

LOCALITY MAP

N.T

NOTE:
LOCATIONS OF ALL EXISTING
SERVICES SHOWN SHOULD BE
CONFIRMED BY CONTRACTOR
PRIOR TO COMMENCING WORK.

Sheet List Table

- DA-C0000 COVER SHEET
- DA-C0001 LEGEND
- DA-C0002 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
- DA-C0003 EROSION AND SEDIMENT CONTROL LAYOUT
- DA-C0004 OSD TANK LAYOUT RAWSON ST LEVEL
- DA-C0005 LEVEL 1 BASEMENT LAYOUT
- DA-C0008 STORMWATER LONGITUDINAL SECTION
- DA-C0010 OSD TANK SECTIONS SHEET 1
- DA-C0011 OSD TANK SECTIONS SHEET 2
- DA-C0012 OSD TANK SECTIONS SHEET 3
- DA-C0013 OSD TANK SECTIONS SHEET 4
- DA-C0020 DRAINAGE CATCHMENT LAYOUT

EPPING TOWER

OSD, WUSD + ESC SKETCHES

STANDARD NOTES

1. GENERAL

- 1.1. NO WORK IS TO COMMENCE ON SITE UNTIL APPROVAL TO PROCEED HAS BEEN GIVEN BY THE SUPERINTENDENT.
- 1.2. THE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND STANDARD DRAWINGS LISTED. THE SUPERINTENDENT WILL ON REQUEST RESOLVE ANY POINT OF CONFLICT. DIMENSIONS ARE NOT TO BE SCALED.
- 1.3. WHERE A JUNCTION IS TO BE MADE TO EXISTING CONSTRUCTION THE CONTRACTOR SHALL CONFIRM THE LOCATION AND LEVEL OF THIS CONSTRUCTION PRIOR TO COMMENCING WORK ON ANY CRITICAL SECTION. THE SUPERINTENDENT MAY VARY LEVELS AND GRADIENTS OF NEW WORKS TO ACHIEVE A SATISFACTORY CONNECTION.
- 1.4. ALL CONSTRUCTION WORK SHALL COMPLY WITH THE NEW SOUTH WALES WORK HEALTH AND SAFETY ACT. CONTACT YOUR NEAREST OFFICE OF THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION. Ph: 13 10 50
- 1.5. THE CONTRACTOR SHALL TAKE ALL REASONABLE AND PRACTICAL MEASURES TO PREVENT OR REDUCE HARM TO THE ENVIRONMENT AS SET OUT IN THE ENVIRONMENTAL PROTECTION ACT.

2. SERVICES NOTES

- 2.1. LOCATION & PROTECTION
THE LOCATION OF SERVICES SHOWN ON THESE PLANS HAS BEEN APPROXIMATED FROM KNOWN POSITIONS OF VALVES, INSPECTION/ACCESS CHAMBERS, ETC AND INFORMATION SUPPLIED BY SERVICES AUTHORITIES. DETAILS OF SERVICES ARE PROVIDED FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SUPPLIED. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL SERVICES WITH THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK AND PROVIDING ALL NECESSARY MEASURES TO PROTECT ALL SERVICES DURING THE COURSE OF THE WORK.
- 2.2. STRUCTURES TO BE MAINTAINED IN A STABLE CONDITION AND NO PART TO BE OVERSTRESSED DURING CONSTRUCTION.
- 2.3. AUTHORITY SERVICES CONFLICTS
SERVICE RELOCATIONS ARE SHOWN WHERE KNOWN. THE CONTRACTOR IS TO LOCATE, AND IF NECESSARY LEVEL, ALL SERVICES IN THE AREA OF THE WORKS PRIOR TO CONSTRUCTION. THE SUPERINTENDENT IS TO BE ADVISED IMMEDIATELY OF ANY UNIDENTIFIED CONFLICTS.
- 2.4. TELECOMMUNICATION CABLE
NO WORK IS TO BE CARRIED OUT WITHIN 3.0m OF CABLE IN URBAN AREAS AND 10.0m IN RURAL AREAS, WITHOUT FIRST CONSULTING THE RELEVANT AUTHORITY. THE CONTRACTOR IS TO MANUALLY EXPOSE AND PROTECT THE SERVICE WHEN EXCAVATING, OR WORKING, CLOSER TO TELECOMMUNICATION PLANT THAN THE ABOVE DISTANCES

3. TRAFFIC CONTROL

3.1. TRAFFIC CONTROL IS TO BE IN ACCORDANCE WITH THE QUEENSLAND TRANSPORT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CURRENT ISSUE). IF REQUESTED BY THE SUPERINTENDENT THE CONTRACTOR IS REQUIRED TO PROVIDE FOR APPROVAL TRAFFIC MANAGEMENT PLANS DETAILING THE TRAFFIC MOVEMENTS TO BE PROVIDED, THEIR STAGING, AND THE SIGNAGE ADOPTED IN EACH STAGE.

CONTRACTOR SHALL COORDINATE WITH ELECTRICAL, COMMUNICATIONS, FIRE, HYDRAULIC SERVICES AND LANDSCAPE CONSULTANT'S DRAWINGS FOR LOCATIONS OF PROPOSED OR RETAINED SERVICES. NO PAVING OR KERB IS TO BE PLACED UNTIL ALL SERVICES UNDER HAVE BEEN PLACED AND TESTED.

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C	07.02.19	RE-ISSUE	TK	ZW							
B	20.12.18	RESPONSE TO COUNCIL RFI	ABU	ZW	NR	NR					
A	06.07.18	PDG ALIGNMENT DRAWINGS	ABU	ZW	NR						

ASSOCIATED CONSULTANTS
WOODS BAGOT

APPROVED

7729
RPEQ

CHECKED

DATE 21.12.18

CLIENT
PDS AUSTRALIA PTY LTD

PROJECT
EPPING TOWER

SUBJECT
COVER SHEET

PROJECT No.
16115

DRAWING No.
DA-C000

REVISION
C

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL

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Spring Hill, QLD 4000, Australia
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BOUNDARIES

EXISTING	PROPOSED	
— — — — —	— — — — —	EASEMENT
— — — — —	— — — — —	PROPERTY BOUNDARY
— — — — —	— — — — —	STAGE BOUNDARY

ROADWORKS

EXISTING	PROPOSED	
— — — — —	— — — — —	TOP OF BATTER
— — — — —	— — — — —	TOE OF BATTER
— — — — —	— — — — —	BATTER
— — — — —	— — — — —	SKIP BIN
— — — — —	— — — — —	BUILDING PAD
— — — — —	— — — — —	CONTOURS
— — — — —	— — — — —	CONTROL LINE
— — — — —	— — — — —	DRIVEWAY
— — — — —	— — — — —	EXTENT OF BITUMEN
— — — — —	— — — — —	EXTENT OF BUILDING
— — — — —	— — — — —	EDGE OF SHOULDER
— — — — —	— — — — —	FENCE
— — — — —	— — — — —	FOOTPATH
— — — — —	— — — — —	KERB AND CHANNEL
— — — — —	— — — — —	KERB MOUNTABLE
— — — — —	— — — — —	KERB INVERT
— — — — —	— — — — —	KERB ONLY
— — — — —	— — — — —	EDGE RESTRAINT
— — — — —	— — — — —	LINE OF VEGETATION
— — — — —	— — — — —	KERB RAMP
— — — — —	— — — — —	RETAINING WALL
— — — — —	— — — — —	TOP OF WALL
— — — — —	— — — — —	TOE OF WALL
— — — — —	● 10	SETOUT POINT
— — — — —	— — — — —	SAWCUT
— — — — —	— — — — —	STONE PITCHING
— — — — —	— — — — —	STREET NAME SIGN
— — — — —	— — — — —	TREE
— — — — —	— — — — —	TRAFFIC SIGN

REFER TO DWG C0300 FOR DETAILS

SEWER

EXISTING	
— — — — —	SEWER
— — — — —	SEWER (FROM RECORDS)
— — — — —	SEWER PROPERTY CONNECTION
— — — — —	SEWER RISING MAIN

SERVICES

EXISTING	
— — — — —	ABANDONED SERVICE
— — — — —	ELECTRICITY U/G
— — — — —	ELECTRICITY O/H
— — — — —	GAS
— — — — —	OPTIC FIBRE
— — — — —	TELECOMMUNICATION
— — — — —	TELECOMMUNICATION (FROM RECORDS)

STORMWATER

EXISTING	PROPOSED	
— — — — —	1.2	CATCHMENT NUMBER
— — — — —	— — — — —	CATCHMENT BOUNDARY
— — — — —	— — — — —	OPEN CHANNEL
— — — — —	RW — IBW —	ROOFWATER DRAINAGE
— — — — —	D — D —	STORMWATER DRAINAGE
— — — — —	D — COMP —	STORMWATER DRAINAGE (FROM RECORDS)
— — — — —	— — — — —	STORMWATER DRAINAGE PIPE
— — — — —	0.0.0	STORMWATER STRUCTURE NUMBER
— — — — —	— — SB — —	SUBSOIL DRAINAGE & CLEANOUT
— — — — —	— — — — —	KERB ADAPTER
— — — — —	— — — — —	TREE PIT. REFER LANDSCAPE FOR DETAILS.
— — — — —	— — — — —	STORMWATER PIPE

WATER

EXISTING	
— — — — —	WATER
— — — — —	WATER (FROM RECORDS)
— — — — —	WATER CONDUIT
— — — — —	● FIRE HYDRANT
— — — — —	X VALVE
— — — — —	— SCOUR VALVE
— — — — —	W END CAP
— — — — —	WMT WATER METER
— — — — —	WMT TEST/CHLORINATION POINT
— — — — —	150 — 100 REDUCER
— — — — —	PVC — DICL PIPE MATERIAL CHANGE
— — — — —	— — — — —
— — — — —	WATER SERVICE POINT
— — — — —	ISOLATION VALVE TO REMAIN CLOSED PENDING CLEARANCE OF NEW MAIN
— — — — —	— — — — —
— — — — —	THRUST/ANCHOR BLOCK

EARTHWORKS/EROSION & SEDIMENT CONTROL

EXISTING	PROPOSED	
●	— — — — —	OVERFLOW RELIEF DRAINAGE
— — — — —	— — — — —	SILT FENCE
— — — — —	— — — — —	INLET SEDIMENT TRAP
— — — — —	— — — — —	CHECK DAM
— — — — —	— — — — —	TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP
— — — — —	— — — — —	FLOW DIRECTION ARROW
— — — — —	ST	SEDIMENT TRAP

FOR APPROVAL

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP	ASSOCIATED CONSULTANTS	APPROVED	CHECKED	BORNHORST + WARD	CLIENT	PROJECT	SUBJECT	PROJECT No.
G	07.02.19	RE-ISSUE	TK	ZW			WOODS BAGOT	M. Krajis	7729	RREQ	PDS AUSTRALIA PTY LTD	EPPING TOWER	LEGEND	16115
F	20.12.18	RESPONSE TO COUNCIL RFI	ABU	ZW	NR	NR	EMF GRIFFITHS							DRAWING No.
E	09.07.18	RESPONSE TO RFI	TK	ZW										REVISION
D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	EC	ZW	RG									DA-C0001 G
C	21.12.17	ISSUE FOR INFORMATION	FQ	ZW										7/02/2019 2:47:31 PM

0 10 20 30 40 50 100 ORIGINAL SIZE A1

EROSION & SEDIMENTATION CONTROL NOTES

- TOPSOIL**
 - STRIP & STOCKPILE AVAILABLE TOPSOIL (ASSUMED AVERAGE DEPTH 150mm) FROM DISTURBED AREAS PRIOR TO BULK EARTHWORKS. GRADE BULK EARTHWORKS SURFACE LEVEL EVENLY TO ENSURE SITE IS FREE DRAINING.
 - MINIMUM SLOPE ACROSS SITE TO BE 0.5%.
 - ALL FOOTPATHS, BATTERS & EARTHWORKS Affected AREAS ARE TO BE TOPSOILED TO A MINIMUM DEPTH OF 100mm (LIGHTLY COMPACTED) & TURFED WHERE SPECIFIED.
 - SEDIMENT FENCES TO BE PLACED AS SHOWN. FOR DETAILS OF SEDIMENT FENCE REFER TO IPWEA STD DWG DS-040. SEDIMENT FENCES TO BE REPAIRED & EXCESSIVE SEDIMENT DEPOSITS SHALL BE REMOVED ONCE CAPACITY FALLS BELOW 75%
- SEDIMENT FENCES**
 - FOR DETAILS OF SEDIMENT FENCE REFER TO IPWEA STD DWG DS-040.
 - SEDIMENT FENCES TO BE REPAIRED AS REQUIRED & EXCESSIVE SEDIMENT DEPOSITS SHOULD BE REMOVED.
 - IN THE EVENT OF WET WEATHER, INSTALL KERB INLETS FILTER WITH GRAVEL RANGING FROM 50mm TO 75mm IN SIZE. REFER IPWEA STANDARD DRAWING DS-041. IF THE GRAVEL FILTER BECOMES CLOGGED WITH SEDIMENT DURING ITS USE, THE GRAVEL MUST BE PULLED AWAY FROM THE MESH & CLEANED OR REPLACED.
 - REGULAR WEEKLY CHECKS OF SILT FENCES IS TO BE MADE ALONG WITH A CHECK AFTER ANY SIGNIFICANT STORM EVENT TO ENSURE INTEGRITY & PERFORMANCE.
 - DURING CONSTRUCTION SEQUENCE
 - TOPSOIL STOCKPILE SITE TO HAVE A SEDIMENTATION FENCE CONSTRUCTED ON DOWNSTREAM SIDE.
 - SEDIMENTATION FENCES TO BE PLACED AS SHOWN.
 - REGULARLY INSPECT BANKS & REPAIR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OF FREEBOARD
 - REMOVE SEDIMENT TO AVOID PONDING FROM CATCH DRAINS
 - REMOVE EXCESSIVE SEDIMENT FROM UPSTREAM OF CHECK DAM.
 - ROAD RESERVE TO BE USED AS HAUL ROAD
 - A CATCH DRAIN BANK IS TO BE PROVIDED ON THE TOP SIDE OF ALL CUTS & DISCHARGED EITHER TO UNDISTURBED GRASS LANDS OR TO THE CROSS ROAD DRAINAGE
 - SUPPLEMENTARY EROSION & SEDIMENT CONTROL DEVICE MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER
 - CONSTRUCTION EXIT SHALL BE AT ONLY ONE NOMINATED POINT ON LANeway OFF RAWSON STREET.
 - FOR DETAILS OF TEMPORARY CONSTRUCTION ENTRY / EXIT SEDIMENT TRAP REFER TO IPWEA STANDARD DRAWING DS-040.
 - WATER QUALITY SAMPLES MUST BE TAKEN & ANALYSED PRIOR TO RELEASE OF ANY WATER FROM THE SEDIMENT POND. WATER QUALITY MUST SATISFY THE FOLLOWING CRITERIA: TSS<50mg/L pH BETWEEN 6.5 & 8.5. IF WATER QUALITY FAILS THE CRITERIA THEN THE USE OF A GYPSUM FLOCCULANT IS TO BE APPLIED AS DIRECTED BY THE MANAGING CONTRACTOR OR CONSULTING ENGINEER.
 - ALL WATER QUALITY DATA INCLUDING DATES OF RAINFALL, TESTING & WATER RELEASE MUST BE MAINTAINED IN AN ON-SITE REGISTER. THIS REGISTER IS TO BE MAINTAINED FOR THE DURATION OF THE APPROVED WORKS & BE AVAILABLE ON SITE FOR INSPECTION ON REQUEST.
 - GRASS SEEDING IS TO ACHIEVE 70% COVER WITHIN 30 DAYS OF COMPLETION OF EARTHWORKS.
- FOLLOWING CONSTRUCTION**
 - SEDIMENTATION FENCES TO BE MAINTAINED UNTIL TURFING IS COMPLETED & GRASS IS 80% ESTABLISHED.
 - SEDIMENT BASINS TO BE CHECKED & DE-SILT AFTER EVERY SIGNIFICANT STORM EVENT OR IN THE CASE OF NO SIGNIFICANT STORM EVENT, EVERY 12 WEEKS.

NOTE:

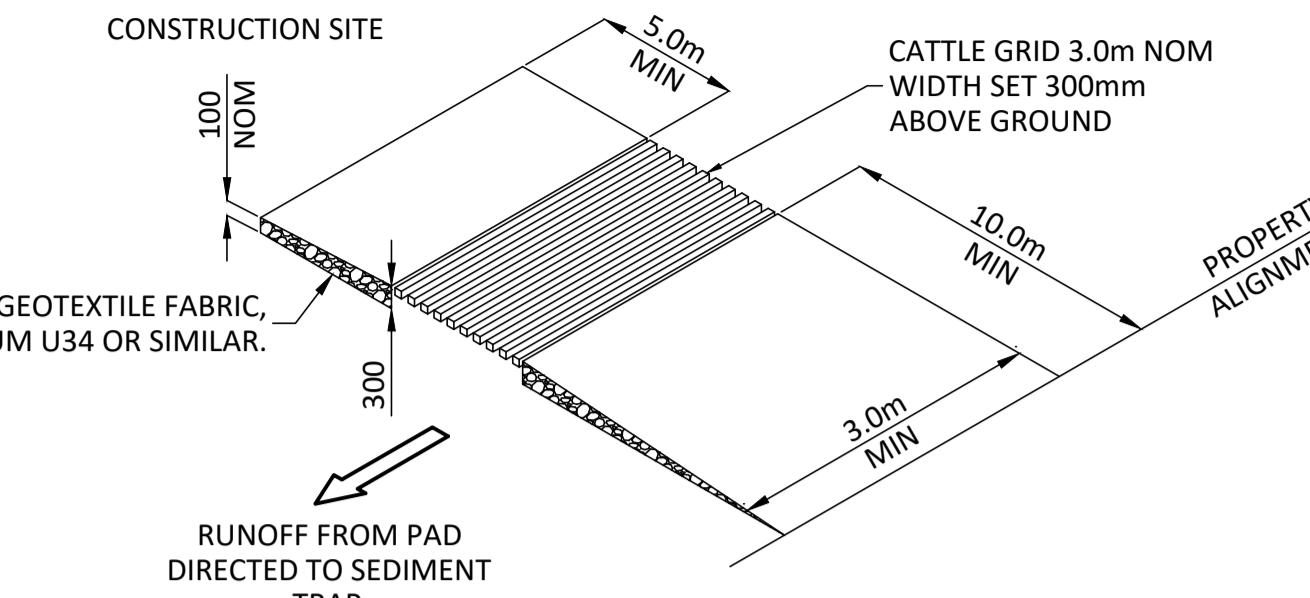
NOTWITHSTANDING THE DETAILS ON THESE DRAWINGS THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL WITHIN THE SITE. THE CONTRACTOR SHALL COMPLETE ALL DESIGN MEASURES AND MORE AS ANY ADDITIONAL MEASURES AND MAINTENANCE REQUIRED TO SUIT THEIR CONSTRUCTION STAGING. ALL COSTS IN RELATION TO EROSION AND SEDIMENT CONTROL ARE TO BE INCLUDED IN THE LUMP SUM.

BASIN OPERATION NOTES

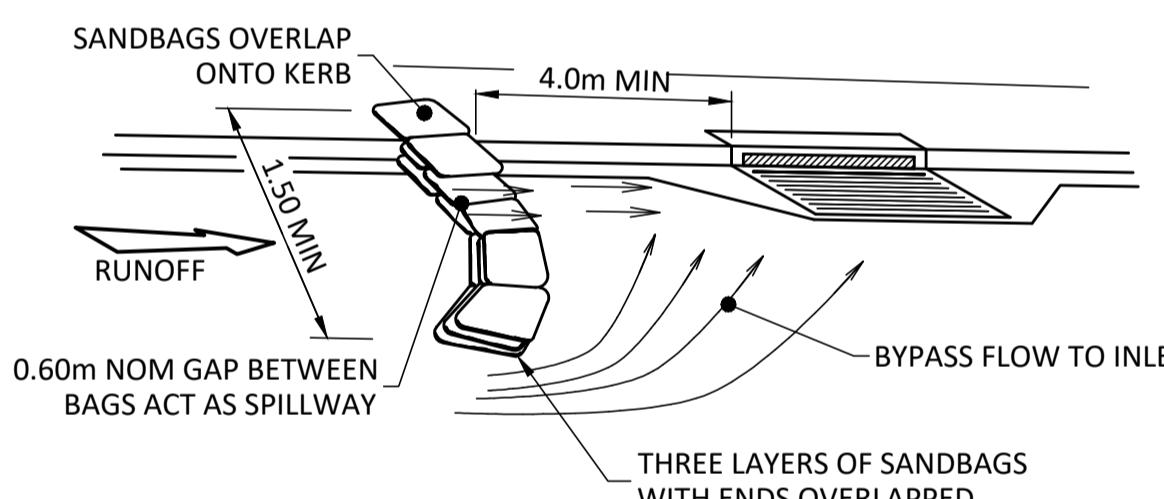
- WATER DISCHARGE CRITERIA**
 - SAMPLES MUST BE TAKEN AND ANALYSED PRIOR TO THE RELEASE OF WATER FROM PONDS.
 - TURBIDITY NTU (50%) < 60 (CHECK SAMPLES TO BE LAB TESTED TO CONFIRM TSS<50 mg/l AFTER ALL EVENTS)
 - pH BETWEEN 6.5 AND 8.5
- TREATMENT**
 - HIGH TSS: ADD GYPSUM. RECOMMENDED 32 TO 70kg/100m² WATER AS A SLURRY EVENLY SPREAD OVER POND SURFACE. OR OTHER COMMERCIAL FLOCCULANT SUITABLE FOR FRESH WATER DISCHARGE APPLIED IN ACCORDANCE WITH SUPPLIER RECOMMENDATIONS.
 - LOW pH: ADD AGLIME/HYDRATED LIME OR SODIUM BICARBONATE. REFER TO TABLE BELOW AS A GENERAL GUIDE FOR MINIMUM DOSAGE RATES.

CURRENT WATER pH	[H ⁺] (mo/L)	H ⁺ IN 1 MEGALITRE (mL)	AGLIME TO NEUTRALISE 1 MEGALITRE (kg pure Ca(OH) ₂)	HYDRATED LIME TO NEUTRALISE 1 MEGALITRE (kg pure Ca(OH) ₂)	SODIUM BICARBONATE TO NEUTRALISE 1 MEGALITRE (kg pure NaH _{CO} ₃)
0.5	0.316	316228	15824	11716	26563
1.0	0.1	100000	5004	3705	8390
1.5	0.032	32000	1600	1185	2686
2.0	0.01	10000	500	370	839
2.5	0.0032	3200	160	118	269
3.0	0.001	1000	50	37	84
3.5	0.00032	320	16	12	27
4.0	0.0001	100	5	4	8.4
4.5	0.000032	32	1.6	1.18	2.69
5.0	0.00001	10	0.5	0.37	0.84
5.5	0.0000032	3.2	0.16	0.12	0.27
6.0	0.000001	1	0.05	0.037	0.08
6.5	0.00000032	0.32	0.016	0.012	0.027

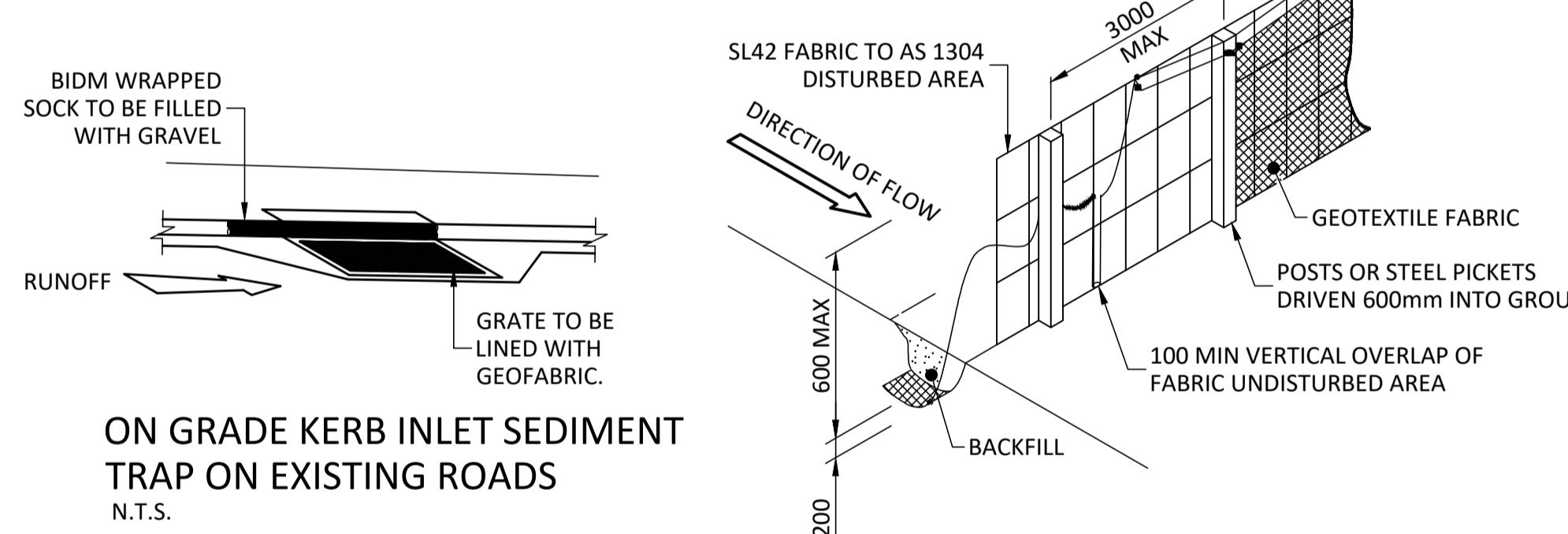
- HIGH pH: ADD CITRUS ACID. TESTING FOR BOTH pH & ALKALINITY ARE NECESSARY TO DETERMINE DOSAGE RATES.
- ALL WATER QUALITY DATA INCLUDING DATES OF RAINFALL, TESTING AND WATER RELEASE MUST BE MAINTAINED IN AN ON-SITE REGISTER. THIS REGISTER IS TO BE MAINTAINED FOR THE DURATION OF THE APPROVED WORKS AND BE AVAILABLE ON SITE FOR INSPECTION ON REQUEST.



TEMPORARY CONSTRUCTION
ENTRY / EXIT SEDIMENT TRAP
NTS



ON GRADE KERB INLET SEDIMENT TRAP
NTS



SILT FENCE ELEVATION
N.T.S.

MANAGEMENT OF DUST, EROSION AND SEDIMENT IS THE RESPONSIBILITY OF THE EARTHWORKS CONTRACTOR. THEY ARE TO PREPARE PHASE SPECIFIC EROSION CONTROL PLANS AND SUBMIT TO THE MANAGING CONTRACTOR PRIOR TO BEGINNING WORK ON THE RELEVANT PHASE.

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REV	DATE	DESCRIPTION	DWN DES CHK APP
G	07.02.19	RE-ISSUE	TK ZW
F	20.12.18	RESPONSE TO COUNCIL RFI	ABU ZW NR NR
E	09.07.18	RESPONSE TO RFI	TK ZW
D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	EG ZW RG
C	21.12.17	ISSUE FOR INFORMATION	FG ZW

ASSOCIATED CONSULTANTS
WOODS BAGOT
EMF GRIFFITHS

APPROVED
M. Rozis 7729
CHECKED
M. Rozis
DATE 21.12.18 DATE 21.12.18

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CLIENT
PDS AUSTRALIA PTY LTD

PROJECT
EPPING TOWER

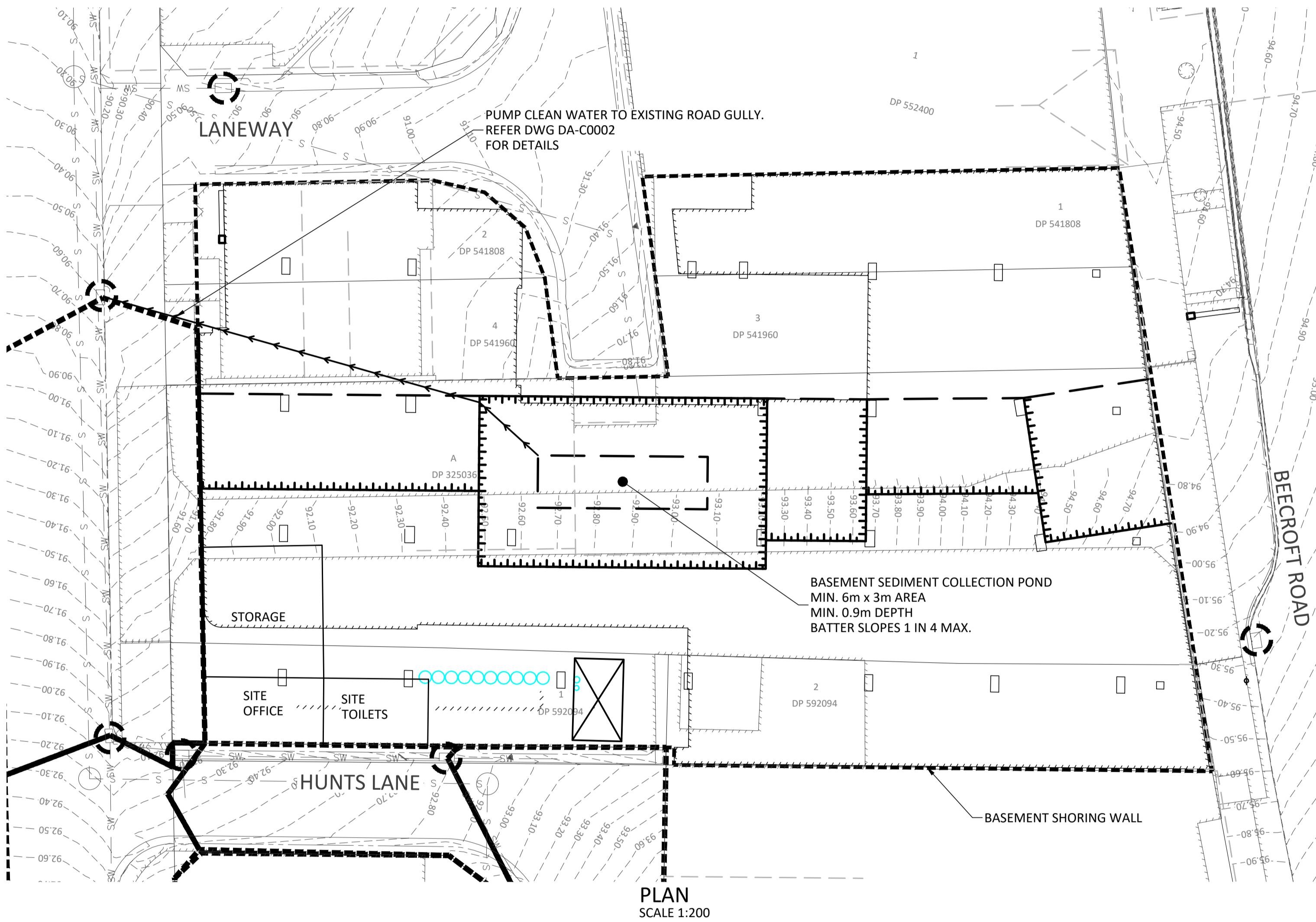
SUBJECT
EROSION AND SEDIMENT
CONTROL NOTES AND
DETAILS

PROJECT NO.
16115
DRAWING NO.
DA-C0002 G
REVISION
7/2019 24734 PM

I, NICHOLAS ROZIS [CPESC # 8219]
CONFIRM THIS MANAGEMENT PLAN REPRESENTS
BEST PRACTICE FOR THE SITUATION.
M. Rozis(SIGNATURE)

FOR APPROVAL

0 10 20 30 40 50 100
ORIGINAL SIZE A1



Sediment Basin Sizing	
BOM IFDs:	Epping
RECOMMENDED APPLICATION (Y%)	life less than 6 months (Y)
VOLUMETRIC RUNOFF COEFFICIENT Cv	0.56
EFFECTIVE CATCHMENT AREA (ha)	0.215
R(%5-day)	26.6
Required Volume of Settling Zone Volume (m ³)	32
Required Sediment Storage Zone Volume (m ³)	16
Depth of Settling Zone (m)	0.6
Depth of Storage Zone (m)	0.3
Internal Batters (1 in _)	2
Top Length (m)	13
Top Width (m)	11
L/W	1.18
Settling Zone Volume (m ³)	54.70
Sediment Storage Zone Volume (m ³)	17.95
Required Pump Out Rate (L/min)	75.97
Design ARI Flow Rate (m ³ /s)	0.072
Emergency Spillway Flow Rate (m ³ /s)	0.072

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THE RESPONSIBILITY OF THE EARTHWORKS
CONTRACTOR.
THEY ARE TO PREPARE PHASE SPECIFIC EROSION
CONTROL PLANS AND SUBMIT TO THE MANAGING
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E	09.07.18	RESPONSE TO RFI	TK	ZW		
D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	EC	ZW	RG	
C	21.12.17	ISSUE FOR INFORMATION	FQ	ZW		

ASSOCIATED CONSULTANTS
WOODS BAGOT
EMF GRIFFITHS

APPROVED
N. Rozis 7729
DATE 21.12.18

CHECKED
N. Rozis
RREQ
DATE 21.12.18

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www.bornhorstward.com.au

CLIENT
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PROJECT
EPPING TOWER

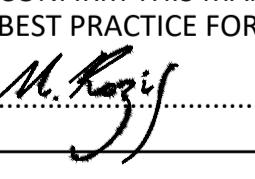
SUBJECT
EROSION AND SEDIMENT
CONTROL LAYOUT

PROJECT No.
16115

DRAWING No.
DA-C0003 G

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE
SHOWN OTHERWISE. CULVERT AND PIPE
SIZES IN MILLIMETRES
A1 UNREDUCED
A3 REDUCED
SCALES
0 2.0 4.0 6.0 8.0 10.0 1:200 / 1:400
UNREDUCED / REDUCED
1:200 1:400
0 10 20 30 40 50 100
ORIGINAL SIZE A1
7/02/2019 2:47:35 PM
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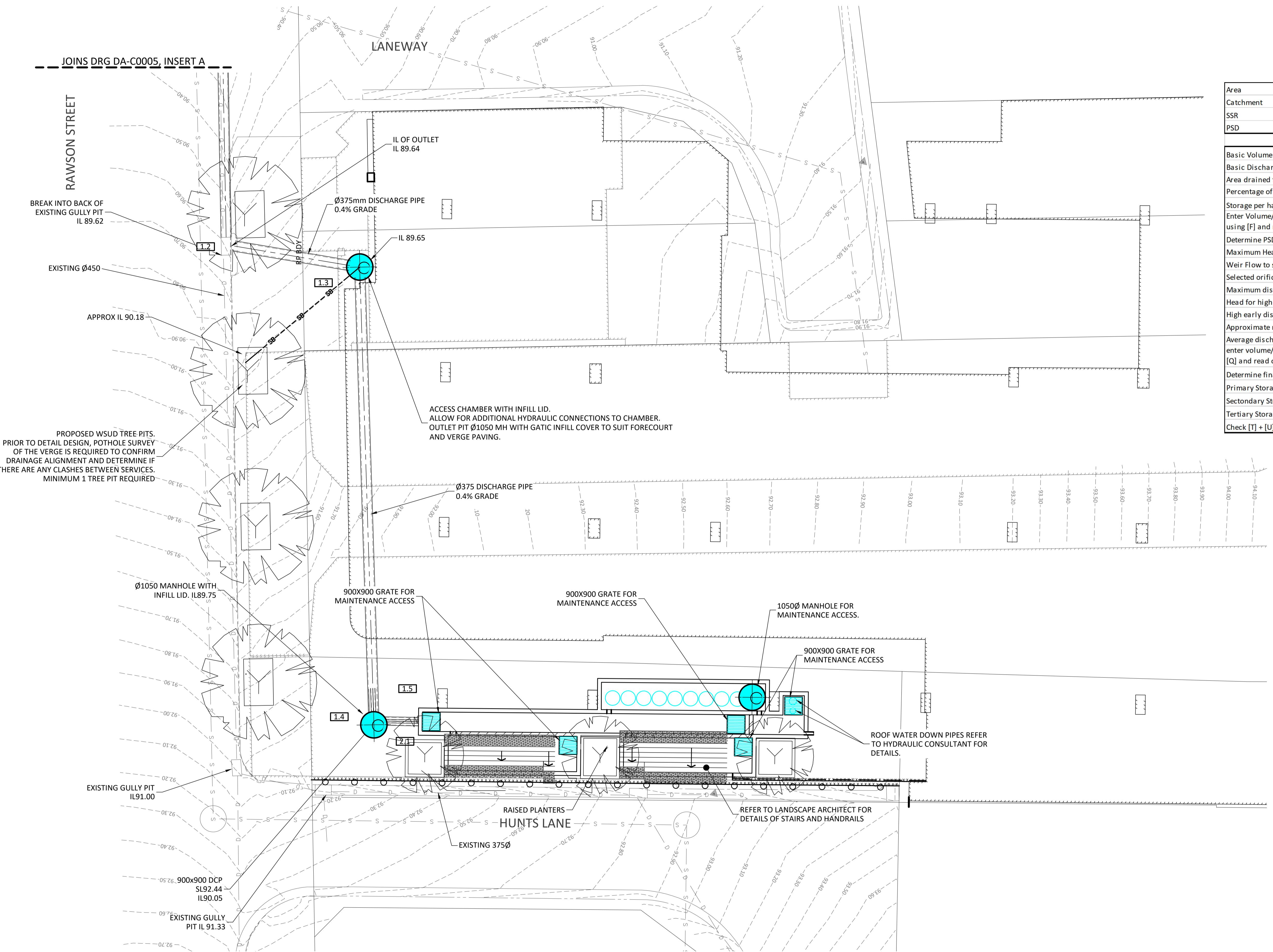
I, NICHOLAS ROZIS [CPESC # 8219]
CONFIRM THIS MANAGEMENT PLAN REPRESENTS
BEST PRACTICE FOR THE SITUATION.

(SIGNATURE)

FOR APPROVAL

OSD CALCULATIONS

Area	0.2156 ha	[A]
Catchment	Devlins Creek	
SSR	250 m ³ /ha	
PSD	210 l/sec/ha	
Basic Volume	53.9 m ³	[B]
Basic Discharge	45.3 l/sec	[C]
Area drained to Storage	0.1956 ha	[D]
Percentage of Area Drained to Storage	91 %	[E]
Storage per ha of Contributing Area	276 m ³ /ha	[F]
Enter Volume/PSD Adjustment chart (Fig 5.1) using [F] and read new PSD in l/sec/ha	168 l/sec/ha	[G]
Determine PSD (l/sec) = [G] x [D]	32.8 l/sec	[H]
Maximum Head to Orifice centre	1.727 m	[K]
Weir Flow to storage	0.027 m	[I]
Selected orifice diameter	0.11 m	[J]
Maximum discharge	32.77 l/sec	[L]
Head for high early discharge	1.700 m	[M]
High early discharge	32.5 l/sec	[N]
Approximate mean discharge	32.6 l/sec	[P]
Average discharge/ha	167 l/sec/ha	[Q]
enter volume/PSD adjustment chart 5.1 using [Q] and read off final storage volume per ha	276.4 m ³ /ha	[R]
Determine final SSR	54.1 m ³	[S]
Primary Storage Portion	27.2 m ³	[T]
Secondary Storage proportion	39.2 m ³	[U]
Tertiary Storage Proportion	0 m ³	[V]
Check [T] + [U] + [V] = [S]	66.4 m ³	

NOTE:
INSTALL STEP IRONS AT ALL ACCESSES
AT 150mm INTERVALS FOR ACCESS
INTO CHAMBER.



PROJECT NORTH

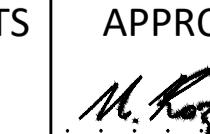
 DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES
 A1 UNREDUCED
 A3 REDUCED
 SCALES UNREDUCED / REDUCED

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H	07.02.19	RE-ISSUE	TK	ZW		
G	20.12.18	RESPONSE TO COUNCIL RFI	ABU	ZW	NR	NR
F	30.11.18	RESPONSE TO COUNCIL RFI	TK	ZW		
E	09.07.18	RESPONSE TO RFI	TK	ZW		
D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	FG	ZW	RG	

ASSOCIATED CONSULTANTS
WOODS BAGOT
EMF GRIFFITHS

APPROVED

 7729
 RPEQ
 DATE 21.12.18

CHECKED

 DATE 21.12.18

BORNHORST + WARD
 CONSULTING ENGINEERS
 CIVIL AND STRUCTURAL

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 mail@bornhorstward.com.au
 www.bornhorstward.com.au

CLIENT
PDS AUSTRALIA PTY LTD

PROJECT
EPPING TOWER

SUBJECT
**OSD TANK LAYOUT
 RAWSON ST LEVEL**

PROJECT No.
16115
 DRAWING No.
 REVISION
DA-C0004 H
 7/02/2019 2:47:38 PM
 ORIGINAL SIZE A1

NOTE:
HGL FOR EXISTING AND PROPOSED
THROUGH EXISTING INFRASTRUCTURE
HAS BEEN CALCULATED AND NO
SIGNIFICANT DIFFERENCE HAS BEEN
RECORDED.

STORMWATER LONGITUDINAL SECTION

SCALE 1:1000 (HOR)

1:100 (VERT)

GRANITOGRES

TORNHORST -

CONSULTING EN

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PROJECT
EPPING TOWER

2

SUBJECT

STORMWATER LONGITUDINAL SECTION



PROJECT No.	
16115	
DRAWING No.	REVISION
DA-C0008	F
100	
ORIGINAL SIZE	

STATUS

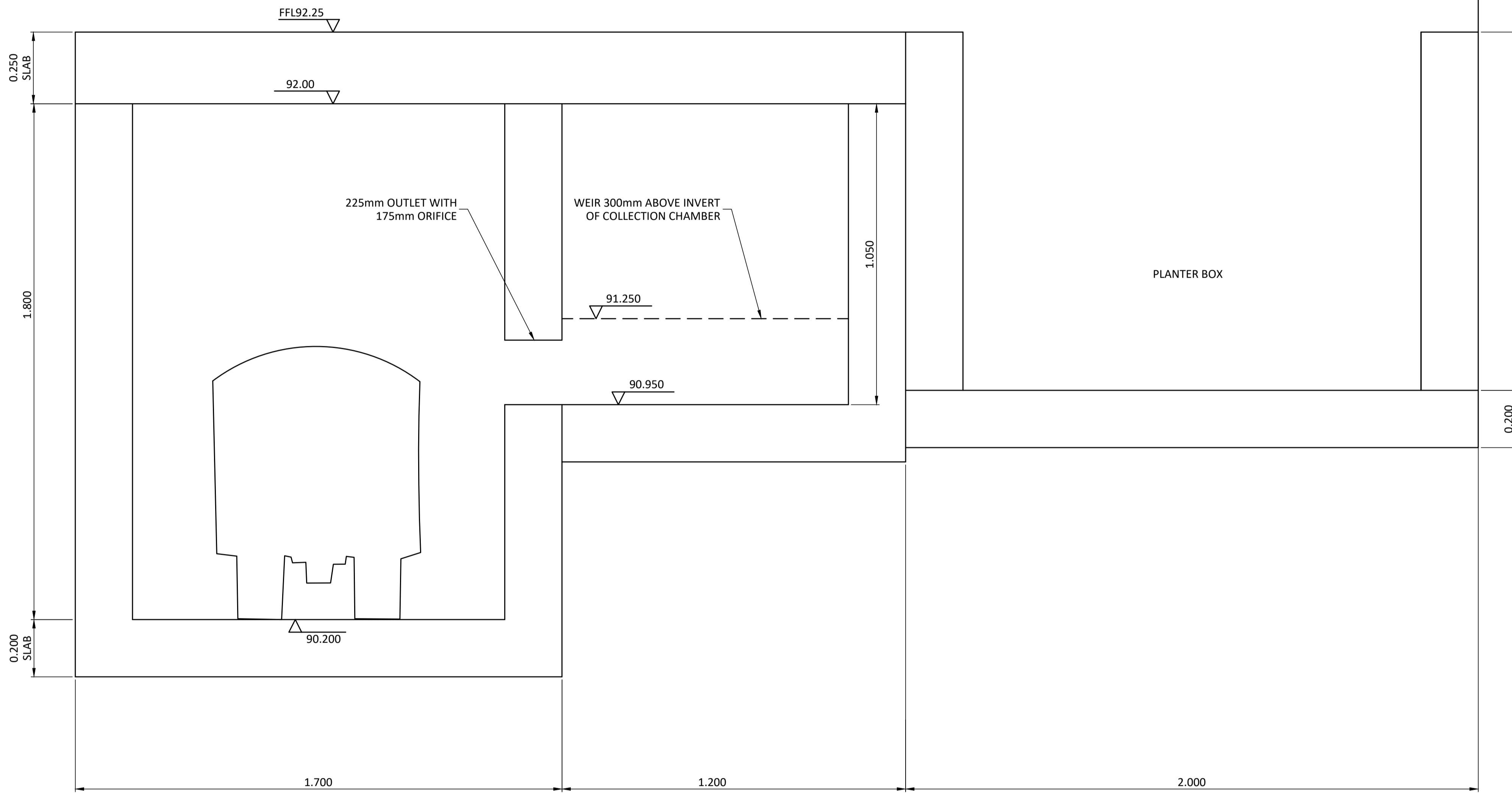
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PROJECT No. 16115

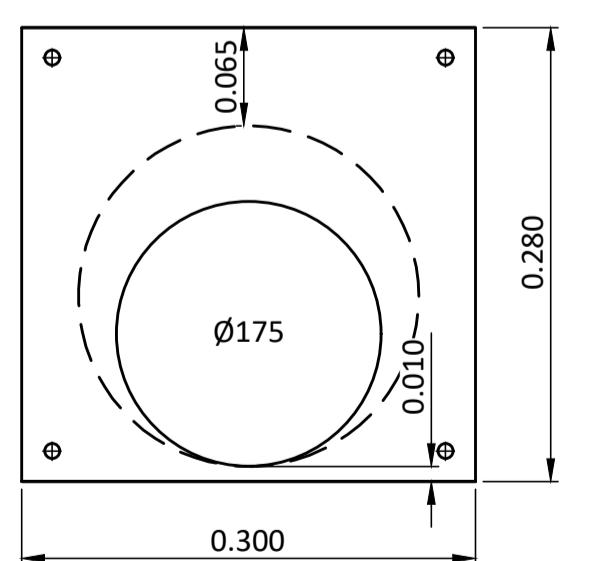
WATER TUTORIAL SECTION

DA-C0008 F

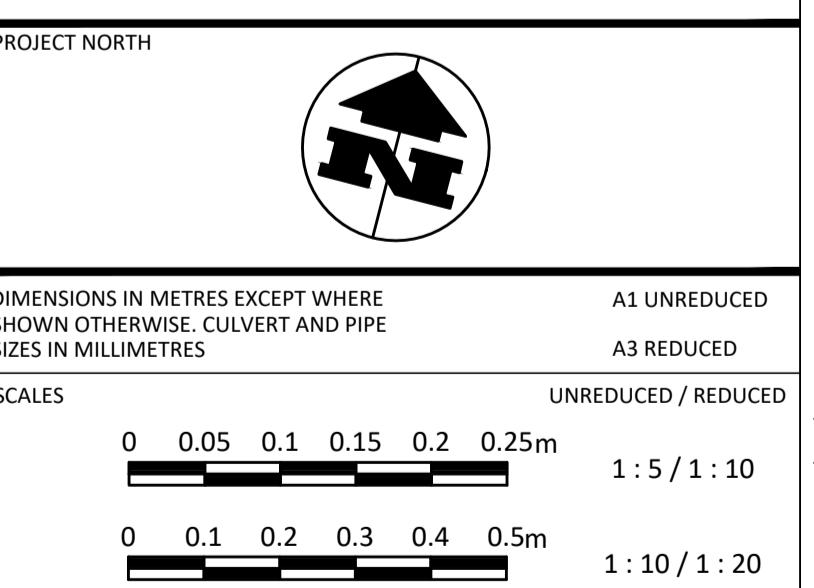
30 40 50 100 **ORIGINAL SIZE**



NOTE:
REFER TO SPEL DRAWING SP16-SF8270
FOR THE GENERAL ARRANGEMENT OF
THE SPEL FILTER SYSTEM. SPEL TO BE
CONTACTED FOR FINAL DESIGN OF
FILTER ARRANGEMENT.



ORIFICE PLATE DETAIL
N.T.S.

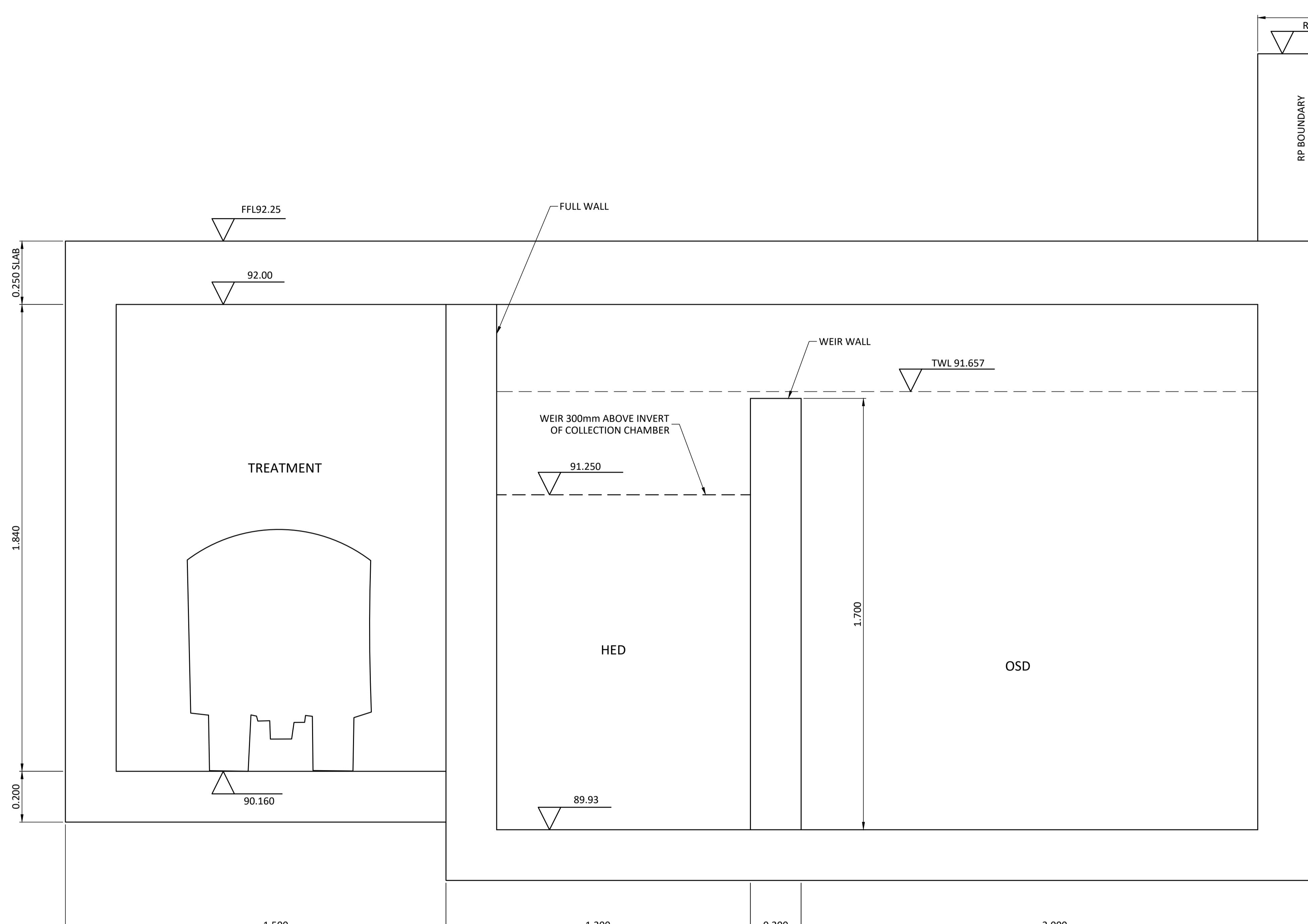


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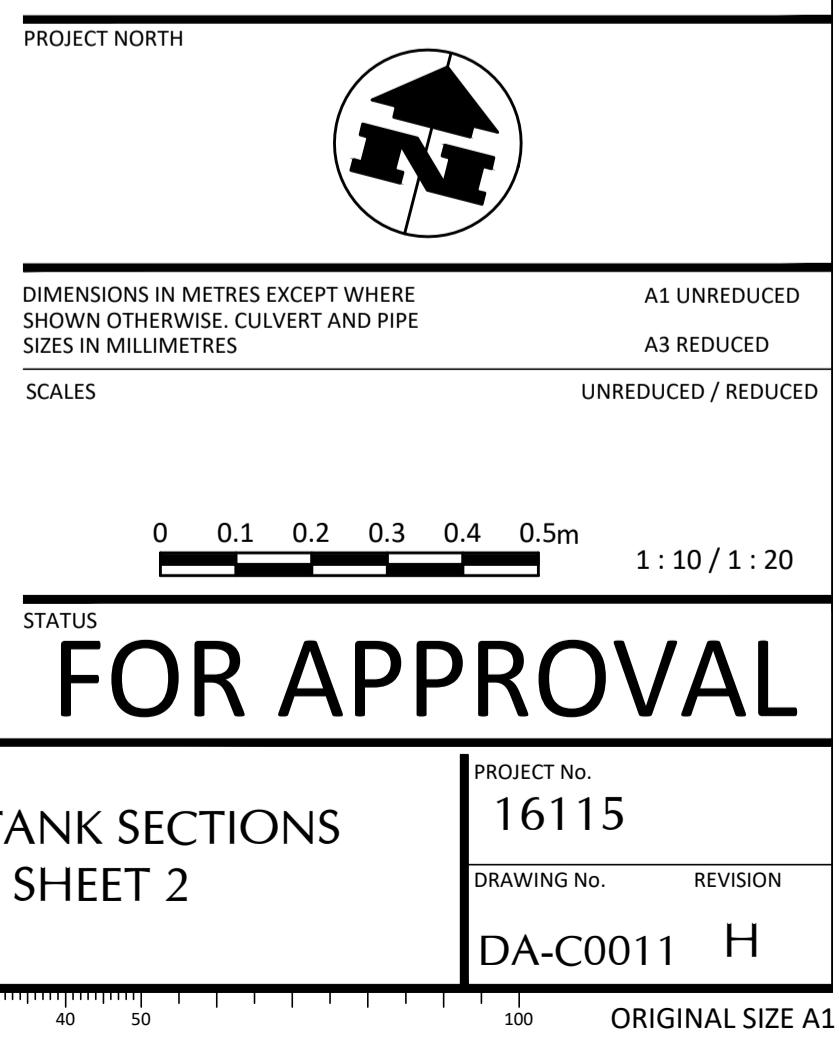
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H	07.02.19	RE-ISSUE	TK	ZW						WOODS BAGOT			CONSULTING ENGINEERS	PDS AUSTRALIA PTY LTD	EPPING TOWER	OSD TANK SECTIONS	16115		
G	20.12.18	RESPONSE TO COUNCIL RFI	ABU	ZW	NR	NR				EMF GRIFFITHS			CIVIL AND STRUCTURAL			SHEET 1			
F	14.12.18	ISSUE FOR INFORMATION	HA	ZW															
E	09.07.18	RESPONSE TO RFI	TK	ZW															
D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	FG	ZW	RGI														

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DA-C0010 H
ORIGINAL SIZE A1



NOTE:
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D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	FG	ZW	RGJ	

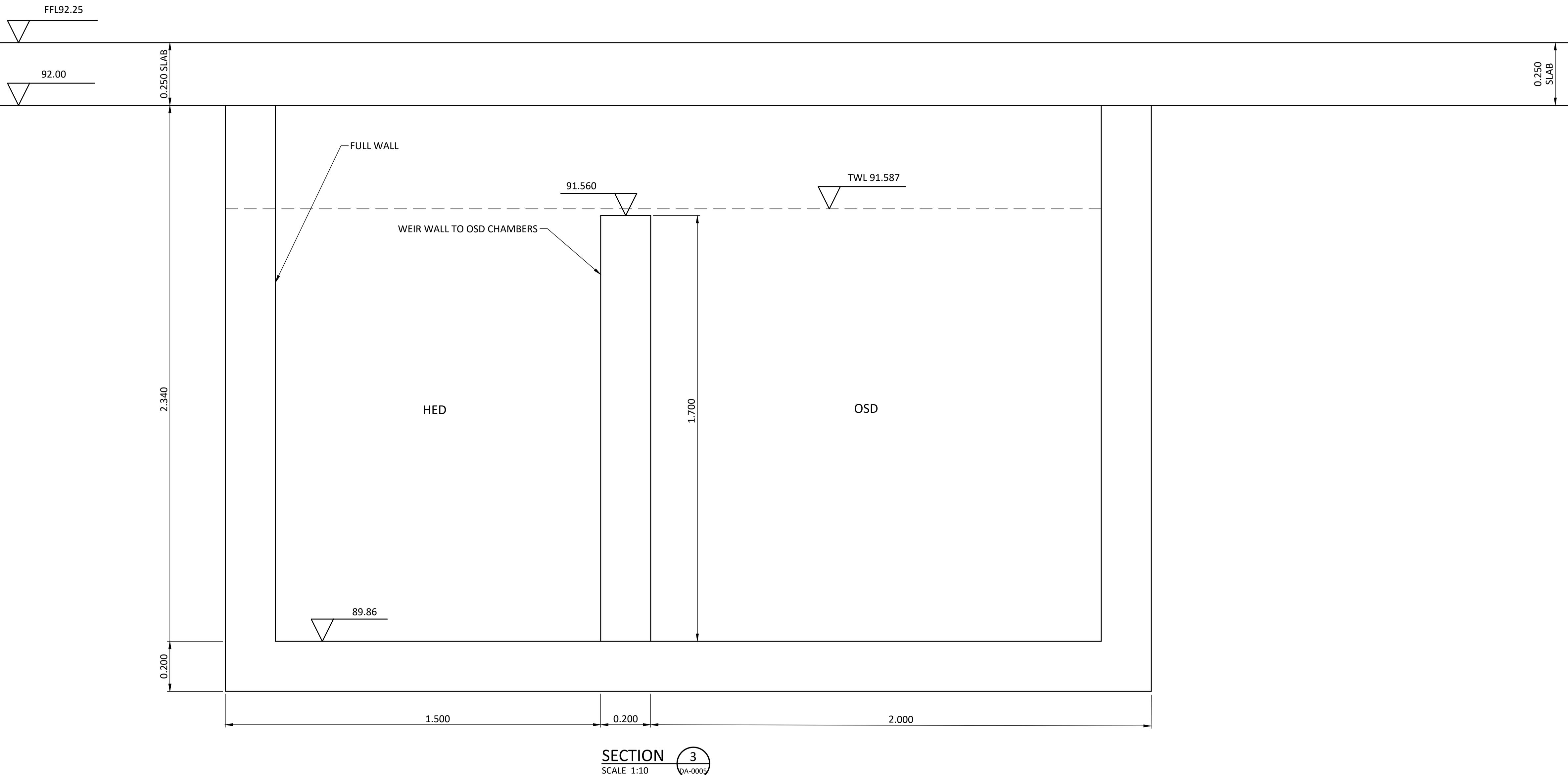
ASSOCIATED CONSULTANTS	APPROVED	CHECKED	BORNHORST + WARD	CLIENT	PROJECT	SUBJECT	PROJECT No.
WOODS BAGOT EMF GRIFFITHS		7729 RPEQ	CONSULTING ENGINEERS CIVIL AND STRUCTURAL	PDS AUSTRALIA PTY LTD	EPPING TOWER	OSD TANK SECTIONS SHEET 2	16115

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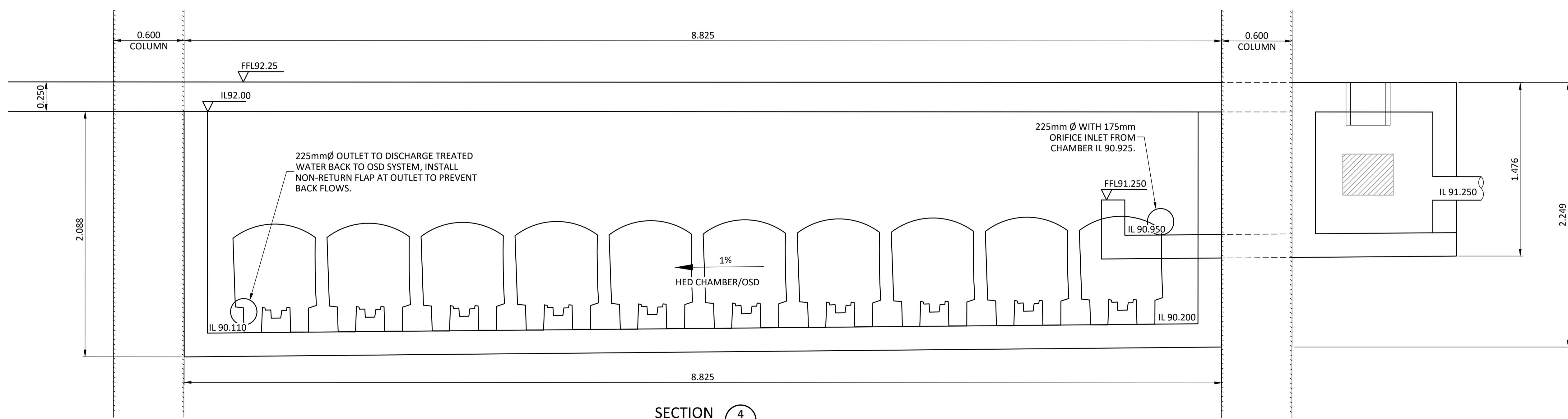
DATE 21.12.18

DATE 21.12.18

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NOTE:
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	E	09.07.18	RESPONSE TO RFI	TK	ZW							
	D	09.01.18	ISSUE FOR DEVELOPMENT APPROVAL	EC	ZW	RG						

ASSOCIATED CONSULTANTS
WOODS BAGOT
EMF GRIFFITHS

APPROVED

DATE 21.12.18

CHECKED

DATE 21.12.18

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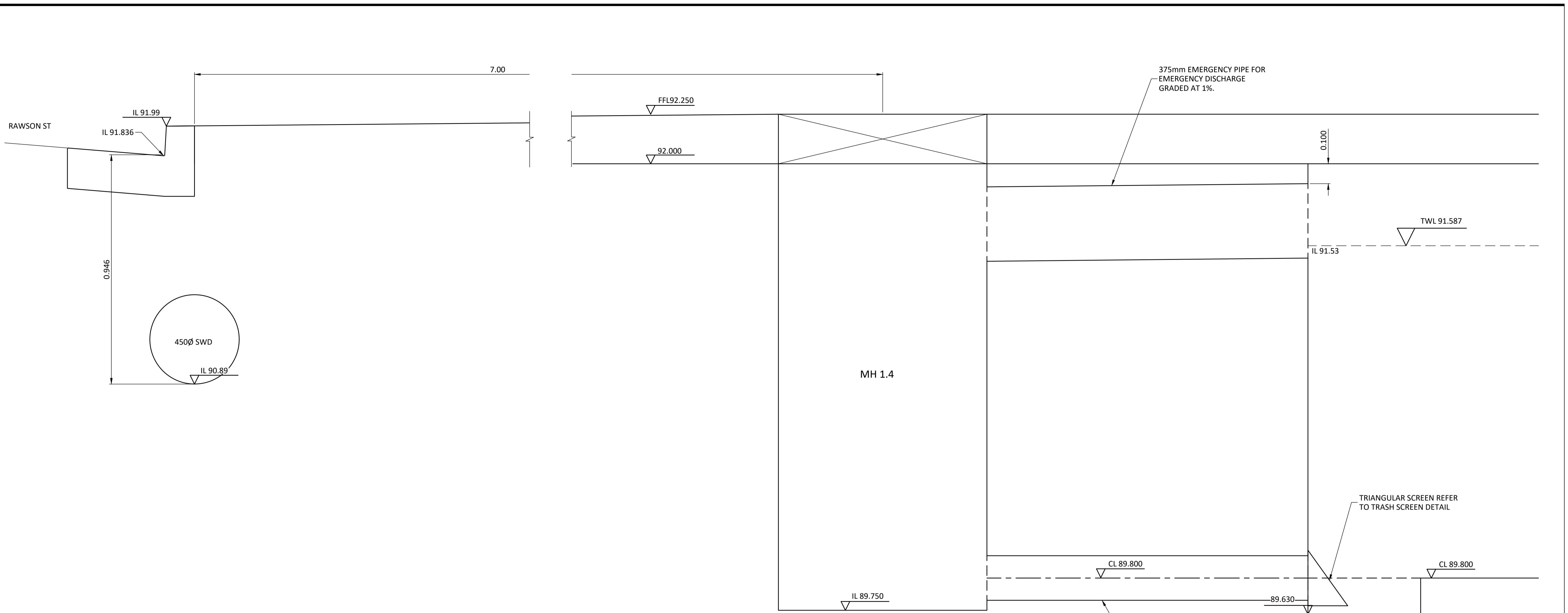
CLIENT
PDS AUSTRALIA PTY LTD
EPPING TOWER

PROJECT
16115
DRAWING No. DA-C0012
REVISION 1

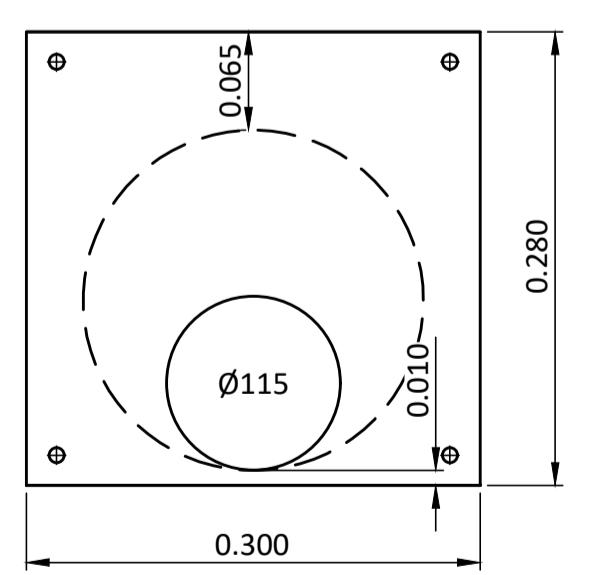
OSD TANK SECTIONS
SHEET 3

ORIGINAL SIZE A1

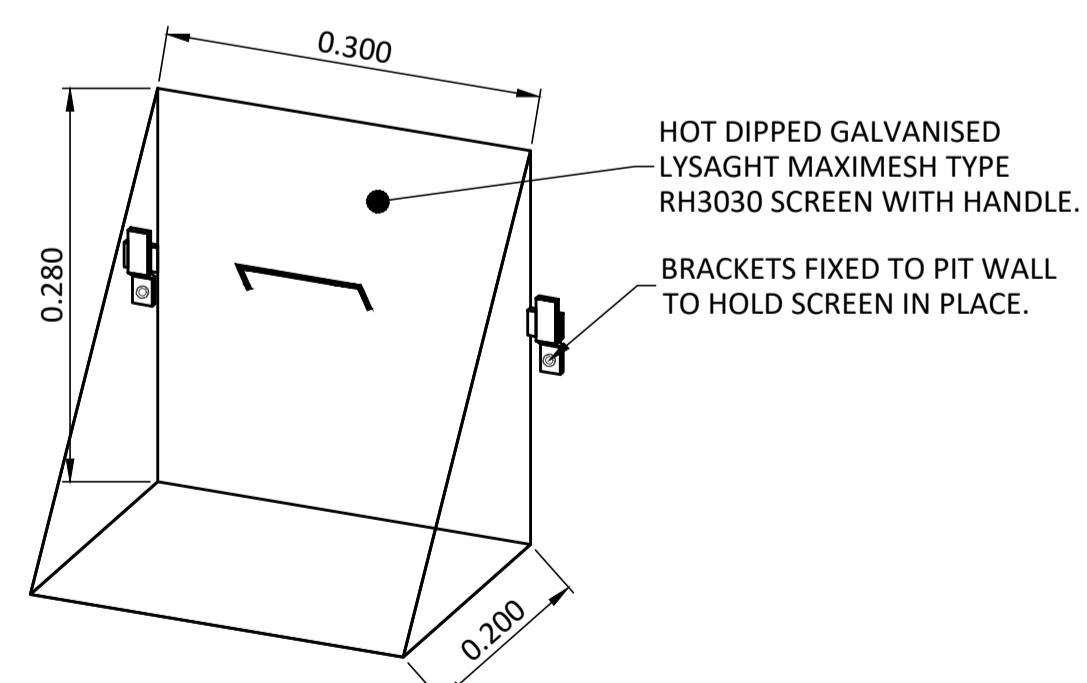
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SECTION 5
SCALE 1:10 DA-0005



ORIFICE DETAIL FOR HED OUTLET
N.T.S.



TRASH SCREEN DETAIL
N.T.S.

NOTE:
REFER TO SPCL DRAWING SP16-SF8270
FOR THE GENERAL ARRANGEMENT OF
THE SPCL FILTER SYSTEM. SPCL TO BE
CONTACTED FOR FINAL DESIGN OF
FILTER ARRANGEMENT.

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE
SHOWN OTHERWISE. CULVERT AND PIPE
SIZES IN MILLIMETRES
A1 UNREDUCED
A3 REDUCED
UNREDUCED / REDUCED
SCALES

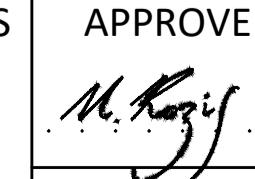
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ASSOCIATED CONSULTANTS
WOODS BAGOT
EMF GRIFFITHS

APPROVED

7729
REQ
DATE 21.12.18

CHECKED

DATE 21.12.18

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PROJECT
EPPING TOWER

SUBJECT
OSD TANK SECTIONS
SHEET 4

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DRAWING No.
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REVISION
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ORIGINAL SIZE A1

