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15 May 2019 KF110816- C020

Dr Mark Jackson
Jackson Environment & Planning Pty Ltd
Suite 102, Level 1
25-29 Berry Street
NORTH SYDNEY 2060

Dear Mark,

Re SSD 5300 Mod 2 for Resource Recovery Facility, 30 Wyllie Road, Kembla Grange

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This letter replaces our advice dated 24 April 2017.

I understand that an application to modify SSD5300 is being prepared. This application is referred to as SSD5300 Mod #2.

The purpose of the application is to seek approval for the following:

a. Installation of rainwater storage tanks on the premises in a location which differs from the approved plans under SSD 5300 Mod 1;

b. Installation of firewater storage tanks and a pump room; and

c. An outdoor picking station (roof area 110 m^2) and associated equipment in the general processing area.

The site works involved are of a very minor nature and will have the following effects:

- Increase in impervious area of 110 m^2 from the picking station roof (100% impervious).
- Increase in impervious area of 105 m^2 due to the fire fighting water tanks and pump room (100% impervious).
- Increase in impervious area of 74 m^2 due to the rainwater base slabs (100% impervious).

The total increase in impervious area under SSD 5300 Mod #2 will therefore be 289 m^2. This represents a cumulative increase in the overall site impervious area of 1.68%

I have reviewed the following documents prepared to support the application under SSD5300 Mod #2:

a. Site Water Impact Assessment addendum report (KFW, 24 April 2017)

b. Site Water Balance (KFW, 5 May 2016)

c. WSUD and Flood Analysis Report (KFW, June 2014)

The stormwater model ,DRAINS, was modified to include the total additional impervious area draining to Pit 1G which includes the picking station roof and Pit 1J which includes the fire fighting water tanks and pump house.

As stated above, the overall increase in impervious area remains insignificant.

Reference to Attachment #1 indicates the following:

- Peak local runoff at pit 1G increase from 0.153 m^3/s to 0.154 m^3/s during a 100yr ARI storm burst.

- Peak local runoff at pit 1J increase from 0.361 m^3/s to 0.363 m^3/s during a 100yr ARI storm burst.

- The additional 0.003 m^3/s runoff (Pit 1G and Pit 1J) is routed through the detention basin and has no significant effect on site discharge.

  Please note that the apparent very small increase in discharge shown on Attachment #1 from the detention basin from 0.89 m^3/s with 1.51 m^3/s weir flow to 0.89 m^3/s with 1.52 m^3/s during a 100 year ARI storm burst is due to the fact that DRAINS model reports results to three significant figures.

- The Picking Station roof, hardstand under the rainwater tanks and the hardstand areas built for the firewater tank and pump room will not perceptibly increase the peak runoff from the site.

The MUSIC model was modified as follows:

- Operational area reduced by 36m^2 and impervious increased by 1% (additional recycled concrete pavement)

- New source node for the weighbridge office with a new treatment node (500 litre rainwater tank).

Reference to Attachment #2 indicates the following

- Table A2.1 shows that there is no perceptible increase residual pollutant load.

- Table A2.2 shows that water reuse demand met from the permanent pool is largely unaffected. The apparent reduction (ie 75.1% to 74.8%) is due to the weighbridge rainwater tank intercepting runoff which would have otherwise been captured by the permanent pool.

- Table A2.3 shows that the installation of a 500 litre rainwater tank will provide a small but additional source of water for site operations and mitigate the increase in runoff volume.

In can be reasonably concluded without further modelling that the impact of Modification #2 and associated site works is insignificant and imperceptible.

Yours faithfully,

K F WILLIAMS & ASSOCIATES PTY LTD

Wal Mullany

BE, Grad Dip LGE, ME(Hons), MIE Aust, CPEng, NER

Attachments:

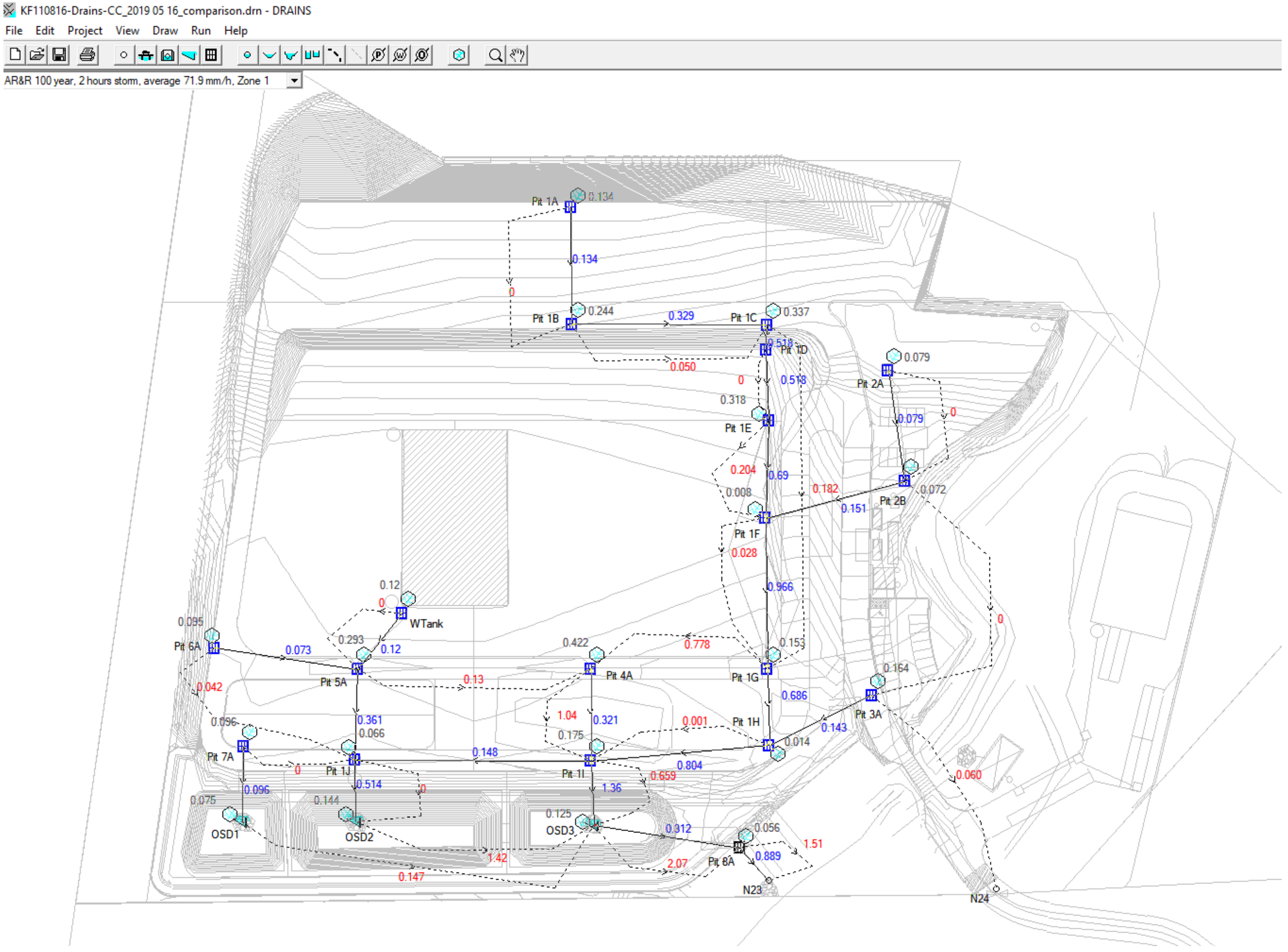
Attachment #1: Modified DRAINS stormwater model output

Attachment #2: Modified MUSIC model output

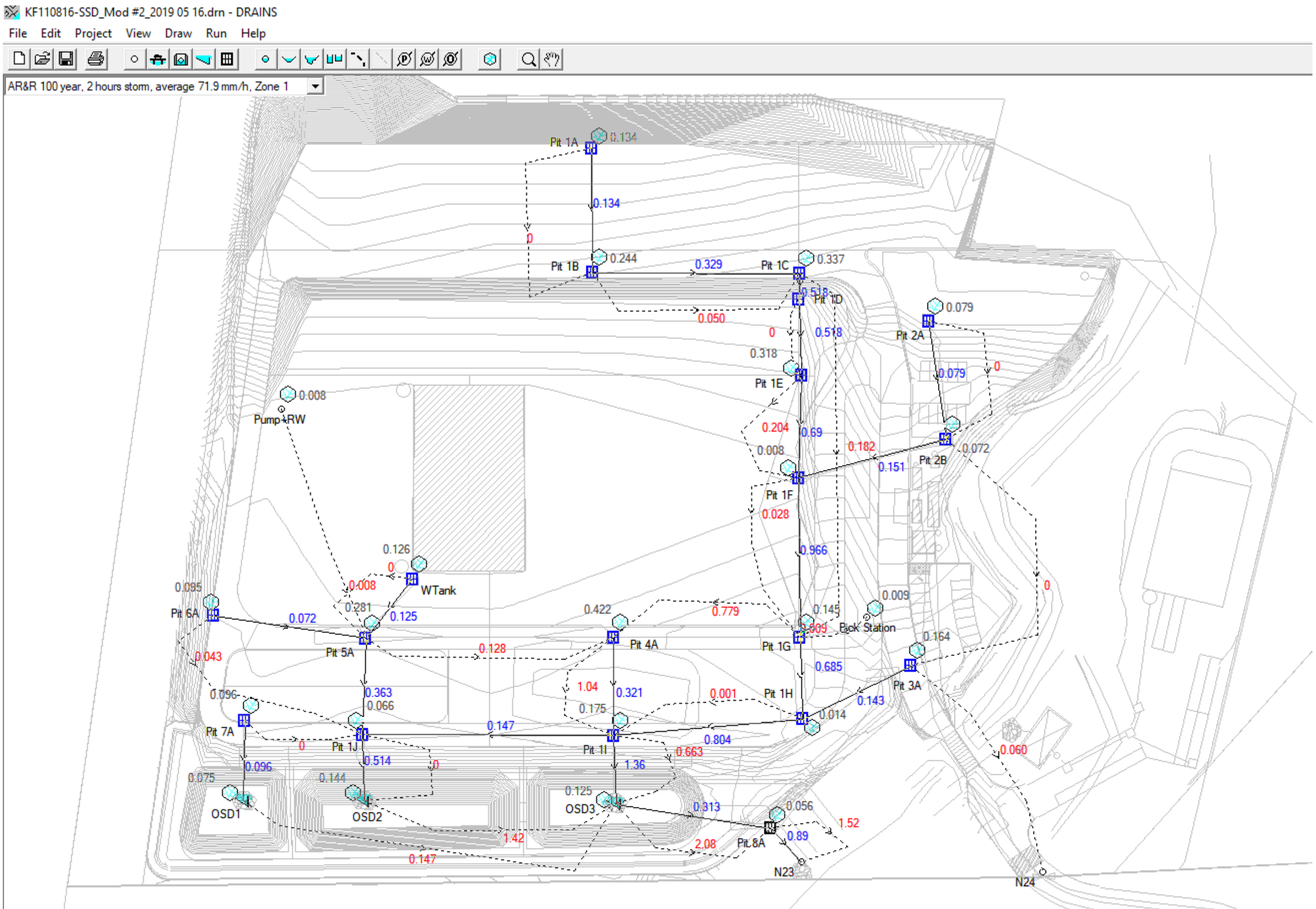
Attachment #3: Drawing KF110816 C301 Rev F

Attachment #4: Drawing KF110816 C305 Rev D

A1.1: Drains Model as Approved

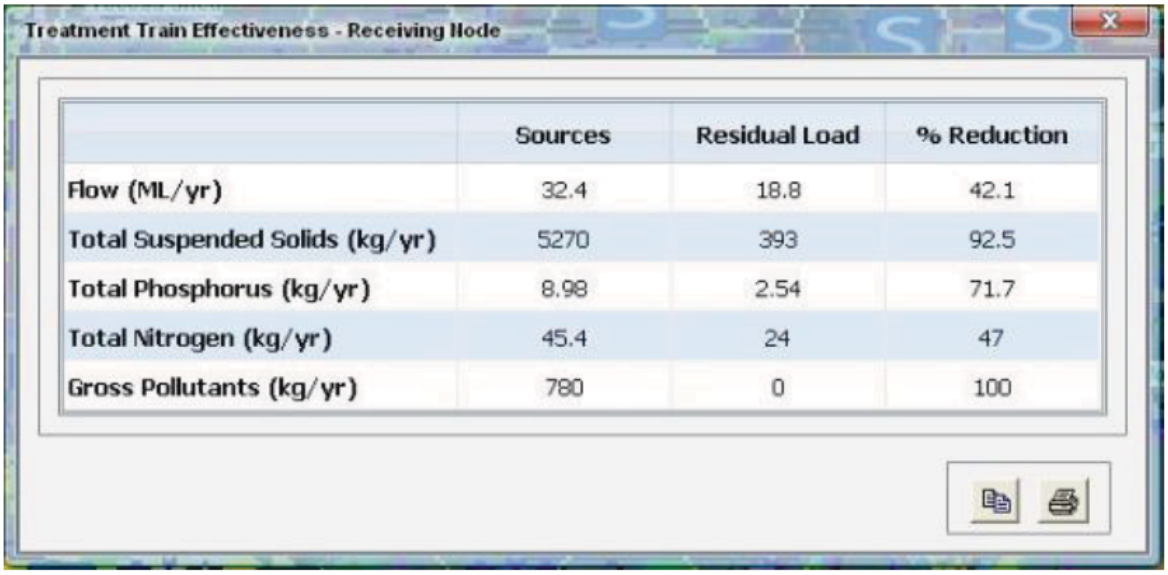


1.2: Drains Model for Mod #2



A2.1 Treatment Train Effectiveness

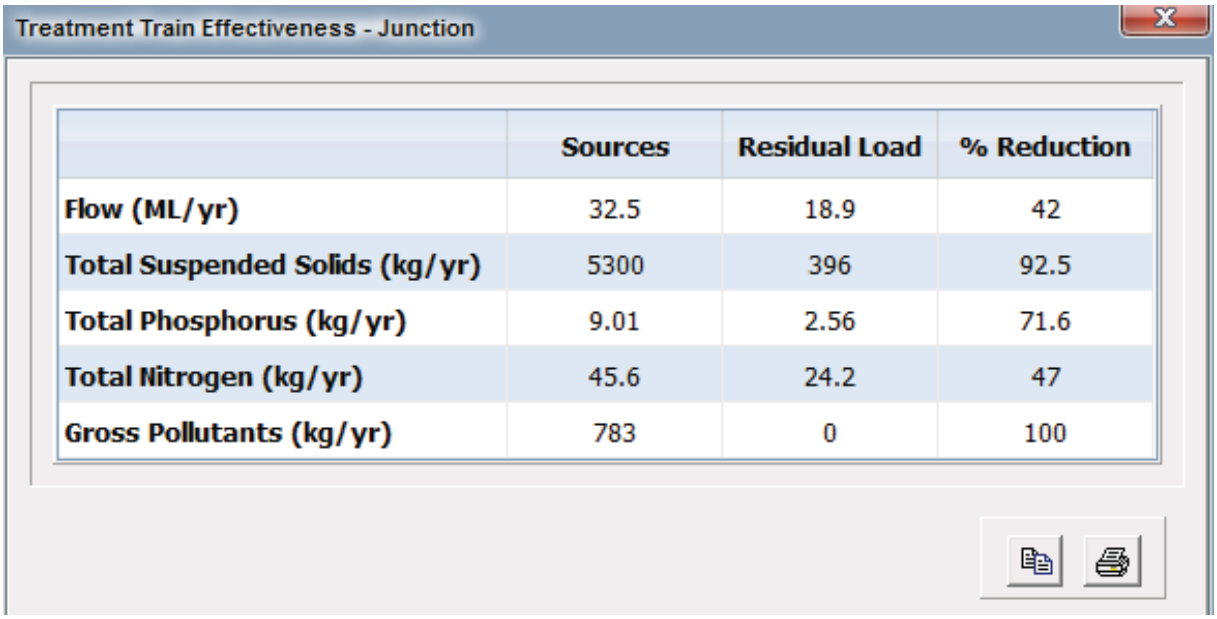
Table 4.6.1
Treatment Train Effectiveness



	Sources	Residual Load	% Reduction
Flow (ML/yr)	32.4	18.8	42.1
Total Suspended Solids (kg/yr)	5270	393	92.5
Total Phosphorus (kg/yr)	8.98	2.54	71.7
Total Nitrogen (kg/yr)	45.4	24	47
Gross Pollutants (kg/yr)	780	0	100

Table 4.6.1 extracted from WSUD Report

Table A2.1
Extracted from modified MUSIC# Model



	Sources	Residual Load	% Reduction
Flow (ML/yr)	32.5	18.9	42
Total Suspended Solids (kg/yr)	5300	396	92.5
Total Phosphorus (kg/yr)	9.01	2.56	71.6
Total Nitrogen (kg/yr)	45.6	24.2	47
Gross Pollutants (kg/yr)	783	0	100

A2.2 Water Balance

Table 4.6.4
Water Balance Permanent Pool

Node Water Balance - Permanent Pool

	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	GP (kg/yr)
Flow In	28.7	972.2	5.9	29.2	694.4
ET Loss	1.3	0.0	0.0	0.0	0.0
Infiltration Loss	0.0	0.0	0.0	0.0	0.0
Low Flow Bypass Out	0.0	0.0	0.0	0.0	0.0
High Flow Bypass Out	0.0	0.0	0.0	0.0	0.0
Pipe Out	6.6	133.6	0.9	8.6	0.0
Weir Out	9.5	214.1	1.4	11.6	0.0
Transfer Function Out	0.0	0.0	0.0	0.0	0.0
Reuse Supplied	10.8	223.2	1.5	16.1	0.0
Reuse Requested	14.4	0.0	0.0	0.0	0.0
% Reuse Demand Met	75.1	0.0	0.0	0.0	0.0
% Load Reduction	43.9	64.2	61.6	31.1	100.0

Decimal Places 1

Table 4.6.4 extracted from WSUD Report

Table A2.2
Permanent Pool Water Balance
Extracted from Modified MUSIC# Model

Table

Node Water Balance - Permanent Pool

	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	GP (kg/yr)
Flow In	27.5	931.8	5.6	28.0	665.3
ET Loss	1.3	0.0	0.0	0.0	0.0
Infiltration Loss	0.0	0.0	0.0	0.0	0.0
Low Flow Bypass Out	0.0	0.0	0.0	0.0	0.0
High Flow Bypass Out	0.0	0.0	0.0	0.0	0.0
Pipe Out	6.2	127.1	0.8	8.2	0.0
Weir Out	8.7	195.5	1.3	10.6	0.0
Transfer Function Out	0.0	0.0	0.0	0.0	0.0
Reuse Supplied	10.8	225.6	1.5	15.6	0.0
Reuse Requested	14.4	0.0	0.0	0.0	0.0
% Reuse Demand Met	74.8	0.0	0.0	0.0	0.0
% Load Reduction	45.6	65.4	62.8	33.0	100.0

Decimal Places 1

Table A2.3
Weighbridge Rainwater Tank Water Balance
Extracted from Modified MUSIC# Model

Node Water Balance - Weighbridge RWT

	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	GP (kg/yr)
Flow In	0.0	4.9	0.0	0.0	0.7
ET Loss	0.0	0.0	0.0	0.0	0.0
Infiltration Loss	0.0	0.0	0.0	0.0	0.0
Low Flow Bypass Out	0.0	0.0	0.0	0.0	0.0
High Flow Bypass Out	0.0	0.0	0.0	0.0	0.0
Pipe Out	0.0	1.5	0.0	0.0	0.0
Weir Out	0.0	0.0	0.0	0.0	0.0
Transfer Function Out	0.0	0.0	0.0	0.0	0.0
Reuse Supplied	0.0	0.4	0.0	0.0	0.0
Reuse Requested	0.1	0.0	0.0	0.0	0.0
% Reuse Demand Met	15.9	0.0	0.0	0.0	0.0
% Load Reduction	50.1	69.0	60.0	50.4	100.0

Decimal Places 1

DO NOT SCALE

Attachment #3

DRAINAGE NOTES

1. RAINWATER TANKS TO HAVE FIRST FLUSH BYPASS SYSTEM
2. 2 x 100,000 LITRE TANKS WILL PROVIDE APPROXIMATELY 82% OF DAILY DEMAND OF 500 LITRES/DAY
3. PRIOR TO COMMENCING CONSTRUCTION WORK, THE OWNER/CONTRACTOR SHALL ENGAGE A REGISTERED SURVEYOR TO ACCURATELY DELINEATE THE GAS PIPELINE BOUNDARY. IN ORDER TO PREVENT CONSTRUCTION PLANT FROM ENCROACHING ONTO THE GAS PIPELINE EASEMENT, THE OWNER/CONTRACTOR SHALL INSTALL A HIGH VISIBILITY ORANGE PARA-WEB FENCING OR 1.8M HIGH CHAINWIRE FENCE TO CLEARLY DELINEATE THE LIMIT OF WORK. THE FENCE SHALL NOT ENCROACH UPON THE GAS PIPELINE EASEMENT AND SHALL BE INSTALLED 0.15 M OFF THE EASEMENT BOUNDARY.
4. WATER QUALITY/RECUTCLING POND EMBANKMENT IS TO BE COMPACTED TO 100% MOD COMPACTION UNDER LEVEL 2 GEOTECHNICAL CONTROL
5. DUST CONTROL TO BE ACHIEVED USING WATER CART. DEMAND ESTIMATED AT 40,000 L/DAY
6. LEACHATE COLLECTION TANKS PUMPED OUT BY SERVICE TANKER.
7. BYPASS CONTROL PIT TO DIVERT 220 l/sec TO WATER QUALITY POND. DISCHARGE EXCEEDING 230 l/sec TO DRAIN DIRECT TO DETENTION BASIN.
8. DETENTION BASIN TO HAVE 1953m³ STORAGE WITH 675mm DIA PIPE OUTLET. WEIR RL @ APPROX. 18.85m.
9. WATER QUALITY/RECYCLING POND TO HAVE PERMANENT VOLUME OF 3428 m³ WITH 673 m³ EXTENDED STORAGE. OVERFLOW PIPE TO BE 100mm DIA PIPE. OVERFLOW PIPE TO DISCHARGE TO DETENTION BASIN.
10. SHREDDING RUNOFF POND. SHREDDING RUNOFF POND TO HAVE VOLUME OF 781m³. OVERFLOW PIPE TO BE DISCHARGED TO WATER QUALITY POND. OVERFLOW PIPE TO BE 100mm DIA.
11. NO STORAGE OF BUOYANT MATERIAL IN PMF INUNDATION AREA. MINIMUM CRUSHED AGGREGATE SIZE IN PMF INUNDATION AREA TO BE 75mm
12. GREEN WASTE TO BE COVERED BY TARPAULIN TO PREVENT INFILTRATION OF RAINWATER WHEN STOCKPILE TO BE IN PLACE LONGER THAN 21 DAYS.
13. SEPTIC TANK SERVICING OFFICE COMPLEX SHALL BE SERVICED/PUMPED OUT WEEKLY UNDER SERVICE CONTRACT

LEGEND

- DENOTES PROPOSED BUILDING
- DENOTES EXISTING CONTOURS
- DENOTES PROPOSED SURFACE LEVELS
- DENOTES PROPOSED BATTER (1 IN 2) TO BE LANDSCAPED
- DENOTES PROPOSED LANDSCAPING/BATTER PROTECTION
- DENOTES 10m BUFFER LINE FROM TOP BANK
- DENOTES 1% AEP FLOOD LIMIT
- DENOTES SUBSOIL DRAINAGE
- DENOTES CATCH DRAIN
- DENOTES DIECTION OF TRAFFIC FLOW
- DENOTES STORMWATER FLOW
- DD DENOTES HUMECEPTOR DOWNSTREAM DEFE
- DENOTES BOLLARD & SIGNAGE
- DENOTES STORMWATER PITS AND PIPE
- DENOTES STAGE 1 LIMITS
- DENOTES FUTURE STAGE LIMITS
- SS DENOTES PROPOSED SUB SOIL LINE

SIGN - ARR-104

EASEMENT FOR TRANSMISSION LINE 45.72 WIDE

ALL WORK WITHIN THE STAGE 1 AREA IS TO BE EXECUTED IN STAGE 1

CONSTRUCT DIVERSION CATCH DRAIN AT TOP OF BATTER. DIVERSION DRAIN CAPACITY TO BE 1.5m³/s REFER TO SHEET C307 FOR DETAILS

STAGE 1

ZONE LINE

DIRECT DIVERSION DRAIN TO WATER COURSE

CONSTRUCT CONCRETE PAVEMENT FOR MOBILE EQUIPMENT MAINTENANCE AND STORAGE AREA FOR EXCAVATORS, LOADERS AND ATTACHMENTS, TRUCKS AND BINS, CRUSHERS AND SCREENS

PROVIDE TRANSTANK T20SS. FUEL, OIL & SOLVENTS TO BE STORED IN TRANS TANK.

REARRANGE CONTAINERS TO FORM U SHAPE AND INSTALL ROOF IN ORDER TO CREATE WEATHER PROOF PLANT PARKING AREA. ROOF DISCHARGE TO 10000 L RAIN WATER TANK.

FILL / LANDSCAPE MOUND

PROVIDE 10,000 LITRE RAINWATER TANK TO HARVEST RAINWATER

PROVIDE SUBSOIL DRAIN AT TOE OF BATTER.

CONSTRUCT TABLE DRAIN AT TOE OF BATTER. TABLE DRAINS TO BE DIRECTED TO WATER QUALITY/RECYCLING POND

VEHICLE TURNING/BACKING AREA

SKIP BIN STORAGE AREA

BUND AROUND HIGH SIDE OF EQUIP. AREA TO DIVERT RUNOFF

CONSTRUCT 900x900 GRATED SURFACE INLET PIT, HEAVY DUTY GRATE

CONSTRUCT 900x900 GRATED SURFACE INLET PIT, HEAVY DUTY GRATE

RCP

200mm HIGH KERB

GRADE CONC. AREA TO FALL TO PIT

CONSTRUCT 900x900 PIT WITH HD GRATE

EQUIPMENT AREA

CONTAINER

INSTALL ROCLA DOWNSTREAM DEFENDER DD1200 OR EQUIVALENT

BUND AROUND CONC. PAVEMENT

OUTDOOR PROCESSING, STOCKPILING AND LOADING AREA FOR PROCESSED AND UNPROCESSED CONCRETE, BRICK, RUBBLE, ROCK, STEEL,SOIL, HARDFILL ETC

NEW LOCATION FOR RAINWATER TANKS

PROVIDE OPENING UP TO 6m WIDE

FIRE PUMP ROOM AND FIRE WATER TANKS

STAFF CARPARK (10 SPACES)

CONSTRUCT 900x900 SURFACE INLET PIT WITH SPC COVER. GRADE SURFACE TO FALL TO PIT.

STAGE 1

FUTURE STAGE

NOT PART OF THIS CC APPLICATION

ZONE LINE

INDOOR PROCESSING AND STORAGE SHED (50x30m) FL = 21.50

PICKSTATION, CONVEYOR BAY WALLS AND SLAB

PROVIDE 2x100,000 LITRE RAINWATER TANKS APPROVED UNDER SSD5300

PROVIDE LEVEL SPREADER ALONG EDGE OF PAVEMENT, TO DISCHARGE RUNOFF FROM WORKSHOP PAVEMENT TO CREEK

STOCKPILING AND LOADING AREA FOR PROCESSED AND UNPROCESSED SAND, SOIL, TIMBER AND GREEN WASTE

DISH ACCESS ROAD TO INTERCEPT RUNOFF AND DIRECT RUNOFF TO WATER QUALITY/RECYCLING POND

INDICATIVE PLANT SHOWN SHADED

70m NEW CONCRETE SLAB AND BAY WALLS

PROVIDE DISABLED CARPARK

UNTARPING AREA

CARPARK (16 SPACES)

SEPTIC TANK

CRUSHING PLANT INSIDE THE INDOOR PROCESSING AND STORAGE SHED

LEACHATE COLLECTION TANKS. REFER TO NOTE 6 AND DRAWING KF110816 C310 & C315

CONSTRUCT 900x900 GRATED SURFACE INLET PIT, HEAVY DUTY GRATE

WASTE

HEAVY FEED

INSTALL BOLLARDS AT 4.5m SPACING TO DELINEATE GAS EASEMENT. BOLLARDS TO BE INSTALLED AS SHOWN ON C306. INSTALL ARR-104 SIGN AT 10m INTERVALS. AS ALTERNATIVE TO BOLLARDS CONCRETE BLOCKS OR BOULDERS WITH MIN. MASS OF 900kg MAY BE USED

CONSTRUCT TABLE DRAIN. TABLE DRAINS TO BE DIRECTED TO WATER QUALITY/RECYCLING POND

RESTRICTED STOCKPILE AREA

75mm MINIMUM PARTICLE SIZE

STOCKPILE

GREEN WASTE SHREDDING AREA

REFER TO NOTE 12

REFER TO C309

CONSTRUCT 900x900 GRATED SURFACE INLET PIT, HEAVY DUTY GRATE

CONSTRUCT 900x900 BYPASS CONTROL PIT REFER TO NOTE 7

LOW POINT

DISH ROAD AND GRADE TO PITS

LOW POINT IN ROAD GRADE TO FALL TO BASIN

RECYCLED WATER PUMP

CONSTRUCT HUMECEPTOR AT OUTLET TO WATER QUALITY POND

WATER QUALITY/ RECYCLING POND

REFER TO NOTE 7

DETENTION BASIN A

REFER TO NOTE 8

96.0m WIDE WEIR AND OVERFLOW WITH SCOUR PROTECTION TO CREEK

PROVIDE NEW BRIDGE OVER CREEK

CARPARK

STAGE 1&2 EMERGENCY EVACUATION ASSEMBLY AREA

EXISTING ACCESS ROAD

PROPOSED ACCESS ROAD

GREEN WASTE SHREDDING RUNOFF POND

REFER TO NOTE 10

DISCHARGE SUBSOIL AND SURFACE RUNOFF TO POND

FILL / LANDSCAPE MOUND

CONSTRUCT PERMANENT CATTLEGRATE AT END OF BITUMEN SEAL

CONSTRUCT CHAIN WIRE FENCE 1.8m HIGH ON BOUNDARY

CONSTRUCT GATE ON BOUNDARY

ROCK WALL 2.0 m OFF BOUNDARY

FUTURE ROAD

LANDSCAPED EARTH WALL TO ASSIST IN VISUAL AND ENVIRONMENTAL IMPACTS

CONSTRUCT ASPHALT OR BITUMEN SEAL FROM WEIGHBRIDGE TO WYLLIE ROAD

WYLLIE ROAD

EASEMENT FOR TRANSMISSION LINE 45.72 WIDE

EASEMENT FOR GAS PIPELINE 20 WIDE & VARIABLE

- DENOTES Q_{100} FLOODLINE
- DENOTES Q_{100} 100% BLOCKED FLOODLINE
- DENOTES Q_{100} CLIMATE CHANGE FLOODLINE
- DENOTES Q_{100} PRE DEVELOPMENT FLOODLINE

PLAN
SCALE 1:500

Revision	Amendment or reason for issue	Issue date	Drawn by	Authorised
F	LABELS FIXED	05.02.2019	J.D.	W.M.
E	AMENDED AS PER DEWCAPE	09.10.2018	J.D.	W.M.
D	AMENDED AS PER CLOUDS	21/6/2018	AM	W.M.
C	1% AEP FLOOD EXTENT SHOWN	24 APRIL 2017	WM	WM
B	ADDITIONAL WEIGHBRIDGE NOTATIONS ADDED	31.03.2017	C.R.	W.M.
A	WEIGHBRIDGE LOCATION AMENDED	13.01.2017	B.M	W.M

KFW INFRASTRUCTURE PROFESSIONALS

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Surveyor	DENNIS SMITH
Date of Survey	
Height Datum	AHD
Origin	
Horiz. Datum	
Date	APRIL 2016
Drawn	B.MIDDLETON
Designed	W.MULLANY
	BE Grad Dip LGE ME(Hons) MIEAust CPEng RPD
Checked	
Approved	

Drawing Title: PROPOSED INDUSTRIAL DEVELOPMENT
LOT 10 DP 878167
WYLLIE ROAD, KEMBLA GRANGE
SITE PLAN

Scale 1:500 @ A1
1:1000@ A3

Drawing Status: ISSUED FOR SSD5300 MOD2 CC

Project No. KF110816
Drawing No. C301
Sheet 2 Of 20
Revision F

PLOTTED BY : Jdo
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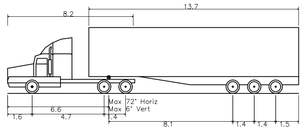
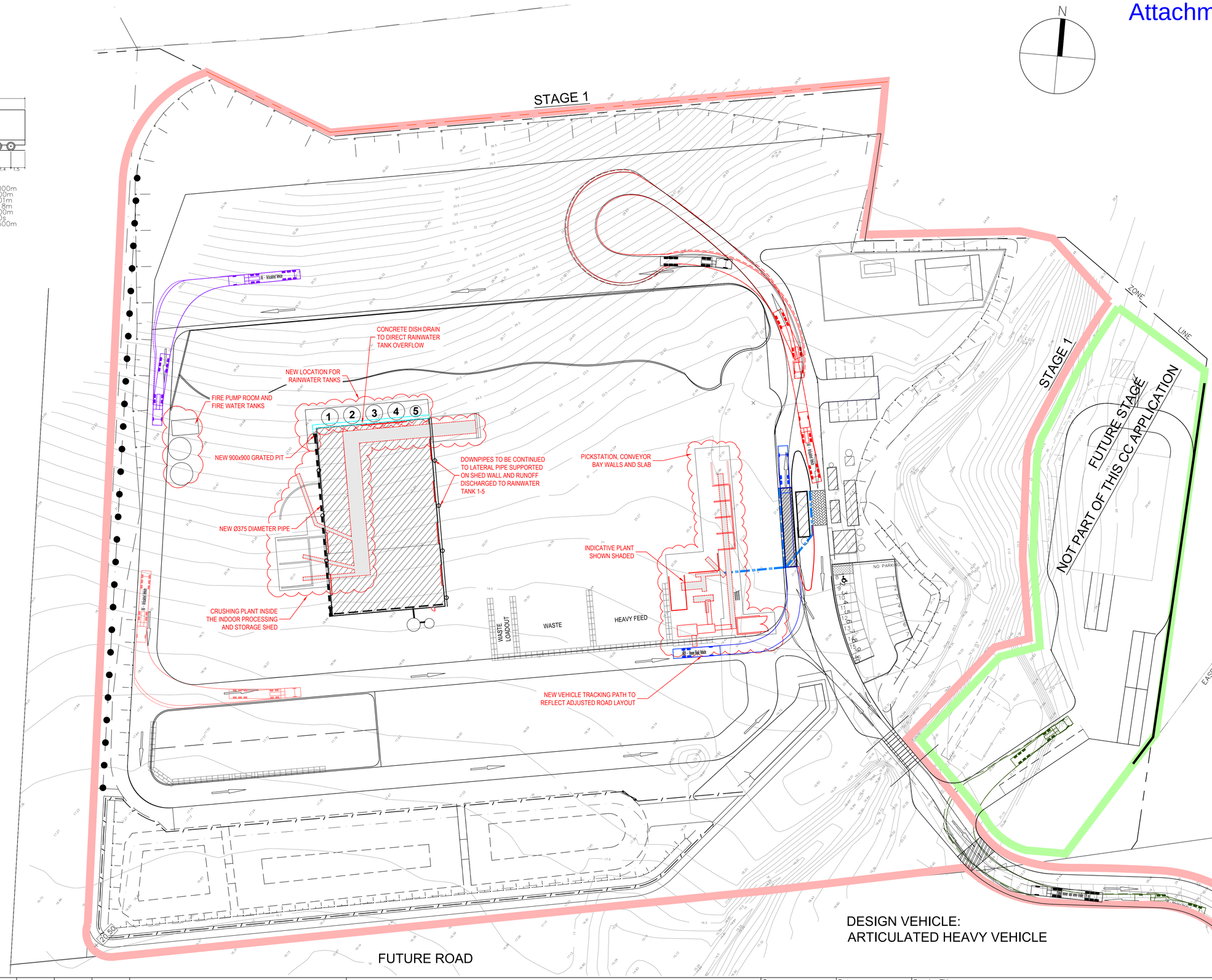
DO NOT SCALE

Attachment #4



AV – Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m



Revision	Amendment or reason for issue	Issue date	Drawn by	Authorised
D	SITE LAYOUT AMENDED AS PER DEWCAPE	09.10.2018	J.D.	W.M.
C	ADDITIONAL SWEPT PATH SHOWN FOR ENTRY ONTO NEW WEIGHBRIDGE	24 APRIL 2017	BM	WM
B	ADDITIONAL WEIGHBRIDGE NOTATIONS ADDED	31.03.2017	C.R.	W.M.
A	WEIGHBRIDGE LOCATION AMENDED	24.01.2017	B.M	W.M

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Surveyor: DENNIS SMITH	Date: APRIL 2016	Drawing Title	Project No. KF110816
Date of Survey	Drawn: B.MIDDLETON	PROPOSED INDUSTRIAL DEVELOPMENT LOT 10 DP 878167 WYLLIE ROAD, KEMBLA GRANGE TURNING SWEPT PATHS	Drawing No. C305
Height Datum: AHD	Designed: W.MULLANY (BE Grad Dip LGE ME(Hons) MIEAust CPEng RPD)		Sheet: 6 Of 20 / Revision: D
Origin	Checked		
Horiz. Datum	Approved	Scale: 1:500 @ A1, 1:1000 @ A3 / Drawing Status: ISSUED FOR SSD5300 MOD2 CC	

FILENAME: X:\KF110816\Civil\Drawings\CC\KF110816-C-CC.dwg
PLOTTED BY : JDO