

PROPOSED DEVELOPMENT

88 BOORALIE RD, TERREY HILLS, NSW

DRAWING LIST:

13930-S01	COVER PAGE & NOTES
13930-S02	SWMP NOTES 1
13930-S03	SWMP NOTES 2
13930-S04	SOIL & WATER MANAGEMENT PLAN
13930-S05	STORMWATER MANAGEMENT PLAN
13930-S06	SOIL & WATER MANAGEMENT DETAILS
13930-S07	STORMWATER MANAGEMENT DETAILS

Notes - General:

- All dimensions are in millimetres U.N.O.
- All dimensions to be checked on site prior to the beginning of any works or ordering materials.
- All workmanship and building materials are to be in strict accordance with relevant building codes.
- Manufacturers instructions shall meet all local council requirements.
- All ground surface levels are to be checked on site prior to works.
- All building elements are to be temporarily braced and kept stable during all construction works
- The whole of the plumbing and drainage work shall be carried out in accordance with the standard water sewerage and drainage requirements of the local council.
- All storm water drainage to be connected to the existing storm water drainage lines.
- All strip footings and reinforced concrete ground slabs to residential buildings are to comply with current AS2870.1
- All reinforced suspended concrete slabs and beams are to be in accordance with current AS3600.
- Any drawing errors are to be reported to Positive Fix Pty Ltd prior to construction.
- All building materials used are to be new and of the best available quality and conform with the relevant Australian Standards.
- The location of existing services shown on drawings is indicative only and may not include all services within the region. The Builder is to locate and confirm all existing services prior to any beginning work on site.

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Notes - Stormwater:

- Make all applications to the relevant water authorities and local council, pay all fees and obtain all necessary permits and approvals as required.
- All stormwater pipes up to 225mm dia. to be uPVC Drainage Waste and Vent (DWV) grade with solvent welded joints. All uPVC pipes under driveway and carpark to be concrete encased.
- All stormwater pipes greater than 225mm dia. to be fibre reinforced concrete (FRC) with 'Supertite' joints.
- All pipes to have at least 1% minimum grade unless noted otherwise. Pipes may be laid at steeper grades in order to meet required invert levels or minimum ground cover requirements.
- Wrap all pipes above habitable areas with 'Pyrotek Soundguard 4525C' acoustic insulation or approved equivalent. To be installed according to manufacturers specifications.
- All pits and stormwater installation to comply with AS 3500.3.2, NSW Code of Practice for Plumbing and Drainage and local water authority requirements.
- Stormwater pits 600 x 600 or larger shall be precast concrete pits with extension risers as necessary to match required depths.
- Stormwater pits 300 x 300 and 450 x 450 to be 'ACO' polycrete pits with galvanised mild steel gratings
- Provide step irons according to AS 3500.
- Pit covers and grates to comply with AS 3996:
 - Class C in driveway U.N.O. on plan
 - Class A elsewhere
- Subsoil drainage to be 90mm slotted UPVC pipe wrapped in filter cloth sock and surrounded by minimum 150mm of 20mm diameter 'blue metal' aggregate and surrounded in geotextile filter fabric.
- All erosion and sedimentation control devices to conform with requirements of "Managing Urban Stormwater-soils and Construction" (the "Blue Book") produced by NSW Dept. of Housing, 1998

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Notes - Site Preparation:

- Strip site of all topsoil, vegetation and deleterious matter.
- The final 150mm of fill to be compacted to 100% standard compaction in accordance to current AS2189.
- All concrete footings and ground slab edge beams are to be founded on uniform, firm, natural cut ground to the required minimum bearing capacity. For residential buildings to AS2870 - min 100kPa
- Soft spots to be removed and backfilled with compacted fill in accordance to current AS1289.

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IT IS THE BUILDER'S RESPONSIBILITY TO CONFIRM THE EXACT DEPTH AND LOCATION OF SERVICES ON SITE PRIOR TO CONSTRUCTION. SERVICES NOT SHOWN ON DRAWINGS SHOULD BE REPORTED TO POSITIVE FIX PTY LTD IMMEDIATELY



Positive Fix Pty Ltd
CONSULTING ENGINEERS

Ph. 4954 9177
Email : info@positivefix.com.au
ABN. 81 140 759 931

Proposed Development

ADDRESS- 88 Booralie Rd,
Terrey Hills NSW

CLIENT- P Taylor

DRAWING- DWG NO.-
Cover Page & Notes S01-Rev0

JOB NUMBER-	DATE-	SCALE-	
13930	26.04.19	As Shown (A3)	
Designer-	Drawn-	Approved-	Signed-
SK	SK	SP	

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0	26/04/2019	ISSUED FOR DA
No.	Date	Information / Reason for the Proposed Amendments
AMENDMENTS		

Notes - Erosion and Sediment Control:

The following notes may not be relevant to each development.

General

- 1. ESCP refers to Erosion and Sediment Control Plan or a Soil and Water Management Plan (SWMP).
- 2. ESC refers to erosion and sediment control.
- 3. Sediment, includes, but is not limited to, clay, silt, sand, gravel, soil, mud, cement, and ceramic waste.
- 4. Any reference to the Blue Book refers to Managing Urban Stormwater - Soils and Construction. Landcom, 2004.
- 5. Any reference to the IECA White Books (2008) refers to IECA 2008. Best Practice Erosion and Sediment Control. Books 1-6.International Erosion Control Association (Australasia). Picton NSW.
- 6. Any material deposited in any conservation area from works associated with the development shall be removed immediately by measures involving minimal ground and/or vegetation disturbance and no machinery, or following directions by Council and/or within a timeframe advised by Council.

The ESCP


- 7. The ESCP and its associated ESC measures shall be constantly monitored, reviewed, and modified as required to correct deficiencies. Council has the right to direct changes if, in its opinion, the measures that are proposed or have been installed are inadequate to prevent pollution.
- 8. Prior to any activities onsite, the responsible person(s) is to be nominated. The responsible person(s) shall be responsible for the ESC measures onsite. The name, address and 24 hour contact details of the person(s) shall be provided to Council in writing. Council shall be advised within 48 hours of any changes to the responsible person(s), or their contact details, in writing.
- 9. At least 14 days before the natural surface is disturbed in any new stage, the contractor shall submit to the Certifier, a plan showing ESC measures for that Stage. The degree of design detail shall be based on the disturbed area.
- 10. At any time during construction, the ESC measures onsite shall be appropriate for the area of disturbance and its characteristics including soils (in accordance with those required for the site as per DCP).
- 11. The implementation of the ESCP shall be supervised by personnel with appropriate qualifications and/or experience in ESC on construction sites.
- 12. The approved ESCP shall be available on-site for inspection by Council officers while work activities are occurring.
- 13. The approved ESCP shall be up to date and show a timeline of installation, maintenance and removal of ESC measures.
- 14. All ESC measures shall be appropriate for the Sediment Type(s) of the soils onsite, in accordance with the Blue Book, IECA White Books or other current recognised industry standard for ESC for Australian conditions.
- 15. Adequate site data, including soil data from a NATA approved Laboratory, shall be obtained to allow the preparation of an appropriate ESCP, and allow the selection, design and specification of required ESC measures.
- 16. All works shall be carried out in accordance with the approved ESCP (as amended from time to time) unless circumstances arise where:
 - a) Compliance with the ESCP would increase the potential for environmental harm; or
 - b) Circumstances change during construction and those circumstances could not have been foreseen; or
 - c) Council determines that unacceptable off-site sedimentation is occurring as a result of a land-disturbing activity. In either case, the person(s) responsible may be required to take additional, or alternative protective action, and/or undertake reasonable restoration works within the timeframe specified by the Council.
- 17. Additional ESC measures shall be implemented, and a revised ESCP submitted for approval to the certifier (within five business days of any such amendments) in the event that:
 - a) There is a high probability that serious or material environmental harm may occur as a result of sediment leaving the site; or
 - b) The implemented works fail to achieve Council's water quality objectives specified in these conditions; or
 - c) Site conditions significantly change; or
 - d) Site inspections indicate that the implemented works are failing to achieve the "objective" of the ESCP.
- 18. A copy of any amended ESCP shall be forwarded to an appropriate Council Officer, within five business days of any such amendments.

Site establishment including clearing and mulching

- 19. No land clearing shall be undertaken unless preceded by the installation of adequate drainage and sediment control measures, unless such clearing is required for the purpose of installing such measures, in which case, only the minimum clearing required to install such measures shall occur.
- 20. Bulk tree clearing and grubbing of the site shall be immediately followed by specified temporary erosion control measures (e.g. temporary grassing or mulching) prior to commencement of each stage of construction works.
- 21. Trees and vegetation cleared from the site shall be mulched onsite within 7 days of clearing.
- 22. Appropriate measures shall be undertaken to control any dust originating due to the mulching of vegetation onsite.
- 23. All office facilities and operational activities shall be located such that any effluent, including wash-down water, can be totally contained and treated within the site.
- 24. All reasonable and practicable measures shall be taken to ensure stormwater runoff from access roads and stabilised entry/exit systems, drains to an appropriate sediment control device.
- 25. Site exit points shall be appropriately managed to minimise the risk of sediment being tracked onto sealed, public roadways.
- 26. Stormwater runoff from access roads and stabilised entry/exit points shall drain to an appropriate sediment control device.
- 27. The Applicant shall ensure an adequate supply of ESC, and appropriate pollution clean-up materials are available on-site at all times.
- 28. All temporary earth banks, flow diversion systems, and sediment basin embankments shall be machine-compacted, seeded and mulched within ten (10) days of formation for the purpose of establishing a vegetative cover, or lined appropriately.
- 29. Sediment deposited off site as a result of on-site activities shall be collected and the area cleaned/rehabilitated as soon as reasonable and practicable.
- 30. Concrete waste and chemical products, including petroleum and oil-based products, shall be prevented from entering any internal or external water body, or any external drainage system, excluding those on-site water bodies specifically designed to contain and/or treat such material. Appropriate measures shall be installed to trap these materials onsite.
- 31. Brick, tile or masonry cutting shall be carried out on a pervious surface (e.g. grass or open soil) and in such a manner that any resulting sediment-laden runoff is prevented from discharging into a gutter, drain or water. Appropriate measures shall be installed to trap these materials onsite.
- 32. Newly sealed hard-stand areas (e.g. roads, driveways and car parks) shall be swept thoroughly as soon as practicable after sealing/surfacing to minimise the risk of components of the surfacing compound entering stormwater drains.
- 33. Stockpiles of erodible material shall be provided with an appropriate protective cover (synthetic or organic) if the materials are likely to be stockpiled for more than 10 days.
- 34. Stockpiles, temporary or permanent, shall not be located in areas identified as no-go zones (including, but not limited to, restricted access areas, buffer zones, or areas of non-disturbance) on the ESCP.
- 35. No more than 150m of a stormwater, sewer line or other service trench shall to be open at any one time.
- 36. Site spoil shall be lawfully disposed of in a manner that does not result in ongoing soil erosion or environmental harm.
- 37. Wherever reasonable and practicable, stormwater runoff entering the site from external areas, and non-sediment laden (clean) stormwater runoff entering a work area or area of soil disturbance, shall be diverted around or through that area in a manner that minimises soil erosion and the contamination of that water for all discharges up to the specified design storm discharge.

Site Management including Dust

- 38. Priority shall be given to the prevention, or at least the minimisation, of soil erosion, rather than the trapping of displaced sediment. Such a clause shall not reduce the responsibility to apply and maintain, at all times, all necessary ESC measures.
- 39. Measures used to control wind erosion shall be appropriate for the location and prevent soil erosion at all times, including working hours, out of hours, weekends, public holidays, and during any other shutdown periods.
- 40. The application of liquid or chemical-based dust suppression measures shall ensure that sediment-laden runoff resulting from such measures does not create a traffic or environmental hazard.
- 41. All cut and fill earth batters less than 3m in elevation shall be topsoiled, and grass seeded/hydromulched within 10 days of completion of grading in consultation with Council.
- 42. Once cut/fill operations have been finalised in a section, all disturbed areas that are not being worked on shall be stabilised in accordance with time lines in the Blue Book.
- 43. All reasonable and practicable measures shall be taken to prevent, or at least minimise, the release of sediment from the site.
- 44. Suitable all-weather maintenance access shall be provided to all sediment control devices.
- 45. Sediment control devices, other than sediment basins, shall be de-silted and made fully operational as soon as reasonable and practicable after a sediment-producing event, whether natural or artificial, if the device's sediment retention capacity falls below 75% of its design retention capacity.
- 46. All erosion and sediment control measures, including drainage control measures, shall be maintained in proper working order at all times during their operational lives.
- 47. Washing/flushing of sealed roadways shall only occur where sweeping has failed to remove sufficient sediment and there is a compelling need to remove the remaining sediment (e.g. for safety reasons). In such circumstances, all reasonable and practicable sediment control measures shall be used to prevent, or at least minimise, the release of sediment into receiving waters. Only those measures that will not cause safety and property flooding issues shall be employed. Sediment removed from roadways shall be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.
- 48. Sediment removed from sediment traps and places of sediment deposition shall be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.

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Positive Fix Pty Ltd
CONSULTING ENGINEERS

Ph. 4954 9177
Email : info@positivefix.com.au
ABN. 81 140 759 931

Proposed Development

ADDRESS- 88 Booralie Rd,
Terrey Hills NSW

CLIENT- P Taylor

DRAWING- SWMP Notes DWG NO.- S02-Rev0

JOB NUMBER- 13930 DATE- 26.04.19 SCALE- As Shown (A3)

Designer- SK Drawn- SK Approved- SP Signed-

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Notes - Erosion and Sediment Control: Continuous

Sediment Basins - installation, maintenance and removal including sediment traps

49. As-Constructed plans shall be prepared for all constructed Sediment Basins and associated emergency spillways. Such plans shall verify the basin's dimensions, levels and volumes comply with the approved design drawings. These plans may be requested by the Certifier or Council.
50. Sediment basins shall be constructed and fully operational prior to any other soil disturbance in their catchment.
51. Install an internal gated valve, or similar, in any outlet pipe once pipes installed, or install a sacrificial pipe from basin through wall to external outlet point. The valve shall be connected to a riser made from slotted pipe in the basin. The valve may be opened once captured water meets water quality requirements. The final setup for temporary internal outlet structures to be confirmed prior to construction with Council. This setup will enable discharge of treated water from site without need for pumping.
52. A sediment storage level marker post shall be with a cross member set just below the top of the sediment storage zone (as specified on the approved ESCP). At least a 75mm wide post shall be firmly set into the basin floor.
53. The Site Manager shall obtain the relevant approvals from the relevant organisations to discharge treated water from any existing basins. Organisations may include, but not be limited to, Hunter Water, and Council.
54. Where more than one stage is to be developed at one time, or before the preceding stage is complete, the sediment basin(s) for these stages shall have sufficient capacity to cater for all area directed to the basin(s).
55. Prior to any forecast weather event likely to result in runoff, any basins/traps shall be dewatered to provide sufficient capacity to capture sediment laden water from the site.
56. Sufficient quantities of chemicals/agents to treat captured water shall be placed such that water entering the basin mixes with the chemical/agents and is carried into the basin to speed up clarification.
57. Any basin shall be dewatered within the X-day rainfall depth used to calculate the capacity of the basin, after a rainfall event.
58. Sufficient quantities of chemicals/agents to treat turbid water shall be securely stored on-site to provide for at least three complete treatments of all basins requiring chemically treatment onsite.
59. Prior to the controlled discharge (e.g. de-watering activities) from excavations and/or sediment basins, the following water quality objectives shall be achieved:
- a) Total Suspended Solids (TSS) to a maximum 50mg/L;
 - b) Water pH between 6.5 and 8.5, unless otherwise required by the Council;
 - c) Turbidity (measured in NTUs) to a maximum of 60 NTU); and
 - d) EC levels no greater than background levels.
60. The Development Approval may require testing of additional water quality elements prior to discharge. E.g. heavy metals.
61. A sample of the released treated water shall be kept onsite in a clear container with the sample date recorded on it.
62. Water quality samples shall be taken at a depth no less than 200mm below the water surface of the basin.
63. No Aluminium based products may be used treat captured water onsite without the prior written permission from an appropriate Council Officer. The applicant shall have a demonstrated ability to use such products correctly and without environmental harm prior to any approval.
64. The chemical/agent used in Type D and Type F basins to treat captured water captured in the basin shall be applied in concentrations sufficient to achieve Council's water quality objectives within the X-day rainfall depth used to calculate the capacity of the basin, after a rainfall event.
65. All Manufacturers' Instructions shall be followed for any chemicals/agents used onsite, except where approved by the Responsible Person or an appropriate Council Officer.
66. The Applicant shall ensure that on each occasion a Type F or Type D basin was not de-watered prior to being surcharged by a following rainfall event, a report is presented to an appropriate Council officer within 5 days identifying the circumstances and proposed amendments, if any, to the basin's operating procedures.
67. Settled sediment shall be removed as soon as reasonable and practicable from any sediment basin if:
- a) It is anticipated that the next storm event is likely to cause sediment to settle above the basin's sediment storage zone; or
 - b) The elevation of settled sediment is above the top of the basin's sediment storage zone; or
 - c) The elevation of settled sediment is above the basins sediment marker line.
68. Scour protection measures placed on sediment basin emergency spillways shall appropriately protect the spillway chute and its side batters from scour, and shall extend a minimum of 3m beyond the downstream toe of the basin's embankment.
69. Suitable all-weather maintenance access shall be provided to all sediment control devices.
70. Materials, whether liquid or solid, removed from any ESC measures during maintenance or decommissioning, shall be disposed of in a manner that does not cause ongoing soil erosion or environmental harm.
71. All sediment basins shall remain fully operational at all times until the basin's design catchment achieves 70% ground cover or surface stabilisation acceptable to Council.
72. The ESC measures installed during the decommissioning and rehabilitation of a sediment basin shall comply with same standards specified for the normal construction works.
73. A sediment basin shall not be decommissioned until all up-slope site stabilisation measures have been implemented and are appropriately working to control soil erosion and sediment runoff..
74. Immediately prior to the construction of the permanent stormwater treatment device, appropriate flow bypass conditions shall be established to prevent sediment-laden water entering the device.

Revegetation/Stabilisation


75. Temporary Stabilisation may be attained using vegetation, non rewettable soil polymers, or pneumatically applied erosion controls.
76. All cut and fill earth batters less than 3m in elevation shall be topsoiled, and grass seeded/hydromulched within 10 days of completion of grading in consultation with Council.
77. Once cut/fill operations have been finalised in a section, all disturbed areas that are not being worked on shall be stabilised in accordance with time lines in the Blue Book.
78. The LMCC Seed mix shall be used unless stated on the ESCP/SWMP. Do we need to specify here or refer to another section or the consent (landscape Plan)?
79. The pH level of topsoil shall be appropriate to enable establishment and growth of specified vegetation prior to initiating the establishment of vegetation.
80. Non rewettable binder shall be used in all hydromulch/hydroseed/polymer mixes on slopes or works adjacent to a water course.
81. Soil ameliorants shall be added to the soil in accordance with an approved Landscape Plan, Vegetation Management Plan, and/or soil analysis.
82. Surface soil density, compaction and surface roughness shall be adjusted prior to seeding/planting in accordance with an approved Landscape Plan, Vegetation Management Plan, and/or soil analysis.
83. Procedures for initiating a site shutdown, whether programmed or un-programmed, shall incorporate revegetation of all soil disturbances unless otherwise approved by Council. The stabilisation works shall not rely upon the longevity of non-vegetated erosion control blankets, or temporary soil binders.

Site Monitoring and Maintenance

84. The Applicant shall ensure that appropriate procedures and suitably qualified personnel are engaged to plan and conduct site inspections and water quality monitoring throughout the construction and maintenance phase.
85. All ESC measures shall be inspected and any maintenance undertaken immediately:
- a) At least daily (when work is occurring on-site); and
 - b) At least weekly (when work is not occurring on-site); and
 - c) Within 24hrs of expected rainfall; and
 - d) Within 18hrs of a rainfall event that causes runoff on the site.
86. Written records shall be kept onsite of ESC monitoring and maintenance activities conducted during the construction and maintenance periods, and be available to Council officers on request.
87. All environmentally relevant incidents shall be recorded in a field log that shall remain accessible to all relevant regulatory authorities.
88. All water quality data, including dates of rainfall, dates of testing, testing results and dates of water release, shall be kept in an on-site register. The register is to be maintained up to date for the duration of the approved works and be available on-site for inspection by [insert name of regulatory authority] on request.
89. At nominated instream water monitoring sites, a minimum of 3 water samples shall be taken and analysed, and the average result used to determine quality.

Instream Works

90. All instream works (including in or adjacent to watercourses natural or manmade, flowing or not) shall be carried out in accordance with the IECA White Books.

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Ph. 4954 9177
Email : info@positivefix.com.au
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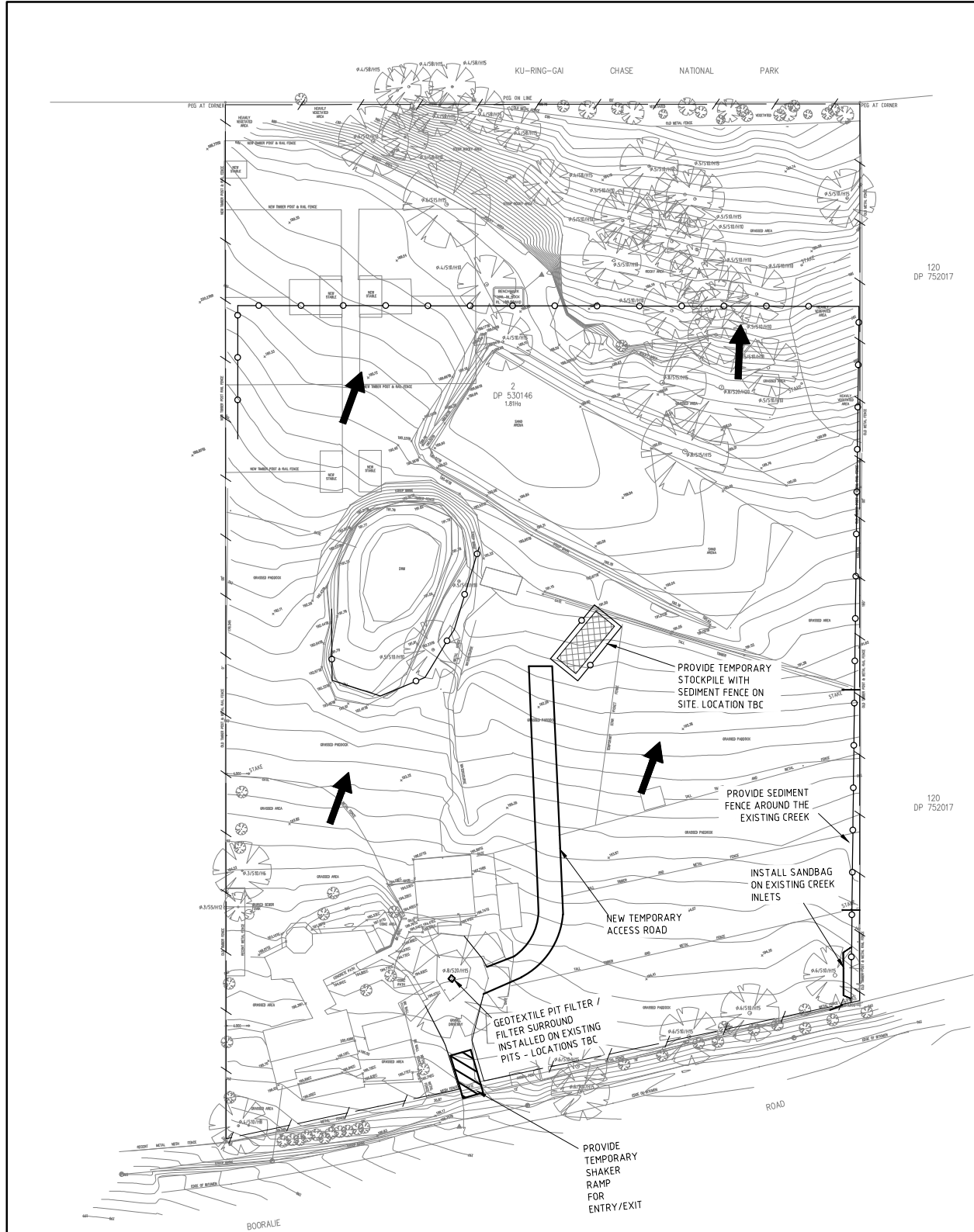
DRAWING- SWMP Notes 2 DWG NO.- S03-Rev0

JOB NUMBER- 13930 DATE- 26.04.19 SCALE- As Shown (A3)

Designer- SK Drawn- SK Approved- SP Signed-

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SOIL & WATER MANGEMENT PLAN
Scale 1:250

1	02/05/2019	ISSUED FOR DA
0	26/04/2019	ISSUED FOR DA
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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: 88 BOORALIE RD, TERRY HILLS NSW

Site Location: 88 BOORALIE RD, TERRY HILLS NSW

Precinct:

Description of Site:

Site area	Site	Remarks
Total catchment area (ha)	1.82	
Disturbed catchment area (ha)	0.744	

Soil analysis

% 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(a))
Soil Texture Group		(See Section 6.3.3(a), (d) and (e))

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)
k-day, y-percentile rainfall event	44	See Section 6.3.4 (h)
Rainfall intensity, 2-year, 6-hour storm	11.6	See IFD chart for the site

RUSLE Factors

Rainfall erosivity (R-factor)	2910	Automatic calculation from above data
Soil erosibility (K-factor)	0.018	
Slope length (m)	116	
Slope gradient (%)	5	RUSLE data can be obtained from
Length/gradient (LS-factor)	1.4	Appendices A, B and C
Erosion control practice (P-factor)	1.3	
Ground cover (C-factor)	1	

Calculations

Soil loss (t/ha/yr)	95	
Soil Loss Class	1	See Section 4.4.2(b)
Soil loss (m ³ /ha/yr)	73	
Sediment basin storage volume, m ³	9	See Sections 6.3.4(i) and 6.3.5 (e)

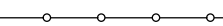
Sediment Basin Calculation Sheet

1

SEDIMENT BASIN CALCULATIONS:

- CALCULATIONS ARE CARRIED ACCORDING TO LANDCOM 'MANAGING URBAN STORMWATER' BLUE BOOK.

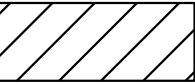
SITEWORKS
LEGEND



SEDIMENT FENCE



SITE FENCE



TEMPORARY SHAKER RAMP
FOR ENTRY/EXIT



TEMPORARY STOCKPILE
(LOCATION TBC ON-SITE)



GEOTEXTILE PIT FILTER /
FILTER SURROUND
INSTALLED ON EXISTING PIT



SANDBAGS INSTALLED
ON EXISTING PIT



OVERLAND FLOW

GENERAL NOTES:

- INSTALL GEOTEXTILE PIT FILTER/FILTER SURROUND ON EXISTING INLET PIT
- INSTALL SANDBAG ON EXISTING KERB INLET PIT



Positive Fix Pty Ltd
CONSULTING ENGINEERS

Ph. 4954 9177
Email : info@positivefix.com.au
ABN. 81 140 759 931

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CLIENT- P Taylor

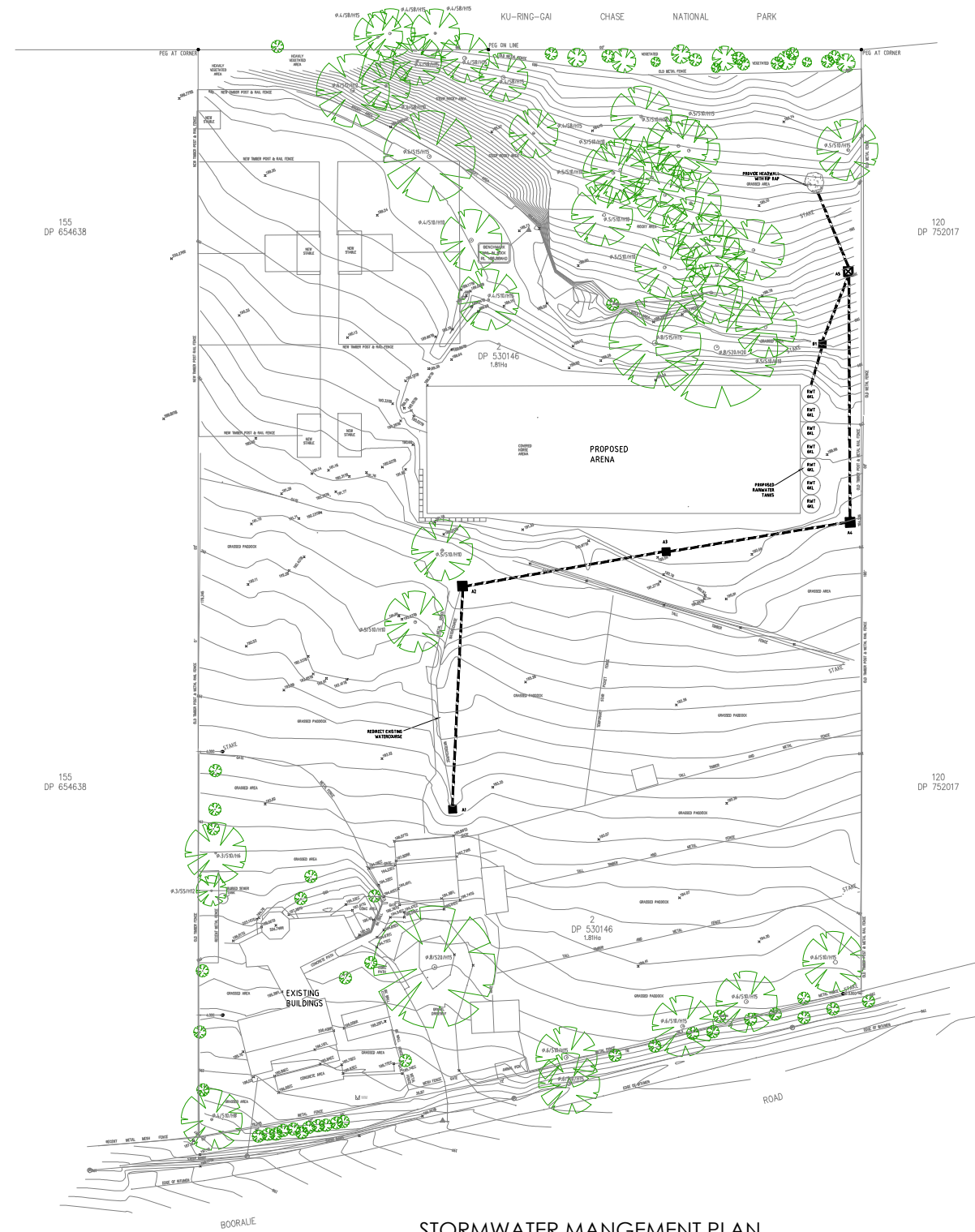
DRAWING- Soil and Water Management Plan
DWG NO.- S04-Rev1

JOB NUMBER- 13930
DATE- 26.04.19
SCALE- As Shown (A3)

Designer- SK
Drawn- SK
Approved- SP
Signed-

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HYDRAULIC CALCULATIONS:

ILSAX MODEL IS GENERATED IN DRAINS TO CALCULATE THE FLOW DISCHARGES TO MEET PRE TO POST DEVELOPMENT FLOWS

PROPOSED SITE AREA : 1.81 ha

PRE-DEVELOPED SITE
% IMPERVIOUS : 3.1 %
Q₅ PRE-DEVELOPED : 0.48m³/s
Q₂₀ PRE-DEVELOPED : 0.727m³/s
Q₁₀₀ PRE-DEVELOPED : 1.05m³/s

POST DEVELOPED SITE WITHOUT OSD
% IMPERVIOUS : 10.7%
Q₅ POST-DEVELOPED : 0.49m³/s
Q₂₀ POST-DEVELOPED : 0.738m³/s
Q₁₀₀ POST-DEVELOPED : 1.07m³/s

POST DEVELOPED SITE WITH OSD
% IMPERVIOUS : 10.7%
Q₅ POST-DEVELOPED : 0.46m³/s
Q₂₀ POST-DEVELOPED : 0.695m³/s
Q₁₀₀ POST-DEVELOPED : 1.031m³/s

ARENA ROOF AREA : 0.13 ha
TOTAL VOLUME OF RAINWATER TANKS : 40m³

ASSUMPTIONS:
THE EXISTING POND IS CLAIMED TO BE MAN MADE AND SERVES THE SITE CATCHMENT ONLY. SURVEY NEEDS TO VERIFY IF POND IS STORING ANY WATER FOR UPSTREAM CATCHMENTS IF SO AN UNDERGROUND OSD TANK WILL BE NEEDED TO REPLACE THE POND.

PIT SCHEDULE

PIT ID	TYPE	SIZE
A1	GRATED INLET	900 X 900
A2	GRATED INLET	1200 X 1200
A3	GRATED INLET	900 X 900
A4	GRATED INLET	1200 X 1200
A5	JUNCTION PIT	1200 X 1200
B1	GRATED INLET	900 X 900

LEGEND

- DENOTES STORMWATER PIPE
- DENOTES STORMWATER PIT

SETOUT AND DIMENSIONS TO
ARCHITECT'S DETAILS

REFER TO DRAWING XXXXX-S01
FOR CONSTRUCTION NOTES



Positive Fix Pty Ltd
CONSULTING ENGINEERS

Ph. 4954 9177
Email : info@positivefix.com.au
ABN. 81 140 759 931

Proposed Development

ADDRESS- 88 Boolarie Rd
Terrey Hills NSW

CLIENT- P Taylor

DRAWING- Stormwater Management Plan DWG NO.- S05-Rev1

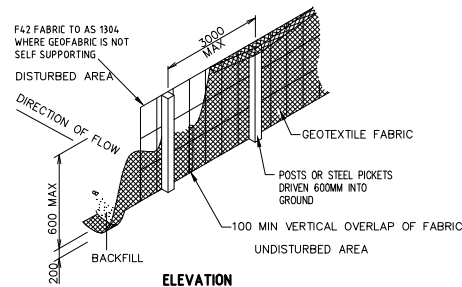
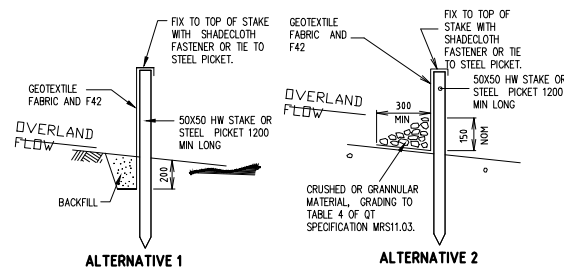
JOB NUMBER- 13930 DATE- 26.04.19 SCALE- As Shown (A3)

Designer- SK Drawn- SK Approved- SP Signed-

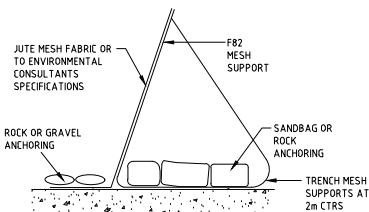
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1	02/05/2019	ISSUED FOR DA
0	26/04/2019	ISSUED FOR DA
	Date	Information / Reason for the Proposed Amendments
AMENDMENTS		



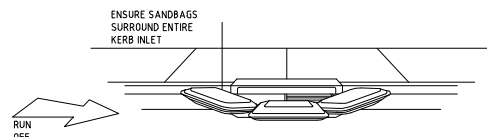
SEDIMENT FENCE
NOT TO SCALE



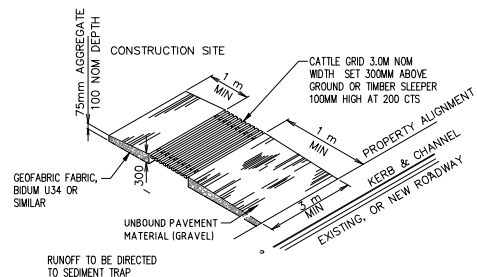
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ALTERNATIVE SEDIMENT FENCE NOTES

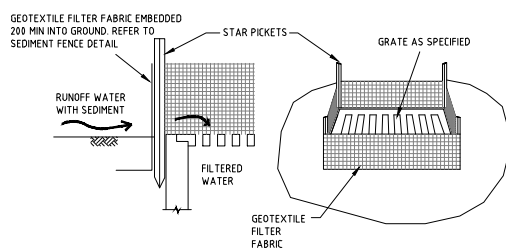
1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.



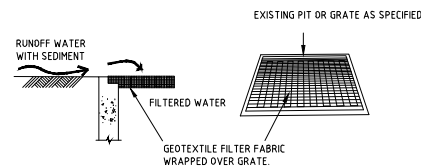
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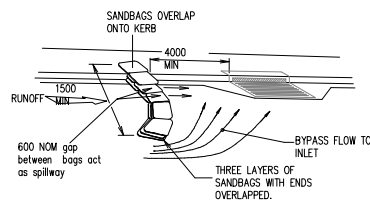
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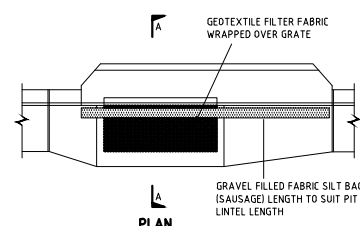
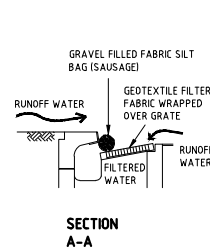
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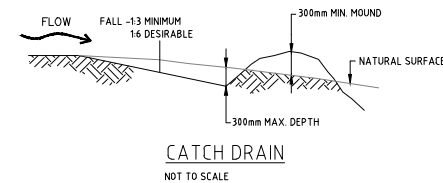
NOT TO SCALE



NOT TO SCALE



KERB INLET SEDIMENT TRAP
NOT TO SCALE



Positive Fix Pty Ltd
CONSULTING ENGINEERS
Ph: 4954 9177
Email : info@positivefix.com.au
ABN. 81 140 759 931

Proposed Development

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CLIENT- P Taylor

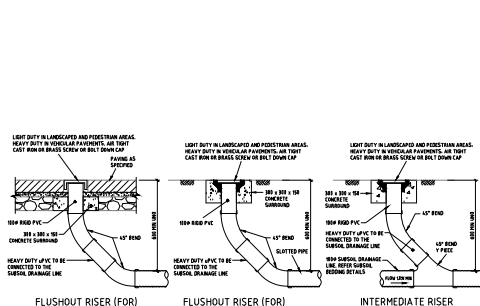
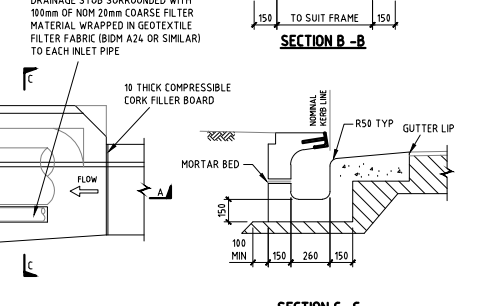
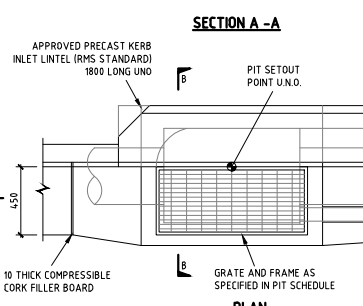
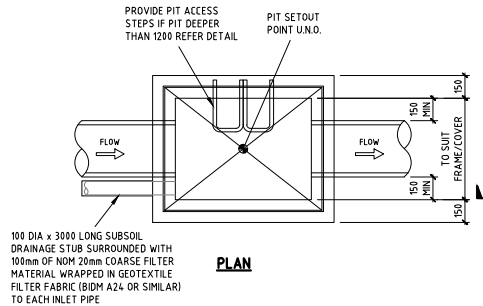
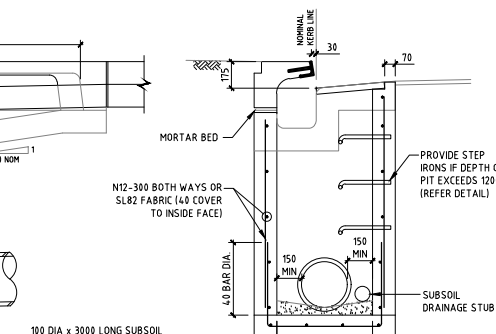
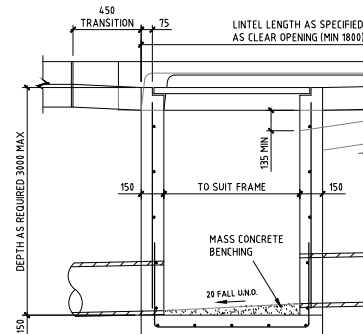
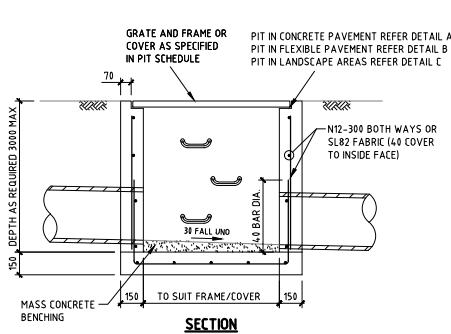
DRAWING- Soil & Water Management Details DWG NO.- S06-Rev0

JOB NUMBER- 13930 DATE- 26.04.19 SCALE- As Shown (A3)
Designer- SK Drawn- SK Approved- SP Signed- SK

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No.	Date	Information / Reason for the Proposed Amendments
AMENDMENTS		

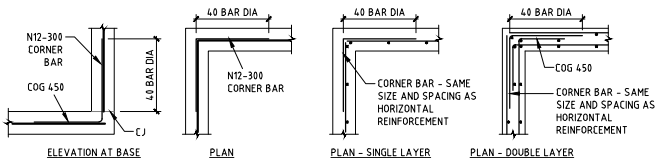
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SURFACE INLET/JUNCTION PIT DETAIL
SCALE 1:20

STORMWATER PIT NOTES

1. CONCRETE TO HAVE A MIN. COMPRESSIVE STRENGTH (F_c) OF 25 MPa AT 28 DAYS.
2. REINFORCEMENT NOT REQUIRED IF DEPTH OF PIT IS LESS THAN 1000mm. PITS GREATER THAN 3000mm DEEP TO HAVE WALL AND BASE 200mm THICK REINFORCED WITH N12-250 EACH WAY EACH FACE WITH CONCRETE STRENGTH $F_c = 40$ MPa.
3. PROVIDE STEP IRONS AT MAX 350mm CTRS IF DEPTH OF PIT EXCEEDS 1200mm.
4. IF REINFORCING FABRIC IS TO BE USED REFER TO WALL AND CORNER DETAILS.
5. PRECAST PITS ARE TO GENERALLY COMPLY WITH THESE DETAILS.
6. PRECAST PIT MAY BE USED SUBJECT TO ENGINEER'S APPROVAL.
7. ALL PITS TO BE LOCKABLE.
8. FINAL INTERNAL PIT DIMENSIONS ARE TO COMPLY WITH AS 3500.



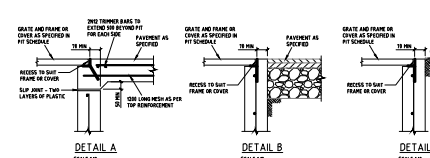
FABRIC

PIT CORNER DETAILS

SCALE 1:20

NOTE: DESIGNER TO VERIFY EXTENT OF DETAILING

REINFORCEMENT



PIT ACCESS STEP DETAIL

SCALE 1:10

NOTE: DESIGNER TO VERIFY EXTENT OF DETAILING

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Positive Fix Pty Ltd
CONSULTING ENGINEERS

Ph. 4954 9177
Email : info@positivefix.com.au
ABN. 81 140 759 931

Proposed Development

ADDRESS- **88 Booralie Rd
Terrey Hills NSW**

CLIENT- **P Taylor**

DRAWING- **Stormwater Management Details** DWG NO.- **S07-Rev0**

JOB NUMBER- **13930** DATE- **26.04.19** SCALE- **As Shown (A3)**

Designer- **SK** Drawn- **SK** Approved- **SP** Signed-

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<div>0</div>	26/04/2019	ISSUED FOR REVIEW
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