 and 4 areas are now reconfigured to suit customer needs which is reflected in new lot shape which in turn alters the earthworks slightly. The earthworks design for Modification No. 7 was undertaken using the following considerations:

- Maintain the same or less quantity of import for the project and same nominal Bulk Earthwork Levels (BEL) in Precinct 3;
- Maintain as close as possible the quantity of import and the nominal BEL in Precinct 4;
- Minimise any noticeable changes in the earthworks surface or retaining walls.

Ultimately the pad levels are unchanged, however are slightly modified to match the change in lot shape. The inclusion of a new retaining wall between Lot 3B and Lot 3C has had further minor affects to the earthworks quantities.

In Precinct 3, the earthworks levels are generally lower than the previously approved design as part of Modification No. 6.

The resulting bulk earthworks volumes are shown in Table 3 below. The total balance or import of fill is shown by the cell highlighted in bold, of 450,045m³. This can be compared to the respective cell in SSDA Approval (495,833m³) and the latest MOD 6 approval (514,998m³). The overall volume of import has reduced to a value lower than the original consent and the latest approval, hence reducing the impact of construction activities, specifically in relation to importation of fill.

EARTHWORKS VOLUMES

PRECINCT	A EXISTING TOPSOIL STRIPPING VOLUME (cu.m) REFER NOTE No.1	B EXCAVATION OF EXISTING CREEKS AND DAMS (cu.m) REFER NOTE No.3	C NET CUT (cu.m)	D NET FILL (cu.m)	E = A+B+C+D BALANCE (cu.m)	F APPROXIMATE VOLUME OF SELECT MATERIAL IMPORT FOR RETAINING WALLS
1	-43,346	-27,007	-428,364	549,716	50,999	3,848
2	-33,395	-5,795	-1,172,629	880,695	-331,124	48,132
3	-12,116	-6,166	-127,886	370,369	224,201	38,241
4	-18,485	-17,896	-208,932	697,080	451,767	41,322
5	-4,793	-16,247	-4,348	162,922	137,534	832
WNSLR STOCKPILE	-	-	-	-83,332	-83,332	-
TOTAL	-112,135	-73,111	-1,942,159	2,577,450	450,045	132,375

Table 1 – Cut/Fill Summary

Note these volumes are based on the current design, further detailed design may alter these. – (Negative) balance indicates net cut whilst + (positive) balance indicates import required

For ease of coordination, a comprehensive Estate-wide set of bulk earthworks drawings have been prepared which are intended to replace the previous Stage 1 approved drawings in Modification No. 6. The changes in earthworks are compared below, so it is possible to see how minor the earthworks surface changes are. It shall be noted that Precinct 3 lots have been generally lowered when compared to the previously approved design as part of Modification 6.

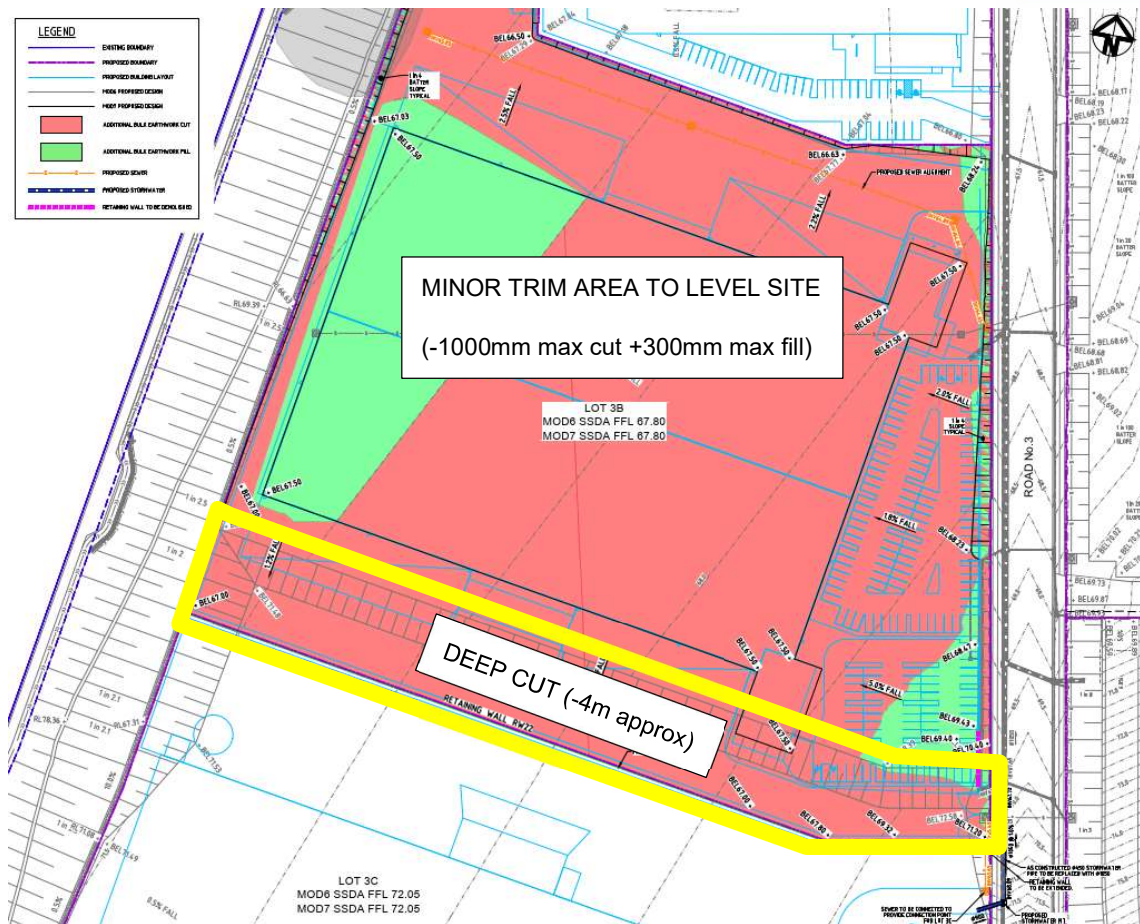


Figure 1 – Precinct 3 – Modification No. 7 earthworks compared to Approved Modification No. 6

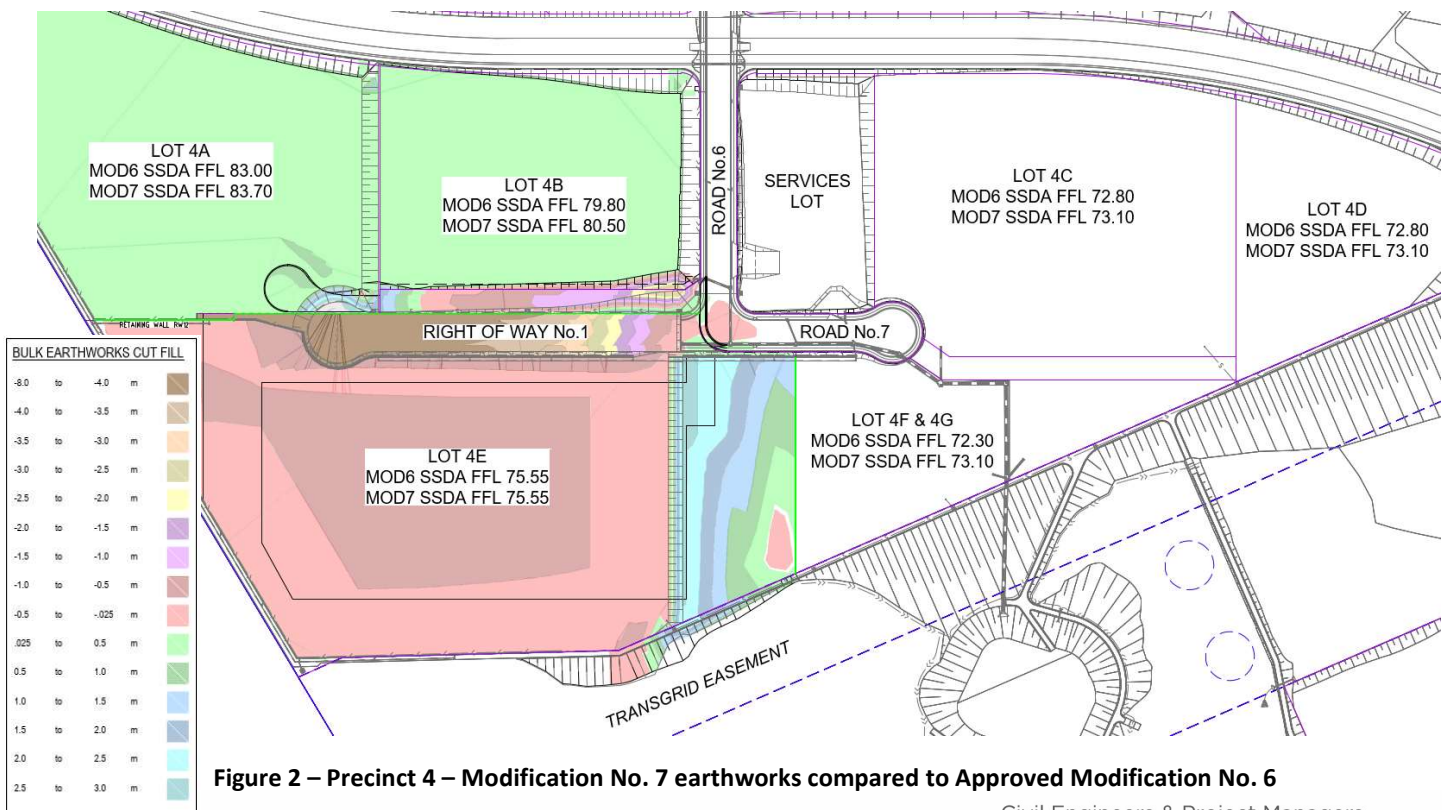


Figure 2 – Precinct 4 – Modification No. 7 earthworks compared to Approved Modification No. 6

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2.2 Changes to Retaining Wall Requirements of Stage 1 (SSD 7348)

As part of the Stage 1 approved drawings, AT&L nominated that there was to be a future retaining wall to be constructed between Lots 3B and 3C, as shown below as part of the Modification No. 6. Note that future retaining walls are shown in blue, while retaining walls that form part of the Stage 1 approval are shown in red.

This retaining wall is to now be included as part of the Stage 1 approval. The extent of the wall has been adjusted to suit the revised allotment design, with the extent shown below.

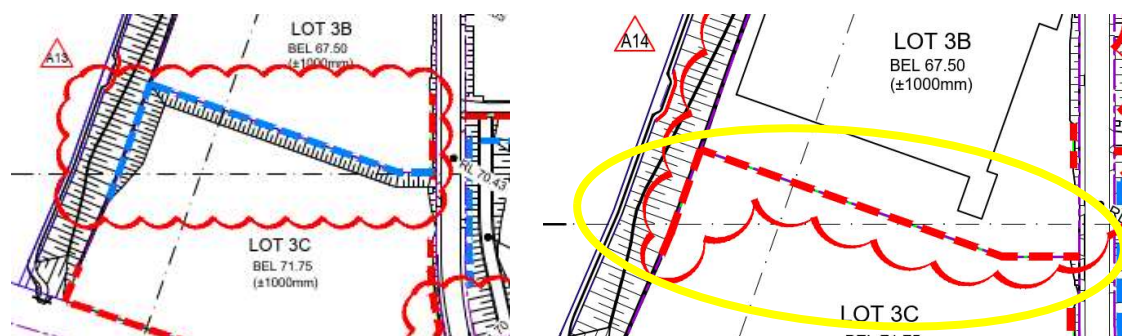


Figure 3 – Previously Approved Modification No. 6 Retaining Wall Plan (left) and Modification No. 7 Retaining Wall Plan (right)

The Stage 1 approved drawings also indicated a proposed retaining wall between Lots 4A/4B and Lot 4E as shown below. This retaining wall has been adjusted to suit the revised allotment layout.

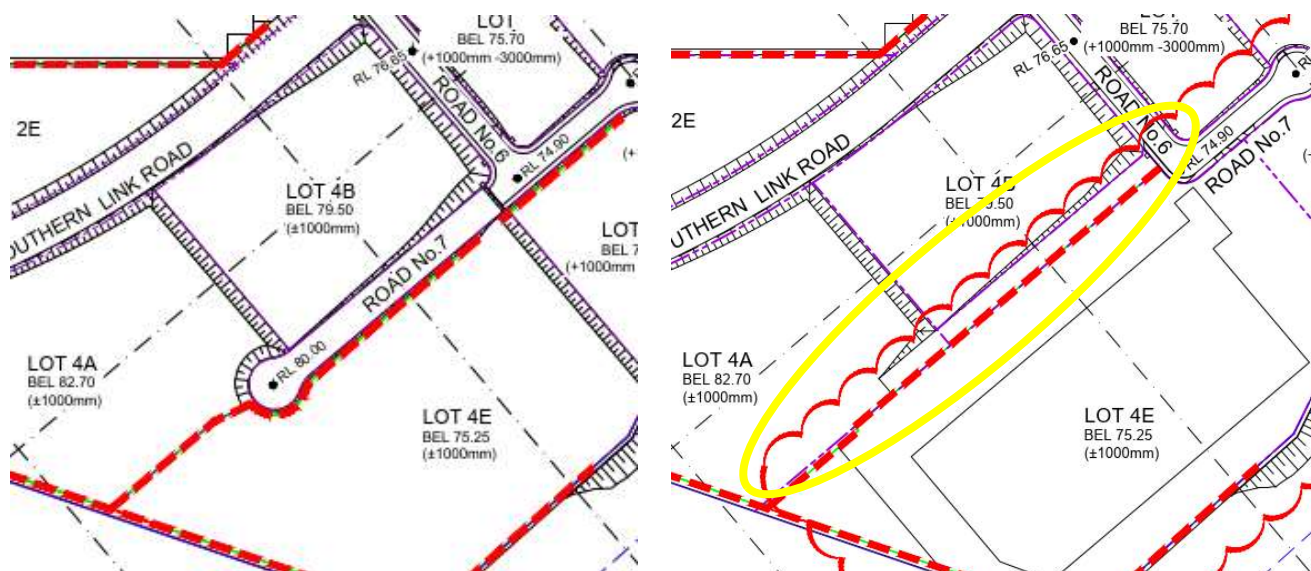


Figure 4 – Lot 4E – Previously Approved Modification No. 6 Retaining Wall Plan (left) and Modification No. 7 Retaining Wall Plan (right)

3 Sedimentation and Erosion Control

3.1 Sedimentation and Erosion Control (Construction)

The previous Soil and Water Management Plan (SWMP) prepared in accordance with the NSW Department of Housing Publication titled: Managing Urban Stormwater – Soils and Construction (2004) for the whole site, remains relevant and the key objectives have not changed. Sources of pollution, potential impacts and RULSE Analysis remain the same for the Modification No. 7.

3.2 Soil and Water Management Plan

3.2.1 Overall Strategy

The original construction methodology will be followed to minimise the impact of sedimentation due to construction works because it is still applicable to works proposed in Modification No. 7.

Refer to AT&L Drawings C1130 and C1133 for Erosion and Sediment Control Plans updated for this proposal, which show proposed control and protection measures across the site until completion of on lot works.

Suitable temporary erosion and sediment controls shall be designed, adopted and maintained by the contractor throughout all stages of works, by an expert consultant. The contractor shall also design and implement controls at completion of the bulk earthworks where shown on AT&L drawings or where otherwise directed by the Superintendent or Penrith City Council's engineers.

Such controls shall be in accordance with the relevant requirements in the latest version of the managing urban stormwater: soils and construction guideline (landcom).

3.2.2 Design of Sediment and Erosion Control Measures

Suitable erosion and sediment controls shall be provided by the Contractor and maintained throughout all stages of works, including at completion of the bulk earthworks.

There is no change to the design requirements in Modification No. 7. However, due to reconfiguration of development lots, the temporary sediment basins in Precinct 3 and Precinct 4 have changed. The table below shows the temporary basin design for Modification No. 6 and then directly beside, the revised equivalent basin for the Modification No. 7 proposal.

Precinct 3 Changes:

MOD 6:	Basin 3B	Basin 3C	Now MOD 7:	Basin 3B	Basin 3C
Volumetric Runoff Coefficient, C_v	0.50	0.50	Volumetric Runoff Coefficient, C_v	0.50	0.50
Contributing Area, A (ha)	3.951	5.072	Contributing Area, A (ha)	4.625	4.389
$R_{(85\%ile, 5\ day)}$	35.00	35.00	$R_{(85\%ile, 5\ day)}$	35.00	35.00
Settling Zone Volume, (m ³)	691	880	Settling Zone Volume, (m ³)	809	768
Sediment Storage Zone Volume, (m ³)	346	440	Sediment Storage Zone Volume, (m ³)	405	384
Total Sediment Basin Volume, (m ³)	1037	1320	Total Sediment Basin Volume, (m ³)	1214	1152

Table 1 – Precinct 3 Temporary Sediment Basins Changes in Modification No. 7 (Precinct 3)

Precinct 4 Changes:

MOD 6:	Basin 4A	Basin 4B	Basin 4C	Basin 4Da	Basin 4Db	Basin 4E	Basin 4F/4G	Road 7
Volumetric Runoff Coefficient, C_v	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Contributing Area, A (ha)	4.184	2.744	3.840	1.889	0.720	5.485	2.497	0.555
$R_{(85\%ile, 5\ day)}$	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Settling Zone Volume, (m ³)	732	480	672	331	126	960	437	97
Sediment Storage Zone Volume, (m ³)	366	240	336	165	63	480	218	49
Total Sediment Basin Volume, (m ³)	1098	720	1008	496	189	1440	656	146

Now MOD 7:	Basin 4A	Basin 4B	Basin 4C	Basin 4Da	Basin 4Db	Basin 4E	Basin 4F/4G	Road 7
Volumetric Runoff Coefficient, C_v	0.50	0.50	0.50	0.50	N/A	0.50	0.50	N/A
Contributing Area, A (ha)	4.184	2.348	3.692	1.889	N/A	7.613	1.740	N/A
$R_{(85\%ile, 5\ day)}$	35.00	35.00	35.00	35.00	N/A	35.00	35.00	N/A
Settling Zone Volume, (m ³)	732	411	646	331	N/A	1332	305	N/A
Sediment Storage Zone Volume, (m ³)	366	205	323	165	N/A	666	152	N/A
Total Sediment Basin Volume, (m ³)	1098	616	969	496	N/A	1998	457	N/A

Table 2 – Precinct Temporary Sediment Basins Changes in Modification No. 7 (Precinct 4)

3.3 Site Inspection and Maintenance

The inspection and maintenance requirements outlined previously have not changed and must still be carried out while either earthworks or quarrying is being conducted, and all areas re-established.

3.3.1 Sediment Basin Maintenance

Sediment basin maintenance remains the same as the SSDA Engineering Report.

3.4 Conclusion

The erosion control measures proposed for the site will comply with the requirements of Penrith City Council Engineering Guidelines and The Department of Environment, Climate Change and Water (DECC).

The amended SWMP will ensure that the best management practice is applied to the development site in controlling and minimising the negative impacts of soil erosion.

4 Road Design

4.1 Horizontal and Vertical Geometry

With the changes to the Precinct 4 allotment layout, the future extension of Road 7 towards the south-west is no longer required. As a result, the roadworks at the intersection of Road No. 6 and Road No. 7 have changed.

The previous Stage 1 approved design in Modification No. 6 included the construction of a t-intersection at the intersection of Road No. 6 and Road No. 7. A short section of Road No. 7 was to be constructed toward the south-west as part of the approved design in Modification No. 6. These works are shown below.

The revised road design to suit the changed allotment layout in Precinct 4 includes the complete removal of future Road No. 7 headed south-west, with the intersection of Road No 6 and Road No. 7 adjusted to a change of direction only, such that there is no intersection.

Future access to Lot 4A is proposed to now occur via a Right of Way at allows flexibility for both Lot 4B to utilise for access also. The private driveway will be constructed now as part of Stage 1 infrastructure works.

The updated road design for the estate is shown on drawings C1052 and C1058.

The changes to the civil road design are compared on the following page.

4.2 Pavement

No change to road pavement design.

4.3 Conclusion

All road design as demonstrated through Modification No. 7 changes above, remains in accordance with Austroads Standards and the requirements of Penrith City Council, as a minimum. There are no changes to the road pavement designs or estate road carriageway typical widths shown in the original report and consent.

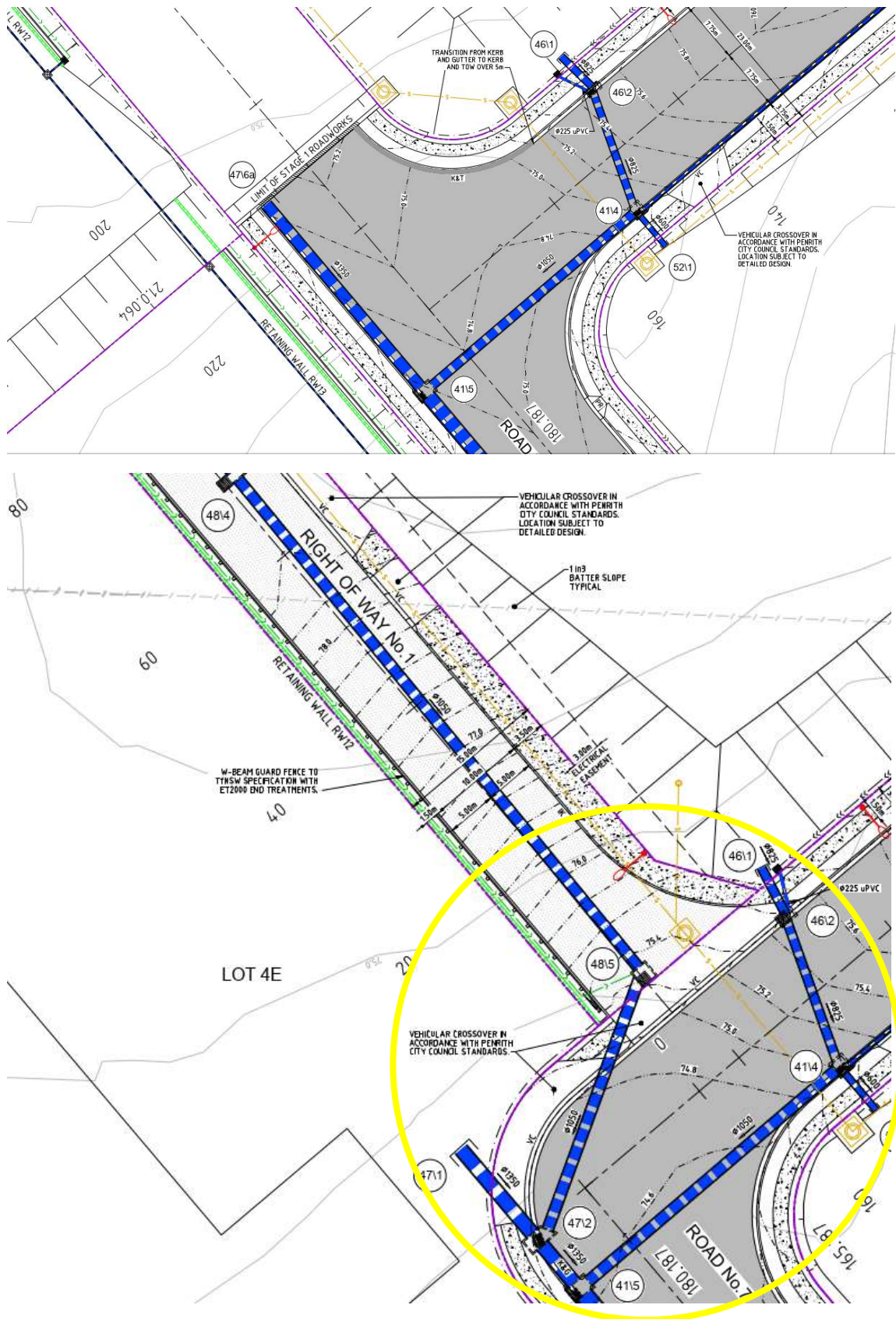


Figure 5 – Modification No. 6 Design of the Road No. 6 and Road No. 7 Intersection (top) and Modification No. 7 Design of the Road No. 6 and Road No. 7 Intersection (bottom)

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5 Stormwater Management

5.1 Existing Site Stormwater Drainage

Pre-development stormwater catchment plan have not changed. The extent of existing catchments remains the same in Modification No. 7.

5.2 Proposed Site Stormwater Drainage

The main objective for the stormwater drainage design of the proposed development is to ensure post-developed catchment flows do not exceed the pre-developed catchment flows. With the Modification No. 7, this remains the case.

Minor amendments to stormwater between the approved Modification No. 6 and Modification No. 7 are included to suit the revised allotment layouts. The changes include:

- Upgrade of Road 3 stormwater alongside Lot 3B, to relocate the location of the future stormwater drainage point for Lot 3C.
- Adjustments to stormwater at the intersection of Road No. 6 and Road No. 7 to reflect the revised road alignment, and to also relocate the location of the future stormwater drainage points for Lots 4E and 4A.

Comprehensive estate wide drainage design has been provided in Drawings C1110-C1115, and stormwater associated with roadworks has been provided in Drawings C1040-C1057.

5.3 Council Requirements & Recommendations

All estate level stormwater drainage for the Modification No. 7 is designed to comply with the Penrith City Council Guidelines listed in the original report.

5.3.1 Modelling Software

Changes to stormwater system design for Modification No. 7 are modelled using DRAINs Software. Updated DRAINs data files and output results are attached in Appendix B.

5.3.2 Catchments

A Stormwater Catchment Plan for each Catchment and flow paths into the bio-retention basins are shown in updated civil infrastructure drawings. While the shape of the land is slightly different for the new Precinct 3 and Precinct 4 allotment layouts, the actual catchment 3 and catchment 4 calculations are not changed in Modification No. 7.

5.3.3 On-Site Detention (OSD)

While the shape of the land is slightly different for the new Precinct 3 and Precinct 4 allotment layouts, as the catchment areas have not changed, there are no further changes to OSD as a result of Modification No. 7. The modelled results below confirm a negligible difference to the existing approval and all flows remain significantly below the peakd

Discharge Point E

All stormwater runoff into Discharge Point E will comprise outflows from Basin No 4 in the post developed case. Refer to Drawing C1069 for details. Refer to Table 3 for flow rates for pre and post developed rates to Discharge Point E.

The OSD within the basin has been designed to achieve the following outcomes:

- OSD basin no 4 volume of 18,071m³ (capacity of the basin from extended detention RL 60.30 to weir of basin RL 63.10).

Duration	Pre-Developed Flows (m ³ /s)	Post Developed Flows (m ³ /s)
1-Year ARI	0.203	0.181
2-Year ARI	0.626	0.533
5-Year ARI	1.23	0.955
10-Year ARI	1.45	0.989
20-Year ARI	1.74	1.04
100-Year ARI	2.26	1.181

Table 3 – Pre-Post Developed Flows to Discharge Point E

5.3.4 Overland Flows

Overland flow paths are unchanged in Modification No. 7.

5.3.5 Water Sensitive Urban Design (WSUD)

The WSUD strategy, MUSIC Model and subsequent WSUD designs prepared by AT & L are based upon requirements within the Penrith City Council C3 Water Management DCP.

MUSIC modelling has been updated to suit the amended catchments in Precinct 4 and results presented as mean annual loads at the receiving node indicate that adopted target reductions are achieved. The only change proposed in Modification No. 7 is the recalculation of loads from the new lot layout to suit the masterplan and buildings proposed.

The total resultant pollutant reduction remains above the target requirement. The specific changes in rebalancing catchments are compared below, although the lot arrangement is different the sources of loads are approximately the same as the original proposal.

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Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	13,700	1570	88.5	85
Total Phosphorus	32.3	11.4	64.8	60
Total Nitrogen	312	136	54.4	45
Gross Pollutants	4060	31.3	99.2	90

Table 4 - Pollutant Loads - Bioretention Basin 4 (Last updated in MOD 2)

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	14100	1510	89.3	85
Total Phosphorus	31.3	11	64.9	60
Total Nitrogen	308	132	57	45
Gross Pollutants	3,980	31.3	99.2	90

Table 5 - Pollutant Loads - Bioretention Basin 4 (MOD 7 Changes)

5.4 Conclusion

As highlighted in the above section, all stormwater drainage within the Oakdale West development has been designed in accordance with the Penrith City Council Engineering Guidelines. As described above, the proposed Modification No. 7 is generally consistent with the previously lodged modifications. This includes design of the stormwater network (pits and pipes), On-Site Detention basins and WSD infrastructure.

6 Services

6.1 Sydney Water

The LASP for potable water (GHD 2016) and LASP for sewer (GHD 2016) have been used for the design of Trunk infrastructure throughout the site. No changes to this are requested for Modification No. 7.

A new reticulation design has been completed to address the changes in the Precinct 3 and Precinct 4 allotment layouts to provide sewer services to future development of all allotments in both Precincts. This includes extension through the lot 4A & 4B right of way. The new reticulation design will be submitted to Sydney Water for construction approval.

Similarly, the potable water at the Road No. 6 and Road No. 7 intersection will also be modified to suit the revised intersection layout. The revised reticulation design will be submitted to Sydney Water for construction approval.

6.2 Communications

Communication conduits are already extended along the constructed Compass Drive and reticulated through the roadways to service the proposed lots at Oakdale West.

Minor adjustments to NBN pit and pipe are required at the intersection of Road No. 6 and Road No. 7 due to the amended road layout.

6.3 Gas

To service Oakdale West, empty conduits will be reticulated through the roadways to service the proposed lots to provision for potential future gas.

Minor adjustments to the empty gas conduit are required at the intersection of Road No. 6 and Road No. 7 due to the amended road layout.

6.4 Electrical

Modification No. 7 proposes no change to the agreement with Endeavour Energy for the provision of the land and infrastructure to facilitate the new South Erskine Park Zone Substation or connections to existing electrical infrastructure in the interim.

Minor adjustments to the electrical reticulation and street lighting are required at the intersection of Road No. 6 and Road No. 7 due to the amended road layout. The adjusted reticulation design will be submitted to Endeavour Energy for construction approval.

6.5 Conclusion

To facilitate the works for Modification No. 7, the services designs approved by utilities stakeholders will require to be adjusted or extended under a new application to each service authority. There are only minor changes to utility infrastructure, namely to sewer to suit the revised allotment layouts of Precinct 3 and 4, as well as minor changes NBN, gas and electrical reticulation to reflect the adjusted road intersection of Roads No. 6 and No. 7.

Internal reticulation will be coordinated at the Construction Certificate (CC) stage of works and applications to the relevant authorities.

7 Infrastructure Staging

7.1 Staging

Modification No. 7 of the Stage 1 Development Approval, includes additional infrastructure:

- Additional retaining wall between Lots 3B and Lot 3C;
- Stormwater changes along Road 3;
- Amendments to Road works at the intersection of Road No. 6 and Road No. 7;
- Utility service adjustments, namely to sewer to suit the revised allotment layouts of Precinct 3 and 4, as well as minor changes NBN, gas and electrical reticulation to reflect the adjusted road intersection of Roads No. 6 and No. 7.
- Lot 4A access driveway.

The construction activities for Modification No. 7 are an extension of the existing scope of work and therefore fall within the staging and activity classifications covered in the original SSDA engineering report.

Refer to civil drawings C0004 for Modification No. 7 civil infrastructure works extent.

There are no changes to previously approved works existing easements on the lands defined in the SSDA 7348, except minor changes within TransGrid easement.

7.2 TransGrid

The revised allotment design within Precinct 4, notably to Lot 4E, has resulted in very minor changes to works proposed within the adjacent TransGrid easement.

The minor changes only relate to the extent of battering within the TransGrid Easement, with the affected batters proposed to maintain the maximum 1 in 8 batter slope as per the approved Modification No. 6 design. It is noted that TransGrid's design guidelines have now changed allowing batters as steep as 1 in 6, however we have maintained the 1 in 8 batter slope where possible to provide the best outcome for TransGrid's future use of the empty easement. The changes to the batters are compared below.

We anticipate that TransGrid will likely review again and provide additional comments to this consent. In consultation, the developer will be urging TransGrid to look at the modification only and not reassess the entire development which is already approved.

The minor changes to the batters in the TransGrid easement are consistent with the requirements of TransGrid and methodology previously approved by TransGrid.

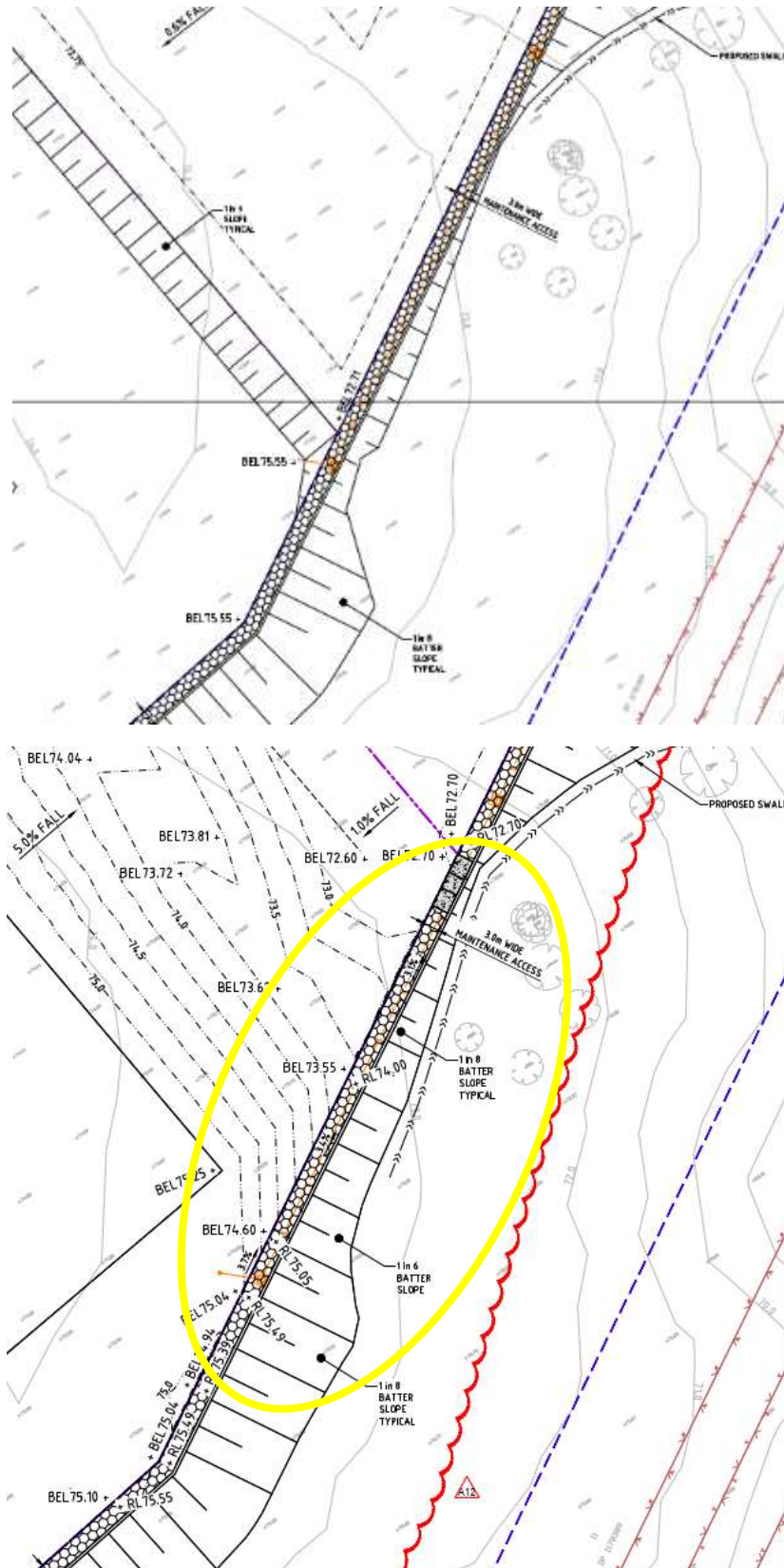


Figure 6 – Modification No. 6 Batters from Lot 4E and Lot 4F/4G (top) and Modification No. 7 Batters from Lot 4E and Lot 4F/4G (bottom)

Civil Engineers & Project Managers

Appendix A

Updated Drawings List of Civil Works

0000 SERIES - MASTER PLAN PACKAGE	
DRAWING No.	DRAWING TITLE
15-272-C0000	COVER SHEET
15-272-C0001	GENERAL ARRANGEMENT MASTER PLAN
15-272-C0002	EXISTING SITE PLAN
15-272-C0003	PRECINCT PLAN
15-272-C0004	STAGE 1 SSD APPROVAL EXTENTS SHEET 1 OF 2
15-272-C0005	STAGE 1 SSD APPROVAL EXTENTS SHEET 2 OF 2
15-272-C0006	CUT\FILL PLAN
15-272-C0007	STORMWATER DRAINAGE CATCHMENT PLAN (PRE-DEVELOPED)
15-272-C0008	STORMWATER DRAINAGE CATCHMENT PLAN (DEVELOPED)
15-272-C0009	EROSION AND SEDIMENT CONTROL MASTER PLAN
15-272-C0010	TYPICAL SECTIONS SHEET 1
15-272-C0011	TYPICAL SECTIONS SHEET 2
15-272-C0012	TYPICAL SECTIONS SHEET 3
15-272-C0013	TYPICAL SECTIONS SHEET 4
15-272-C0014	TYPICAL SECTIONS SHEET 5
15-272-C0020	COMPASS DRIVE GENERAL ARRANGEMENT PLAN
15-272-C0021	COMPASS DRIVE STORMWATER DRAINAGE CATCHMENT PLAN (PRE-DEVELOPED)
15-272-C0022	COMPASS DRIVE STORMWATER DRAINAGE CATCHMENT PLAN (DEVELOPED)
15-272-C0023	COMPASS DRIVE ROAD PROPOSED LAND ACQUISITION PLAN

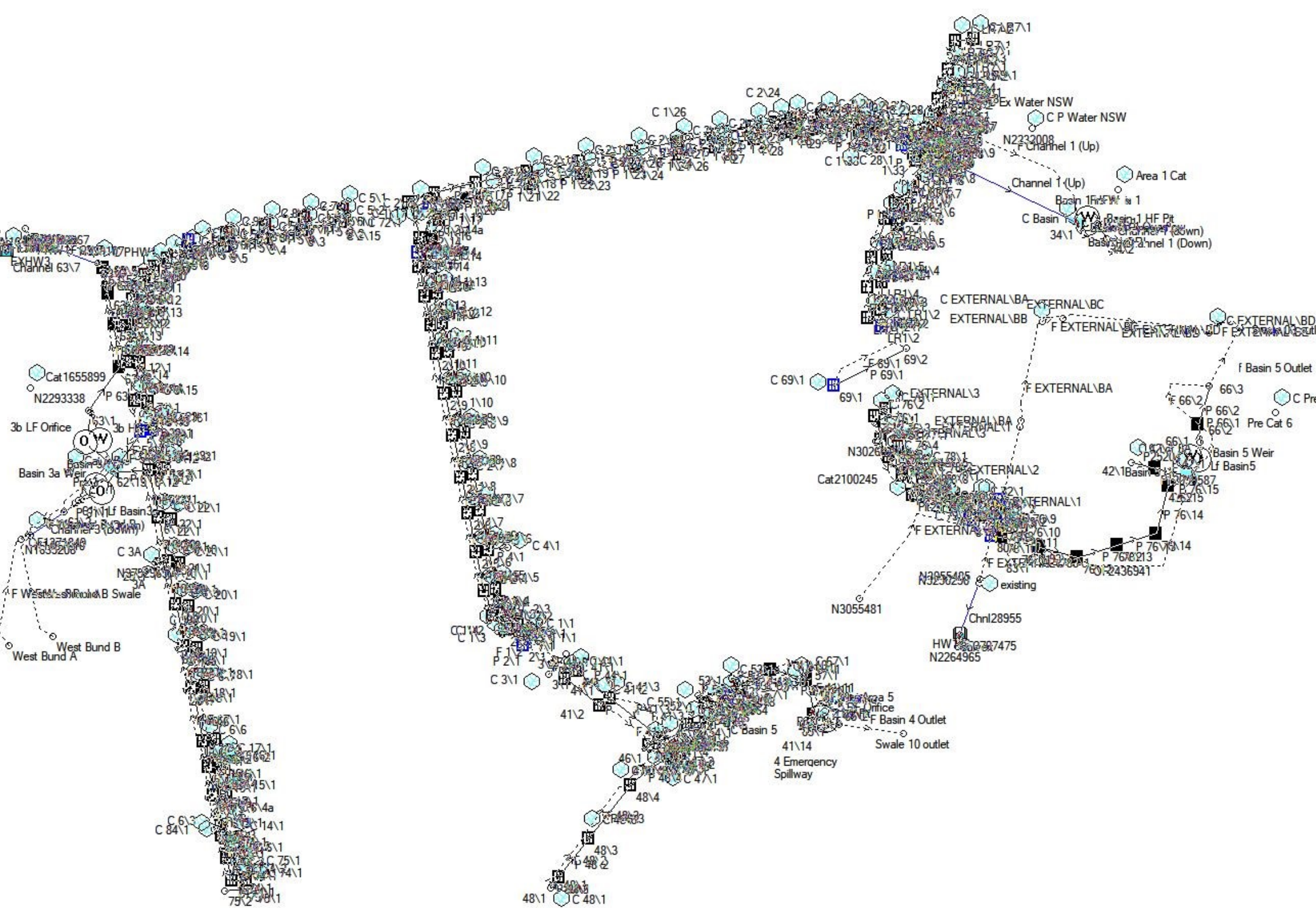
1000 SERIES - INFRASTRUCTURE PACKAGE	
DRAWING No.	DRAWING TITLE
15-272-C1000	COVER SHEET
15-272-C1001	DRAWING LIST
15-272-C1002	GENERAL NOTES
15-272-C1003	PRECINCT GENERAL ARRANGEMENT PLAN
15-272-C1004	TYPICAL SITE SECTIONS SHEET 1 OF 7
15-272-C1005	TYPICAL SITE SECTIONS SHEET 2 OF 7
15-272-C1006	TYPICAL SITE SECTIONS SHEET 3 OF 7
15-272-C1007	TYPICAL SITE SECTIONS SHEET 4 OF 7
15-272-C1008	TYPICAL SITE SECTIONS SHEET 5 OF 7
15-272-C1009	TYPICAL SITE SECTIONS SHEET 6 OF 7
15-272-C1010	TYPICAL SITE SECTIONS SHEET 7 OF 7
15-272-C1011	TYPICAL ROAD SECTIONS
15-272-C1012	CONTOUR PLAN
15-272-C1014	BULK EARTHWORKS CUT\FILL PLAN
15-272-C1015	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 1 OF 20
15-272-C1016	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 2 OF 20
15-272-C1017	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 3 OF 20
15-272-C1018	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 4 OF 20
15-272-C1019	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 5 OF 20
15-272-C1020	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 6 OF 20

15-272-C1021	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 7 OF 20
15-272-C1022	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 8 OF 20
15-272-C1023	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 9 OF 20
15-272-C1024	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 10 OF 20
15-272-C1025	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 11 OF 20
15-272-C1026	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 12 OF 20
15-272-C1027	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 13 OF 20
15-272-C1028	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 14 OF 20
15-272-C1029	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 15 OF 20
15-272-C1030	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 16 OF 20
15-272-C1031	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 17 OF 20
15-272-C1032	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 18 OF 20
15-272-C1033	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 19 OF 20
15-272-C1034	EARTHWORKS AND STORMWATER DRAINAGE PLAN SHEET 20 OF 20
15-272-C1040	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 1 OF 19
15-272-C1041	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 2 OF 19
15-272-C1042	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 3 OF 19
15-272-C1043	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 4 OF 19
15-272-C1044	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 5 OF 19
15-272-C1045	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 6 OF 19
15-272-C1046	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 7 OF 19
15-272-C1047	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 8 OF 19
15-272-C1048	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 9 OF 19
15-272-C1049	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 10 OF 19
15-272-C1050	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 11 OF 19
15-272-C1051	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 12 OF 19
15-272-C1052	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 13 OF 19
15-272-C1053	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 14 OF 19
15-272-C1054	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 15 OF 19
15-272-C1055	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 16 OF 19
15-272-C1056	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 17 OF 19
15-272-C1057	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 18 OF 19
15-272-C1058	ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 19 OF 19
15-272-C1060	ROAD LONGITUDINAL SECTIONS SHEET 1 OF 7
15-272-C1061	ROAD LONGITUDINAL SECTIONS SHEET 2 OF 7
15-272-C1062	ROAD LONGITUDINAL SECTIONS SHEET 3 OF 7
15-272-C1063	ROAD LONGITUDINAL SECTIONS SHEET 4 OF 7
15-272-C1064	ROAD LONGITUDINAL SECTIONS SHEET 5 OF 7
15-272-C1065	ROAD LONGITUDINAL SECTIONS SHEET 6 OF 7
15-272-C1066	ROAD LONGITUDINAL SECTIONS SHEET 7 OF 7
15-272-C1070	WESTERN BOUNDARY LAYOUT AND SECTIONS
15-272-C1071	SOUTHERN BOUNDARY LAYOUT AND SECTIONS
15-272-C1080	BIO-RETENTION BASIN 2 AND 3 DETAIL PLAN SHEET 1 OF 2
15-272-C1081	BIO-RETENTION BASIN 2 AND 3 DETAIL PLAN SHEET 2 OF 2
15-272-C1082	BIO-RETENTION BASIN 4 DETAIL PLAN SHEET 1 OF 2
15-272-C1083	BIO-RETENTION BASIN 4 DETAIL PLAN SHEET 2 OF 2

15-272-C1084	BIO-RETENTION BASIN 5 DETAIL PLAN
15-272-C1086	STORMWATER DRAINAGE CATCHMENT PLAN (PRE-DEVELOPED)
15-272-C1087	STORMWATER DRAINAGE CATCHMENT PLAN (POST-DEVELOPED)
15-272-C1090	RETAINING WALL GENERAL ARRANGEMENT PLAN
15-272-C1091	RETAINING WALL PROFILES SHEET 1 OF 9
15-272-C1092	RETAINING WALL PROFILES SHEET 2 OF 9
15-272-C1093	RETAINING WALL PROFILES SHEET 3 OF 9
15-272-C1094	RETAINING WALL PROFILES SHEET 4 OF 9
15-272-C1095	RETAINING WALL PROFILES SHEET 5 OF 9
15-272-C1096	RETAINING WALL PROFILES SHEET 6 OF 9
15-272-C1097	RETAINING WALL PROFILES SHEET 7 OF 9
15-272-C1098	RETAINING WALL PROFILES SHEET 8 OF 9
15-272-C1099	RETAINING WALL PROFILES SHEET 9 OF 9
15-272-C1110	STAGE 1 SERVICES AND UTILITIES COORDINATION PLAN SHEET 1 OF 6
15-272-C1111	STAGE 1 SERVICES AND UTILITIES COORDINATION PLAN SHEET 2 OF 6
15-272-C1112	STAGE 1 SERVICES AND UTILITIES COORDINATION PLAN SHEET 3 OF 6
15-272-C1113	STAGE 1 SERVICES AND UTILITIES COORDINATION PLAN SHEET 4 OF 6
15-272-C1114	STAGE 1 SERVICES AND UTILITIES COORDINATION PLAN SHEET 5 OF 6
15-272-C1115	STAGE 1 SERVICES AND UTILITIES COORDINATION PLAN SHEET 6 OF 6
15-272-C1120	EXISTING TRANSGRID OVERHEAD ELECTRICAL CABLES PLAN
15-272-C1121	EXISTING TRANSGRID OVERHEAD ELECTRICAL CABLES LONGITUDINAL SECTIONS
15-272-C1122	EXISTING TRANSGRID OVERHEAD ELECTRICAL CABLES TYPICAL SECTIONS SHEET 1 OF 2
15-272-C1123	EXISTING TRANSGRID OVERHEAD ELECTRICAL CABLES TYPICAL SECTIONS SHEET 2 OF 2
15-272-C1130	EROSION AND SEDIMENT CONTROL PLAN SHEET 1 OF 7
15-272-C1131	EROSION AND SEDIMENT CONTROL PLAN SHEET 2 OF 7
15-272-C1132	EROSION AND SEDIMENT CONTROL PLAN SHEET 3 OF 7
15-272-C1133	EROSION AND SEDIMENT CONTROL PLAN SHEET 4 OF 7
15-272-C1134	EROSION AND SEDIMENT CONTROL PLAN SHEET 5 OF 7
15-272-C1135	EROSION AND SEDIMENT CONTROL PLAN SHEET 6 OF 7
15-272-C1136	EROSION AND SEDIMENT CONTROL PLAN SHEET 7 of 7
15-272-C1137	EROSION AND SEDIMENT CONTROL DETAILS

Appendix B

DRAINS Model



Appendix C

MUSIC Model

