STORMWATER SERVICES

FOR

NEW GENERATION BOARDING HOUSE

21 BURNHAM CLOSE, THORNTON NSW 2322

DRAWING SCHEDULE:

DRAINAGE NOTES

D1 SELECTION & INSTALLATION OF PITS, PIPES, TANKS & TRENCHES SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF AS/NZS3500, LOCAL & STATUTORY REQUIREMENTS U.N.O.

D2 THE CONTRACTOR SHALL IDENTIFY & LOCATE ALL SERVICES PRIOR TO CONSTRUCTION.

D3 SEDIMENT & EROSION CONTROLS TO BE PROVIDED IN ACCORDANCE WITH ALL LOCAL & STATUTORY REGULATIONS.

D5 REFER TO ARCHITECTS DRAWINGS FOR BUILDING & DRIVEWAY SETOUT.

D6 DOWNPIPE LOCATIONS ARE INDICATIVE ONLY. REFER TO ARCHITECTS DRAWINGS FOR FINAL LOCATIONS. CONNECT ALL DOWNPIPES TO STORMWATER SYSTEM, WHETHER SHOWN OR OTHERWISE, IN ACCORDANCE WITH THE FOLLOWING TABLE:

CATCHMENT AREA	PIPE SIZE
UP TO 100m²	Ø100
100 - 350m²	Ø150
350 - 900m²	Ø225
OVER 900m²	REFER TO ENGINEER

D7 PIPE POSITIONS ARE INDICATIVE ONLY.FINAL POSITIONS TO BE DETERMINED ON SITE & SHALL CONFORM WITH THE INTENT OF THIS DESIGN.

D8 THE ENGINEER SHALL BE ADVISED IF ANY EXISTING STRUCTURES ARE WITHIN THE ZONE OF INFLUENCE OF ANY EXCAVATION. ANT REQUIRED UNDER-PINNING OR PIERING SHALL BE PROVIDED.

D9 WHERE EXCAVATING ADJACENT TO BOUNDARIES ADEQUATE SHORING SHALL BE PROVIDED.

D10 THE CONTRACTOR SHALL ENSURE THAT ALL NEW STRUCTURES ARE FOUNDED BELOW THE ZONE OF INFLUENCE OF ANY EXCAVATIONS WHEATHER THEY ARE FOR PIPELINES, TANKS OR OTHER DRAINAGE FACILITIES.

D11 THE MAXIMUM DEVIATION FROM NOMINATED LEVELS SHALL BE +/- 10mm U.N.O. EXCEPT IN INSTANCES WHERE SUCH A DEVIATION COULD HAVE ADVERSE EFFECTS, IN WHICH CASE, THE ENGINEER SHALL BE CONSULTED.

D12 LOAD CLASS FOR COVERS/GRATES SHALL BE IN ACCORDANCE WITH AS3996 - 1992. COMMON CASES FOR RESIDENTIAL SITES ARE SUMMARISED IN THE FOLLOWING TABLE:

CLASS	LOADING	DESCRIPTION
A	10KN	INACCESSIBLE TO VEHICLES. PEDESTRIAN TRAFFIC ONLY.
B	80KN	FOR USE ON FOOTPATHS OR FOOTWAYS WHERE IT IS POSSIBLE FOR LIGHT VEHICLES OR LIVESTOCK TO USE THE PEDESTRIAN FACILITY.
C	150KN	FOR USE IN PEDESTRIAN ACCESS WITH OCCASIONAL MOTOR VEHICLES, WITH WHEEL LOADS NOT EXCEEDING 3.7 TONNES. OR FOR USE IN MINOR RESIDENTIAL ROADS & CUL-DE-SACS CARRYING SLOW MOVING COMMERCIAL VEHICLES (GENERATING NO IMPACT LOADING) WHERE WHEEL LOADS WILL NOT EXCEED 7.5 TONNES.

D13 UNTIL COMPLETION OF ALL WORKS, THE CONTRACTOR SHALL FIRSTLY FILTER ALL STORMWATER IN ACCORDANCE WITH APPROVED DETAILS TO ENSURE THE REMOVAL OF ALL CONCRETE & PLASTERING FINES, & OTHER BUILDING SITE POLLUTANTS.

D14 THE CONTRACTOR SHALL SEEK DIRECTION BEFORE COMMENCING ANY EXCAVATION THAT MAY RESULT IN DAMAGE TO ANY EXISTING TREES.

D15 RETAINING STRUCTURES SHALL BE PROVIDED AS REQUIRED IN ORDER TO ACHIEVE THE LEVELS NOMINATED ON THE DRAWINGS. THESE STRUCTURES SHALL COMPLY WITH ALL LOCAL & STATUTORY REGULATIONS, & MAY REQUIRE DESIGN BY AN ENGINEER.

D16 THE CONTRACTOR SHALL ADEQUATELY SHIELD PIPES AGAINST CONSTRUCTION & PERMANENT LOADS. WHERE ADQUATE COVER CANNOT BE PROVIDED, PIPES SHALL BE ENCASED IN CONCRETE.

D17 WHERE A PIT INVERT IS BELOW THE INVERT LEVEL OF THE LOWEST OUTLET PIPE, THE CONTRACTOR SHALL EITHER PROVIDE DRAINAGE HOLES IN THE BASE OF THE LOWEST OUTLET PIPE U.N.O..

D18 WHERE REQUIRED BY REGULATIONS, STEP IRONS IN ACCORDANCE WITH AS1657 SHALL BE INSTALLED IN DEEP PITS/TANKS TO ALLOW ACCESS FOR MAINTENANCE. PIT COVERS OVER DEEP PITS SHALL BE CHILD-PROOFED BY BOLTING THEM DOWN, EXCEPT WHERE THE COVER WEIGHS OVER 30kg.

D19 ALL IMPERVIOUS SURFACES SHALL BE GRADED TO THE EXTENT THAT THEY ARE FREE DRAINING.

D20 YARD PITS SHALL BE PROVIDED AS REQUIRED. YARDS SHALL BE GRADED TO FALL TO PITS U.N.O. (eg. BY DESIGN CONTOURS, SPOT LEVELS OR A NOTE).

D21 UPON COMPLETION, PIPE/PIT EXCAVATIONS SHALL BE BACKFILLED WITH SUITABLE MATERIAL & COMPACTED TO A DENSITY EQUIVALENT TO THE SURROUNDING NATURAL MATERIAL.

D22 WHERE REQUIRED BY THE PRINCIPAL CERTIFIER, WORK-AS-EXECUTED DETAILS SHALL BE PREPARED BY A REGISTERED SURVEYOR/CHARTED PROFESSIONAL ENGINEER VERIFYING THAT THE DRAINAGE SYSTEM HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS. ANY DEVIATIONS FROM THE APPROVED PLANS SHALL BE NOTED & BROUGHT TO THE ATTENTION OF THE ENGINEER. ADEQUATE INSPECTIONS SHOULD BE CARRIED OUT DURING THE COARSE OF CONSTRUCTION.

D23 WHERE AN ENGINEER'S CERTIFICATE WILL BE REQUIRED, THE ENGINEER SHALL BE CALLED ON TO INSPECT THE WORKS PRIOR TO ANY CONCRETE POURS, PRIOR TO BACKFILLING AROUND ANY TANKS, & AT THE COMPLETION OF WORKS. THE ENGINEER SHALL BE GIVEN A MINIMUM OF 24hrs NOTICE BEFORE AN INSPECTION IS REQUIRED.

D24 ANY PROPOSED ALTERATIONS TO THE DETAILS SHOWN ON THE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

D25 LEAF SCREENS, SILT CONTROLS & ANY OTHER POLLUTANT CONTROL DEVICES SHALL BE REGULARLY SERVICED TO ENSURE THAT THE DRAINAGE SYSTEM REMAINS UNBLOCKED & OPERATED AS ORIGINALLY INTENDED.

D26 OVERLAND FLOW PATHS SHALL BE REGULARLY MAINTAINED & KEPT FREE OF OBSTRUCTIONS TO THE FLOW OF WATER.

D27 SUBSOIL DRAINAGE LINES SHALL BE PROVIDED BEHIND RETAINING WALLS & OTHER AREA AS REQUIRED TO RELIEVE HYDROSTATIC PRESSURE & DRAIN GROUND WATERS. CONNECT INTO THE DRAINAGE SYSTEM IN SUCH A WAY AS TO AVOID BACKFLOW OF STORMWATER INTO THE SUBSOIL DRAINAGE LINE. IF IN DOUBT CONSULT ENGINEER.

D28 NEW FENCES, RETAINING WALLS & OTHER LANDSCAPE ITEMS SHALL BE DETAILED IN SUCH A WAY SO AS TO AVOID IMPOUNDING OR DIVERTING SURFACE WATERS ON ADJOINING PROPERTIES.

D29 PIPE CLASSES & TRENCH CONSTRUCTION SHALL BE ASSESSED IN ACCORDANCE WITH AS3725-1989 'LOADS ON BURIED CONCRETE PIPE' OR AS2566-1 "BURIED FLEXIBLE PIPE - PART 1 - STRUCTRAL DESIGN' & SHALL TAKE ACCOUNT OF ANTICIPATED LOADINGS FROM TRAFFIC & SOIL.

LEGEND

PIPEWORK

- EX-SW — STORMWATER - EXISTING
- SW — STORMWATER - NEW
- DP — STORMWATER - NEW
- SS — SUBSOIL DRAIN - NEW

SYMBOLS

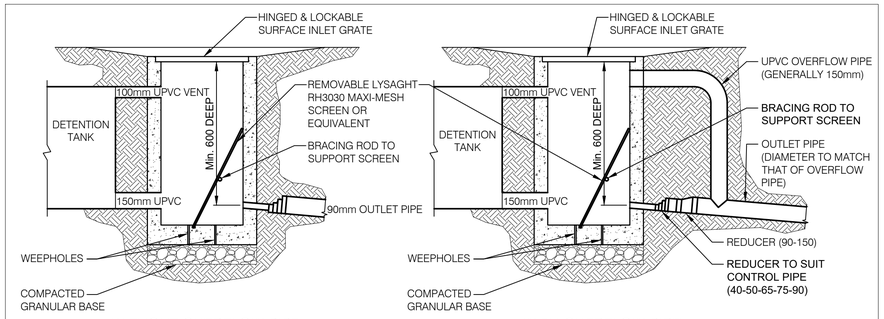
- BOOSTER INLETS
- SAC — SEWER ACCESS CHAMBER
- SEALED STORMWATER PIT
- GRATED STORMWATER PIT
- IO/CO — INSPECTION OPENING / CLEAROUT

ABBREVIATIONS

CO	CLEAROUT.
DP	DOWNPIPE.
ESWP	EXISTING STORMWATER PIT.
FL	FLOOR LEVEL.
HWC	HUNTER WATER CORPORATION.
IL	INVERT LEVEL.
KIP	KERB INLET PIT.
RL	RELATIVE LEVEL.
SL	SURFACE LEVEL.

STORMWATER DRAINAGE NOTES

1. STORMWATER DESIGN CRITERIA:
   a. AVERAGE RECURRANCE INTERVAL:-
      1:20 YEARS FOR ROOF DRAINAGE TO FIRST EXTERNAL PIT
      1:10 YEARS FOR PAVED & LANDSCAPED AREAS
   b. RAINFALL INTENSITIES:-
      TIME OF CONCENTRATION: 5 MINUTES
      1:100 YEARS = 265mm/hr
      1:20 YEARS = 191mm/hr
   c. RUNOFF CO-EFFICIENTS:-
      ROOF AREAS: C_{20} = 0.62
      ROADS AND PAVED AREAS: C_{10} = 0.59
      LANDSCAPED AREAS: C_{10} = 0.59
2. PIPES UP TO Ø300 SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS. PRECAST PITS OF EQUIVALENT DESIGN LOAD CAPACITY MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY THE SUPERINTENDENT.
3. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE MANUFACTURED FITTINGS WHERE PIPES ARE LESS THAN Ø300 @ 1.0% MIN FALL U.N.O.
4. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
5. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES
6. ALL STORMWATER PIPES TO BE Ø150 @ 1.0% U.N.O.
7. SUBSOIL DRAINS TO BE SLOTTED FLEXIBLE uPVC DRAINED TO RUBBLE/GRAVEL TRENCHES UNDER GARDEN BEDS U.N.O.
8. ADOPT INVERT LEVELS FOR PIPE INSTALLATION (GRADES SHOWN ARE ONLY NOMINAL).



NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETRES
2. STORMWATER PIPES TO BE SEWER GRADE ACROSS PUBLIC FOOTWAY.
3. CONCRETE COMPRESSIVE STRENGTH 32MPa. 3. SIDE WALLS OF ALL PITS DEEPER THAN 1500 ARE TO BE REINFORCED WITH ONE LAYER OF SL82 MESH RETURNED 300 INTO BASE. WHERE REQUIRED INCREASE CONCRETE STRENGTH TO 32MPa.
4. DEPTH OF PIT NOT TO EXCEED 2000mm.
5. PROVIDE STEP IRONS FOR PITS DEEPER THAN 1200mm REFER TO SD039.
6. ALL EXPOSED EDGES TO BE ROUNDED WITH 20mm RADIUS

ON-SITE STORMWATER DETENTION PIT

Date	Issue	Reason for Issue
09.12.21	2	REVISED AS REQUESTED
16.03.20	1	DA STORMWATER PLAN

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Client: AFFORDABLE HOMES (NSW) Pty Ltd

Architect: SHEER DESIGNS

Project: NEW GENERATION BOARDING HOUSE
21 BURNHAM CLOSE,
THORNTON NSW 2324

Drawn : E.Y.	Design : C.BAILLIE	Verify : B.MAHER
Scale @ A1 : N.T.S.		Date : MARCH 2020

Discipline: STORMWATER SERVICES

Job No.: 10468

Drawing Title: LEGEND, NOTES & DETAILS

Issue: 2

Drawing No.: SW-01

DETENTION REQUIREMENTS
2.5m³ PER DWELLING 4x2.5m³ = 10m³

BURNHAM CLOSE

EXISTING GARAGE

EXISTING RESIDENCE

LIGHT POST

FIRE HYDRANT BOOSTER

2100mm HIGH BLOCK WALL

600x600 GRATED PIT FITTED WITH ENVIROPOD

150mm WIDE GRATED DRAIN

600x600 PIT

CONCRETE BLOCK RETAINING WALL ALONG BOUNDARY FENCE.

BIN WASHING AREA TO CONNECT TO DRAINAGE.

900x900 GRATED PIT FITTED WITH ENVIROPOD FILTER BASKET COMPLETE WITH TRASH SCREEN

2x 5000L INGROUND RAINWATER DETENTION TANKS

COVERED PICNIC TABLE

1800 HIGH COLORBOND FENCE

CONTINUE STORMWATER PIPEWORK TO DOWNPIPES (TYPICAL)

600x600 PIT

CONCRETE BLOCK RETAINING WALL ALONG BOUNDARY FENCE.

+ RL 28.75

+ RL 28.65

CONCRETE BLOCK RETAINING WALL ALONG BOUNDARY FENCE.

STORMWATER DRAINAGE TO DISCHARGE TO AUTHORITY INFRASTRUCTURE

COVERED BIN WASHING AREA

BIN ENCLOSURE

PERMEABLE PAVING

SLIDING GATE

LINE OF BUILDING ABOVE

CONCRETE PATH

ENTRY

PARCEL LOCKERS

ELECTRIC CAR CHARGING CARPARK

LIFT

MANAGERS CARPARK

SMALL CAR SPACE

ACCESS

UTILITY ROOM

ADDITIONAL BIN STORAGE

CARPARK

1.8m RETAINING WALL

2.1m RETAINING WALL

1500 HIGH PALISADE FENCE

225 UPVC SW

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Discipline
STORMWATER SERVICES

Job No.
10468

Drawing Title
SITE SERVICES

Issue
2

Drawing No.
SW-02

SOIL AND WATER MANAGEMENT PLAN

1. INTRODUCTION
The developing 21 BURNHAM CLOSE.

This plan defines the soil and water management work for erosion control and stormwater disposal, and it shall form part of the building requirements for this project.

Erosion and sediment control measure are to be implemented on the site. These works are to be maintained and /or varied as specified during the contract period unless the are they protect is rehabilitated.

2. LEGISLATION
The Clean Water Act, 1970, as amended, prohibits a person polluting any water as defined under the Art. No solid, liquid or gaseous matter is to be placed in a position where it is likely to fall, descend, be washed, be blown or percolate into unconfined surface water, a natural or artificial watercourse, drain, channel or gutter used to convey rainwater, stormwater, floodwater, or unpolluted water.

The Act is enforced under the Environment Offenses and Penalties Act, 1989 with stiff penalties for offenses ranging from "on the spot" infringement notices to fines for corporations and fines and/or imprisonment for individuals.

The contractor shall make all site workers and subcontractors aware of their responsibilities to minimise the potential for soil erosion and pollution to downslope lands and waters.

3. MANAGEMENT PLAN
A soil and water management plan has been prepared. The contractor shall undertake these works prior to any clearing, bulk earthworks and excavation for services. Installation shall begin with the fencing and shall progress upslope in a way which mitigates erosion and controls sediment even whilst this stage is being implemented.

works should be undertaken in the following sequence to minimise soil erosion hazard on the site.

a. Install security site provisions.

b. Locate the chain wire and hessian screen fencing.

c. Provide silt retention with sediment fence.

d. Install gravel driveway ramp.

e. Install Stormwater drainage work.

f. Undertake contract works.

e. Rehabilitate and maintain all disturbed lands within 20 working days after final land shaping.

4. CHAIN WIRE FENCING & HESSIAN SCREEN
A 1800 high chain wire fence with pedestrian and vehicular gate is to be erected around the contractor's site area perimeter as detailed on the site plan, X, X and X as specified.

Supply hessian cloth and fix to the fence and all gates on the windward side for their full height using 1.25mm wire ties at max 900mm centres both horizontally and vertically. Allow for overlapping, trimming around backstay and for interruptions on paired gates and at gate posts.

Hessian cloth shall be maintained in effective condition for the full period of the contract work.

Repair or replace torn sections when required or as directed by the Superintendent. Retie hessian as before specified where it comes adrift from the fence or gates and when repairing or replacing cloth section.

5. HAY BALES
From Point X, X and X form a filter wall at the lower corner of the construction site.

all accumulated siltation at the hay bales shall be removed off the site when 30% of the hay bale height is covered with silt.

A peg shall be driven in the east corner of the site at B with the top of the peg at RL XX.XX. Accumulated silt to this level shall be removed to rl XX.XX off site to a location satisfactory to the council or revised in landscaping works.

6. STORMWATER DRAINAGE PITS
All grated pit covers on the stormwater drawing shall be provided with a geotextile filter inlet as shown on the drawing. The filter fabric shall be maintained in effective and clean condition for the period of the contract work.

No sediment shall pass from the stormwater drainage pits on the site to the Council's stormwater pipes.

7. STOCKPILES
Stockpiles are not to be located within 2 metres of hazard areas.

Dust from any stockpiles shall not enter the adjoining property.

All excavation and stockpiles shall be covered or treated so that no dust causes a nuisance.

8. MATERIAL RECEPTORS
Provide acceptable reception for concrete and motor slurries, paints, acid washing, light-weight waste material and litter. Empty as necessary and dispose in an acceptable manner.

9. EXISTING SERVICES
All existing services shall be identified and protected against damage as defined in the specification.

10. MAINTENANCE
All sediment and erosion control measures shall be maintained in satisfactory working order throughout the area which they protect is rehabilitated.

The contractor shall inspect the site weekly to ensure that:

a. Control measure operate effectively and to initiate repairs or maintenance as required.

b. Spilled material is removed from hazard areas including likely areas of concentrated or high velocity flows such as spoon drains, gutters, paved areas and driveways.

c. Sediment is removed from settling basins when 30% capacity is trapped in the setting zone. All collected sediment is to be removed to areas where further pollution to downslope lands and waters is unlikely.

d. Hay bales or filter materials are clean and have been reinstated or replaced to maintain effective performance.

e. No gravel, silt or rubbish is deposited in the Council gutter or outside the site area.

All devices are to be inspected after each storm for structural damage or clogging by silt or other debris and to make prompt repairs or replacement.

11. SITE REHABILITATION
Rehabilitate all disturbed areas and restore the site as shown on the landscape plan and to the satisfactory of the Council.

Where grasses are sown, a complete NPK fertiliser shall be applied at a rate of 300gms/10m . Fertilising and watering shall be as directed by the Superintendent for Contract.

Rehabilitate land as soon as possible. Disturbed areas which are likely to remain unattended for more than 60 days shall be restored with sown annual grasses.

12. FINAL SITE LANDSCAPING
Final site landscaping is to be undertaken as soon as possible in any precinct after building activities surrounding the building are completed.

13. REINSTATEMENT
Remove all construction material used in these soil and water control measures from the site when they cease to perform effectively and are replaced, or are no longer required.

Reinstate the finished ground level around the works after it is determined that the areas they protect are satisfactorily rehabilitated.

14. LOG BOOK RECORD
ON site supervisor shall keep a log book recording.

a. all rainfall.

b. date of the erection and dismantle of soil and water retaining fencing.

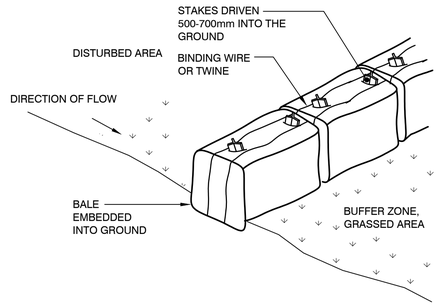
c. all other maintenance work undertaken on erosion of pollution control measures.

This log book is to be kept on the building site and shall be made available to an officer of the E.P.A. or Department of Housing upon request.

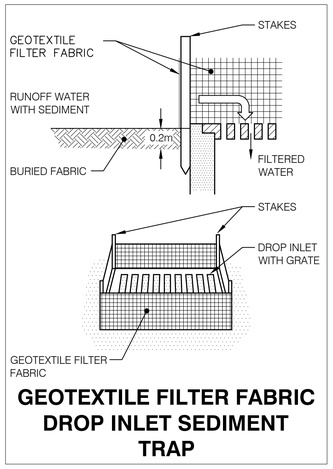
15. SITE CHARACTERISTICS

SOIL AND WATER CHARACTERISTICS FOR UNIVERSAL SOIL LOSS EQUATION		
Rainfall Erosivity Factor	R	XXXX
Soil Erosivity Factor	K	XXXX
Slope Length/Gradient	L/S	XXXX
Erosion Control Practice	P	1.3
Ground Cover Factor	C	1.0

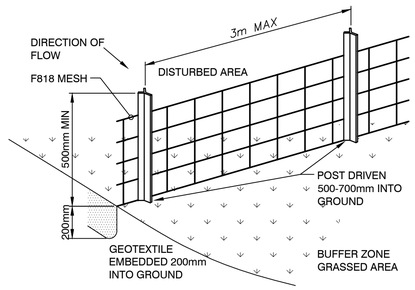
CLASS 1
Construction Area XXXXm^2
Estimated Soil Loss at this site = XX tonnes/ha/year
Estimated Soil Loss for a month construction period = XXXm^3



STRAW BALE SEDIMENT FENCE



GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP



GEOFABRIC LINED "SILT" FENCE

LEGEND

- PERMETER FENCE - CHAINWIRE / GEOTEC
- SILT FENCE - CHAINWIRE / GEOTEC / HESIAN
- HAY BALE BARRIER
- SEDIMENTATION AREA
- SHAKEDOWN RAMP
- OVERLAND FLOW PATH
- (A) HAY BALE FENCE NODE POINT
- (i) SILT FENCE NODE POINT

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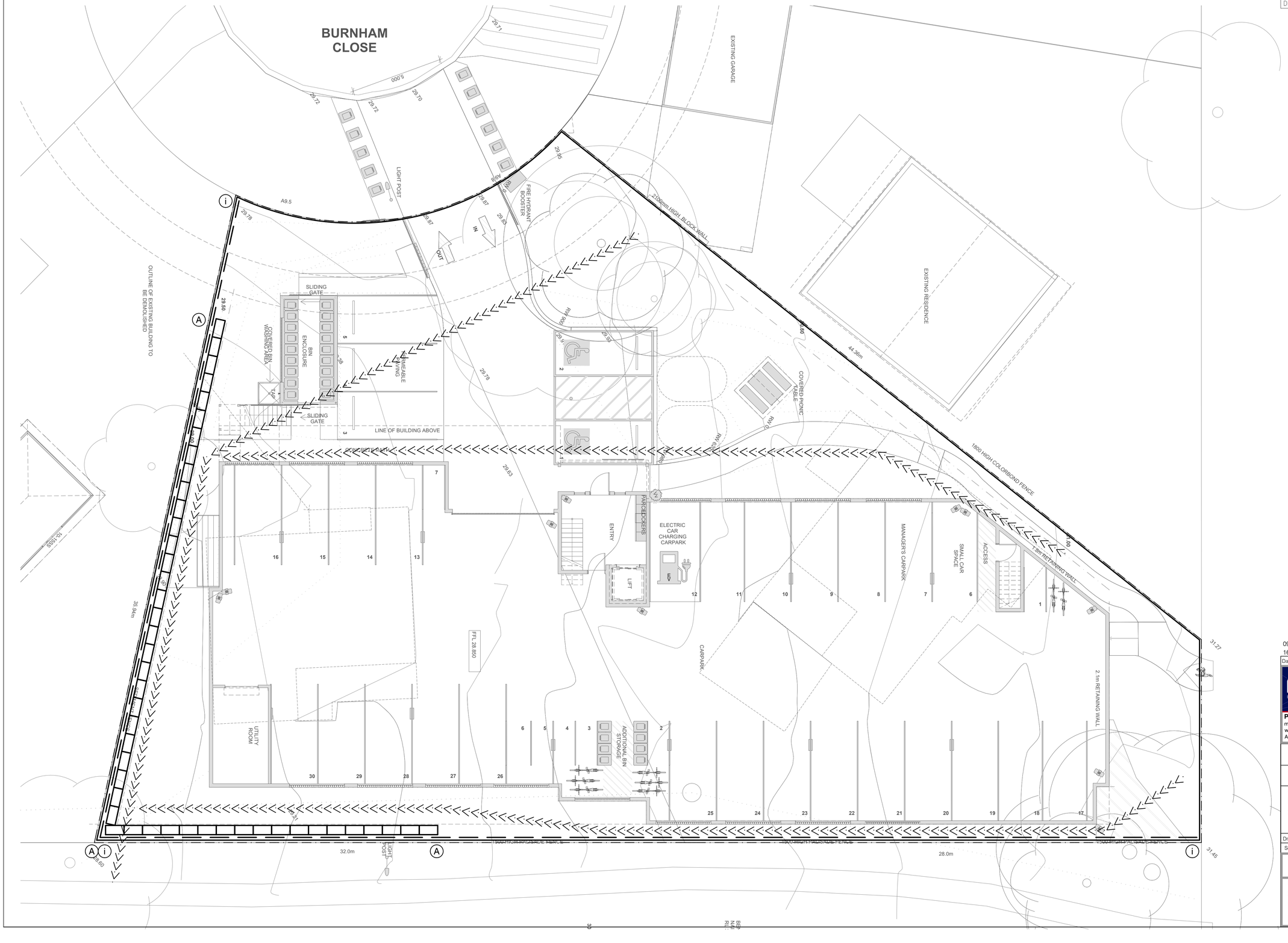
Issue: 2
Drawing No.: SW-03



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Drawing Title
STORMWATER MANAGEMENT LAYOUT

Issue
2

Drawing No.
SW-04