HORACE STREET

INDICATIVE LOCATION FOR STABILISED VEHICULAR ACCESS. FINAL LOCATION TO BE DETERMINED BY SITE SUPERINTENDENT.

INSTALL AND MAINTAIN GEOTEXTILE INLET FILTER TO GRATED INLET PITS IN ACCORDANCE WITH THE 'BLUE BOOK' (TYPICAL). REFER DETAILS ON DA2.11.

INSTALL AND MAINTAIN SITE SECURITY FENCE FOR THE DURATION OF WORKS. FINAL LOCATION TO BE DETERMINED BY SITE SUPERINTENDENT.

INSTALL AND MAINTAIN SEDIMENT AND EROSION CONTROL FENCE IN ACCORDANCE WITH THE 'BLUE BOOK'. REFER DETAILS ON DA2.11. FINAL LOCATION TO BE DETERMINED BY SITE SUPERINTENDENT.

INDICATIVE LOCATION FOR SITE STOCKPILE (EQUIPMENT, BUILDING MATERIAL, WASTE, ETC.) FINAL LOCATION TO BE DETERMINED BY SITE SUPERINTENDENT. REFER DETAIL ON DA2.11.

LEGEND

- BOUNDARY LINE
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- DROP INLET SEDIMENT TRAP
- STABILISED SITE ACCESS
- STOCKPILE
- TREE PROTECTION ZONE (TPZ) -REFER ARBORIST REPORT
- STRUCTURAL ROOT ZONE (SRZ) -REFER ARBORIST REPORT

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR SEDIMENT AND SOIL EROSION CONTROL GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. ALL SEDIMENT AND SOIL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE THESE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.
4. CONTRACTOR TO PROVIDE 'WIRE MESH AND GRAVEL SEDIMENT FILTER' TO ALL PAVED / ROAD AREAS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'.
5. CONTRACTOR TO PROVIDE 'GEOTEXTILE INLET FILTER TRAPS' TO ALL STORMWATER DRAINAGE INLETS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'
6. REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE) DEMONSTRATES THAT SOIL LOSS FROM THE SITE IS LESS THAN 150 CUBIC METRES PER YEAR, THEREFORE IN ACCORDANCE WITH THE 'BLUE BOOK' A SEDIMENT BASIN IS NOT REQUIRED FOR THE PROPOSED SITE. REFER TO CALCULATION SUMMARY ON SHEET DA2.11.

VERIFIER: -
JOB MANAGER: E.FLACK
DESIGNED: E.FLACK
DRAWN: L.MARTIN

1
P.122431

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PROJECT
ST IVES INDOOR SPORTS COMPLEX
60-70 HORACE STREET ST IVES

DRAWING TITLE
CONCEPT SEDIMENT AND EROSION CONTROL PLAN

JOB NUMBER 190145
DRAWING NUMBER DA2.01
REVISION 4
DRAWING SHEET SIZE = A1

Plotted By: njones
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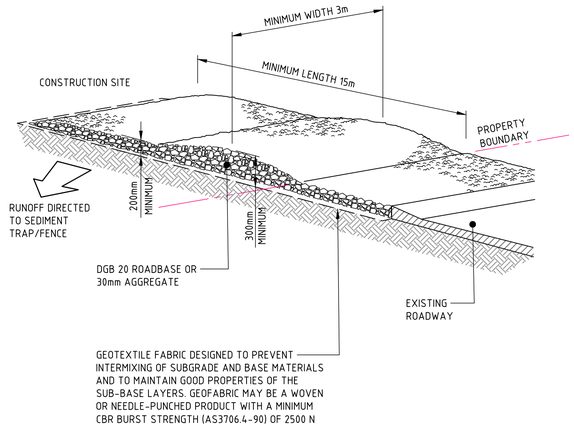
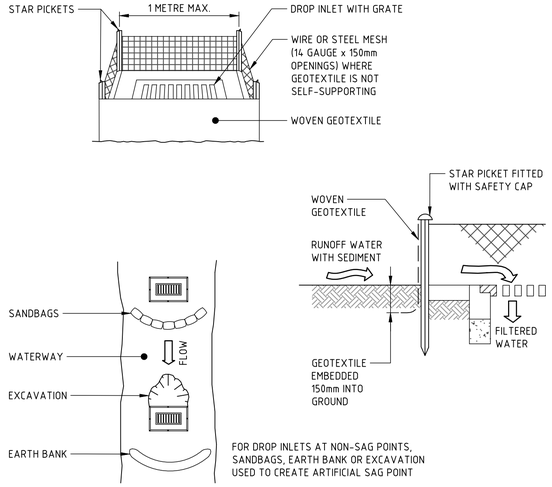


CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

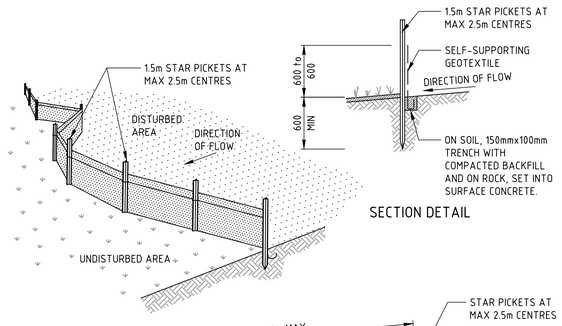
STABILISED SITE ACCESS



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

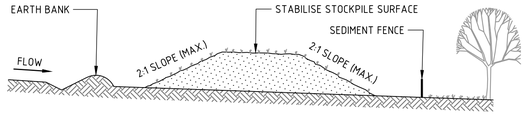
GEOTEXTILE INLET FILTER TRAPS



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) 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 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

STOCKPILE

SWMP Commentary, Detailed Calculations

Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name: St Ives High School

Site Location: Horace Street, St Ives

Precinct: Council Sport Complex

Description of Site:

Site area	Sub-catchments						Remarks
	Total						
Total catchment area (ha)	0.381						
Disturbed catchment area (ha)	0.381						

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	d						From Appendix C
% sand (fraction 0.02 to 2.00 mm)							Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	d						Automatic calculation from above

Rainfall data

Design rainfall depth (days)	5						See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	85						See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	43.3						See Section 6.3.4 (h)
Rainfall R-factor (if known)	4000						See Appendix B
IFD: 2-year, 6-hour storm (if known)	11.4						See IFD chart for the site

RUSLE Factors

Rainfall erosivity (*R*-factor)	4000						Auto-filled from above
Soil erodibility (*K*-factor)	0.017						
Slope length (m)	77						
Slope gradient (%)	6.81						RUSLE LS factor calculated for a high rill/interrill ratio.
Length/gradient (*LS*-factor)	1.66						
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Calculations

Soil loss (t/ha/yr)	147						
Soil Loss Class	1						See Section 4.4.2(b)
Soil loss (m^3/ha/yr)	113						
Sediment basin storage volume, m^3	7						See Sections 6.3.4(i) and 6.3.5 (e)

Sediment_Basin_Design_Detailed_V6 1

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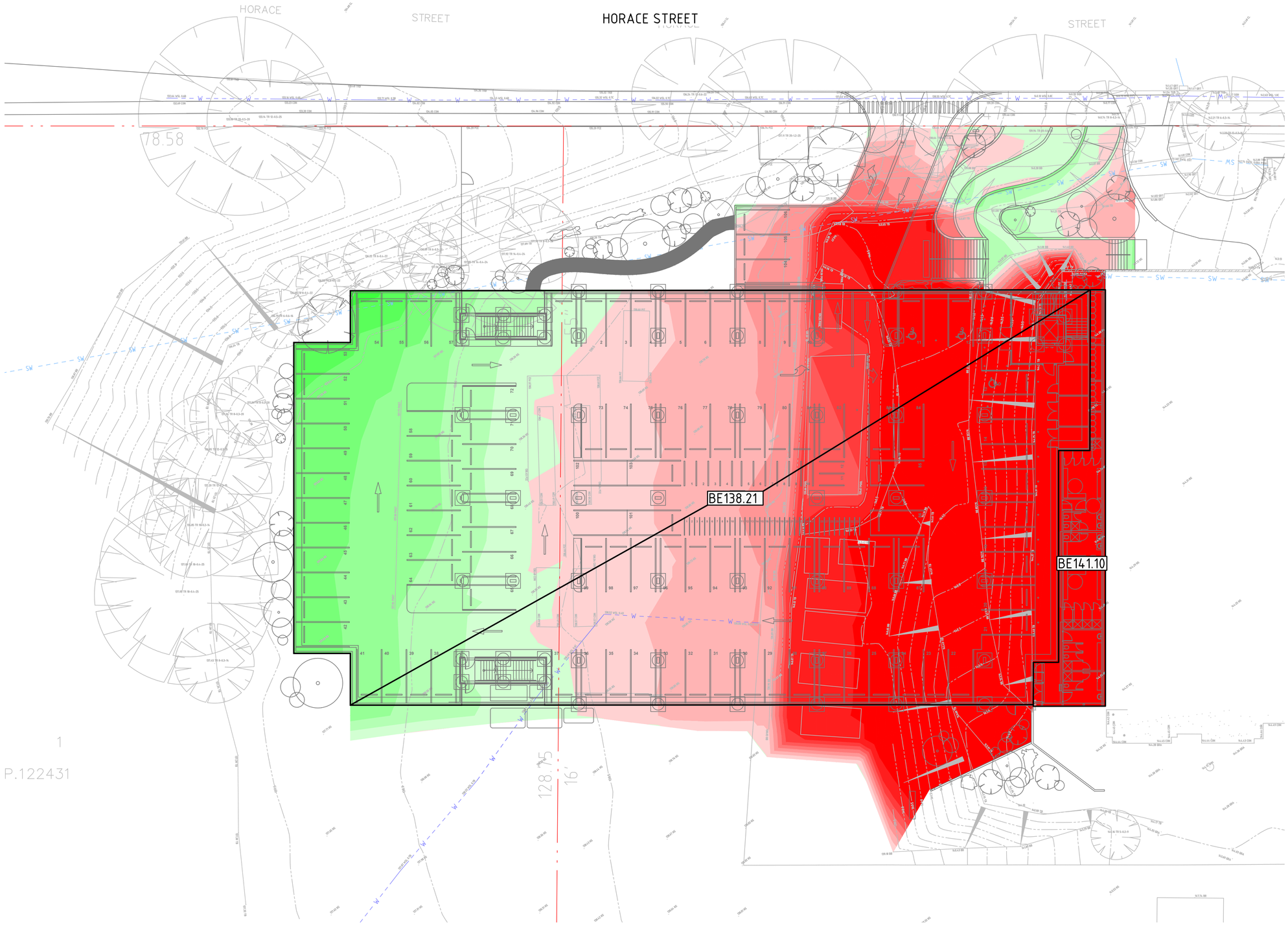
PROJECT: ST IVES INDOOR SPORTS COMPLEX
60-70 HORACE STREET ST IVES

DRAWING TITLE: SEDIMENT AND EROSION CONTROL DETAILS

JOB NUMBER: 190145
DRAWING NUMBER: DA2.11
REVISION: 4
DRAWING SHEET SIZE = A1



LEGEND

BOUNDARY LINE

EXISTING CONTOURS (0.5m INTERVALS)

BEXX.XX — BULK EARTHWORKS PAD LEVEL

DEPTH OF CUT

- -6.0m TO -2.0m
- -2.0m TO -1.5m
- -1.5m TO -1.25m
- -1.25m TO -1.0m
- -1.0m TO -0.75m
- -0.75m TO -0.5m
- -0.5m TO -0.25m
- -0.25m TO -0.0m

DEPTH OF FILL

- 0.0m TO 0.25m
- 0.25m TO 0.5m
- 0.5m TO 0.75m
- 0.75m TO 1.0m
- 1.0m TO 1.25m

GENERAL NOTES:

1. APPROXIMATE BULK EARTHWORK VALUES AS FOLLOWS;
   - 1.1. CUT -5450 cu.m
   - 1.2. FILL 554cu.m
   - 1.3. BALANCE -4896 cu.m CUT
   - 1.4. NOTE: SITE STRIPPING VOLUMES HAVE NOT BEEN INCLUDED IN ABOVE CALCULATIONS.
2. 150mm STRUCTURAL SLAB HAS BEEN ALLOWED FOR ABOVE, HOWEVER EXTERNAL PAVEMENTS AND LANDSCAPING AREAS HAVE NOT BEEN CONSIDERED.

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DESIGNED: E.FLACK
DRAWN: L.MARTIN

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PROJECT: ST IVES INDOOR SPORTS COMPLEX
60-70 HORACE STREET ST IVES

DRAWING TITLE: BULK EARTHWORKS PLAN

JOB NUMBER: 190145
DRAWING NUMBER: DA3.01
REVISION: 5
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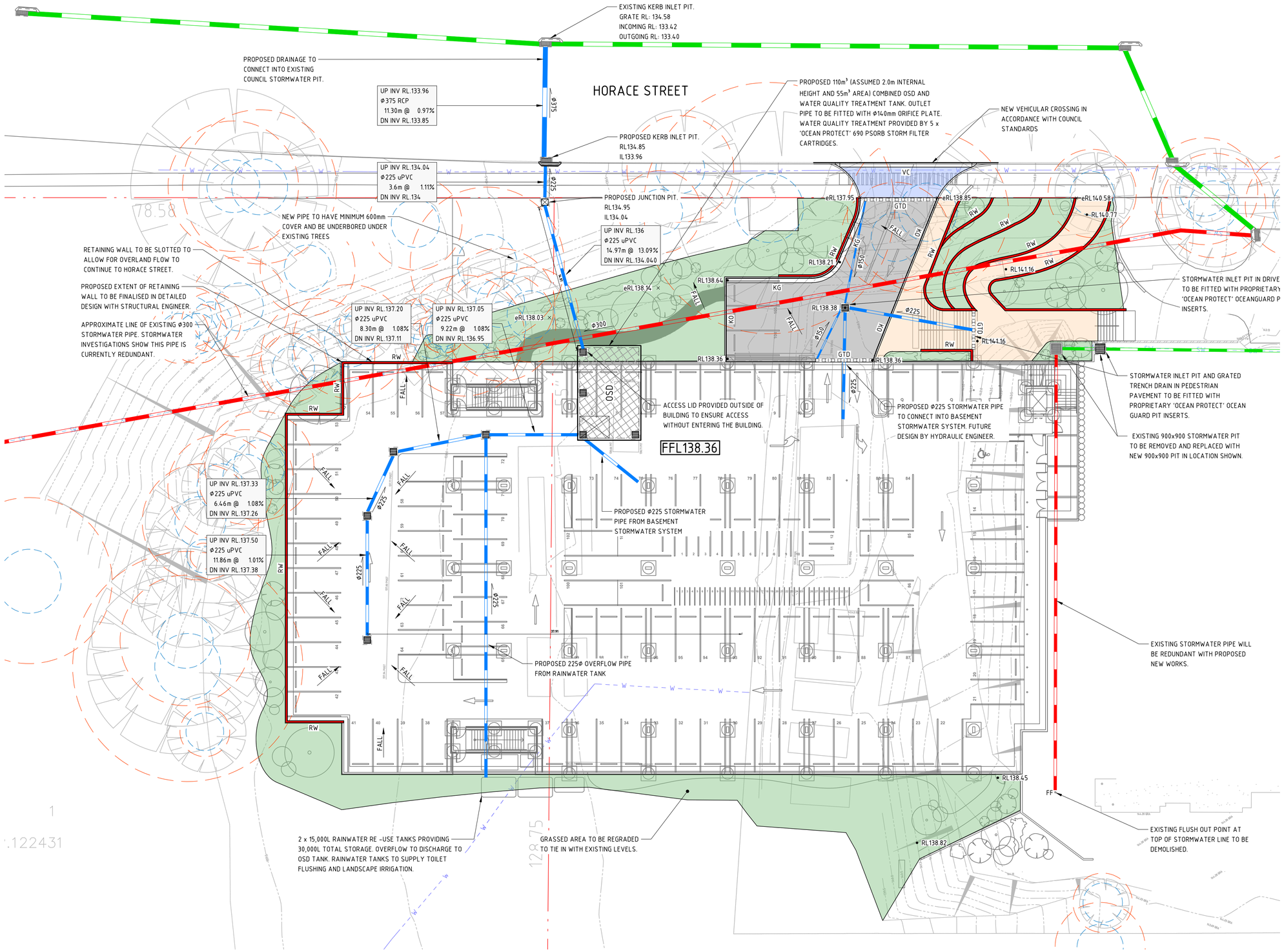

LEGEND

- BOUNDARY LINE
- EXISTING CONTOURS (0.5m INTERVALS)
- PROPOSED CONTOURS (0.1m INTERVALS)
- EXISTING STORMWATER PIPE
- REDUNDANT STORMWATER PIPE
- Φ150 PROPOSED STORMWATER PIPE
- GRATED INLET PIT EXISTING/NEW
- PROPOSED KERB INLET PIT EXISTING/NEW
- GTD GRATED TRENCH DRAIN
- OSD ON-SITE DETENTION TANK
- FALL OVERLAND FLOW
- KG PROPOSED KERB AND GUTTER
- KO PROPOSED KERB
- VC VEHICULAR CROSSING
- • RLXX.XX PROPOSED SPOT HEIGHT
- × eRLXX.XX EXISTING SPOT HEIGHT
- FALL DIRECTION OF GRADE
- RW RETAINING WALL
- TPZ/SRZ - REFER TO LANDSCAPE PLANS
- PROPOSED ASPHALT - PAVEMENT TYPE 1
- PROPOSED CONCRETE - PAVEMENT TYPE 2
- PROPOSED VEHICULAR CROSSING
- PROPOSED LANDSCAPING

GENERAL NOTES

THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS ARE IN MILLIMETRES & ALL LEVELS ARE IN METRES, UNO (UNLESS NOTED OTHERWISE).

NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.

ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORK.

DETAIL SURVEY DATA WAS SUPPLIED BY C.M.S. SURVEYORS, DRAWING DATED 17/06/2020.

EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.

ON COMPLETION OF STORMWATER INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS, UNLESS DIRECTED OTHERWISE.

ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS DRAWING HAVE BEEN PREPARED FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY. ALL MEASURES WILL BE SUBJECT TO DETAIL DESIGN AT THE CONSTRUCTION CERTIFICATE STAGE AND MAY BE SUBJECT TO VARIATION PROVIDED THAT THE DESIGN INTENT IS MAINTAINED.

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5	RE-ISSUED FOR DEVELOPMENT APPLIATION	L.M	-	E.F	10.06.21
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PROJECT
ST IVES INDOOR SPORTS COMPLEX
60-70 HORACE STREET ST IVES

DRAWING TITLE
SITEWORKS AND STORMWATER MANAGEMENT PLAN

JOB NUMBER **190145**
DRAWING NUMBER **DA4.01**
REVISION **6**
DRAWING SHEET SIZE = A1

DRAWN: L.MARTIN
DESIGNED: E.FLACK
JOB MANAGER: E.FLACK
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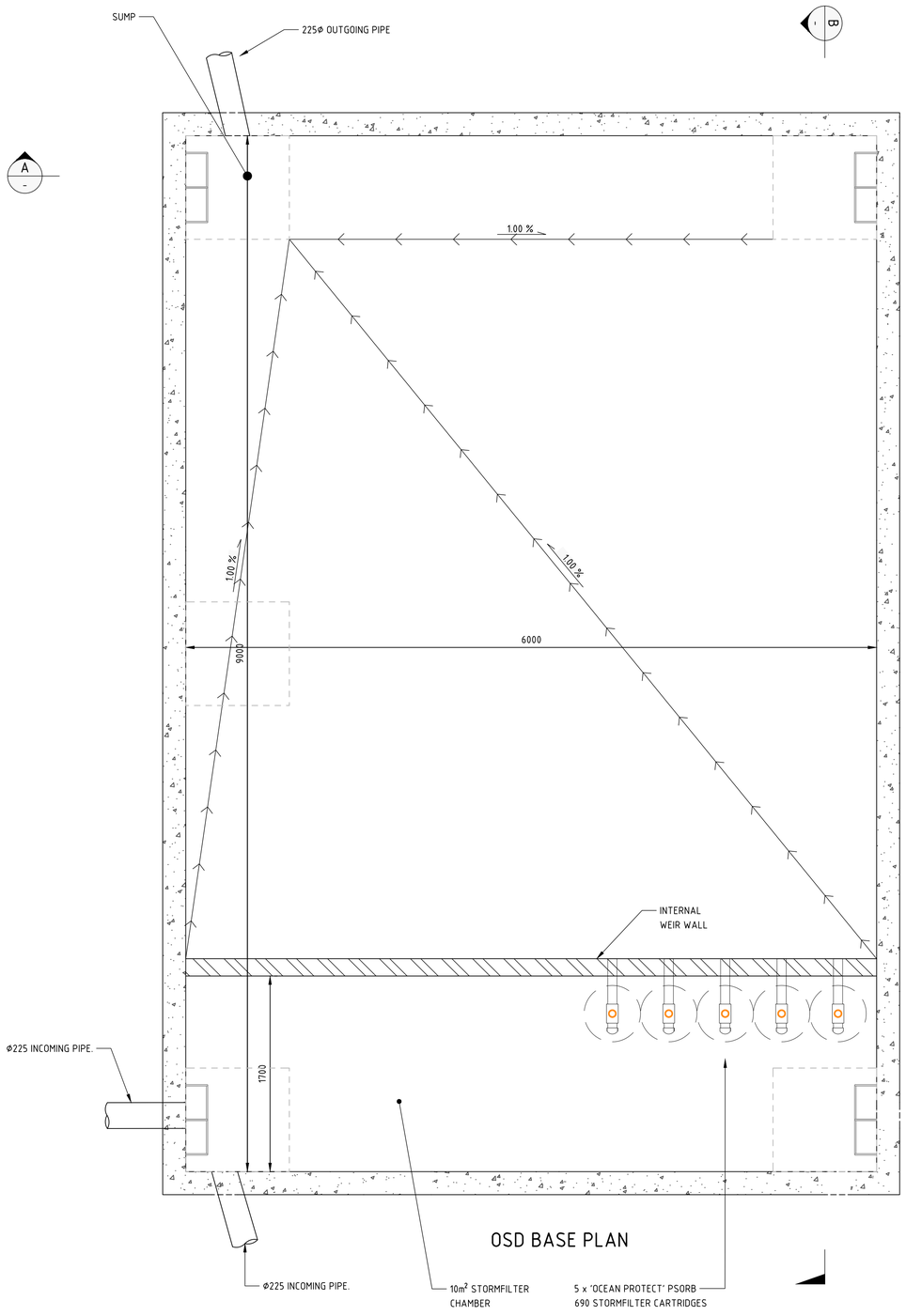

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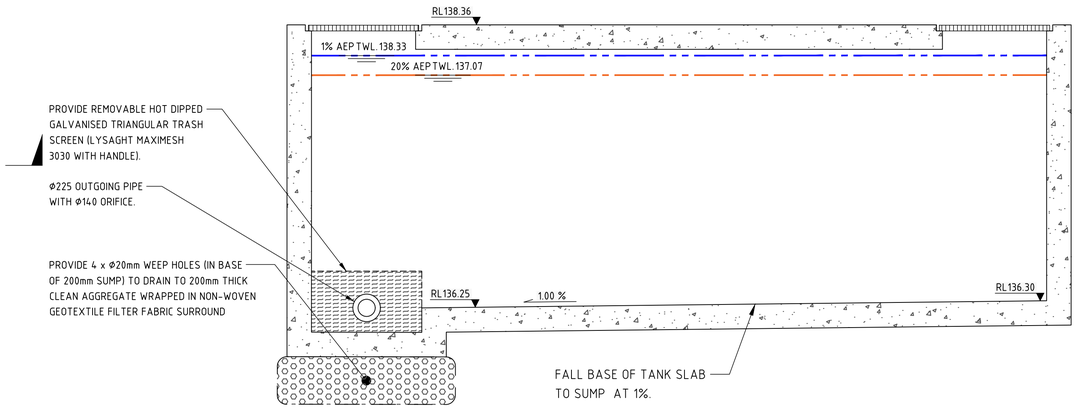

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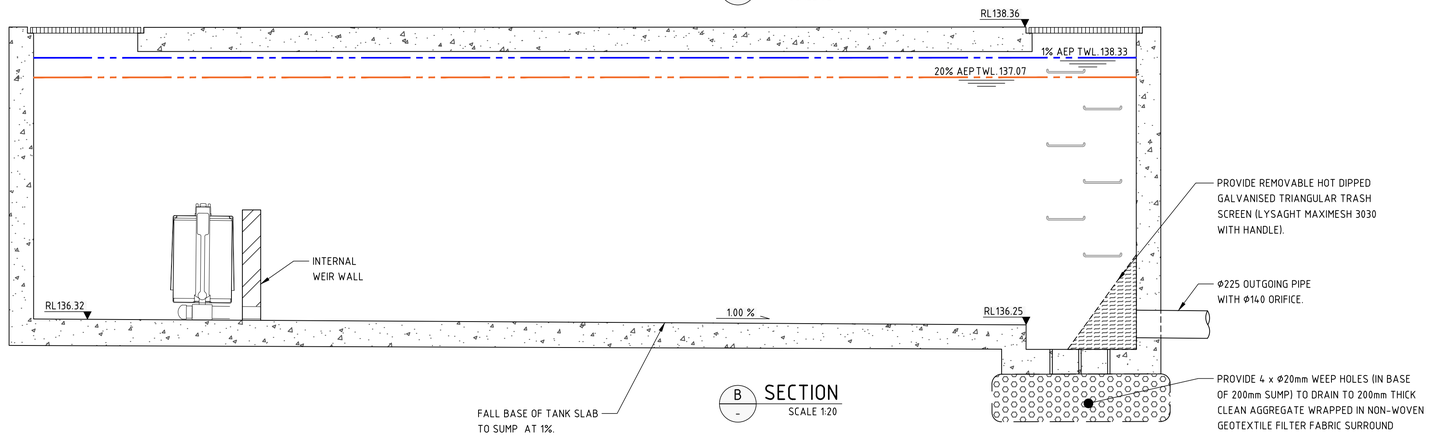

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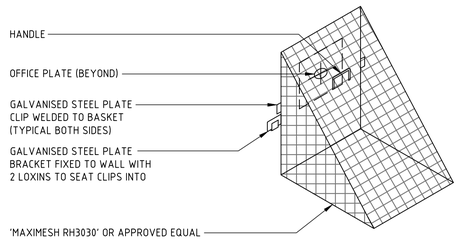
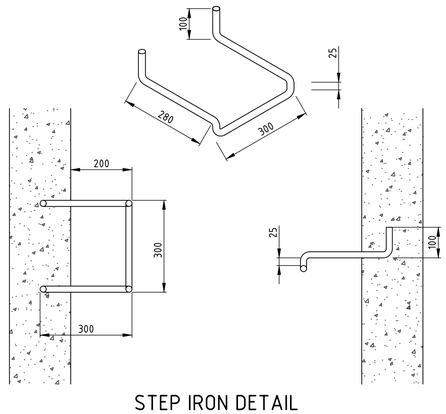
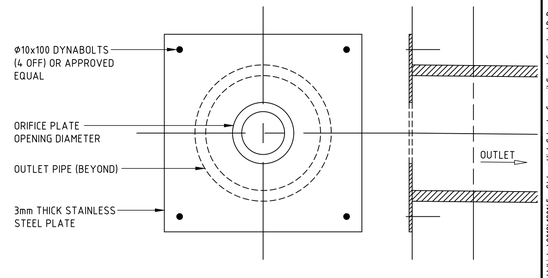


TRASH SCREEN DETAIL



STEP IRON DETAIL

STEP IRON OF 20mm GALVANISED STEEL MADE TO SHAPE AND DIMENSIONS AS SHOWN, PLACED AT 300 CENTRES AND STAGGERED HORIZONTALLY FOR ALL PITS DEEPER THAN 1.0m. THE USE OF PROPRIETARY STEP IRONS ARE ACCEPTABLE PROVIDED THE PRODUCT IS IN ACCORDANCE WITH AUSTRALIAN STANDARDS



ORIFICE PLATE DETAIL

- ORIFICE PLATE No 1 - Φ 124mm

NOT FOR CONSTRUCTION

DRAWN: L.MARTIN
DESIGNED: E.FLACK
JOB MANAGER: E.FLACK
VERIFIER: -

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR DRAFT DEVELOPMENT APPLICATION	L.M	-	E.F	27.04.21
2	ISSUED FOR DEVELOPMENT APPLICATION	J.P	-	E.F	30.04.21
3	RE-ISSUED FOR DEVELOPMENT APPLICATION	L.M	-	E.F	10.06.21
4	RE-ISSUED FOR DEVELOPMENT APPLIATION	N.J.		B.S.	02.11.21

CLIENT
Ku-ring-gai Council
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT
JDH architects
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SCALE 1:20@A1 0.0 0.2 0.4 0.6 0.8 1.0m

NORTHROP
Wollongong
Level 1, 57 Kembla Street, Wollongong NSW 2500
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PROJECT
ST IVES INDOOR SPORTS COMPLEX
60-70 HORACE STREET ST IVES

DRAWING TITLE
OSD DETAILS

JOB NUMBER 190145
DRAWING NUMBER DA5.01
REVISION 4
DRAWING SHEET SIZE = A1

Date: 02-11-21 1:52pm Plotted By: njones Found: W:\Projects\190145 - St Ives High School - Council Sport Complex\D-Drawings\D-Northrop\C-CIVIL\2-CURRENT CAD FILES\190145_DA5.01_OSD DETAILS.dwg

24R

REFERENCES

24R.4 ON-SITE DETENTION CALCULATION SHEET

Address .....

Catchment Detail				
1.	Catchment Name RC2 - Rocky Creek			
2.	Catchment Discharge Rate	0.0166	l/sec/m²	**A**
3.	Catchment Storage Rate	0.0241	m³/m²	**B**
Site Details	Impervious Area (3805) X 0.90 = C (Discount for Rainwater Tank)			
4.	Site Area 3425 m² m² ^ 60% of site area	2283	m²	**C**
5.	Area(s) not draining to the detention system 550 m²			
6.	Total impervious area (roofs, driveways, paving, etc.)	3255	m²	**D**
7.	Impervious area bypassing detention system	208	m²	**E**
Permitted Site Discharge				
8.	**C** [3425 m²] x **A** [0.0166 l/sec/m²] =	56.85	l/sec	**Flow 1**
9.	Adjustment for any uncontrolled impervious flow **E / D** =	0.064	(<0.25)	**F**
10.	**Flow 1** [56.84 l/sec] x **F** [0.064] =	3.63	l/sec	**Flow 2**
11.	**Flow 1** [56.85] – **Flow 2** [3.63] =	53.21	**l/sec**	**PSD**
Site Storage Requirement				
12.	**C** [3425 m²] x **B** [0.0241 m³/m² =	82.54	m³	**SSR1**
13.	If the storage is in a landscaped basin, **SSR1** x 1.2 =	.....	m³	**SSR2**
Outlet Control				
14.	Height difference between top water surface level and the centre of the orifice	2	m	**G**
15.	Orifice Diameter $21.8 \times \sqrt{\frac{PSD}{G}}$	140	**mm**	**OD**

PSD = Permitted Site Discharge
SSR1 = Site Storage Requirement (except for landscaped basins)
SSR2 = Site Storage Requirement (landscaped basins) **(Note: Use only SSR1 or SSR2)**
OD = Orifice Diameter

Signature..... **Name**.....

Qualifications..... **Date** .....

Ku-ring-gai Development Control Plan

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DESIGN SUMMARY

CATCHMENT NAME = RC2 - ROCKY CREEK

CATCHMENT CALCULATIONS:

	PRE-DEVELOPMENT	POST-DEVELOPMENT
TOTAL AREA	3425m²	3425m²
IMPERVIOUS AREA	0m² (0%)	3425m² (100%)
PERVIOUS AREA	3425m² (100%)	0m² (0%)

SITE DISCHARGE CALCULATIONS AND ON-SITE DETENTION:

DESIGN BASIS:
- KU-RING-GAI COUNCIL DCP ON-SITE DETENTION CALCULATION SHEET

ON-SITE DETENTION SUMMARY:
- BELOW GROUND BLOCK WORK TANK

WATER QUALITY:

MUSIC MODEL SUMMARY (REFER NORTHROP REPORT FOR FURTHER DETAILS).

MUSIC MODEL SUMMARY:

SOURCE NODE	CATCHMENT	AREA
MIXED	ROOF	2847m²
MIXED	DRIVEWAY	438m²
MIXED	PEDESTRIAN PAVED	140m²
		TOTAL 3425m²

TREATMENT NODES:

- RAINWATER RE-USE TANK
- ON-SITE DETENTION TANK
- OCEAN PROTECT 'STORMFILTER' CARTRIDGE
- OCEAN PROTECT 'OCEAN GUARD' STORMWATER INLET PIT

TREATMENT STANDARDS:

POLLUTANT	REDUCTION STANDARDS	REDUCTION ACHIEVED
GROSS POLLUTANTS	70%	100%
TOTAL SUSPENDED SOLIDS	85%	85.3%
TOTAL PHOSPHORUS	65%	67.3%
TOTAL NITROGEN	45%	50%

MUSIC MODEL PARAMETERS IN ACCORDANCE WITH KU-RING-GAI COUNCILS MUSIC MODELLING GUIDELINES.

VERIFIER: -
JOB MANAGER: E.FLACK
DESIGNED: E.FLACK
DRAWN: L.MARTIN

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PROJECT: ST IVES INDOOR SPORTS COMPLEX
60-70 HORACE STREET ST IVES

DRAWING TITLE: OSD DESIGN SUMMARY

JOB NUMBER: 190145
DRAWING NUMBER: DA5.02
REVISION: 4
DRAWING SHEET SIZE = A1

Date: 02-11-21 5:07pm Plotted By: dbarry Found: W:\Jobs\2019\190145 - St Ives High School - Council Sport Complex\3D-Drawings\3D-Northrop\C-CIVIL\2-CURRENT CAD FILES\190145_DA5.02_OSD DESIGN SUMMARY.dwg