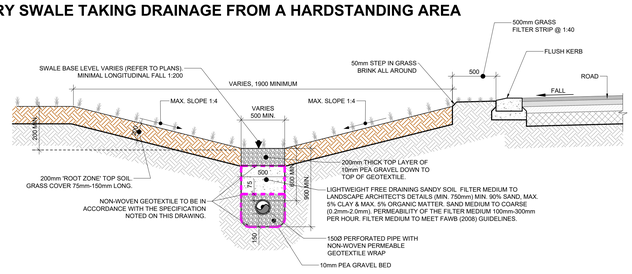
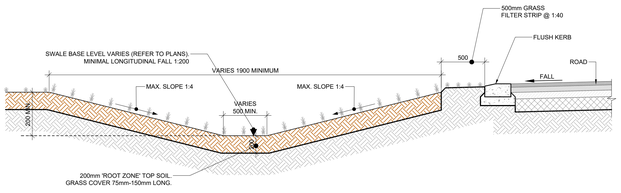
E1 SWALES

E1.1 DRY SWALE TAKING DRAINAGE FROM A HARDSTANDING AREA



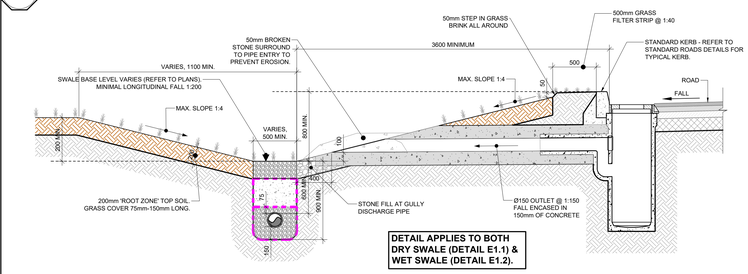
TYPICAL CROSS SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E1.2 WET SWALE TAKING DRAINAGE FROM A HARDSTANDING AREA



TYPICAL CROSS SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E1.3 SWALE TAKING DRAINAGE FROM A ROAD GULLY

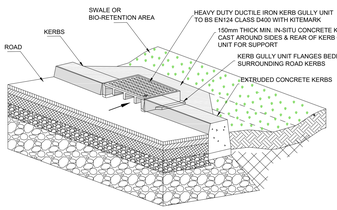


DETAIL APPLIES TO BOTH DRY SWALE (DETAIL E1.1) & WET SWALE (DETAIL E1.2).

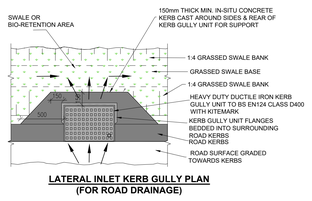
TYPICAL CROSS SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E1.4 LATERAL INLET KERB GULLY @ 4m C/C

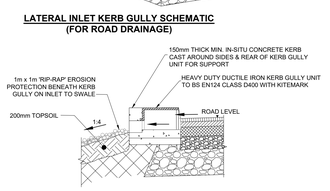
(ALTERNATIVE TO FLUSH KERB DETAIL FOR OVER-THE-EDGE ROAD DRAINAGE)



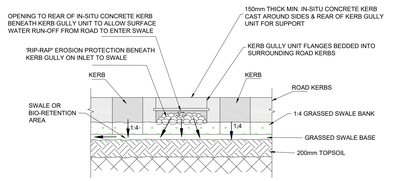
LATERAL INLET KERB GULLY SCHEMATIC
(FOR ROAD DRAINAGE)



LATERAL INLET KERB GULLY PLAN
(FOR ROAD DRAINAGE)



LATERAL INLET KERB GULLY TO SWALE CROSS SECTION
(FOR ROAD DRAINAGE)

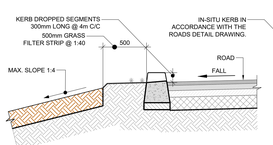


LATERAL INLET KERB GULLY REAR ELEVATION
(FOR ROAD DRAINAGE)

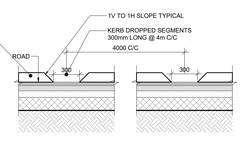
TYPICAL DETAILS
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E1.5 DROPPED KERB DETAIL @ 4m Crs.

(ALTERNATIVE TO FLUSH KERB DETAIL FOR OVER-THE-EDGE ROAD DRAINAGE)



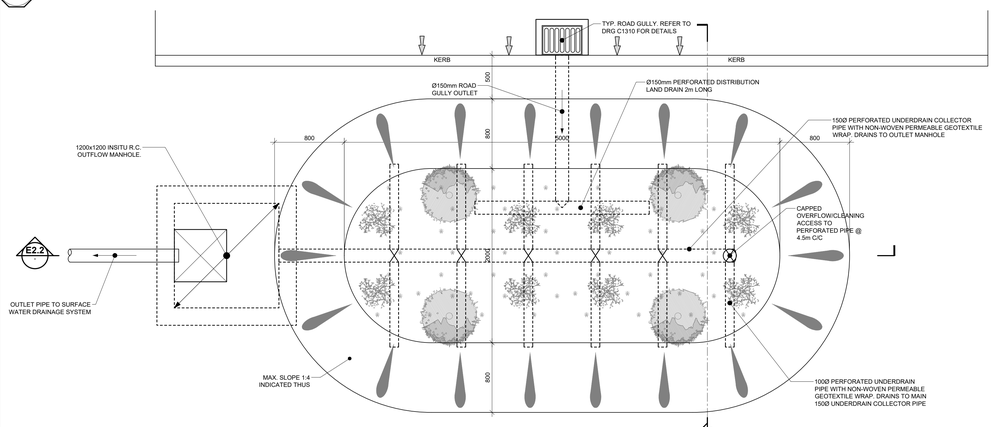
TYPICAL SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50



TYPICAL ELEVATION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

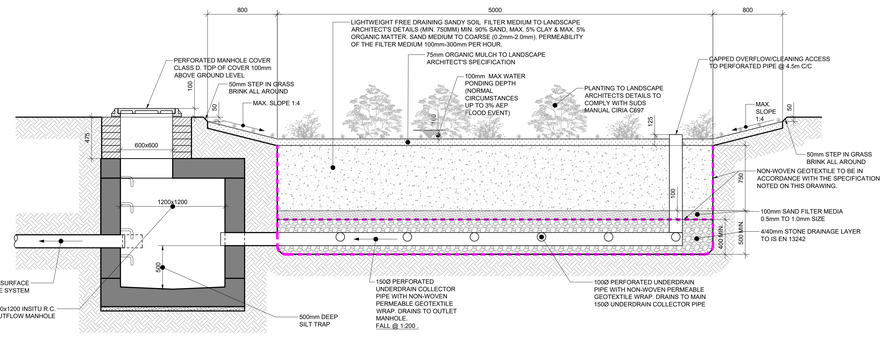
E2 BIORETENTION AREA

E2.1 BIORETENTION AREA FOR SURFACE WATER MANAGEMENT - TAKING DRAINAGE FROM HARDSTANDING AREA



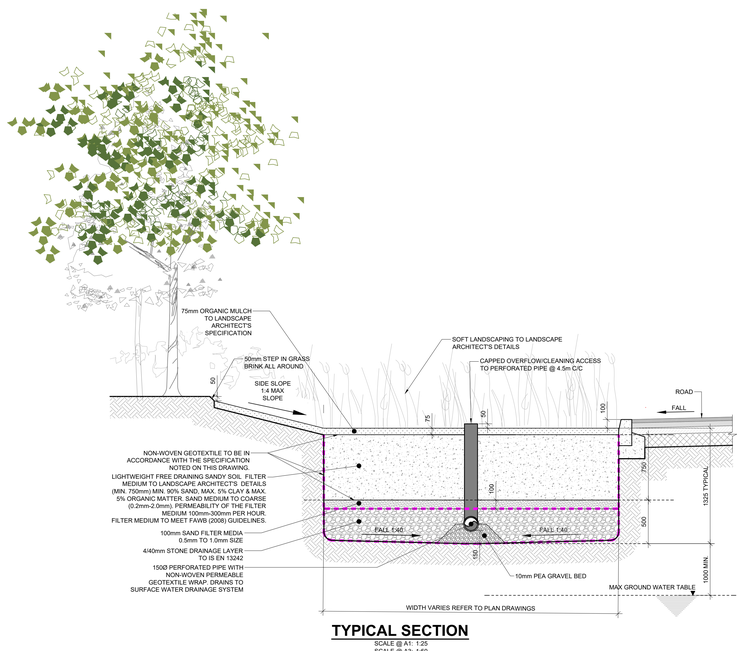
TYPICAL PLAN DETAIL
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E2.2 BIORETENTION AREA FOR SURFACE WATER MANAGEMENT



E2.2 LONGITUDINAL SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

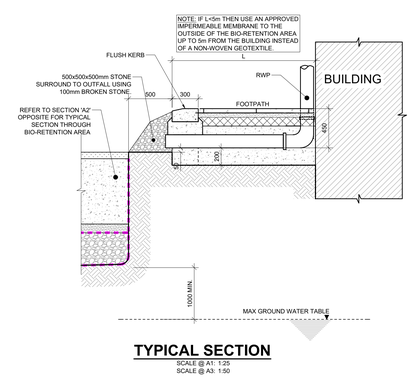
E2.3 BIORETENTION AREA - TAKING DRAINAGE FROM A HARDSTANDING AREA



TYPICAL SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E2.4 TYPICAL SECTION THROUGH BIORETENTION AREA

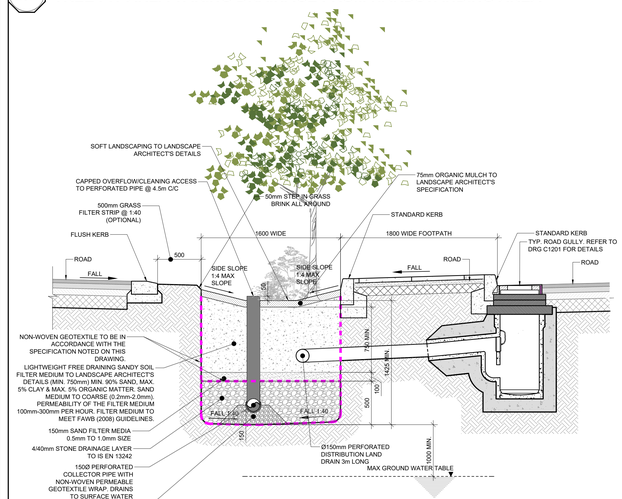
(TAKING DRAINAGE FROM A BUILDING RAINWATER DOWNPIPE)



TYPICAL SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

E3 TREE PIT

E3.1 TREE PIT AREA TAKING DRAINAGE FROM HARDSTANDING AREA



TYPICAL SECTION
SCALE @ A1: 1:25
SCALE @ A3: 1:50

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS & ARCHITECTS DRAWINGS FIGURED DIMENSIONS ONLY (NOT SCALING) TO BE USED. WHERE A CONFLICT OF INFORMATION EXISTS OR IF IN ANY DOUBT - ASK.
2. CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

NOTES:

1. NON-WOVEN GEOTEXTILE SPECIFICATION. THE GEOTEXTILE SHALL:
   - SUSTAIN A TENSILE LOAD OF NOT LESS THAN 5.0kN/m AT BREAK AND HAVE A MINIMUM FAILURE STRAIN OF 10%

   WHEN DETERMINED IN ACCORDANCE WITH IS EN ISO 10319;
   - HAVE A MINIMUM PUNCTURE RESISTANCE OF 1200 N WHEN DETERMINED IN ACCORDANCE WITH IS EN ISO 12236;
   - HAVE A SIZE DISTRIBUTION OF PORE OPENINGS SUCH THAT THE APPARENT OPENING SIZE O90 WHEN DETERMINED

   IN ACCORDANCE WITH IS EN ISO 12956, OR OTHER APPROPRIATE TEST, IS LESS THAN 300 MICRONS
   - ALLOW WATER TO FLOW THROUGH IT, IN EITHER DIRECTION, NORMAL TO ITS PRINCIPAL PLANE AT A RATE OF NOT LESS

   THAN 10 $l/m^2/s$, UNDER A CONSTANT HEAD OF WATER OF 100mm AND A MAXIMUM BREAKTHROUGH HEAD OF 50MM WHEN DETERMINED IN ACCORDANCE WITH IS EN ISO 12958.

2. PLAN AREA OF THE BIO-RETENTION AREA SHOULD BE 2-4% OF THE OVERALL AREA DRAINED. MAXIMUM WIDTH 10m UNLESS NOTED OTHERWISE.

MAINTENANCE REQUIREMENTS FOR BIORETENTION SYSTEMS & TREE PITS

REGULAR INSPECTIONS
INSPECT INFILTRATION SURFACES FOR SILTING AND PONDING, RECORD DE-WATERING TIME OF THE FACILITY AND ASSESS STANDING WATER LEVELS IN UNDERDRAIN (IF APPROPRIATE) TO DETERMINE IF MAINTENANCE IS NECESSARY. FREQUENCY - QUARTERLY
CHECK OPERATION OF UNDERDRAINS BY INSPECTION OF FLOWS AFTER RAIN. FREQUENCY - ANNUALLY
ASSESS PLANTS FOR DISEASE INFECTION, POOR GROWTH, INVASIVE SPECIES ETC AND REPLACE AS NECESSARY. FREQUENCY - QUARTERLY
INSPECT INLETS AND OUTLETS FOR BLOCKAGE. FREQUENCY - QUARTERLY

REGULAR MAINTENANCE
REMOVE LITTER AND SURFACE DEBRIS AND WEEDS. FREQUENCY - QUARTERLY (OR MORE FREQUENTLY FOR TIDINESS OR AESTHETIC REASONS)
REPLACE ANY PLANTS, TO MAINTAIN PLANTING DENSITY. FREQUENCY - AS REQUIRED
REMOVE SEDIMENT, LITTER AND DEBRIS BUILD-UP FROM AROUND INLETS OR FROM FOREBAYS. FREQUENCY - QUARTERLY TO BIANNUALLY
INFILL ANY HOLES OR SCOUR IN THE FILTER MEDIUM, IMPROVE EROSION PROTECTION IF REQUIRED. FREQUENCY - AS REQUIRED
REPAIR MINOR ACCUMULATIONS OF SILT BY RAKING AWAY SURFACE MULCH, SCARIFYING SURFACE OF MEDIUM AND REPLACING MULCH. FREQUENCY - AS REQUIRED

REMEDIAL ACTIONS
REMOVE AND REPLACE FILTER MEDIUM AND VEGETATION ABOVE. FREQUENCY - AS REQUIRED BUT LIKELY TO BE > 20 YEARS

ROOTSPACE SUPPORT STRUCTURE UNDER COVERED / GRILLED TREE PITS.

IN ALL COVERED COVERED / GRILLED TREE PITS AND IN ALL INSTANCES WHERE THE TREE PIT SOIL EXTENDS BENEATH THE FOOTPATH / PAVEMENT, A PROPRIETARY ROOTSPACE PAVEMENT SUPPORT SYSTEM BY GREENLEAF IRELAND, OR EQUAL APPROVED, SHALL BE INTEGRATED ACROSS THE FULL EXTENT OF THE TREE PIT. REFER TO LANDSCAPE ARCHITECTS DRAWING FOR TREE PIT SOIL EXTENTS.

ISSUE	DATE	DESCRIPTION	BY
P1.2	11.10.23	ISSUED FOR PLANNING	JN

Project Engineer: JC | Project Director: JC

BM STAGE: **PLANNING**

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CLIENT: **MALCLOSE LTD.**

PROJECT TITLE: **GOWAN HOUSE**
BM PROJECT No.: **22.219**

CODES	REFERENCE	SUITABILITY	REVISION

DRAWING TITLE: **SUDS DETAILS**
BIO RETENTION & TREE PITS

DWG	DRAWING REFERENCE	STATUS	REVISION
	GWH-BMD-ZZ-00-DR-C-12320		PL2