



EXISTING CATCHMENT SCHEDULE

No.	AREA (Ha)	T c (MINS)
CAT C 1	7.56	8
CAT C 2a	2.67	6
CAT C 2b	10.16	12
CAT C 3a	9.51	12
CAT C 3b	3.72	6
CAT C 4	0.96	5
CAT C 5A	1.40	5
CAT C 5B	4.59	7
CAT C 6A	10.61	16
CAT C 6B	9.76	12
CAT C 8A	4.62	8
CAT C 8B	2.70	6
CAT C 9A	14.70	20
CAT C 9B	2.74	6
TOTAL	91.16	

20m 0 50 100 150 200 250m
SCALE 1:2500 AT A0 PLOT

LEVELS DATUM IS AHD

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY MONTEATH & POWYS DATED 20.06.16

- | | |
|---|---|
|  | - SGGP, SINGLE GRATED GULLY PIT |
|  | - SJP, SEALED JUNCTION PIT |
|  | - KIP, KERB INLET PIT |
|  | - DRAINAGE LINE |
|  | - EXISTING DRAINAGE LINE |
|  | - OVERLAND FLOW PATH |
|  | - FINISHED PAVEMENT CONTOUR (MAJOR)
0.5m INTERVALS |
|  | - FINISHED PAVEMENT CONTOUR (MINOR)
0.1m INTERVALS |

PIT SCHEDULE

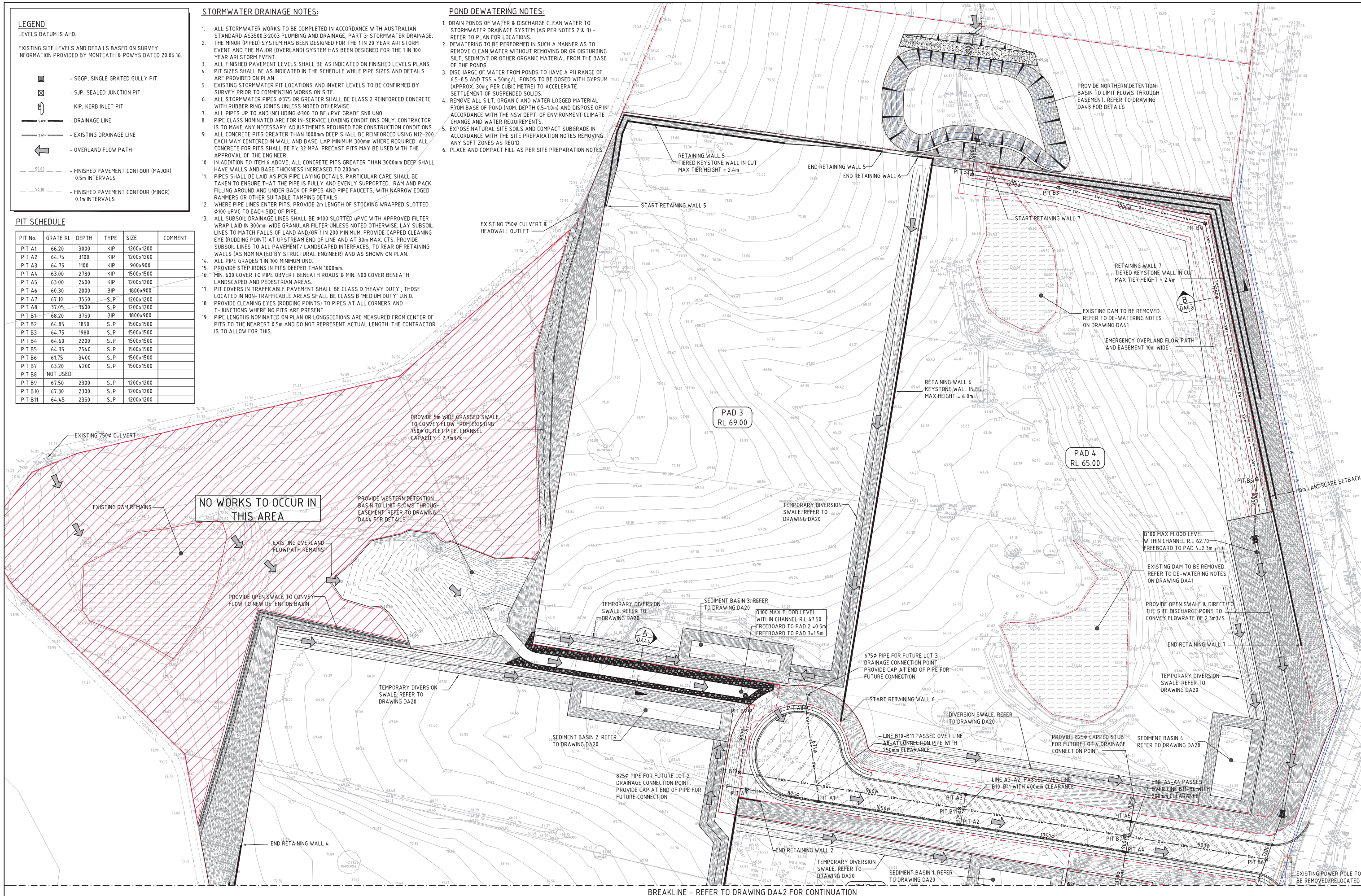
PIT No.	GRATE RL	DEPTH	TYPE	SIZE	COMMENT
PIT A1	66.20	3000	KIP	1200x1200	
PIT A2	64.75	3100	KIP	1200x1200	
PIT A3	64.75	1100	KIP	900x900	
PIT A4	63.00	2780	KIP	1500x1500	
PIT A5	63.00	2600	KIP	1200x1200	
PIT A6	60.30	2000	BIP	1800x900	
PIT A7	67.10	3550	SJP	1200x1200	
PIT A8	37.05	3600	SJP	1200x1200	
PIT B1	68.20	3750	BIP	1800x900	
PIT B2	64.85	1980	SJP	1500x1500	
PIT B3	64.75	1950	SJP	1500x1500	
PIT B4	64.60	2200	SJP	1500x1500	
PIT B5	64.35	2540	SJP	1500x1500	
PIT B6	6175	3400	SJP	1500x1500	
PIT B7	63.20	4.200	SJP	1500x1500	
PIT B8	NOT USED				
PIT B9	67.50	2300	SJP	1200x1200	
PIT B10	67.30	2300	SJP	1200x1200	
PIT B11	64.45	2350	SJP	1200x1200	

STORMWATER DRAINAGE NOTES:

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500-3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS.
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø300 TO BE UPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm where REQUIRED. ALL CONCRETE FOR PITS SHALL BE Fc' 32 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 UPVC TO EACH SIDE OF PIPE.
13. ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED UPVC WITH APPROVED FILTER WRAP Laid in 300mm WIDE GRANULAR FILTER LINES UNLESS NOTED OTHERWISE. LAY SUBSOIL DRAINAGE LINES IN 1m DEPTH AND/OR 1m IN 200 MINIMUM PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
14. ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
15. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
16. MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
17. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY'. THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' UNO.
18. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
19. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

POND DEWATERING NOTES:

1. DRAIN PONDS OF WATER & DISCHARGE CLEAN WATER TO STORMWATER DRAINAGE SYSTEM (AS PER NOTES 2 & 3) - REFER TO PLAN FOR LOCATIONS.
2. DEWATERING TO BE PERFORMED IN SUCH A MANNER AS TO REMOVE CLEAN WATER WITHOUT REMOVING OR DISTURBING SILT, SEDIMENT OR OTHER ORGANIC MATERIAL FROM THE BASE OF THE PONDS.
3. DISCHARGE OF WATER FROM PONDS TO HAVE A PH RANGE OF 6.5-8.5 AND TSS < 50mg/L. PONDS TO BE DOSED WITH GYPSUM (APPROX 30mg PER CUBIC METRE) TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS.
4. REMOVE ALL SILT, ORGANIC AND WATER LOGGED MATERIAL FROM BASE OF POND (MIN DEPTH 0.5-1.0m) AND DISPOSE OF IN ACCORDANCE WITH THE NEW DEPT. OF ENVIRONMENT CLIMATE CHANGE AND WATER REQUIREMENT.
5. EXPOSE NATURAL SITE SOILS AND COMPACT SUBGRADE IN ACCORDANCE WITH THE SITE PREPARATION NOTES REMOVING ANY SOFT ZONES AS REQ'D.
6. PLACE AND COMPACT FILL AS PER SITE PREPARATION NOTES.



BREAKLINE - REFER TO DRAWING DA42 FOR CONTINUATION



CONCEPT CIVIL WORKS PLAN - SHEET 1

SCALE 1:500



WESTERN SYDNEY PARKLANDS TRUST
LEVEL 4, 10 VALENTINE AVE
PARRAMATTA NSW 2150

PROJECT
HORSLEY DV. BUSINESS PARK
STAGE 2
COWPASTURE ROAD WETHERILL PARK, NSW

DESIGNED M.C	DRAWN M.C	DATE 08.08.16	CHECKED M.W	SIZE A0	SCALE AS SHOWN	CAD Co
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Costin Roe Consulting Pty Ltd
Consulting Engineers 
 Level 1, 8 Windmill Street
 Walsh Bay, Sydney NSW 2000
 Tel: (02) 9251-7899 Fax: (02) 9241-3731
 email: mail@costinroe.com.au ©

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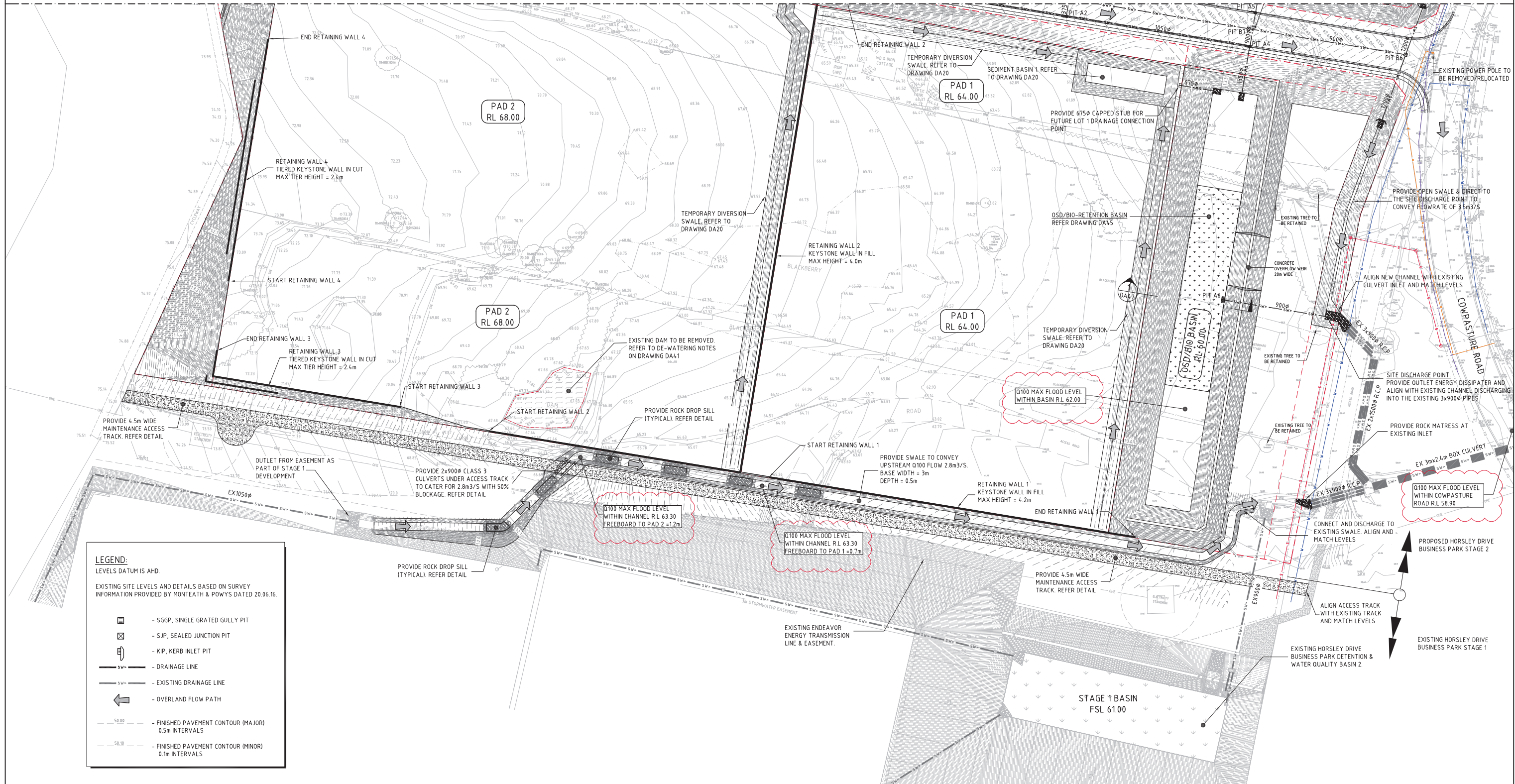
PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE
CONCEPT CIVIL WORKS PLAN
SHEET 1

DRAWING No Co11492.11- DA41

ISSU

BREAKLINE - REFER TO DRAWING DA41 FOR CONTINUATION



LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POWYS DATED 20.06.16.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- EXISTING DRAINAGE LINE
- OVERLAND FLOW PATH
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS



CONCEPT CIVIL WORKS PLAN - SHEET 2
SCALE 1:500

FOR DEVELOPMENT APPLICATION

5m 0 10 20 30 40 50m
SCALE 1:500 AT A0 SIZE PLOT

ISSUED FOR REVIEW	15.11.16	F			
ISSUED FOR REVIEW	31.10.16	E			
ISSUED FOR REVIEW	24.10.16	D			
FOR INFORMATION ONLY	18.10.16	C			
FOR INFORMATION ONLY	10.08.16	B			
FOR INFORMATION ONLY	08.08.16	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE

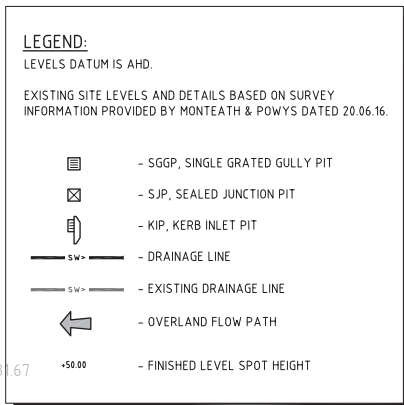
CLIENT	 Western Sydney Parklands Trust
PROJECT	HORSLEY DV. BUSINESS PARK STAGE 2 COWPASTURE ROAD WETHERILL PARK, NSW
DESIGNED	DRW: M.C. DATE: 08.08.16
CHECKED	CHK: M.C. DATE: 10.08.16
SCALE	AS SHOWN
CAD REF	C011492.11-DA42

PROJECT	HORSLEY DV. BUSINESS PARK STAGE 2 COWPASTURE ROAD WETHERILL PARK, NSW
DESIGNED	DRW: M.C. DATE: 08.08.16
CHECKED	CHK: M.C. DATE: 10.08.16
SCALE	AS SHOWN
CAD REF	C011492.11-DA42

Costin Roe Consulting Pty Ltd. Consulting Engineers
Level 1, 8 Windmill Street Wahah Bay, Sydney NSW 2000
Tel: (02) 8551-7899 Fax: (02) 8541-3721
email: mail@costinroe.com.au

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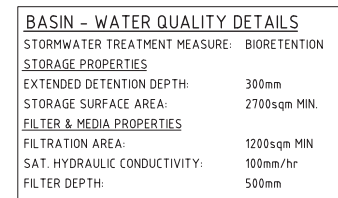
DRAWING TITLE	CONCEPT CIVIL WORKS PLAN SHEET 2
DRAWING No	C011492.11- DA42
ISSUE	1



2m 0 5 10 15 20 25m

SCALE 1:250 AT A0 SIZE PLOT

[illegible]



REFER TO DRG. DA46 FOR BIO-RENTION NOTES AND DETAILS.

BIO-RETENTION/OSD BASIN - HYDROLOGIC DETAILS

REFER TO CIVIL ENGINEERING REPORT 11492.11-02.rpt FOR OSD BASIN HYDROLOGIC DETAILS.



FOR DEVELOPMENT APPLICATION

[illegible]

CLIENT  **Western Sydney Parklands Trust**
 WESTERN SYDNEY PARKLANDS TRUST
 LEVEL 4, 10 VALENTINE AVE
 BARRAGATT NSW 2150

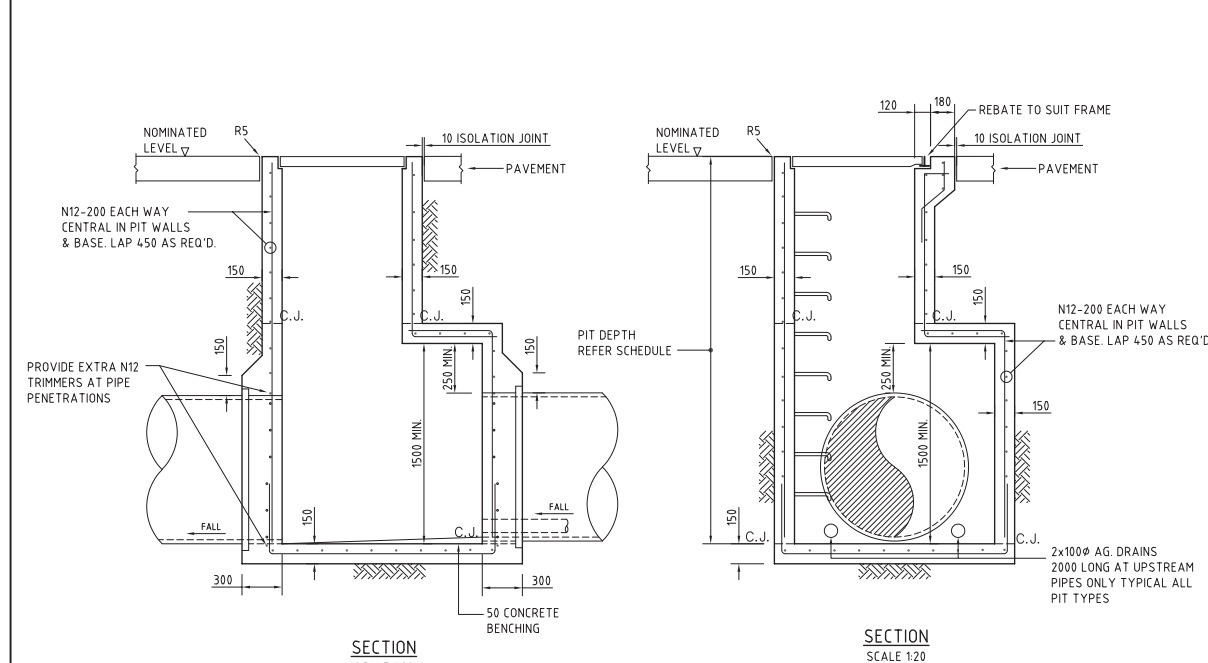
PROJECT		 CONSULT AUSTRALIA	
HORSLEY DV. BUSINESS PARK STAGE 2 COWPASTURE ROAD WETHERILL PARK, NSW			
DESIGNED M.C.	DRAWN M.C.	DATE 08.08.16	CHECKED M.W. SIZE A0 SCALE AS SHOWN CAD REF: Cot14.92.11-DA45

Costin Roe Consulting Pty Ltd
Consulting Engineers **231 222 66 66**
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 9251-7899 Fax: (02) 9241-3731
email: mail@costinroe.com.au ©

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PRECISION | COMMUNICATION | ACCOUNTABILITY

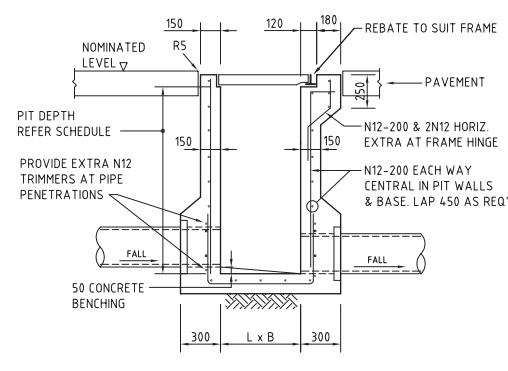
DRAWING TITLE BIO-RETENTION/OSD BASIN PLAN	
DRAWING No Co114 92.11- DA45	ISSUE D



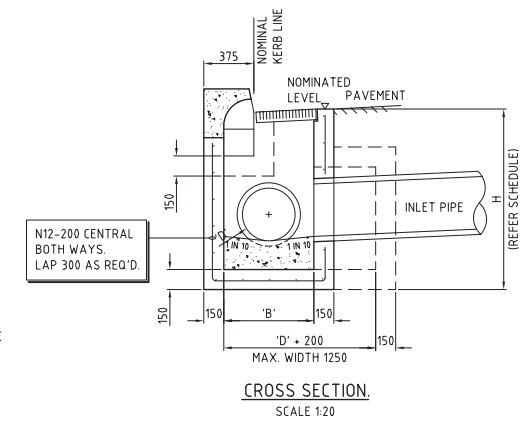
CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX SIZE)	CEMENT TYPE	ADDMIXTURE	FC (MPa)
PIT	80	20	GP	NL	32

PIT NOTES:

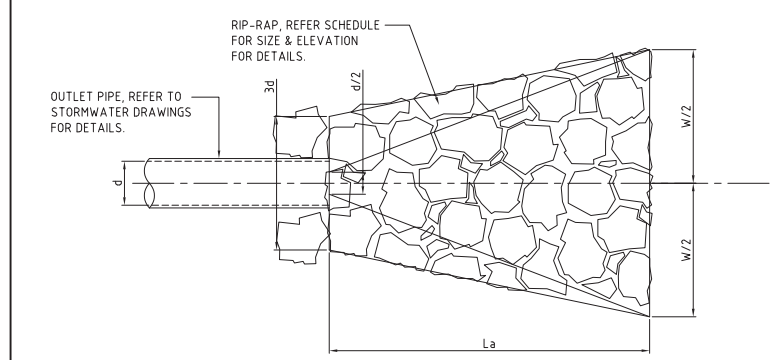
- WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
- SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
- ALL REINFORCING TO HAVE 50 MIN. CLEAR CONCRETE COVER.
- FOR PITS DEEPER THAN 1000mm CLIMB RAILS SHALL BE PROVIDED.
- ALL CONCRETE PITS GREATER THEN 3m DEEP SHALL HAVE WALL AND BASE THICKNESS INCREASED TO 200mm



SEALED PIT - SJP



KERB INLET PIT - KIP



STORMWATER OUTLET DISSIPATER

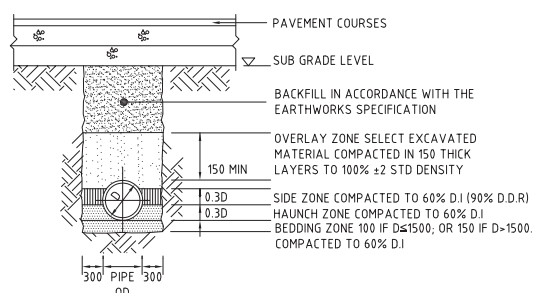
SCALE 1:50

DISSIPATER NOTES:

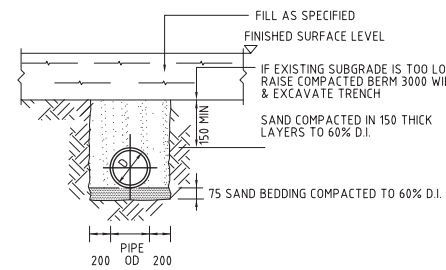
- ALIGN STRUCTURE EVENLY WITH BANK.
- LOCATE STRUCTURE AT INVERT LEVEL OF STREAM AND POINT IN A DOWNSTREAM DIRECTION.
- PIPE TO REST ON, AND BE PACKED IN, BY RIP-RAP (SIZE AS NOTED).
- DISCHARGE INTO STREAM WHERE BEDROCK IS PRESENT, OTHERWISE SCOUR PROTECT AS REQUIRED.
- SCOUR PROTECT THE OPPOSITE BANK AS REQUIRED. SCOUR PROTECTION TO BE PROVIDED WHERE OPPOSITE BANK IS WITHIN 12-14 TIMES THE PIPE DIAMETER.
- RIP-RAP TO CONSIST OF ANGULAR RUN-OF-QUARRY ROCK (d50=300mm MINIMUM) AS NOTED IN THE SCHEDULE. RIP-RAP TO BE MINIMUM THICKNESS OF RIP-RAP LAYER TO BE 1.6x AVERAGE ROCK SIZE (d50).
- RIP-RAP IS TO BE PLACED OVER A 200mm LAYER OF 140mm COBBLES OVER NEEDLE-PUNCHED GEOFAB A44.
- PLACE ROCK SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS. THE FINISHED RIP-RAP SURFACE SHOULD BE FREE OF POCKETS OF SMALL ROCK OR CLUSTERS OF LARGE ROCKS.
- GAPS IN RIP-RAP TO BE HAND PACKED WITH TOPSOIL & PLANTED WITH NATIVE SEDGES & RUSHES TO PROVIDE. THE INTENT IS FOR THERE TO BE NO VOIDS BETWEEN RIP-RAP BOULDERS.
- ENSURE THE FINISHED ROCK SURFACE BLENDS WITH THE SURROUNDING GROUND LEVELS. NO OVERFALL OR PROTRUSION OF ROCK SHOULD BE APPARENT.
- ENSURE THAT STORMWATER FROM SURROUNDING GROUND IS FREE TO ENTER THE STRUCTURE WITHOUT CAUSING UNDESIRABLE PONDING OR SCOUR.

DISSIPATER SCHEDULE

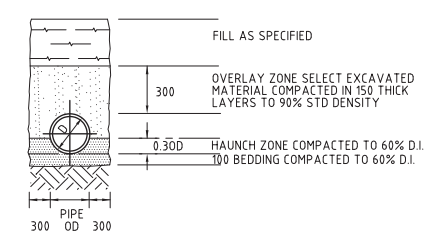
DISCHARGE POINT	d	La	W	RIP-RAP
OUTLET TYPE 1	1350	6500	4000	700
OUTLET TYPE 2	1200	5000	3500	500
OUTLET TYPE 3	900	4000	2500	300
OUTLET TYPE 4	675	3000	2000	250



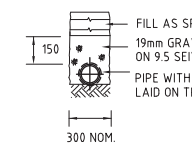
TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT



SUPPORT TO uPVC PIPES



TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS



SUPPORT TO AG. DRAIN

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
75	100
9.5	100 TO 50
2.36	100 TO 30
0.60	50 TO 15
0.075	25 TO 0

SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
19	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

PIPE LAYING DETAILS

1:20

