

449 VICTORIA STREET
WETHERILL PARK
LOT 304(1) DP 1098762

- STORMWATER MANAGEMENT PLAN-



DRAWING SCHEDULE

DRG No.	DRAWING TITLE
C300	COVER SHEET & DRAWING INDEX
C301	EROSION AND SEDIMENT CONTROL PLAN
C302	CUT & FILL AND CATCHMENT PLANS
C303	GENERAL ARRANGEMENT PLAN
C304	STORMWATER LONG SECTIONS
C305	STORMWATER CALCULATIONS AND DRAINAGE PHILOSOPHY

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION					ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	<div><div><div></div><div></div></div><div><div>ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.</div></div></div> <div><div><div><div></div><div></div></div><div><div><div></div><div></div></div></div><div><div>Northrop</div><div>Newcastle</div><div>Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 Ph (02) 4943 1777 Fax (02) 4943 1577 Email newcastle@northrop.com.au ABN 81 094 433 100</div></div></div></div> <div><div>PROJECT</div><div>449 VICTORIA ST, WETHRILL PARK LOT 304 DP 1098762 PROPOSED SUBDIVISION</div></div> <div><div>DRAWING TITLE</div><div>COVER SHEET & DRAWING INDEX</div></div> <div><div>JOB NUMBER</div><div>NL150032</div></div>
A	ISSUED FOR APPROVAL					RD	AB	AB	02.06.17		JS ARCHITECTS PTY LTD	
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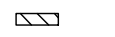

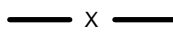
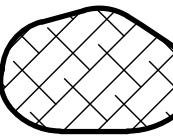

DESIGNED: R DIERCKE (B.E. CIVIL) JOB MANAGER: A BROWN
DRAWN: R DIERCKE
VERIFIER: A BROWN

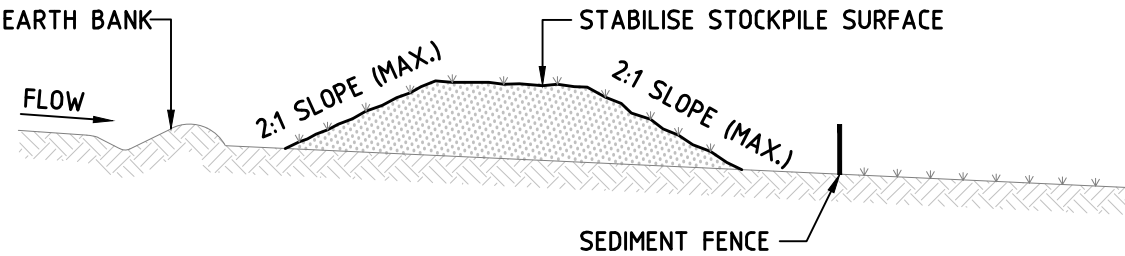
SEDIMENT & EROSION CONTROL NOTES

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK').
2. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.

THE CONTRACTOR SHALL ENSURE COUNCIL ASSETS AND THE UTILITIES ARE PROTECTED AT ALL TIMES. ANY AND ALL DAMAGES TO COUNCIL ASSETS AND/OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SPECIFICATION OF COUNCIL AND THE UTILITIES AUTHORITY AND AT NO COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.

LEGEND

-  DENOTES SANDBAG OR GEOTEXTILE SOCK FILLED WITH NO FINES GRAVEL, PLACED IN INVERT OF GUTTER.
-  DENOTES CATCH DRAIN
-  DENOTES SITE & SEDIMENT CONTROL FENCE.
-  DENOTES PROPOSED STOCKPILE LOCATION.
-  DENOTES TEMPORARY STABILISED SITE ACCESS.

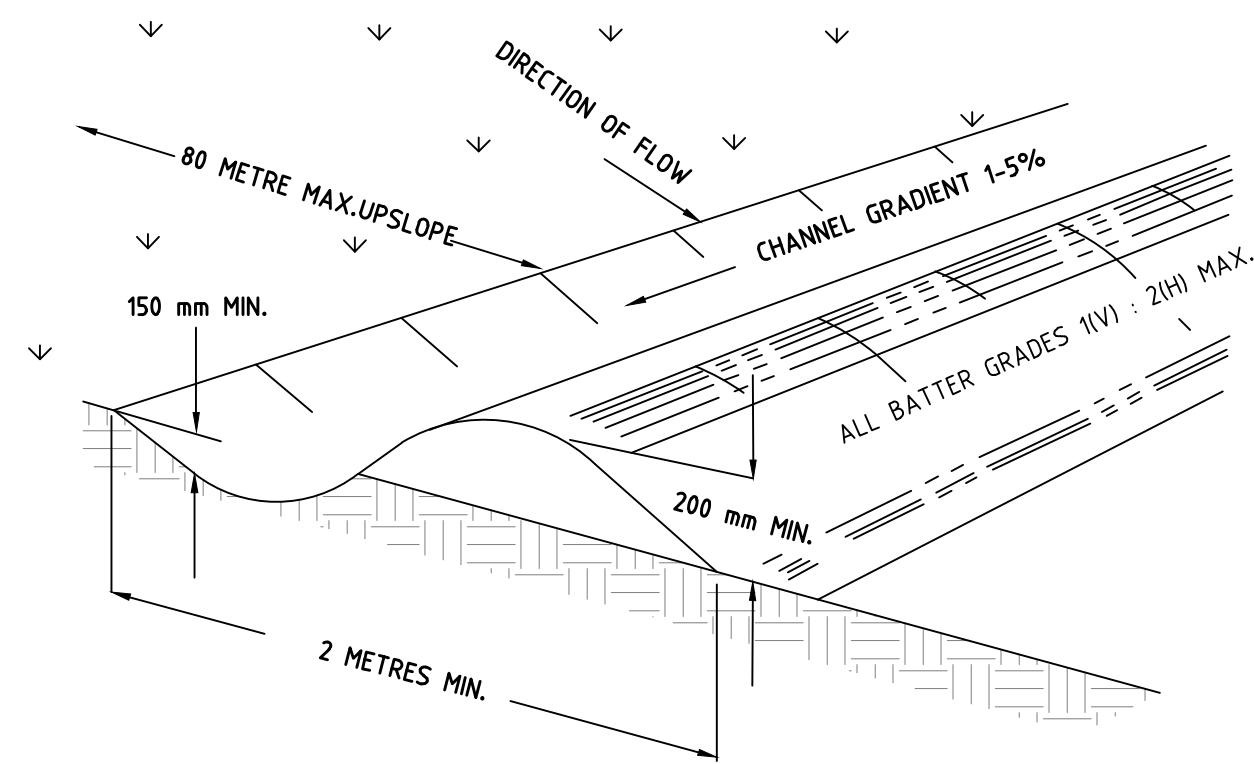


STOCKPILE CONSTRUCTION NOTES:

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. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
4. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

STOCKPILES

SCALE N.T.S.



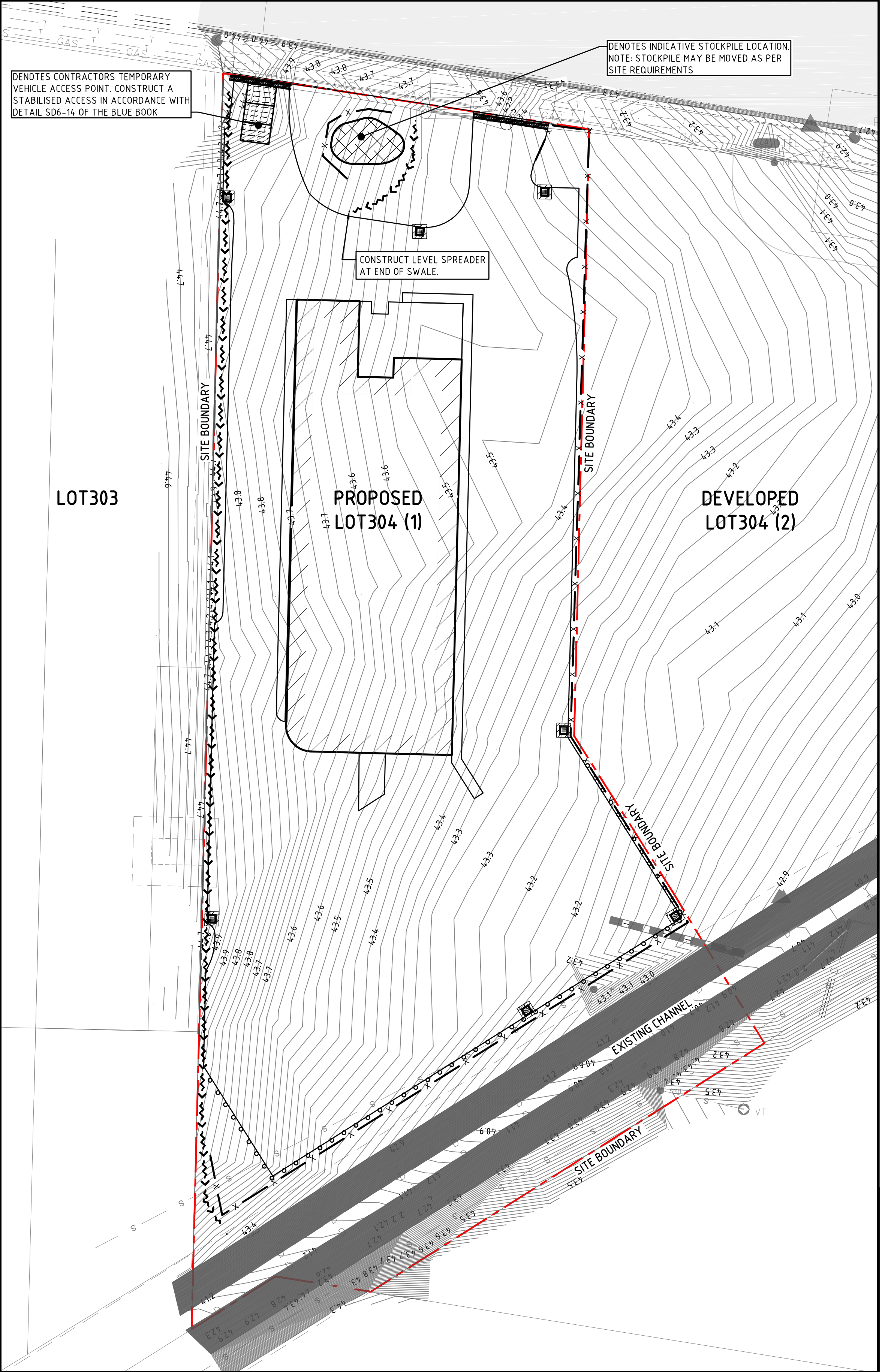
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAC. UPSLOPE LENGTH IS 80 METERS.

CATCH DRAIN CONSTRUCTION NOTES:

1. CONSTRUCT ALONG GRADIENT AS SPECIFIED.
2. MAXIMUM SPACING BETWEEN BANKS SHALL BE 80 METRES.
3. DRAINS TO BE OF PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. CONSTRUCTION IS OF A TEMPORARY NATURE AND SHALL BE COMPACTED AT THE END A DAYS WORK OR IMMEDIATELY PRIOR RAIN.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL AISLE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

CATCH DRAINS SD 5-8

SCALE N.T.S.



PLAN

NOT FOR CONSTRUCTION

VERIFIER: A BROWN

DESIGNED: R DIERCKE (B.E. CIVIL) JOB MANAGER: A BROWN

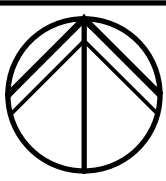
DRAWN: R DIERCKE

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A	ISSUED FOR APPROVAL	RD	AB	AB	02.06.17	

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ARCHITECT
JS ARCHITECTS PTY LTD

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PLANS 1:300
0 3 6 9 12 15m

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PROJECT
**449 VICTORIA ST, WETHRILL PARK
LOT 304 DP 1098762
PROPOSED SUBDIVISION**

DRAWING TITLE
**EROSION AND SEDIMENT
CONTROL PLAN**

JOB NUMBER NL150032	
DRAWING NUMBER C301	REVISION A
DRAWING SHEET SIZE = A1	

EARTHWORKS DEPTHS

#	COLOUR	MIN DEPTH	MAX DEPTH
1		-10.000	-4.000
2		-4.000	-2.000
3		-2.000	-1.000
4		-1.000	-0.500
5		-0.500	-0.250
6		-0.250	-0.100
7		-0.100	0.000
8		0.000	0.100
9		0.100	0.250
10		0.250	0.500
11		0.500	1.000
12		1.000	2.000
13		2.000	4.000
14		4.000	10.000

NOTE:
EARTHWORKS DEPTHS AND QUANTITIES SHOWN ARE
BETWEEN THE EXISTING NATURAL SURFACE AND THE
PROPOSED FINISHED SURFACE LEVELS.

CUT ↑
FILL ↓

SITE BOUNDARY

SITE BOUNDARY

CUT & FILL PLAN

VERIFIER: A.BROWN

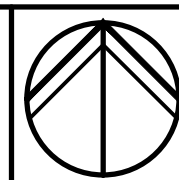
DESIGNED: R.DIERCKE (B.E. CIVIL) JOB MANAGER: A.BROWN

DRAWN: R.DIERCKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR APPROVAL	RD	AB	AB	02.06.17

ARCHITECT

JS ARCHITECTS PTY LTD



PLANS 1:250

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PROJECT
449 VICTORIA ST, WETHRILL PARK
LOT 304 DP 1098762
PROPOSED SUBDIVISION

DRAWING TITLE

**CUT & FILL AND
CATCHMENT PLANS**

JOB NUMBER	
NL150032	
DRAWING NUMBER	REVISION
C302	A
DRAWING SHEET SIZE = A1	

NOT FOR CONSTRUCTION

NORTH CATCHMENT IS NOT CAPTURED BY PROPOSED STORMWATER NETWORK. ALL FLOWS DISCHARGE DIRECTLY ONTO VICTORIA STREET ROAD RESERVE.

ULTIMATELY, EAST, WEST AND ROOF CATCHMENTS ALL DISCHARGE TO THE CHANNEL VIA THE EXISTING Ø750 RCP STORMWATER PIPE.

CHANNEL CATCHMENT IS NOT CAPTURED BY PROPOSED STORMWATER NETWORK. ALL FLOWS DISCHARGE DIRECTLY INTO EXISTING STORMWATER CHANNEL.

CITY BOUNDARY

SITE BOUNDARY

ROOF CATCHMENT
(843m²)

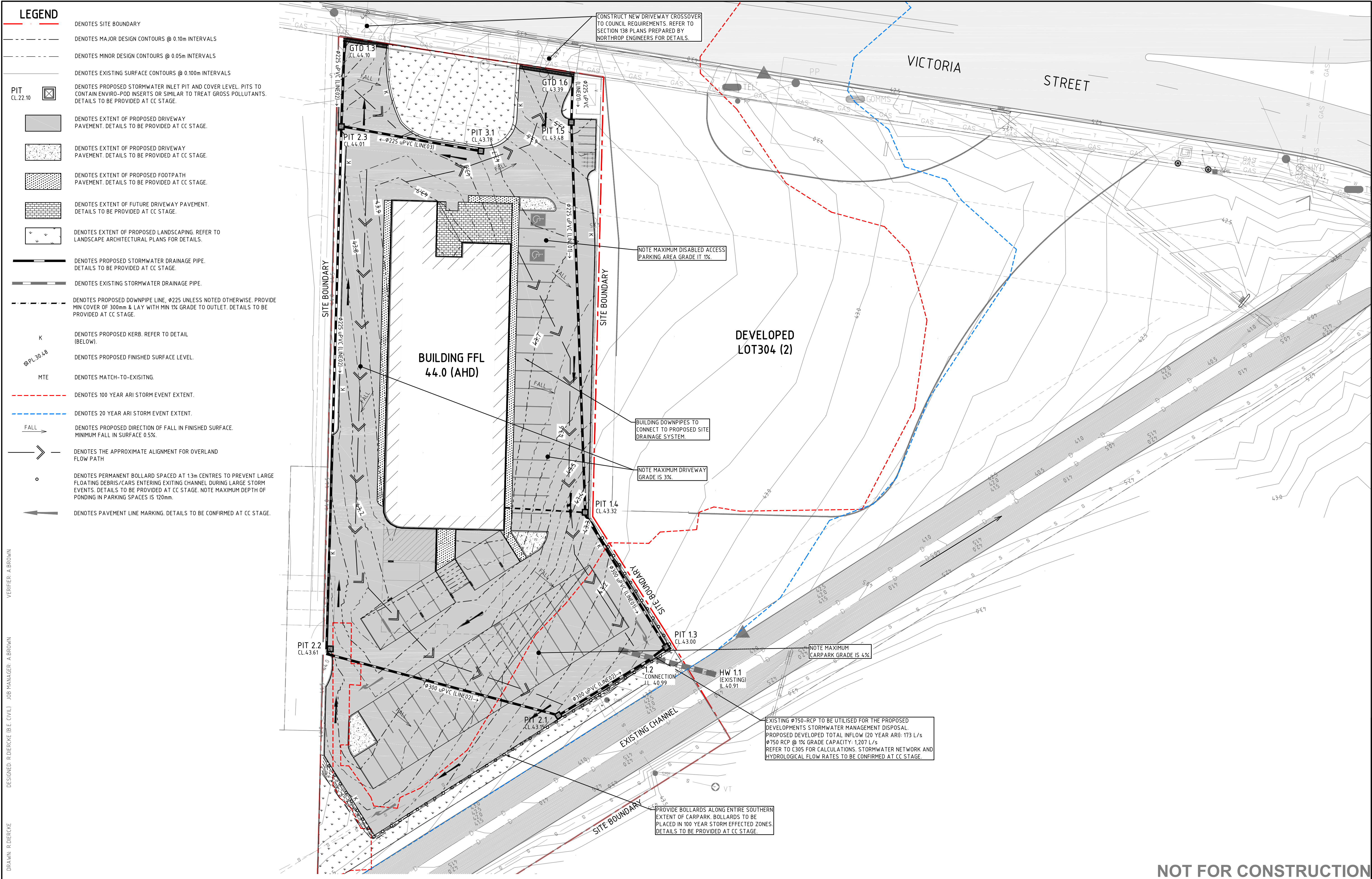
NORTH CATCHMENT
(233m²)

ST CATCHMENT
(1,538m²)


WEST CATCHMENT
(1,499m²)

CHANNEL CATCHMENT
(1,021m²)

CATCHMENT PLAN



VERIFIER: A BROWN
DESIGNED: R DIERCKE I.B.E. CIVIL JOB MANAGER: A BROWN
DRAWN: R DIERCKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER
A	ISSUED FOR APPROVAL	RD	AB	AB	02.06.17		JS ARCHITECTS PTY LTD		449 VICTORIA ST, WETHRILL PARK LOT 304 DP 1098762 PROPOSED SUBDIVISION	GENERAL ARRANGEMENT PLAN	NL150032
											DRAWING NUMBER
											REVISION
											C303
											A
											DRAWING SHEET SIZE = A1

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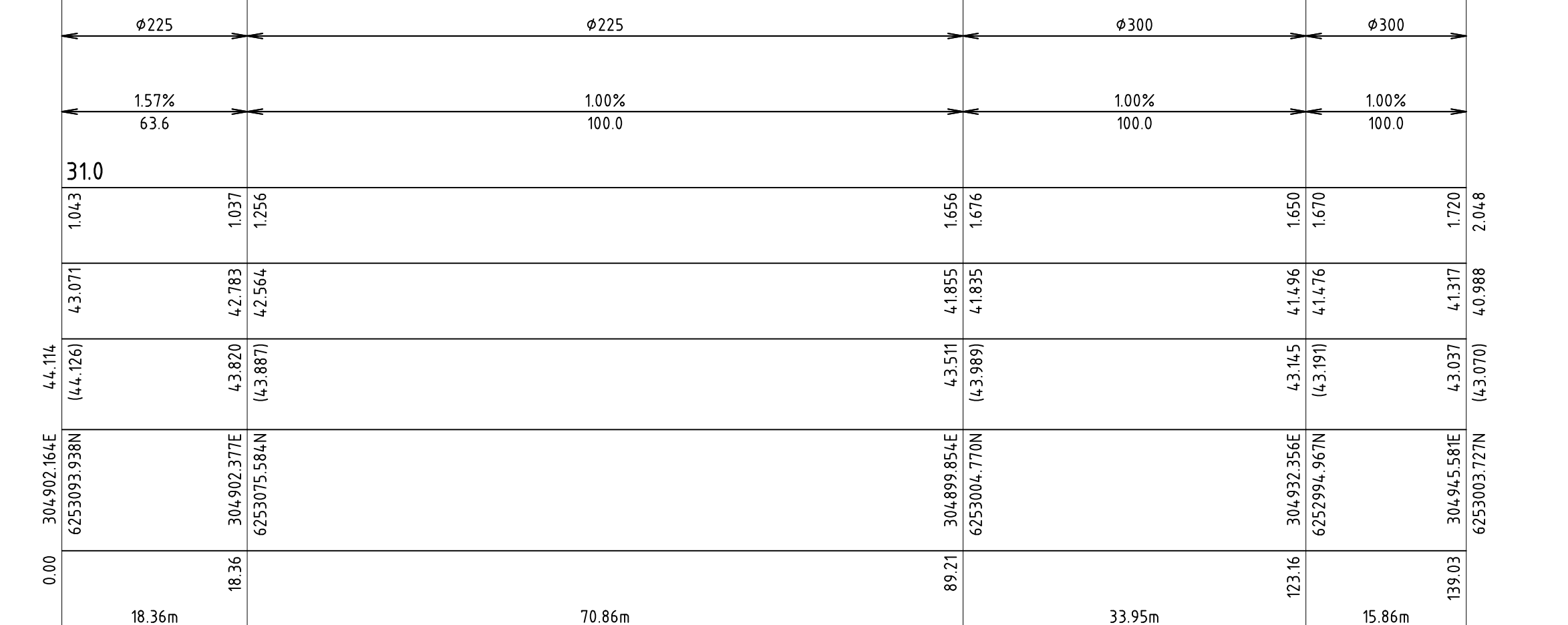
PLANS 1:250

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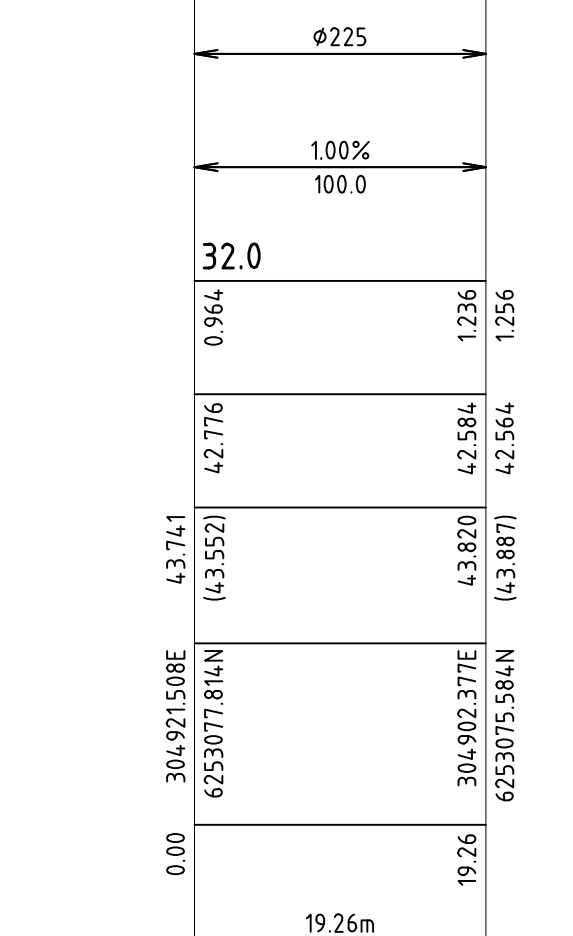
0 2.5 5 7.5 10 12.5m

PIPE SIZE (mm)	ø225	ø225	ø300	ø300	ø750 (EXISTING)
PIPE CLASS					
PIPE GRADE (%)	1.00%	1.00%	1.00%	1.00%	0.73%
PIPE SLOPE (1 in X)	100.0	100.0	100.0	100.0	136.4
DATUM RL	31.0				
DEPTH TO INVERT	0.971	1.131 1.151	1.577 1.597	1.494 1.514	1.582 2.048 0.750 0.750
INVERT LEVEL	42.420	42.316 42.326	41.747 41.727	41.507 41.487	41.155 40.988 40.910 40.910
DESIGN (& EXISTING) SURFACE LEVEL	43.391	43.477 (43.442)	43.324 (43.273)	43.000 (43.033)	43.037 (43.070) 41.660 (40.900)
SETOUT COORDINATES	304.935.182E 6253089.045N	304.934.669E 6253081.638N	304.936.644E 6253023.733N	304.948.426E 6253005.126N	304.945.581E 6253003.127N 304.955.901E 6253001.039N
CHAINAGE	0.00 7.43m	7.43 57.94m	65.36 22.02m	87.39 3.17m	90.56 10.66m 101.22

LINE 01



LINE 02



LINE 03

NOT FOR CONSTRUCTION

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A	ISSUED FOR APPROVAL				RD	AB	AB	02.06.17	JS ARCHITECTS PTY LTD								449 VICTORIA ST, WETHRILL PARK LOT 304 DP 1098762 PROPOSED SUBDIVISION	STORMWATER LONG SECTIONS	NL150032		
																				DRAWING NUMBER	REVISION
																				C304	A
																				DRAWING SHEET SIZE = A1	
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WEST CATCHMENT

PROJECT: Wetherill Park - Lot 304 (1) WEST

DATE: 29.05.2017
Project #: NL150032
REVISION: A

User Input	IFD Rainfall Variables		
	z_{11} =	31.80 mm/hr	2 year, 1 hour rainfall intensity
	z_{12} =	6.68 mm/hr	2 year, 12 hour rainfall intensity
	z_{72} =	1.95 mm/hr	2 year, 72 hour rainfall intensity
	z_{11}^{50} =	60.10 mm/hr	50 year, 1 hour rainfall intensity
	z_{12}^{50} =	13.50 mm/hr	50 year, 12 hour rainfall intensity
	z_{72}^{50} =	4.47 mm/hr	50 year, 72 hour rainfall intensity
	G =	0.00	Skew
	F ₂ =	4.30	
	F ₅₀ =	15.82	
Catchment Variables			
t_c Method =	Kinematic Wave	Method used to calculate the time of concentration	
A =	0.1499 ha	Catchment Area	
Percent Impervious=	100 %	Percent of Catchment Area Impervious	
$L_{\text{impervious}}$ =	101 m	Impervious Channel Length	
$n^*_{\text{impervious}}$ =	0.013	Impervious Channel Roughness	
L_{pervious} =	m	Pervious Channel Length	
n^*_{pervious} =	0.035	Pervious Channel Roughness	
Upstream RL =	44.1 m	Upstream Elevation AHD	
Downstream RL =	43.15 m	Downstream Elevation AHD	

Results		AVERAGE RECURRENCE INTERVAL (ARI)						
		1	2	5	10	20	50	100
	t _c (min)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	I (mm/hr)	80.45	103.19	131.44	147.63	169.17	197.19	218.41
	PEAK FLOW (m ³ /s)	0.024	0.033	0.047	0.055	0.067	0.085	0.098
	PEAK FLOW (L/s)	24	33	47	55	67	85	98

EAST CATCHMENT

PROJECT: Wetherill Park - Lot 304 (1) EAST

DATE: 29.05.2017
Project #: NL150032
REVISION: A

User Input	IFD Rainfall Variables		
	2I_1 =	31.80 mm/hr	2 year, 1 hour rainfall intensity
	$^2I_{12}$ =	6.68 mm/hr	2 year, 12 hour rainfall intensity
	$^2I_{72}$ =	1.95 mm/hr	2 year, 72 hour rainfall intensity
	$^{50}I_1$ =	60.10 mm/hr	50 year, 1 hour rainfall intensity
	$^{50}I_{12}$ =	13.50 mm/hr	50 year, 12 hour rainfall intensity
	$^{50}I_{72}$ =	4.47 mm/hr	50 year, 72 hour rainfall intensity
	G =	0.00	Skew
	F_2 =	4.30	
	F_{50} =	15.82	
	Catchment Variables		
	t_c Method =	Kinematic Wave	Method used to calculate the time of concentration
	A =	0.1538 ha	Catchment Area
	Percent Impervious=	100 %	Percent of Catchment Area Impervious
	$L_{\text{Impervious}}$ =	91 m	Impervious Channel Length
$n^*_{\text{Impervious}}$ =	0.013	Impervious Channel Roughness	
L_{pervious} =	m	Pervious Channel Length	
n^*_{pervious} =	0.035	Pervious Channel Roughness	
Upstream RL =	43.4 m	Upstream Elevation AHD	
Downstream RL =	43 m	Downstream Elevation AHD	

Results	AVERAGE RECURRENCE INTERVAL (ARI)							
		1	2	5	10	20	50	100
	t _c (min)	6.0	6.0	5.0	5.0	5.0	5.0	5.0
	I (mm/hr)	75.42	96.74	131.44	147.63	169.17	197.19	218.41
	PEAK FLOW (m ³ /s)	0.023	0.032	0.048	0.057	0.068	0.087	0.101
	PEAK FLOW (L/s)	23	32	48	57	68	87	101

ROOF CATCHMENT

PROJECT: Wetherill Park - Lot 304 (1) ROOF

DATE: 29.05.2017
Project #: NL150032
REVISION: A

User Input	IFD Rainfall Variables		
	$^2I_1 =$	31.80 mm/hr	2 year, 1 hour rainfall intensity
	$^2I_{12} =$	6.68 mm/hr	2 year, 12 hour rainfall intensity
	$^2I_{72} =$	1.95 mm/hr	2 year, 72 hour rainfall intensity
	$^{50}I_1 =$	60.10 mm/hr	50 year, 1 hour rainfall intensity
	$^{50}I_{12} =$	13.50 mm/hr	50 year, 12 hour rainfall intensity
	$^{50}I_{72} =$	4.47 mm/hr	50 year, 72 hour rainfall intensity
	G =	0.00	Skew
	$F_2 =$	4.30	
	$F_{50} =$	15.82	
	Catchment Variables		
	t_c Method =	Kinematic Wave	Method used to calculate the time of concentration
	A =	0.0843 ha	Catchment Area
	Percent Impervious=	100 %	Percent of Catchment Area Impervious
	$L_{\text{Impervious}} =$	40 m	Impervious Channel Length
$n^*_{\text{Impervious}} =$	0.013	Impervious Channel Roughness	
$L_{\text{pervious}} =$	m	Pervious Channel Length	
$n^*_{\text{pervious}} =$	0.035	Pervious Channel Roughness	
Upstream RL =	43.4 m	Upstream Elevation AHD	
Downstream RL =	43 m	Downstream Elevation AHD	

Results		AVERAGE RECURRENCE INTERVAL (ARI)						
		1	2	5	10	20	50	100
	t_r (min)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	I (mm/hr)	80.45	103.19	131.44	147.63	169.17	197.19	218.41
	PEAK FLOW (m^3/s)	0.014	0.018	0.026	0.031	0.037	0.048	0.055
	PEAK FLOW (L/s)	14	18	26	31	37	48	55

STORMWATER DRAINAGE PHILOSOPHY

PROPOSED DEVELOPMENT

THE PROPOSED DEVELOPMENT AT LOT 30(4)1 D/ 108762, VICTORIA STREET, WETHERILL PARK CONSISTS OF THE CONSTRUCTION OF A NEW HOTEL AND ASSOCIATED DRIVEWAY AND CARPARKING PAVEMENT AREAS. THE PROPOSED SITE WILL DISCHARGE INTO THE EXISTING OPEN CONCRETE CHANNEL THROUGH ONE EXISTING DISCHARGE PIPE, AS SPECIFIED IN CLAUSE 3.13 FAIRFIELD CITY COUNCILS (FCC) STORMWATER DRAINAGE POLICY - SEPTEMBER 2002. THE PROPOSED STORMWATER NETWORK WILL DISCHARGE THROUGH THE EXISTING Ø750 RCP LOCATED AT THE SOUTH-EAST CORNER OF THE SITE. THE SIZE AND CAPACITY OF THIS PIPE HAS BEEN ASSESSED AND DEEMED SUITABLY SIZED TO CATER FOR THE EXPECTED POST-DEVELOPED FLOWS.

PROPOSED SITE CONDITIONS:

THE PROPOSED DEVELOPMENT INTENDS TO CREATE APPROXIMATELY 3,880m² OF HARDSTAND/ROOF AREA. THE PROPOSED STORMWATER MANAGEMENT PHILOSOPHY PRESENTED HEREIN CAN BE SUMMARISED AS FOLLOWS:

- GENERALLY RUNOFF FROM ALL NEW IMPERVIOUS SURFACES WILL BE COLLECTED BY AN IN-GROUND STORMWATER PIPE AND PIPE NETWORK AND CONVEYED TO THE EXISTING STORMWATER SYSTEM IN THE CONCRETE OPEN CHANNEL.
- AS THE SITE IS CONSIDERED SMALL (1-ha), PRELIMINARY STORMWATER RUNOFF AND HYDRAULIC CALCULATIONS WERE DETERMINED USING THE RATIONAL METHOD AND KINEMATIC WAVE EQUATION AS SPECIFIED IN CLAUSE 2.2.1 OF FAIRFIELD CITY COUNCIL'S - STORMWATER DRAINAGE POLICY - SEPTEMBER 2002. THE RELATIVE CALCULATIONS ARE SHOWN ABOVE. IFD DATA WAS OBTAINED FROM THE BUREAU OF METEOROLOGY WEBSITE.
- PRELIMINARY PIPE SIZES ARE BASED OFF MANNINGS CAPACITIES FOR PIPES AS SHOWN IN TABLE
- AS THE SITE IS LOCATED WITHIN THE WETHERILL INDUSTRIAL ZONE NO ON-SITE-DETENTION IS REQUIRED AS SPECIFIED IN CLAUSE 13.3 OF FAIRFIELD CITY COUNCIL'S - URBAN AREA OSD HANDBOOK.
- IT SHALL BE NOTED IN REGARDS TO OVERLAND FLOW PATHS AND FLOOD LEVELS, THAT THE 44.00% OF THE PROPOSED HOTEL COMPLIES WITH THE SITE SPECIFIC DEVELOPMENT CONTROL PLAN ISSUED BY FAIRFIELD CITY COUNCIL FOR 44.9 VICTORIA STREET AND 96 NEWTON ROAD, WETHERILL PARK.
- THE FLOOD LEVEL FROM THE 1 IN 20 YEAR EVENT GENERATED IS APPROXIMATELY 42.5m AHD AT THE EXISTING OUTLET PIPE DRAINING THE SERVICE STATION SITE BASED ON FIGURE 4.1 OF FAIRFIELD CITY COUNCIL'S - WETHERILL PARK OVERLAND FLOOD STUDY. SUBSEQUENTLY, WHEN CONSIDERING THE TAILWATER EFFECTS FOR THE 1 IN 10 YEAR EVENT, A CONSERVATIVE APPROACH WILL ASSUME A TAIL WATER LEVEL OF 42.5m.

THE 1 IN 20 YEAR STORM EVENT DOES NOT ENCR OACH THE PROPOSED CARPARK (REFER TO CARDNO'S FLOOD MODELLING RESULTS - FIGURE D16 (v8)). ADDITIONALLY, FLOOD FROM THE 1 IN 100 YEAR STORM EVENT DOES NOT ENCR OACH ON THE MAIN DRIVEWAY ACCESS(S) FOR THE SITE.

THE NEW FACILITY IS LIKELY TO PRODUCE POLLUTANTS SUCH AS SEDIMENTS, SMALL AMOUNTS OF NUTRIENTS AND OILS AND GREASE TYPICAL OF VEHICULAR AREAS. A TREATMENT TRAIN HAS BEEN DEVELOPED FOR THE IN-LINE REMOVAL OF OIL AND SILT IN THE STORMWATER RUN-OFF FROM PAVED AREAS AND SHALL PROVIDE THE NECESSARY TREATMENT OF STORMWATER.

TO ACHIEVE THESE OBJECTIVES THE FOLLOWING TREATMENT DEVICES ARE RECOMMENDED

- THE GENERAL PAVEMENT AND ROOF AREAS SHALL DRAIN TO STORMWATER INLET PITS FITTED WITH ENVIRO-PODS OR SIMILAR PRIOR TO DISCHARGE FROM THE SITE. DETAILS RELATING TO THE SIZE AND TYPE OF PODS SHALL BE PROVIDED AT CC STAGE.
- IT IS NOTED THAT 100% OF NEW PAVED AREAS WILL PASS THROUGH THE ENVIRO-POD PIT INSETS (ALSO INSTALLED AT END OF GRATED TRENCH DRAINS), WITH MINIMAL POLLUTED WATER ENTERING THE EXISTING SYSTEM.

SUMMARY

THE STORMWATER SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF FCC'S GUIDELINES AND POLICIES (REFER TO REFERENCES BELOW). IT IS DETERMINED THAT THE STORMWATER SYSTEM PRESENTED WILL SAFELY CONVEY RUNOFF FROM THE PROPOSED SITE, AND NOT IMPACT ON ADJACENT PROPERTIES. ALL STORMWATER RUNOFF FROM THE SITE WILL PASS THROUGH APPROPRIATE STORMWATER QUALITY CONTROLS BEFORE ENTERING THE EXISTING OPEN CHANNEL.

MANNINGS CAPACITY FOR PIPES

$$Q = \frac{1}{n} AR^{2/3} S^{1/2}$$

Pipe Grade	%	1.00
'n' PVC		0.012
'n' concrete		0.012

PIPE SIZE =	150	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.018	
P =	0.471	
R =	0.038	
Q =	17	L/sec

PIPE SIZE =	375	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.110	
P =	1.179	
R =	0.094	
Q =	190	L/sec

PIPE SIZE =	600	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.283	
P =	1.886	
R =	0.150	
Q =	665	L/sec

PIPE SIZE =	825	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.535	
P =	2.593	
R =	0.206	
Q =	1556	L/sec

PIPE SIZE =	225	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.040	
P =	0.707	
R =	0.056	
Q =	49	L/sec

PIPE SIZE =	450	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.159	
P =	1.414	
R =	0.113	
Q =	309	L/sec

PIPE SIZE =	675	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.358	
P =	2.121	
R =	0.169	
Q =	911	L/sec

PIPE SIZE =	900	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.636	
P =	2.829	
R =	0.225	
Q =	1962	L/sec


PIPE SIZE =	300	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.071	
P =	0.943	
R =	0.075	
Q =	105	L/sec

PIPE SIZE =	525	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.217	
P =	1.650	
R =	0.131	
Q =	466	L/sec

PIPE SIZE =	750	mm
PIPE GRADE =	1.00%	
$n =$	0.012	
$A =$	0.442	
$P =$	2.357	
$R =$	0.188	
Q =	1207	L/sec

PIPE SIZE =	1050	mm
PIPE GRADE =	1.00%	
n =	0.012	
A =	0.866	
P =	3.300	
R =	0.263	
Q =	2959	L/sec

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON-SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.	 Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 Ph (02) 4945 1777 Fax (02) 4945 1577 Email northrop@northrop.com.au ABN 81 094 433 100	PROJECT	DRAWING TITLE	JOB NUMBER		
A	ISSUED FOR APPROVAL	RD	AB	AB	02.06.17		JS ARCHITECTS PTY LTD				449 VICTORIA ST, WETHERILL PARK LOT 304 DP 1098762 PROPOSED SUBDIVISION	STORMWATER CALCULATIONS AND DRAINAGE PHILOSOPHY	NL150032		
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