Appendix A
Costin Roe Consulting Pty Ltd
SSDA-9522 Mod3 Drawings

SSD 9522 MOD 3

657-708 MAMRE ROAD, KEMPS CREEK, NSW

CIVIL DRAWINGS

DRAWING LIST:

DRAWING NO.	DRAWING TITLE
C013362.02-C3-100	DRAWING LIST & GENERAL NOTES
C013362.02-C3-200	EARLY WORKS ENGINEERING NOTES
C013362.02-C3-201	EROSION & SEDIMENT CONTROL PLAN - STAGE 1
C013362.02-C3-202	EROSION & SEDIMENT CONTROL PLAN - STAGE 2
C013362.02-C3-203	EROSION & SEDIMENT CONTROL PLAN - STAGE 3
C013362.02-C3-204	EROSION & SEDIMENT CONTROL DETAILS - SHEET 1
C013362.02-C3-205	EROSION & SEDIMENT CONTROL DETAILS - SHEET 2
C013362.02-C3-206	EROSION & SED CONTROL RUSLE CALCULATIONS
C013362.02-C3-207	EROSION & SED CONTROL SEDIMENT BASIN INFORMATION
C013362.02-C3-300	BULK EARTHWORKS CUT/FILL PLAN
C013362.02-C3-301	BULK EARTHWORKS SECITONS
C013362.02-C3-400	CIVIL WORKS KEY PLAN
C013362.02-C3-401	CIVIL WORKS PLAN - SHEET 1
C013362.02-C3-402	CIVIL WORKS PLAN - SHEET 2
C013362.02-C3-405	STORMWATER DRAINAGE DETAILS - SHEET 1
C013362.02-C3-406	STORMWATER DRAINAGE DETAILS - SHEET 2
C013362.02-C3-407	STORMWATER DRAINAGE DETAILS - SHEET 3
C013362.02-C3-408	STORMWATER DRAINAGE DETAILS - SHEET 4
C013362.02-C3-420	OVERALL STORMWATER MANAGEMENT PLAN
C013362.02-C3-500	ROADWORKS DETAILS
C013362.02-C3-501	ROAD LONG SECTIONS - SHEET 1
C013362.02-C3-502	ROAD LONG SECTIONS - SHEET 2
C013362.02-C3-503	ROAD PAVEMENT PLAN
C013362.02-SK4-01	FUNCTIONAL LAYOUT PLAN - MOD 3
C013362.02-SK4-02	TURNING PATHS PLAN - MOD 3 -SHEET 1
C013362.02-SK4-03	TURNING PATHS PLAN - MOD 3 -SHEET 2
C013362.02-SK4-04	TURNING PATHS PLAN - MOD 3 -SHEET 3
C013362.02-SK4-05	TURNING PATHS PLAN - MOD 3 -SHEET 4
C013362.02-SK4-06	FUNCTIONAL LAYOUT PLAN SLR/BAKERS LANE - MOD 3
C013362.02-SK4-07	TURNING PATHS PLAN SLR/BAKERS LANE- MOD 3 -SHEET 1
C013362.02-SK4-08	TURNING PATHS PLAN SLR/BAKERS LANE- MOD 3 -SHEET 2
C013362.02-SK4-09	TURNING PATHS PLAN SLR/BAKERS LANE- MOD 3 -SHEET 3
C013362.02-SK4-10	TURNING PATHS PLAN BASIN MAINTENANCE ACCESS

GENERAL NOTES:

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER 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.

G2 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.

G3 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION.

G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

G5 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.

G6 ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

G7 ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH PENRITH CITY COUNCIL'S ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS

ELECTRONIC INFORMATION NOTES:

1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

CROSS REFERENCE NOTES :

PLANS TO BE READ IN CONJUNCTION WITH CEMP & ASSOCIATED SUB PLANS INLUDING THE CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN (CSWMP), CONTAMINATION MANAGEMENT PLAN & CONSTRUCTION ACCESS MANAGEMENT PLAN.

SURVEY NOTE:

COORDINATES AND DESIGN DRAWINGS ARE BASED ON GROUND SURVEY COORDINATE SYSTEM MGA2020 (ZONE 56). TO CONVERT TO GRID (ALLOWING FOR THE GEODESIC CURVATURE OF THE EARTH) PLEASE NOTE THE ORIGIN PM33568 (E:294645.403 N:6253924.312) AND SCALE FACTOR 1.000109.
REFER TO BOXALL SURVEY 10129-005-TOPO REV B FOR DETAILS.

STORMWATER DRAINAGE NOTES:

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON CIVIL WORKS PLANS PLANS C401-DA409.
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 (WITH HS2 SUPPORT) REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø300 TO BE uPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c 32 MPA. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. CONCRETE PIPES UNDER, OR WITHIN THE ZONE OF INFLUENCE OF PAVED AREAS SHALL BE LAID USING HS2 TYPE SUPPORT, AS A MINIMUM, IN ACCORDANCE WITH AS 3725. AGGREGATE BACKFILL SHALL NOT BE USED FOR PIPE BEDDING AND OR HAUNCH/SIDE SUPPORT.
13. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
14. ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
15. ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
16. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
17. MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
18. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
19. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
20. DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE U.N.O. ON PLAN. PROVIDE CLEANING EYE AT GROUND LEVEL.
21. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

FINISHED LEVELS PLAN NOTES:

1. LEVELS DATUM IS A.H.D.
2. ALL CONTOUR LINES & SPOT LEVELS INDICATE FINISHED PAVEMENT LEVELS U.N.O. ON PLAN.
3. THE MAJOR CONTOUR INTERVAL IS 0.5m
4. THE MINOR CONTOUR INTERVAL IS 0.1m.
5. MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%).
6. MAXIMUM PAVEMENT GRADE IS TO BE 1:20 (5%) IN CARPARKING AREAS AND 1:25 (4%) ELSEWHERE.
7. MAXIMUM RAMP GRADES ARE TO BE 1:12 (8.3%) U.N.O. ON PLAN
8. PROVIDE MINIMUM 3.0m LONG TRANSITION WHERE CHANGES GRADE EXCEDE 1:20 (5%).
9. PERMANENT BATTER SLOPES ARE TO HAVE A MAXIMUM GRADE OF 1V:3H.
10. ALL BATTER SLOPE WITH GRADES AT OR EXCEDING 1V:6H ARE TO BE TURFED IMMEDIATELY OR APPROPRIATE EROSION CONTROL IS TO BE PROVIDED TO THE SATISFACTION OF THE ENGINEER.
11. ALL ACCESS ROADS TO HAVE A CROSSFALL OF 3% AS INDICATED ON PLAN.
12. ALL FOOTPATHS ARE TO FALL AWAY FROM THE BOUNDARY AT 2.5% NOMINAL. GRADE.
13. ALL PAVEMENTS ARE TO BE SET AT 50mm BELOW THE FINISHED FLOOR LEVEL OF THE WAREHOUSE AND OFFICE AREAS.

LOCALITY PLAN
NOT TO SCALE

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	17.11.21	B
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02-C3-100

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PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: DRAWING LIST AND GENERAL NOTES

DRAWING No: C013362.02-C3-100 ISSUE: B

TABLE 1 – STABILISATION REQUIREMENTS AND TREATMENT METHODS

DURING CONSTRUCTION – TEMPORARY STABILISATION
(REFER SECTIONS 5.6, 5.7 & 5.8 OF THE CSWMP FOR STABILISATION REQUIEMENTS)

LANDS	STABILISATION REQUIREMENT	TIMEFRAMES	TREATMENT METHODS – PRODUCTS	REMARKS
ALL LANDS	C-FACTOR = 0.15 (50% EQUIVALENT GROUND COVER[1])	APPLIES AFTER 20 WORKING DAYS OF INACTIVITY (EVEN THOUGH WORKS MIGHT CONTINUE LATER)	SOIL BINDER (I.E VITAL P47/STONEWALL OR EQUIVALENT[1])	- SPRAY ALL SURFACES WITH VITAL P47/STONEWALL OR EQUIVALENT[1]. - VITAL DILUTION RATE = 1:10(VITAL:WATER). -RE-APPLY/MAINTAIN AS NECESSARY (APPROX. EVERY 3-6 MONTHS WITHOUT SUITABLE VEGETATION COVER) TO ENSURE THE REQUIRED COVER IS PROVIDED.
			GEOTEXTILE, JUTE MATTING, BLACK PLASTIC OR EQUIVALENT[1]	- COVER ALL EXPOSED SOILS. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PROVIDED.
WATERWAYS, DRAINAGE LINES AND CONCENTRATED FLOW AREAS	C-FACTOR = 0.05 (70% GRASS COVER OR EQUIVALENT GROUND COVER[1])	APPLIES AFTER 10 WORKING DAYS FROM COMPLETION OF FORMATION AND BEFORE THEY ARE ALLOWED TO CARRY CONCENTRATED FLOWS.	REFER TO THE DRAIN SPECIFICATIONS DETAILED ON THE PLAN FOR SPECIFIC LINING/STABILISATION REQUIREMENTS. EXAMPLE TREATMENT METHODS ARE SHOWN BELOW.	
			TEMPORARY LINING – GEOTEXTILE (I.E. BIDIM A24 OR EQUIVALENT[1][5])	- COMPLETE ANY SUBSOIL TREATMENT BEFORE LAYING THE MATTING. - INSTALL MATTING IN ACCORDANCE WITH SD 5-7. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PROVIDED.
			JUTE MESH, SEEDING AND SOIL BINDER (I.E. VITAL P47/STONEWALL OR EQUIVALENT[1]) – LOW FLOWS TO MODERATE	- COMPLETE SUBSOIL TREATMENT (I.E. GYPSUM LIGHTLY RIPPED INTO SUBGRADE AT A RATE OF 5 TONNES/Ha). - PLACE TOPSOIL TO A DEPTH OF AT LEAST 75mm. - COMPLETE ANY FERTILISATION AND SEEDING BEFORE LAYING THE MATTING. - INSTALL MATTING IN ACCORDANCE WITH SD 5-7. - SPRAY ALL SURFACES WITH VITAL P47/STONEWALL OR EQUIVALENT[1]. - VITAL DILUTION RATE = 1L / m^2 OF DILUTED VITAL MIXTURE. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PERMANENTLY MAINTAINED.
			JUTE MATTING (~350gsm) AND SEEDING OR EQUIVALENT[1][5] – LOW FLOWS TO MODERATE	- COMPLETE SUBSOIL TREATMENT (I.E. GYPSUM LIGHTLY RIPPED INTO SUBGRADE AT A RATE OF 5TONNES/Ha). - PLACE TOPSOIL TO A DEPTH OF AT LEAST 75mm. - COMPLETE ANY FERTILISATION AND SEEDING BEFORE LAYING THE MATTING. - INSTALL MATTING IN ACCORDANCE WITH SD 5-7. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PERMANENTLY MAINTAINED.
			TURF REINFORCEMENT MATTING (TRM) (E.G. TERRAMAT OR EQUIVALENT[1][5]) – MODERATE FLOWS	- COMPLETE SUBSOIL TREATMENT (I.E. GYPSUM LIGHTLY RIPPED INTO SUBGRADE AT A RATE OF 5TONNES/Ha). - PLACE TOPSOIL TO A DEPTH OF AT LEAST 75mm. - COMPLETE ANY FERTILISATION AND SEEDING BEFORE LAYING THE MATTING. - INSTALL MATTING IN ACCORDANCE WITH SD 5-7. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PERMANENTLY MAINTAINED.
			ROCK LINING – HIGH FLOWS	- COMPLETE SUBSOIL TREATMENT (I.E. GYPSUM LIGHTLY RIPPED INTO SUBGRADE AT A RATE OF 5TONNES/Ha). - INSTALL GEOTEXTILE UNDERLAY (IF SPECIFIED) IN ACCORDANCE WITH SD 5-7. - INSTALL ROCK ARMOURING (TO THE DEPTH AND SIZE AS SPECIFIED ON THE PLAN).
STOCKPILES	C-FACTOR = 0.10 (60% GRASS COVER OR EQUIVALENT GROUND COVER[1])	APPLIES AFTER 10 WORKING DAYS FROM COMPLETION OF FORMATION	SEEDING AND SOIL BINDER (I.E. VITAL P47/STONEWALL OR EQUIVALENT[1][5])	- APPLY SEED TO ALL STOCKPILE SURFACES (NOTE: SEEDING MAY NOT BE REQUIRED IF EXISTING SEEDBED IS PRESENT). -SPRAY ALL STOCKPILE SURFACES WITH VITAL P47/STONEWALL OR EQUIVALENT[1]. - VITAL DILUTION RATE = 1:10 (VITAL:WATER). - APPLICATION RATE = 1L / m2 OF DILUTED VITAL MIXTURE. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PERMANENTLY MAINTAINED.
			GEOTEXTILE, JUTE MATTING, BLACK PLASTIC OR EQUIVALENT[1]	- COVER ALL EXPOSED SOILS. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PROVIDED.
GENERAL SURFACES	C-FACTOR = 0.10 / 0.05 (60% / 70% GRASS COVER OR EQUIVALENT GROUND COVER[1])	C-FACTOR = 0.1 APPLIES AFTER 10 WORKING DAYS FROM COMPLETION OF FORMATION AND C-FACTOR = 0.05 APPLIES WITHIN A FURTHER 60 DAYS	TOPSOIL, SEEDING AND SOIL BINDER (I.E. VITAL P47/STONEWALL OR EQUIVALENT[1][5])	- REFER TO SD 7-1 - COMPLETE SUBSOIL TREATMENT (I.E. GYPSUM LIGHTLY RIPPED INTO SUBGRADE AT A RATE OF 5TONNES/Ha). - PLACE GYPSUM TREATED TOPSOIL TO A DEPTH OF AT LEAST 75mm. - APPLY ANY FERTILISERS REQUIRED. - APPLY SEED TO ALL SURFACES. - SPRAY ALL SURFACES WITH VITAL P47/STONEWALL OR EQUIVALENT[1]. - VITAL DILUTION RATE = 1:10 (VITAL:WATER). - APPLICATION RATE = 1L / m2 OF DILUTED VITAL MIXTURE. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PERMANENTLY MAINTAINED.
			HYDROMULCH OR EQUIVALENT[1]	- REFER TO SD 7-1 - COMPLETE SUBSOIL TREATMENT (I.E. GYPSUM LIGHTLY RIPPED INTO SUBGRADE AT A RATE OF 5TONNES/Ha). - PLACE GYPSUM TREATED TOPSOIL TO A DEPTH OF AT LEAST 75mm. - APPLY HYDROMULCH WITH APPROVED SEED MIX TO SOIL SURFACE. - RE-APPLY/MAINTAIN AS NECESSARY TO ENSURE THE REQUIRED COVER IS PERMANENTLY MAINTAINED.

[1] – EQUIVALENT COVER/PRODUCT MUST ACHIEVE THE EQUIVALENT C-FACTOR WITH PROVEN RESEARCH/DOCUMENTATION TO VERIFY THIS. STANDARD DRAWINGS REFERENCED CAN BE LOCATED IN THE 'SOILS & CONSTRUCTION, MANAGING URBAN STORMWATER – VOLUME 1' BOOK BY LANDCOM. ALTERNATIVE DETAILS MAY BE SOUGHT IN CONSULTATION WITH THE ENGINEER

TABLE 2 – LIMITATIONS TO ACCESS DURING CONSTRUCTION

LAND USE	LIMITATION	REMARKS
CONSTRUCTION AREAS	LIMITED TO 5 (PREFERABLE 2) METRES FROM THE EDGE OF ANY ESSENTIAL CONSTRUCTION ACTIVITY AS SHOWN ON ENGINEERING PLANS.	ALL SITE WORKERS SHOULD CLEARLY RECOGNISE THESE AREAS THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCE (DOWNSLOPE) OR SIMILAR MATERIALS.
ACCESS CORRIDORS	LIMITED TO A MAXIMUM WIDTH OF 7 METERS	THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON SITE, THEY CAN VARY IN POSITION SO AS TO BEST CONSERVE EXISTING VEGETATION AND PROTECT DOWNSTREAM AREAS WHILE BEING CONSIDERATE OF THE NEEDS EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES.
REMAINING LANDS, INCLUDING REVEGETATION AREA	ENTRY PROHIBITED EXCEPT FOR ESSENTIAL MANAGEMENT WORKS	THINNING OF GROWTH MIGHT BE NECESSARY, FOR EXAMPLE, FOR FIRE REDUCTION OR WEED REMOVAL.

DUST CONTROL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE DUST CONTROL MEASURES ARE APPLIED AND MAINTAINED IN ACCORDANCE WITH THE GOVERNING AUTHORITIES REQUIREMENTS.
2. THE APPLICATION OF LIQUID BASED DUST SUPPRESSION MEASURES MUST BE SUCH THAT SEDIMENT LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD. (EG UTILISING SEDIMENT CONTROLS)
3. DUST GENERATION ASSOCIATED WITH WIND EROSION TO BE CONTROLLED USING WATER TRUCKS, DUST SUPPRESSING FOG, MIST GENERATORS, SEALANT PLACED OVER THE SOIL, SURFACE ROUGHENING OR RE-VEGETATION.
4. THE FOLLOWING ACTIVITIES SHALL BE ADOPTED, IF NECESSARY, TO MANAGE DUST CONTROL ON SITE:
   - LIMITING THE AREA OF SOIL DISTURBANCE AT ANY GIVEN TIME
   - REPLACING TOPSOIL AFTER COMPLETION OF EARTHWORKS.
   - PROGRAMMING WORK TO MINIMISE THE LIFE OF STOCKPILES.
   - TEMPORARILY STABILISING LONG-TERM STOCKPILES.
   - GRAVELLING UNSEALED ACCESS AND HAUL ROADS.
   - MINIMISING TRAFFIC MOVEMENT ON EXPOSED SURFACES.
   - LIMITING VEHICULAR TRAFFIC TO 15km/h.
   - RETAINING EXISTING VEGETATION AS WIND BREAKS.
   - UTILISING A WATER CART WITH POTABLE WATER OR SEDIMENT CONTROL BASIN WATER
5. OIL, LANDFILL GAS CONDENSATE OR ANY CONTAMINATED LEACHATE IS NOT TO BE USED FOR DUST SUPPRESSION.

EROSION CONTROL NOTES

ALL SEDIMENT CONTROL WORK INCLUDING DIVERSION BANKS, CATCH DRAINS, DIVERSION DRAINS AND SEDIMENT FENCES SHALL BE COMPLETED IN ACCORDANCE WITH THE STAGED PLANS PRESENTED AND SHALL FACILITATE A STAGED CONSTRUCTION METHODOLOGY.

1. ALL EROSION & SEDIMENT CONTROLS SHALL BE COMPLETED IN ACCORDANCE WITH THE 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER – THE BLUE BOOK' BY LANDCOM.
2. SEDIMENT FENCES AND SEDIMENT FENCE RETURNS SHALL BE ERECTED CONVEX TO THE CONTOUR TO POND WATER.
3. STRAW BALE BARRIERS & GEOFABRIC FENCES OR SEDIMENT FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
4. ALL TEMPORARY EARTH BERMS, DIVERSION AND SEDIMENT BASIN EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED. REFER TO TABLE 1 FOR APPROVED STABILISATION METHODS.
5. CLEAN OR NON-SITE WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM OVER STABLE SURFACES.
6. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
7. ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS OF 5mm OR GREATER WITHIN A 24 HOUR PERIOD FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
8. THE SITE IS TO BE INSPECTED FOLLOWING A RAINFALL EVENT OF 5mm OR GREATER WITHIN A 24 HOUR PERIOD FOR EVIDENCE OF EROSION AND RESPOND WITH INCREASED CONTROL IF REQUIRED.
9. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE DEFECTS LIABILITY PERIOD.
10. ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
11. ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S EARTHWORKS TO DIRECT WATER TO A STABLE OUTLET OVER THE BATTER OR INTERNALLY TOWARDS SEDIMENT CONTROL. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200mm.
12. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
13. AFTER PERMANENT STABILISATION OF THE SITE IS COMPLETE (I.E. BY TOPSOILING, PAVING ETC.) AND THE SITE IS DEEMED TO BE STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SEDIMENT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
14. ALL STOCKPILES ARE TO BE SUITABLY COVERED AND STABILIZED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
15. ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
16. ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS INDICATED ON THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR APPROVED FOR SUCH USE BY THE SITE MANAGER. A BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH IN ACCORDANCE WITH THE CSWMP. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES IN THE APPROVED ESCP.
17. ACCESS AND EXIT AREAS SHALL INCLUDE TRUCK SHAKER GRID OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FORM MOTOR VEHICLES.
18. THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF SEDIMENTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
19. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.

SOIL & WATER MANAGEMENT PLAN NOTE:

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN (CSWMP) BY COSTIN ROE CONSULTING, REF 13362.02-02.rpt

SEDIMENT CONTROL BASIN NOTES

1. TYPE D BASIN IS REQUIRED.
2. VOLUME OF THE BASINS SHALL BE AS NOMINATED ON DRAWING. NOMINAL POND LOCATIONS AND NOMINAL DIMENSIONS.
3. SEDIMENT BUILD UP TO NOT EXCEED 33% TOTAL CAPACITY OF BASIN.
4. DEWATERING OF BASIN TO BE PERFORMED TO THE BOTTOM OF THE SEDIMENT SETTLING ZONE FOLLOWING ACHIEVEMENT OF WQO's. MANAGEMENT OF DOSAGE AND DISCHARGE TO BE ACHIEVED WITHIN 5 DAYS OF THE INITIAL RAINFALL EVENT.
5. FOLLOWING DEWATERING PER NOTE 4, WATER LEVEL TO BE MAINTAINED AT 20% CAPACITY AFTER A FOUR DAY SETTLING PERIOD FOLLOWING A STORM EVENT SUCH THAT THE BASIN HAS SUFFICIENT CAPACITY TO CONTAIN RUNOFF AND SEDIMENT FROM SUBSEQUENT RAINFALL EVENTS.
6. WATER TO BE DOSED WITH GYPSUM TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS AS REQUIRED.
7. GYPSUM DOSAGE RATE TO BE APPLIED AT APPROX. 32-50kg PER 100 CUBIC METRE OF COLLECTED RUNOFF.
8. THE USE OF ALUM (OR ANY OTHER ALTERNATIVE) AS A FLOCCULANT IS NOT RECOMMENDED. ALUM OR ANY OTHER FLOCCULANT IS TO BE USED ONLY FOLLOWING CONSULTATION WITH AND ACCEPTANCE FROM COUNCIL ESC OFFICERS.
9. DISCHARGE FROM POND IS PERMISSIBLE WHEN THE WATER PH IS 6.5-8.5 AND IS CLARIFIED TO AT OR BELOW A TSS OF 50mg/L. CLARIFICATION WOULD GENERALLY BE ACHIEVED IN 36-72 HOURS WITH THE USE OF GYPSUM PLUS NO VISIBLE OIL OR GREASE. CORRELATION TESTS MUST BE UNDERTAKEN ON SITE TO ENSURE THIS IS ACHIEVED.
10. DEWATERING SHALL BE DONE IN SUCH A MANNER AS TO REMOVE THE CLEAN WATER (BEING WATER WITHIN THE ADOPTED CRITERIA) WITHOUT REMOVING OR DISTURBING THE SEDIMENT THAT HAS SETTLED. THE PUMP INTAKE PIPE IS NOT TO REST ON THE SETTLED SEDIMENT LAYER.
11. IF WATER EXCEEDS TSS OF 50mg/L DURING DEWATERING, PUMPING IS TO CEASE. RECORDS ARE TO BE KEPT (ON-SITE AT ALL TIMES) OF ALL MEASUREMENT PRIOR TO, DURING AND AFTER DISCHARGE. RECORDS TO BE MADE AVAILABLE TO COUNCIL OFFICERS UPON REQUEST.
12. PROVIDE SECURITY FENCE TO BASIN FOR SAFETY.

INSTREAM WORKS:

1. SEDIMENT FENCES AND SEDIMENT FENCE RETURNS TO BE ERECTED PRIOR TO THE COMMENCEMENT OF ANY WORK. SEDIMENT FENCES TO REMAIN UNTIL COMPLETION OF INSTREAM WORK IN THESE LOCATION TO PROTECT EXISTING DOWNSTREAM PROPERTIES AND ROAD PAVEMENT. (REFER TO DRG-EW204 FOR DETAILS).
2. UNDERTAKE WORK DURING A PERIOD OF DRY FORECASTED WEATHER.
3. PROTECT DISTURBED AREA WITH COFFERDAMS AS REQUIRED.
4. TEMPORARY LOW FLOW DIVERSION PIPE OR PUMPED SYSTEM MAY BE INSTALLED AT THE BASE OF CHANNEL TO DIVERT CLEAN WATER FROM UPSTREAM BASEFLOW.
5. UNDERTAKE ALL INSTREAM WORK IN THE SPECIFIED SECTION OF THE CHANNEL IN ACCORDANCE WITH APPROVED PLANS AND IMMEDIATELY PLANT TO STABLISE THE WORKS.
6. PLANT WITH APPROPRIATE SPECIES, AT A DENSITY THAT WOULD NATURALLY OCCUR.

INSPECTION & MAINTENANCE NOTES:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ADEQUATE INSPECTIONS AND MAINTENANCE ARE CARRIED OUT DURING SITE WORKS. DAILY AND WEEKLY INSPECTION CHECKLISTS HAVE BEEN PROVIDED IN THE COSTIN ROE SOIL AND WATER MANAGEMENT PLAN (SWMP) Co13362.02-02.rpt.

AS NOTED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ADEQUATE MAINTENANCE OF EROSION & SEDIMENT CONTROL MEASURES ARE UNDERTAKEN DURING THE WORKS PERIOD. DAMAGED, DISLODGED OR FAULTY ESC MEASURES ARE TO BE IMMEDIATELY RECTIFIED AND THE SURROUNDING AREA IS TO BE REMEDIATED AS PER NOTES ON THIS DRAWING, THE SWMP AND THE LANDCOM 'BLUE BOOK'.

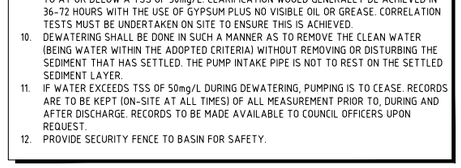
SEDIMENTATION BASIN NOTE:

REFER TO SEDIMENT & EROSION CONTROL NOTES.

FOR SEDIMENT AND EROSION CONTROL DETAILS, REFER TO THE LANDCOM 'BLUE BOOK' AND EXTRACTS ON DRAWING CO13362.02-C204.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWAER-THE BLUE BOOK'. CAPACITY BASED ON 5-DAY RAINFALL DEPTHS AT 85th PERCENTILE INTENSITY (35mm) IN THE PENRITH CATCHMENT AREA.

NOTES:
1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
3. REFER TO DRAWING CO13362.02-C206 FOR SEDIMENTATION BASIN CALCULATIONS



PUMPED SYSTEM OPTION — GRAVITY PIPE OPTION

INSTREAM WORKS COFFERDAM ARRANGEMENT

SITE PREPARATION NOTES :

1. ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT PSM3276-102S PROVIDED BY PELLS SULLIVAN MEYNINK DATED 01.06.20
2. EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY BOXALL TITLED 10129-005-TOPO REV B DATED 12.06.20.
3. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED.
4. COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +0mm/-20mm ELSEWHERE.
5. PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION.
6. AREAS TO RECEIVE FILL (THAT ARE NOT ON BENCHED BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER.
7. SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
8. IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
9. ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 MM SIEVE. ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HILF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% RETAINED ON THE 37.5 MM SIEVE. WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 MM SIEVE THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION
10. ALL THE EARTHWORKS UNDERTAKEN AND THE SUBGRADE CONDITION IN THE CUT AREAS (IN THE STATED PERIOD) ARE DOCUMENTED IN THE REPORTS AND HAVE BEEN UNDERTAKEN IN ACCORDANCE WITH THE SPECIFICATION.
11. PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
12. EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
13. MATCH EXISTING LEVELS AT BATTER INTERFACE.
14. CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.
15. DURING EARTHWORKS THE CONTRACTOR IS TO ENSURE ALL AREAS ARE FREE DRAINING & WILL NOT RETAIN WATER DURING RAINFALL. PROVIDE TEMPOARY MEASURES AS REQUIRED TO ENSURE FREE FLOWING RUNOFF THROUGH MANAGED DRAINAGE PATHS, DIVERSION DRAINS OR OTHER SUITABLE DISPOSAL METHOD AS AGREED DURING THE WORKS. REFER ANY CONCERNS TO THE ENGINEER. REFER TO EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES.

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 – 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02- C3-200

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PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: EROSION AND SEDIMENT CONTROL ENGINEERING NOTES-MOD 3

DRAWING No: C013362.02-C3-200 ISSUE: A

WATER NSW PIPELINE

CLEAN-WATER DISCHARGES TO SOUTH CREEK VIA OVERLAND FLOW

PROVIDE SAND-BAGS SANDSTONE RIPRAP TYPICAL

CONTRACTOR TO INSTALL A FENCE COMPRISING 2.1m CHAIN MESH PLUS 3 STRAND BARBED WIRE ON TOP FOR A TOTAL HEIGHT OF 2.4m ALONG THE ENTIRE LENGTH OF BOUNDARY WITH THE WARRAGAMBA PIPELINES

ROAD (vide Gov. Gaz. No. 36 dated 21/2/2020)

SILT FENCE

DIVERSION DRAIN TYPE 3

DIVERSION DRAIN TYPE 2

SEDIMENT BASIN A REFER NOTE DRG C207

CHECK DAM STRUCTURES AT 50m INTERVALS. TYPICAL

NOMINAL LOCATION OF SITE STOCKPILES. REFER TO SD 4-1

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED AROUND WORKS ZONE. DISCHARGE TO EXISTING DAM AS PER PRE-DEVELOPMENT CONDITIONS DIVERSION DRAIN TYPE 3

MAMRE ROAD

BAKERS LANE

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED ALONG FUTURE SLR CORRIDOR AROUND WORKS AREA OVER GEOFAB LINED CHANNEL DIVERSION DRAIN TYPE 3

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED AROUND WORKS ZONE. ALIGN DISCHARGE WITH EXISTING RCBC UNDER MAMRE ROAD DIVERSION DRAIN TYPE 3

PROPOSED CONSTRUCTION ENTRY. REFER TO DRAWING EW700 IN EARLY WORKS DRAWING SET

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED AROUND WORKS ZONE. ALIGN DISCHARGE WITH EXISTING RCBC UNDER MAMRE ROAD

DIVERSION DRAIN TYPE 4

SOUTH CREEK

CLEAN-WATER DISCHARGES TO SOUTH CREEK VIA OVERLAND FLOW

NATURAL FLOW PATH

SEDIMENT BASIN B REFER NOTE DRG C207

CHECK DAM STRUCTURES AT 50m INTERVALS. TYPICAL

DP 1018318 No. 707A

DP 421633 No. 707-711

DP 421633 No. 713-755

DP 258414 No. 757-769

DP 270417

DP 1218173 657-703 (SEE NOTE 3.)

DP 1254160

SOUTH

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY CARDNO TITLED 115804548 DATED 05/08/19.

- SHEET-FLOW DIRECTION
- SITE BOUNDARY
- CATCHMENT BOUNDARY
- DIRTY WATER DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- PIPED DRAINAGE LINE
- SEDIMENT FENCING
- 1 IN 100 YEAR ARI FLOOD EXTENT
- SEDIMENT BASIN (REFER TO PLAN)
- WHEEL WASH STATION
- PIPE CROSSING (REFER SECTION 1 ON EW205)
- CONSTRUCTION ACCESS ROAD

SEDIMENT BASIN NOTES:
REFER TO DRAWING C3-207 FOR SEDIMENT BASIN INFORMATION

EROSION CONTROL NOTES:
REFER TO DRAWING C3-200 FOR EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN - STAGE 1
SCALE 1:1500

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A
AMENDMENTS	DATE	ISSUE

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
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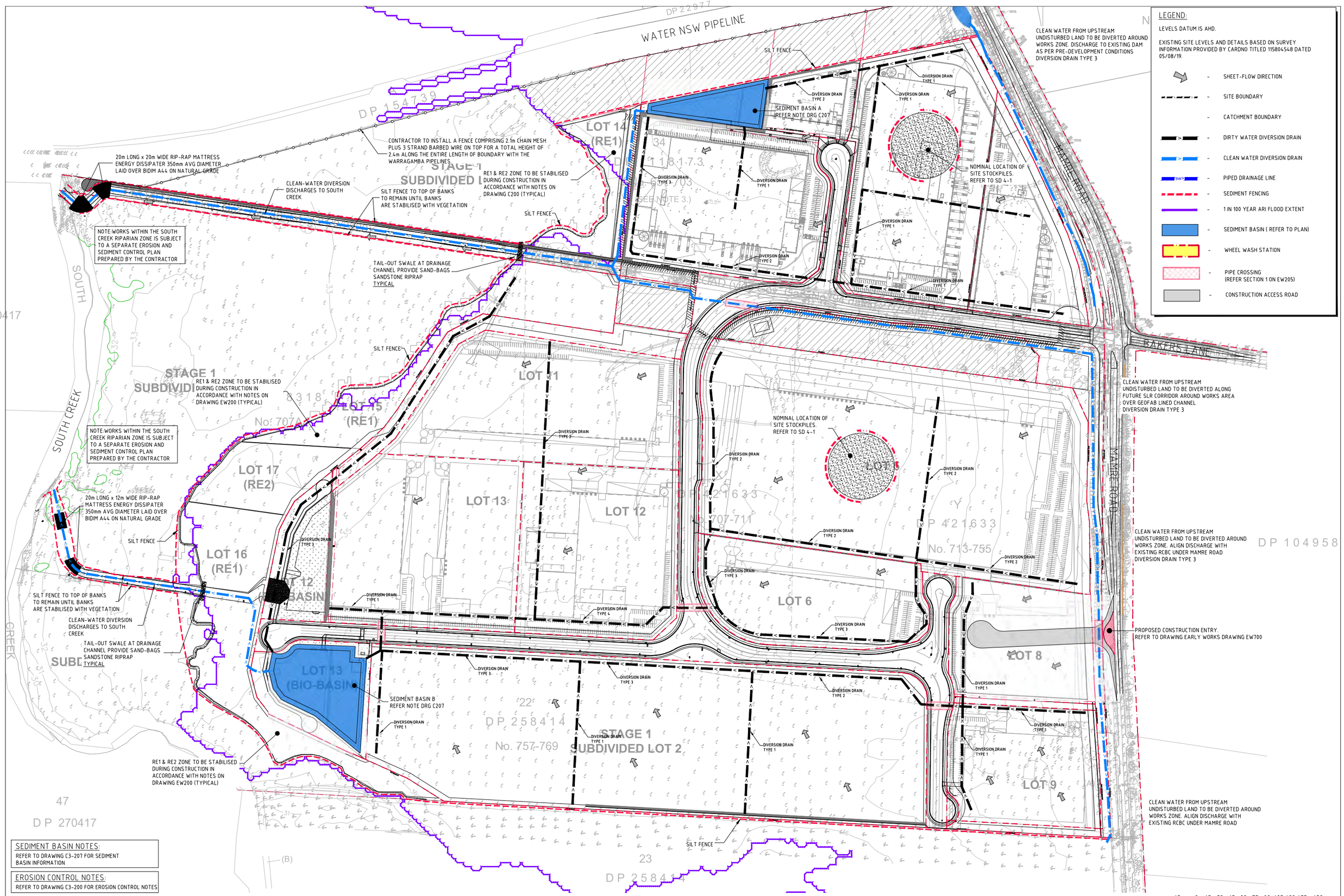
DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN STAGE 1-MOD 3

DRAWING No: C013362.02- C3-201 ISSUE: A



SEDIMENT BASIN NOTES:
REFER TO DRAWING C3-207 FOR SEDIMENT BASIN INFORMATION

EROSION CONTROL NOTES:
REFER TO DRAWING C3-200 FOR EROSION CONTROL NOTES

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT A0 SHEET SIZE

EROSION AND SEDIMENT CONTROL PLAN - STAGE 2
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A
AMENDMENTS	DATE	ISSUE

CLIENT: ALTIS PROPERTY PARTNERS / FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
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DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN STAGE 2-MOD 3
DRAWING NO: C013362.02- C3-202
ISSUE: A

WATER NSW PIPELINE

ESTATE BASIN CONSTRUCTED AS PER EARTHWORKS PLANS

ESTATE BASIN CONSTRUCTED AS PER DRAWING C421

SILT FENCE

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED AROUND WORKS ZONE. DISCHARGE TO EXISTING DAM AS PER PRE-DEVELOPMENT CONDITIONS DIVERSION DRAIN TYPE 3

LOT 1

LOT 14 (RE1)

CONTRACTOR TO INSTALL A FENCE COMPRISING 2.1m CHAIN MESH PLUS 3 STRAND BARBED WIRE ON TOP FOR A TOTAL HEIGHT OF 2.4m ALONG THE ENTIRE LENGTH OF BOUNDARY WITH THE WARRAGAMBA PIPELINES

20m LONG x 20m WIDE RIP-RAP MATTRESS ENERGY DISSIPATER 350mm AVG DIAMETER LAID OVER BIDIM A44 ON NATURAL GRADE

CLEAN-WATER DIVERSION DISCHARGES TO SOUTH CREEK VIA CHANNEL

SILT FENCE TO TOP OF BANKS TO REMAIN UNTIL BANKS ARE STABILISED WITH VEGETATION

STAGE 1 SUBDIVIDED LOT 1

RE1 & RE2 ZONE TO BE STABILISED DURING CONSTRUCTION IN ACCORDANCE WITH NOTES ON DRAWING EW200 (TYPICAL)

LOT 4

LOT 2

LOT 3

DIVERSION DRAIN TYPE 1

SEDIMENT BASIN 2a REFER NOTE DRG C207

SEDIMENT BASIN 4 REFER NOTE DRG C207

SEDIMENT BASIN 1 REFER NOTE DRG C207

SEDIMENT BASIN 3 REFER NOTE DRG C207

CLEAN WATER OVERFLOW CHANNEL DRAIN TYPE 1

MAMRE ROAD

NOTE:WORKS WITHIN THE SOUTH CREEK RIPARIAN ZONE IS SUBJECT TO A SEPARATE EROSION AND SEDIMENT CONTROL PLAN PREPARED BY THE CONTRACTOR

TAIL-OUT SWALE AT DRAINAGE CHANNEL PROVIDE SAND-BAGS SANDSTONE RIPRAP TYPICAL

SILT FENCE

SEDIMENT BASIN 12 REFER NOTE DRG C207

CLEAN WATER DISCHARGES THROUGH PIPE UNDER ROADWAY INDICATIVELY SHOWN THUS.

SEDIMENT BASIN 11 REFER NOTE DRG C207

BAKERS LANE

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED ALONG FUTURE SLR CORRIDOR AROUND WORKS AREA OVER GEOFAB LINED CHANNEL DIVERSION DRAIN TYPE 3

SOUTH CREEK

STAGE 1 SUBDIVIDED LOT 1

LOT 15 (RE1)

LOT 17 (RE2)

LOT 10

LOT 13

LOT 12

LOT 5

NOMINAL LOCATION OF SITE STOCKPILES. REFER TO SD 4-1

DIVERSION DRAIN TYPE 2

DIVERSION DRAIN TYPE 3

ESTATE BASIN CONSTRUCTED AS PER EARTHWORKS PLANS TO BE USED AS SEDIMENT BASIN 13 DURING EARLY WORKS REFER NOTE DRG C207

LOT 16 (RE1)

SEDIMENT BASIN 10 REFER NOTE DRG C207

SEDIMENT BASIN 6 REFER NOTE DRG C207

LOT 6

LOT 8

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED AROUND WORKS ZONE. ALIGN DISCHARGE WITH EXISTING RCBC UNDER MAMRE ROAD DIVERSION DRAIN TYPE 3

PROPOSED CONSTRUCTION ENTRY. REFER TO DRAWING EARLY WORKS DRAWING EW700

SILT FENCE TO TOP OF BANKS TO REMAIN UNTIL BANKS ARE STABILISED WITH VEGETATION

CLEAN-WATER DIVERSION DISCHARGES TO SOUTH CREEK VIA CHANNEL

TAIL-OUT SWALE AT DRAINAGE CHANNEL PROVIDE SAND-BAGS SANDSTONE RIPRAP TYPICAL

ESTATE BASIN CONSTRUCTED AS PER DRAWING C419

LOT 13 (BIO-BASIN)

SEDIMENT BASIN 2B REFER NOTE DRG C207

NOMINAL LOCATION OF SITE STOCKPILES. REFER TO SD 4-1

SEDIMENT BASIN 8 REFER NOTE DRG C207

SEDIMENT BASIN 9 REFER NOTE DRG C207

LOT 9

STAGE 1 SUBDIVIDED LOT 2

SILT FENCE

RE1 & RE2 ZONE TO BE STABILISED DURING CONSTRUCTION IN ACCORDANCE WITH NOTES ON DRAWING EW200 (TYPICAL)

SILT FENCE

CLEAN WATER FROM UPSTREAM UNDISTURBED LAND TO BE DIVERTED AROUND WORKS ZONE. ALIGN DISCHARGE WITH EXISTING RCBC UNDER MAMRE ROAD

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY CARDNO TITLED 115804548 DATED 05/08/19.

- SHEET-FLOW DIRECTION
- SITE BOUNDARY
- CATCHMENT BOUNDARY
- DIRTY WATER DIVERSION DRAIN
- CLEAN WATER DIVERSION DRAIN
- PIPED DRAINAGE LINE
- SEDIMENT FENCING
- 1 IN 100 YEAR ARI FLOOD EXTENT
- SEDIMENT BASIN (REFER TO PLAN)
- WHEEL WASH STATION
- PIPE CROSSING (REFER SECTION 1 ON EW205)
- CONSTRUCTION ACCESS ROAD

SEDIMENT BASIN NOTES:
REFER TO DRAWING C3-207 FOR SEDIMENT BASIN INFORMATION

EROSION CONTROL NOTES:
REFER TO DRAWING C3-200 FOR EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN - STAGE 3
SCALE 1:1500

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	17.11.21	B
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

D ALTIS PROPERTY PARTNERS

CLIENT FRASERS PROPERTY

PROJECT
MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02- C3-203

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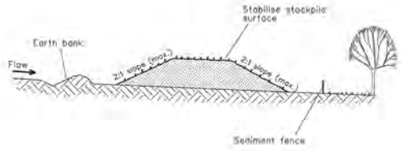
DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN
STAGE 3-MOD 3

DRAWING No C013362.02- C3-203 ISSUE B

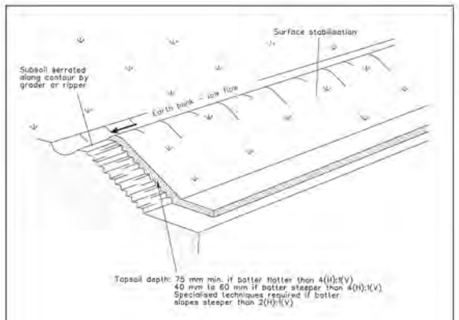


Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres 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 2 metres 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 2 metres downslope.

STOCKPILES **SD 4-1**

4-5

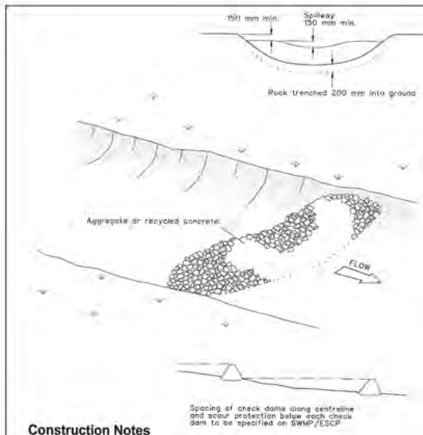


Construction Notes

1. Scarify the ground surface along the line of the contour to a depth of 50 mm to 100 mm to break up any hardsetting surfaces and to provide a good bond between the respread material and subsoil.
2. Add soil ameliorants as required by the ESCP or SWMP.
3. Rip to a depth of 300 mm if compacted layers occur.
4. Where possible, replace topsoil to a depth of 40 to 60 mm on lands where the slope exceeds 4(H):1(V) and to at least 75 mm on lower gradients.

REPLACING TOPSOIL **SD 4-2**

4-6

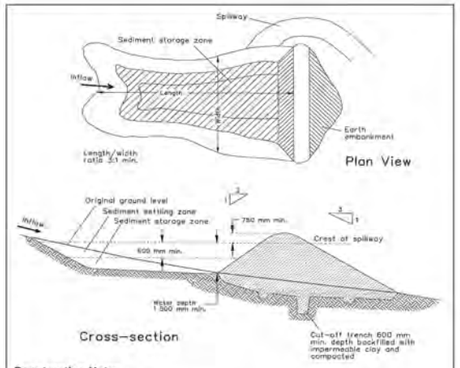


Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM **SD 5-4**

5-22

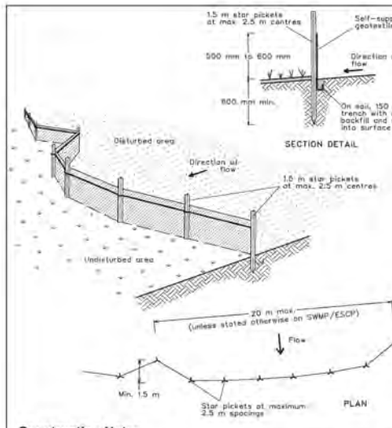


Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.
3. Maintain the trench free of water and recompact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.
4. Select fill following the SWMP that is free of roots, wood, rock, large stone or foreign material.
5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.
6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
7. Construct the emergency spillway.
8. Rehabilitate the structure following the SWMP.

EARTH BASIN - WET **SD 6-4**
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)

6-19

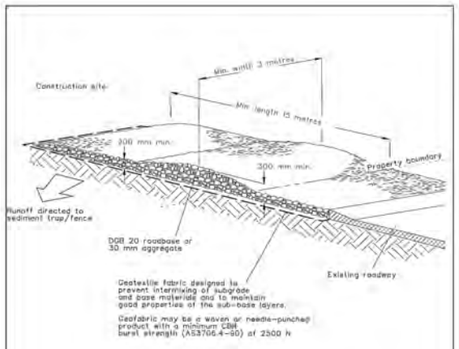


Construction Notes

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 150-mm 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 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

6-36

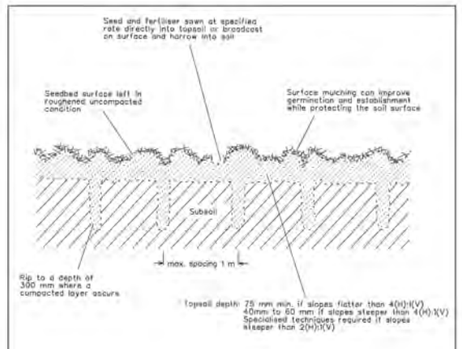


Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm 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 **SD 6-14**

6-48

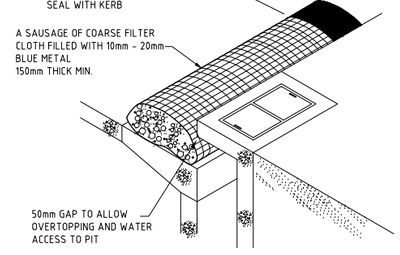


Construction Notes

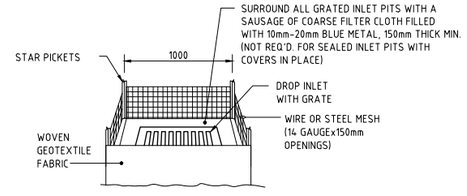
1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300 mm. Avoid rotary hoe cultivation.
2. Work the ground only as much as necessary to achieve the desired tilth and prepare a good seedbed.
3. Avoid cultivation in very wet or very dry conditions.
4. Cultivate on or close to the contour where possible, not up and down the slope.

SEEDBED PREPARATION **SD 7-1**

7-7



KERB INLET PIT CONTROL
N.T.S



GRATED INLET PIT FILTER DETAIL
N.T.S

NOTE: ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.

EROSION & SEDIMENT CONTROL NOTES:

REFER TO DRAWING C3-200 FOR EROSION & SEDIMENT CONTROL NOTES

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

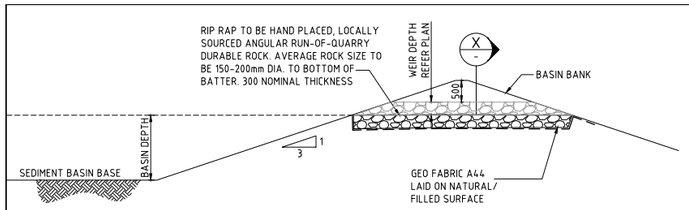
DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
HW	HC	NOV 21	HW	A0	AS SHOWN	C013362.02- C3-204

Costin Roe Consulting Pty Ltd.
Consulting Engineers
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 8251-7699 Fax: (02) 8041-3721
email: mail@costinroe.com.au

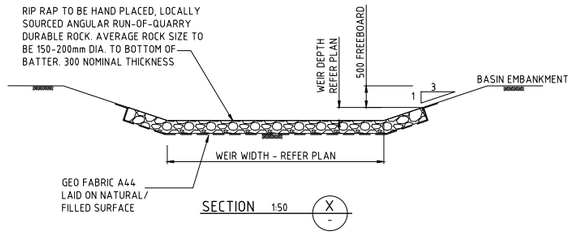
Costin Roe Consulting
PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: EROSION & SEDIMENT CONTROL DETAILS - SHEET 1 MOD 3

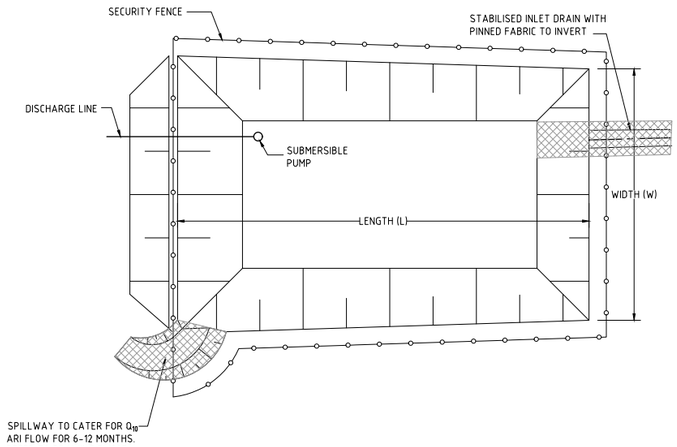
DRAWING No: C013362.02- C3-204 ISSUE: A



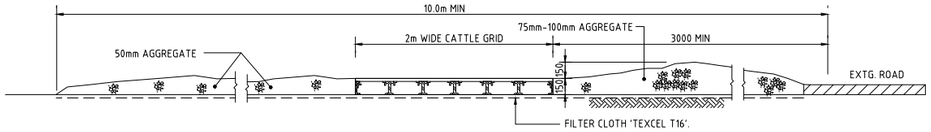
TYPICAL SEDIMENT CONTROL BASIN SPILLWAY
SCALE 1:50



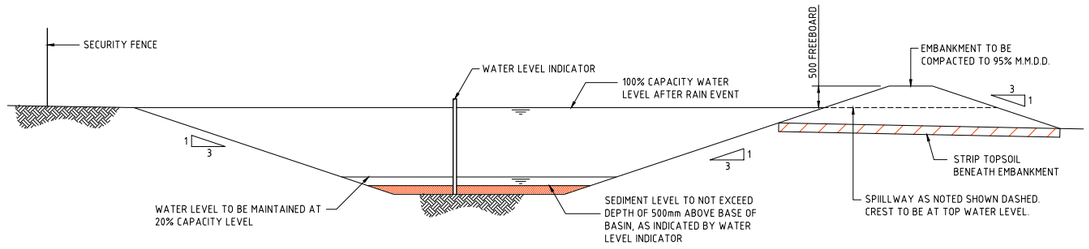
SECTION 1:50 (X)



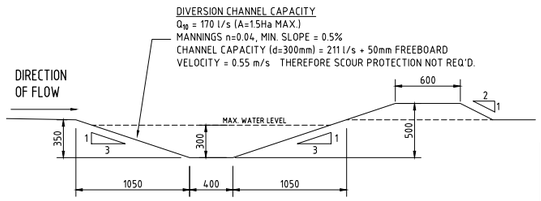
TYPICAL SEDIMENT CONTROL BASIN PLAN
SCALE 1:250



SECTION 1:20 (1) : STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'



TYPICAL SEDIMENT CONTROL BASIN SECTION
SCALE 1:50

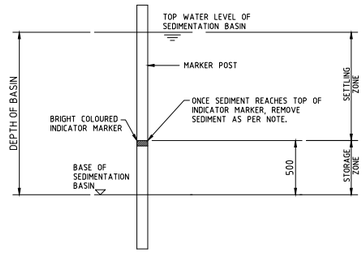


DIVERSION DRAIN TYPE 1 SECTION -2500 WIDE
SCALE 1:20

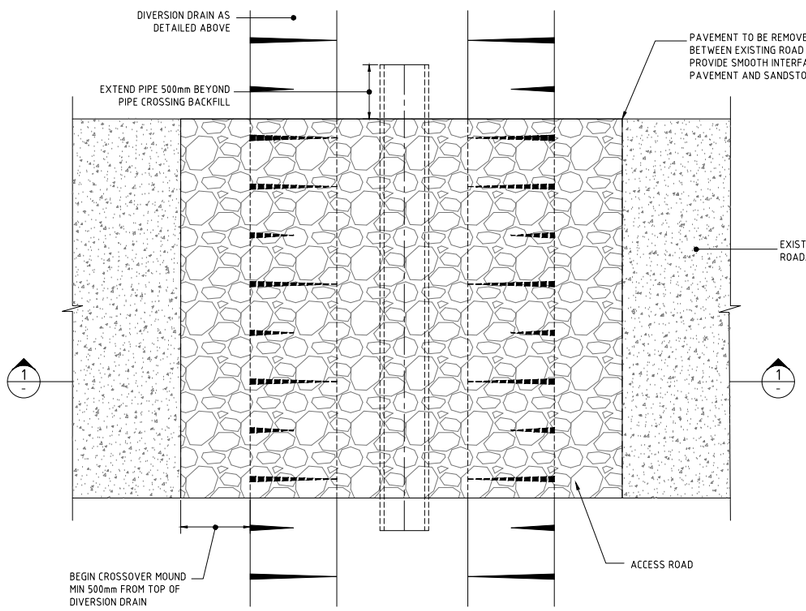
TEMPORARILY PROTECT THE SWALE FROM EROSION DURING CONSTRUCTION.

TEMPORARY DIVERSION DRAINS & EARTHEN CLEAN WATER DIVERSION DRAINS SHALL BE STABILISED BY:

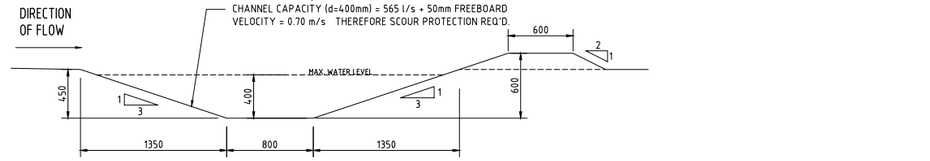
a. TURF REINFORCEMENT; OR
b. GEOFABRIC LINER; OR
c. POLYMER HYDRAULIC SOIL STABILISER. DOSAGE TO BE TO MANUFACTURER'S SPECIFICATION FOR FLOW RATES NOMINATED. DOSAGE SHALL BE SUCH THAT C=0.05.



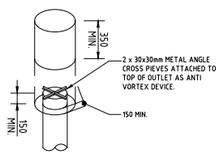
SEDIMENT STORAGE MARKER
SCALE 1:20



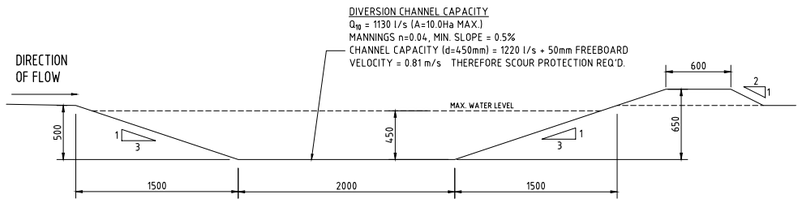
TYPICAL CROSSING OVER DIVERSION CHANNEL - PLAN
SCALE 1:20



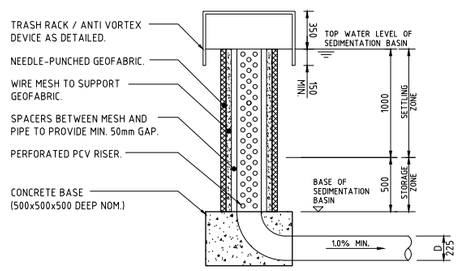
DIVERSION DRAIN TYPE 2 SECTION -3500 WIDE
SCALE 1:20



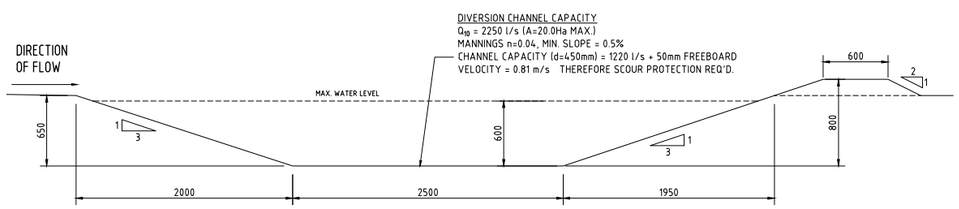
TRASH RACK / ANTI VORTEX DEVICE
N.T.S.



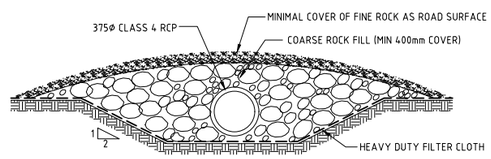
DIVERSION DRAIN TYPE 3 SECTION -5000 WIDE
SCALE 1:20



RISER PIPE DETAIL
SCALE 1:20



DIVERSION DRAIN TYPE 4 SECTION -6500 WIDE
SCALE 1:20



SECTION 1:20 (1) TYPICAL CROSSING OVER DIVERSION CHANNEL

NOTES:

ALL EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED & MAINTAINED DAILY BY SITE MANAGER.

MINIMISE DISTURBED AREAS.

ROADS & FOOTPATHS TO BE SWEPT DAILY.

1.2m TURF TO BE PLACED BEHIND KERBS.

DUST MINIMISATION CONTROL BY WATERING TO BE IMPLEMENTED BY SITE MANAGER AS REQUIRED OR AS DIRECTED BY THE EPA.

EROSION & SEDIMENT CONTROL NOTES:

REFER TO DRAWING C200 FOR EROSION & SEDIMENT CONTROL NOTES

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SHEET SIZE

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A0 SHEET SIZE

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

CLIENT: ALTIS PROPERTY PARTNERS / FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF.
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02- C3-205

Costin Roe Consulting Pty Ltd.
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DRAWING TITLE: EROSION & SEDIMENT CONTROL DETAILS - SHEET 2

DRAWING No: C013362.02- C3-205 ISSUE: A

1. Erosion Hazard and Sediment Basins

Site Name: Mamre Road Kemps Creek

Site Location: Kemps Creek

Precinct/Stage: STAGE 1 EROSION AND SEDIMENT CONTROLS

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	1	2a	2b	3	4	5	
Total catchment area (ha)	4.19	4.12	13.68	3.64	2.35	12.85	
Disturbed catchment area (ha)	4.19	4.12	13.68	3.64	2.35	12.85	

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

Sediment Type (C, F or D) if known	D	D	D	D	D	D	From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% 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	D	D	D	D	D	Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5	5	5	5	See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85					
n-day, y-percentile rainfall event (ratio)	35	35					
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10	10					

RUSLE Factors

Rainfall erosivity (R-factor)	2210	2210					Auto-filled from above
Soil erodibility (K-factor)	0.075	0.075					
Slope length (m)	300	300					
Slope gradient (%)	0.5	0.5					RUSLE LS factor calculated for a high R/Erodent ratio.
Length-gradient (LS -factor)	0.13	0.13					
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	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64	0.64	0.64	0.64	See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (kha/yr)	27	27					
Soil Loss Class	1	1					See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	21	21					Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	58	238					See Sections 6.3.4(b) for calculations
Sediment basin settling (water) volume (m^3)	3799	15313					See Sections 6.3.4(b) for calculations
Sediment basin total volume (m^3)	3797	15551					

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Qy = 0.00278 \times C_{10} \times F_y \times I_{tr,10} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years
F_y is a frequency factor for "Y" years
A is the catchment area in hectares (ha)
$I_{tr,10}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = 0.76 x $(A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 80 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

Name	A	B					Notes
Catchment Area (ha)	10.69	68.36					
Place an x here to halve tc	x	x					Place an x if disturbed catchment
Time of concentration (tc)	12	20					minutes

Rainfall Intensities

1 year, tc	69.6	69.6					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	90.1	90.1					
5 year, tc	118	118					
10 year, tc	134	134					
20 year, tc	155	155					
50 year, tc	184	184					
100 year, tc	205	205					
C10 runoff coefficient	0.9	0.9					Use ARI#R or Table F3, pg F-6

Frequency Factors

FF, 1 year	0.8	0.8					Can use 0.8 for a construction site
FF, 2 year	0.85	0.85					Can use 0.85 for a construction site
FF, 5 year	0.95	0.95					Can use 0.95 for a construction site
FF, 10 year	1	1					Generally always 1
FF, 20 year	1.05	1.05					Can use 1.05 for a construction site
FF, 50 year	1.15	1.15					Can use 1.15 for a construction site
FF, 100 year	1.2	1.2					Can use 1.2 for a construction site

Flow Calculations

											Notes
1 year, tc (m^3/s)	2.325	9.523									
2 year, tc (m^3/s)	3.118	13.099									
5 year, tc (m^3/s)	4.081	19.173									
10 year, tc (m^3/s)	5.196	22.919									
20 year, tc (m^3/s)	6.796	27.836									
50 year, tc (m^3/s)	8.836	36.191									
100 year, tc (m^3/s)	10.373	42.075									

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	A	B					Auto-filled from Worksheet 1
Catchment Area (ha)	10.69	68.36					Auto-filled from Worksheet 1
Time of concentration (tc)	12	20					Auto-calculated (assuming tc is halved)

Rainfall Intensities (IFD Values)

1 year, tc	52.51	52.51					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	68.00	68.00					
5 year, tc	89.03	89.03					
10 year, tc	101.56	101.56					
20 year, tc	117.91	117.91					
50 year, tc	139.5	139.5					
100 year, tc	156.1	156.1					
C_{10} runoff coefficient	0.9	0.9					Use ARI#R or Table F3, pg F-6
Design ARI event (select):	10	10					Select design ARI (years) from dropdown
Frequency Factor	1	1	#N/A	#N/A	#N/A	#N/A	Auto-filled based on selected ARI
Flow Calculation	4.241	17.37	#N/A	#N/A	#N/A	#N/A	Auto-calculated (based on selected ARI)

STAGE 1 BASIN CALCULATIONS - REFER DRAWING C013362.02-C3-201

1. Erosion Hazard and Sediment Basins

Site Name: Mamre Road Kemps Creek

Site Location: Kemps Creek

Precinct/Stage: STAGE 2 EROSION AND SEDIMENT CONTROLS

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	A	B					
Total catchment area (ha)	10.69	68.36					
Disturbed catchment area (ha)	10.69	68.36					

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

Sediment Type (C, F or D) if known	D	D	D	D	D	D	From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% 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	D	D	D	D	D	Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5	5	5	5	See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85					
n-day, y-percentile rainfall event (ratio)	35	35					
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10	10					

RUSLE Factors

Rainfall erosivity (R-factor)	2210	2210					Auto-filled from above
Soil erodibility (K-factor)	0.075	0.075					
Slope length (m)	300	300					
Slope gradient (%)	0.5	0.5					RUSLE LS factor calculated for a high R/Erodent ratio.
Length-gradient (LS -factor)	0.13	0.13					
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	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64	0.64	0.64	0.64	See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (kha/yr)	27	27					
Soil Loss Class	1	1					See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	21	21					Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	58	238					See Sections 6.3.4(b) for calculations
Sediment basin settling (water) volume (m^3)	3799	15313					See Sections 6.3.4(b) for calculations
Sediment basin total volume (m^3)	3797	15551					

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Qy = 0.00278 \times C_{10} \times F_y \times I_{tr,10} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years
F_y is a frequency factor for "Y" years
A is the catchment area in hectares (ha)
$I_{tr,10}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = 0.76 x $(A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 80 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

Name	A	B					Notes
Catchment Area (ha)	10.69	68.36					
Place an x here to halve tc	x	x					Place an x if disturbed catchment
Time of concentration (tc)	12	20					minutes

Rainfall Intensities

1 year, tc	69.6	69.6					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	90.1	90.1					
5 year, tc	118	118					
10 year, tc	134	134					
20 year, tc	155	155					
50 year, tc	184	184					
100 year, tc	205	205					
C10 runoff coefficient	0.9	0.9					Use ARI#R or Table F3, pg F-6

Frequency Factors

FF, 1 year	0.8	0.8					Can use 0.8 for a construction site
FF, 2 year	0.85	0.85					Can use 0.85 for a construction site
FF, 5 year	0.95	0.95					Can use 0.95 for a construction site
FF, 10 year	1	1					Generally always 1
FF, 20 year	1.05	1.05					Can use 1.05 for a construction site
FF, 50 year	1.15	1.15					Can use 1.15 for a construction site
FF, 100 year	1.2	1.2					Can use 1.2 for a construction site

Flow Calculations

											Notes
1 year, tc (m^3/s)	2.325	9.523									
2 year, tc (m^3/s)	3.118	13.099									
5 year, tc (m^3/s)	4.081	19.173									
10 year, tc (m^3/s)	5.196	22.919									
20 year, tc (m^3/s)	6.796	27.836									
50 year, tc (m^3/s)	8.836	36.191									
100 year, tc (m^3/s)	10.373	42.095									

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	A	B					Auto-filled from Worksheet 1
Catchment Area (ha)	10.69	68.36					Auto-filled from Worksheet 1
Time of concentration (tc)	12	20					Auto-calculated (assuming tc is halved)

Rainfall Intensities (IFD Values)

1 year, tc	52.51	52.51					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	68.00	68.00					
5 year, tc	89.03	89.03					
10 year, tc	101.56	101.56					
20 year, tc	117.91	117.91					
50 year, tc	139.5	139.5					
100 year, tc	156.1	156.1					
C_{10} runoff coefficient	0.9	0.9					Use ARI#R or Table F3, pg F-6
Design ARI event (select):	10	10					Select design ARI (years) from dropdown
Frequency Factor	1	1	#N/A	#N/A	#N/A	#N/A	Auto-filled based on selected ARI
Flow Calculation	4.241	17.37	#N/A	#N/A	#N/A	#N/A	Auto-calculated (based on selected ARI)

STAGE 2 BASIN CALCULATIONS - REFER DRAWING C013362.02-C3-202

1. Erosion Hazard and Sediment Basins

Site Name: Mamre Road Kemps Creek

Site Location: Kemps Creek

Precinct/Stage: STAGE 3 EROSION AND SEDIMENT CONTROLS

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	1	2a	2b	3	4	5	
Total catchment area (ha)	4.19	4.12	13.68	3.64	2.35	12.85	
Disturbed catchment area (ha)	4.19	4.12	13.68	3.64	2.35	12.85	

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

Sediment Type (C, F or D) if known	D	D	D	D	D	D	From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% 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	D	D	D	D	D	Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5	5	5	5	See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85	85	85	85	85	
n-day, y-percentile rainfall event (ratio)	35	35	35	35	35	35	
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10	10	10	10	10	10	

RUSLE Factors

Rainfall erosivity (R-factor)	2210	2210	2210	2210	2210	2210	Auto-filled from above
Soil erodibility (K-factor)	0.075	0.075	0.075	0.075	0.075	0.075	
Slope length (m)	200	200	300	300	225	300	
Slope gradient (%)	0.5	0.5	0.5	0.5	0.5	0.5	RUSLE LS factor calculated for a high R/Erodent ratio.
Length-gradient (LS -factor)	0.12	0.12	0.13	0.12	0.13	0.13	
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	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64	0.64	0.64	0.64	See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (kha/yr)	26	26	26	27	26	27	
Soil Loss Class	1	1	1	1	1	1	See Table 4.2, page A-13
Soil loss (m^3/ha/yr)	20	20	20	21	20	21	Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	14	13	49	13	6	65	See Sections 6.3.4(b) for calculations
Sediment basin settling (water) volume (m^3)	696	603	3094	615	526	2978	See Sections 6.3.4(b) for calculations
Sediment basin total volume (m^3)	993	906	3112	926	594	2923	

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Qy = 0.00278 \times C_{10} \times F_y \times I_{tr,10} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years
F_y is a frequency factor for "Y" years
A is the catchment area in hectares (ha)
$I_{tr,10}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = 0.76 x $(A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 80 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

Name	1	2a	2b	3	4	5	Notes
Catchment Area (ha)	4.19	4.12	13.68	3.64	2.35	12.85	
Place an x here to halve tc	x	x	x	x	x	x	Place an x if disturbed catchment
Time of concentration (tc)	7	7	11	6	5	10	minutes

Rainfall Intensities

1 year, tc	69.6	69.6	57	69.6	74.4	57	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	90.1	90.1	73.6	90.1	96.4	73.6	
5 year, tc	118	118	96.1	118	126	96.1	
10 year, tc	134	134	109	134	143	109	
20 year, tc	155	155	127	155	166	127	
50 year, tc	184	184	150	184	198	150	
100 year, tc	205	205	167	205	219	167	
C10 runoff coefficient	0.9	0.9	0.9	0.9	0.9	0.9	Use ARI#R or Table F3, pg F-6

Frequency Factors

FF, 1 year	0.8	0.8	0.8	0.8	0.8	0.8	Can use 0.8 for a construction site
FF, 2 year	0.85	0.85	0.85	0.85	0.85	0.85	Can use 0.85 for a construction site
FF, 5 year	0.95	0.95	0.95	0.95	0.95	0.95	Can use 0.95 for a construction site
FF, 10 year	1	1	1	1	1	1	Generally always 1
FF, 20 year	1.05	1.05	1.05	1.05	1.05	1.05	Can use 1.05 for a construction site
FF, 50 year	1.15	1.15	1.15	1.15	1.15	1.15	Can use 1.15 for a construction site
FF, 100 year	1.2	1.2	1.2	1.2	1.2	1.2	Can use 1.2 for a construction site

Flow Calculations

							Notes
1 year, tc (m^3/s)	0.584	0.574	1.561	0.507	0.35	1.466	
2 year, tc (m^3/s)	0.933	0.769	2.141	0.697	0.482	2.011	
5 year, tc (m^3/s)	1.175	1.156	3.125	1.021	0.704	2.935	
10 year, tc (m^3/s)	1.405	1.361	3.711	1.22	0.841	3.504	
20 year, tc (m^3/s)	1.706	1.675	4.564	1.482	1.025	4.297	
50 year, tc (m^3/s)	2.218	2.181	5.904	1.927	1.325	5.566	
100 year, tc (m^3/s)	2.579	2.536	6.859	2.24	1.545	6.443	

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	1	2a	2b	3	4	5	Auto-filled from Worksheet 1
Catchment Area (ha)	4.19	4.12	13.68	3.64	2.35	12.85	Auto-filled from Worksheet 1
Time of concentration (tc)	7	7	11	6	5	10	Auto-calculated (assuming tc is halved)

Rainfall Intensities (IFD Values)

1 year, tc	52.51	52.51	46.99	56.81	59.34	45.54	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	68.00	68.00	53.5	73.67	76.97	53.55	
5 year, tc	89.03	89.03	69.02	96.39	100.69	111.37	
10 year, tc	101.56	101.56	94.69	109.97	114.94	127.06	
20 year, tc	117.91	117.91	109.9	127.7	133.45	147.55	
50 year, tc	139.5	139.5	130.01	151.11	157.96	174.69	
100 year, tc	156.1	156.1	145.45	169.12	176.82	195.54	
C_{10} runoff coefficient	0.9	0.9	0.9	0.9	0.9	0.9	Use ARI#R or Table F3, pg F-6
Design ARI event (select):	10	10	10	10	10	10	Select design ARI (years) from dropdown
Frequency Factor	1	1	1	1	1	1	Auto-filled based on selected ARI
Flow Calculation	1.805	1.787	5.241	1.582	1.075	4.765	Auto-calculated (based on selected ARI)

1. Erosion Hazard and Sediment Basins

Site Name: Mamre Road Kemps Creek

Site Location: Kemps Creek

Precinct/Stage: STAGE 3 EROSION AND SEDIMENT CONTROLS

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	6	8	9	10	11		
Total catchment area (ha)	3.06	2.57	2.96	16.03	2.28		
Disturbed catchment area (ha)	3.06	2.57	2.96	16.03	2.28		

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

Sediment Type (C, F or D) if known	D	D	D	D	D	D	From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% 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	D	D	D	D	D	Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5	5	5	5	See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85	85	85	85	85	
n-day, y-percentile rainfall event (ratio)	35	35	35	35	35	35	
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10	10	10	10	10	10	

RUSLE Factors

Rainfall erosivity (R-factor)	2210	2210	2210	2210	2210	2210	Auto-filled from above
Soil erodibility (K-factor)	0.075	0.075	0.075	0.075	0.075	0.075	
Slope length (m)	200	200	200	300	300	300	
Slope gradient (%)	0.5	0.5	0.5	0.5	0.5	0.5	RUSLE LS factor calculated for a high R/Erodent ratio.
Length-gradient (LS -factor)	0.12	0.12	0.12	0.12	0.13	0.13	
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	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64	0.64	0.64	0.64	See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (kha/yr)	26	26	26	27	27		
Soil Loss Class	1	1	1	1	1		See Table 4.2, page A-13
Soil loss (m^3/ha/yr)	20	20	20	21	21		Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	10	8	19	56	8		See Sections 6.3.4(b) for calculations
Sediment basin settling (water) volume (m^3)	585	575	653	3591	511		See Sections 6.3.4(b) for calculations
Sediment basin total volume (m^3)	695	584	673	3647	519		

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Qy = 0.00278 \times C_{10} \times F_y \times I_{tr,10} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years
F_y is a frequency factor for "Y" years
A is the catchment area in hectares (ha)
$I_{tr,10}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = 0.76 x $(A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 80 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

Name	6	8	9	10	11		Notes
Catchment Area (ha)	3.06	2.57	2.96	16.03	2.28		
Place an x here to halve tc	x	x	x	x	x		Place an x if disturbed catchment
Time of concentration (tc)	6	5	6	11	5		minutes

Rainfall Intensities

1 year, tc	69.6	69.6	69.6	74.4	57	69.6	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	90.1	90.1	90.1	96.4	73.6	90.1	
5 year, tc	118	118	118	126	96.1	118	
10 year, tc	134	134	134	143	109	134	
20 year, tc	155	155	155	166	127	155	
50 year, tc	184	184	184	198	150	184	
100 year, tc	205	205	205	219	167	205	
C10 runoff coefficient	0.9	0.9	0.9	0.9	0.9	0.9	Use ARI#R or Table F3, pg F-6
Design ARI event (select):	10	10	10	10	10		Select design ARI (years) from dropdown
Frequency Factor	1	1	1	1	1	#N/A	Auto-filled based on selected ARI
Flow Calculation	1.588	0.863	1.059	4.372	0.754	#N/A	Auto-calculated (based on selected ARI)

3. Sediment Basin Spillway Design

Structure Details

Structure Name	6	8	9	10	11		Auto-filled from Worksheet 1
Catchment Area (ha)	3.06	2.57	2.96	16.03	2.28		Auto-filled from Worksheet 1
Time of concentration (tc)	6	5	6	11	5		Auto-calculated (assuming tc is halved)

Rainfall Intensities (IFD Values)

1 year, tc	69.6	69.6	69.6	74.4	57	69.6	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used.
2 year, tc	90.1	90.1	90.1	96.4	73.6	90.1	
5 year, tc	118	118	118	126	96.1	118	
10 year, tc	134	134	134	143	109	134	
20 year, tc	155	155	155	166	127	155	
50 year, tc	184	184	184	198	150	184	
100 year, tc	205	205	205	219	167	205	
C_{10} runoff coefficient	0.9	0.9	0.9	0.9	0.9	0.9	Use ARI#R or Table F3, pg F-6
Design ARI event (select):	10	10	10	10	10		Select design ARI (years) from dropdown
Frequency Factor	1	1	1	1	1	#N/A	Auto-filled based on selected ARI
Flow Calculation	1.588	0.863	1.059	4.372	0.754	#N/A	Auto-calculated (based on selected ARI)

1. Erosion Hazard and Sediment Basins

Site Name: Mamre Road Kemps Creek

Site Location: Kemps Creek

Precinct/Stage: STAGE 3 EROSION AND SEDIMENT CONTROLS

Other Details:

| Site area | Sub-catchment or Name of Structure | | | | | | Notes

SEDIMENT BASIN A:	
CATCHMENT AREA	= 16.69 ha
DISTURBED AREA	= 16.69 ha
REQUIRED BASIN VOLUME	= 3797m^3
BASE DIMENSIONS (L X B)	= 39m x 112m
TOP DIMENSIONS (L X B)	= 48m x 121m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 3886m^3
Q10 WEIR PEAK FLOW	= 4.24m^3/s
SPILLWAY WIDTH	= 7.2m
SPILLWAY DEPTH	= 0.5m

SEDIMENT BASIN B:	
CATCHMENT AREA	= 68.36 ha
DISTURBED AREA	= 68.36 ha
REQUIRED BASIN VOLUME	= 15551m^3
BASE DIMENSIONS (L X B)	= 109m x 80m
TOP DIMENSIONS (L X B)	= 121m x 92m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 2.0m
PROVIDED BASIN VOLUME	= 15850m^3
Q10 WEIR PEAK FLOW	= 17.37m^3/s
SPILLWAY WIDTH	= 30m
SPILLWAY DEPTH	= 0.5m

STAGE 1 BASIN INFORMATION - REFER DRAWING C013362.02-C3-201

SEDIMENT BASIN A:	
CATCHMENT AREA	= 16.69 ha
DISTURBED AREA	= 16.69 ha
REQUIRED BASIN VOLUME	= 3797m^3
BASE DIMENSIONS (L X B)	= 39m x 112m
TOP DIMENSIONS (L X B)	= 48m x 121m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 3886m^3
Q10 WEIR PEAK FLOW	= 4.24m^3/s
SPILLWAY WIDTH	= 7.2m
SPILLWAY DEPTH	= 0.5m

SEDIMENT BASIN B:	
CATCHMENT AREA	= 68.36 ha
DISTURBED AREA	= 68.36 ha
REQUIRED BASIN VOLUME	= 15551m^3
BASE DIMENSIONS (L X B)	= 109m x 80m
TOP DIMENSIONS (L X B)	= 121m x 92m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 2.0m
PROVIDED BASIN VOLUME	= 15850m^3
Q10 WEIR PEAK FLOW	= 17.37m^3/s
SPILLWAY WIDTH	= 30m
SPILLWAY DEPTH	= 0.5m

STAGE 2 BASIN INFORMATION - REFER DRAWING C013362.02-C3-202

SEDIMENT BASIN 1:	
CATCHMENT AREA	= 4.19 ha
DISTURBED AREA	= 4.19 ha
REQUIRED BASIN VOLUME	= 953m^3
BASE DIMENSIONS (L X B)	= 25m x 18m
TOP DIMENSIONS (L X B)	= 34m x 27m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 1005m^3
Q10 WEIR PEAK FLOW	= 1.065m^3/s
SPILLWAY WIDTH	= 3.9m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 3:	
CATCHMENT AREA	= 3.64 ha
DISTURBED AREA	= 3.64 ha
REQUIRED BASIN VOLUME	= 828m^3
BASE DIMENSIONS (L X B)	= 20m x 20m
TOP DIMENSIONS (L X B)	= 29m x 29m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 911m^3
Q10 WEIR PEAK FLOW	= 1.00m^3/s
SPILLWAY WIDTH	= 3.7m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 6:	
CATCHMENT AREA	= 15.93 ha
DISTURBED AREA	= 15.93 ha
REQUIRED BASIN VOLUME	= 2565m^3
BASE DIMENSIONS (L X B)	= 70m x 30m
TOP DIMENSIONS (L X B)	= 79m x 39m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 3862m^3
Q10 WEIR PEAK FLOW	= 4.16m^3/s
SPILLWAY WIDTH	= 10m
SPILLWAY DEPTH	= 0.5m

SEDIMENT BASIN 10:	
CATCHMENT AREA	= 16.03Ha
DISTURBED AREA	= 16.03Ha
REQUIRED BASIN VOLUME	= 3647m^3
BASE DIMENSIONS (L X B)	= 50m x 30m
TOP DIMENSIONS (L X B)	= 62m x 42m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 2.0m
PROVIDED BASIN VOLUME	= 4054m^3
Q10 WEIR PEAK FLOW	= 4.37m^3/s
SPILLWAY WIDTH	= 7.5m
SPILLWAY DEPTH	= 0.5m

SEDIMENT BASIN 13:	
CATCHMENT AREA	= 5.04 ha
DISTURBED AREA	= 5.04 ha
REQUIRED BASIN VOLUME	= 1145m^3
BASE DIMENSIONS (L X B)	= 30m x 18m
TOP DIMENSIONS (L X B)	= 39m x 27m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 1174m^3
Q10 WEIR PEAK FLOW	= 1.69m^3/s
SPILLWAY WIDTH	= 6.2m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 2a:	
CATCHMENT AREA	= 4.12 Ha
DISTURBED AREA	= 4.12 Ha
REQUIRED BASIN VOLUME	= 936m^3
BASE DIMENSIONS (L X B)	= 25m x 18m
TOP DIMENSIONS (L X B)	= 34m x 27m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 1005m^3
Q10 WEIR PEAK FLOW	= 1.047m^3/s
SPILLWAY WIDTH	= 3.9m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 4:	
CATCHMENT AREA	= 2.35 Ha
DISTURBED AREA	= 2.35 Ha
REQUIRED BASIN VOLUME	= 534m^3
BASE DIMENSIONS (L X B)	= 20m x 11m
TOP DIMENSIONS (L X B)	= 29m x 20m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 579m^3
Q10 WEIR PEAK FLOW	= 0.676m^3/s
SPILLWAY WIDTH	= 2.5m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 8:	
CATCHMENT AREA	= 2.57 ha
DISTURBED AREA	= 2.57 ha
REQUIRED BASIN VOLUME	= 584m^3
BASE DIMENSIONS (L X B)	= 20m x 12m
TOP DIMENSIONS (L X B)	= 29m x 21m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 616m^3
Q10 WEIR PEAK FLOW	= 0.862m^3/s
SPILLWAY WIDTH	= 3.2m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 11:	
CATCHMENT AREA	= 2.28 Ha
DISTURBED AREA	= 2.28 Ha
REQUIRED BASIN VOLUME	= 519m^3
BASE DIMENSIONS (L X B)	= 18m x 11m
TOP DIMENSIONS (L X B)	= 27m x 20m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 532m^3
Q10 WEIR PEAK FLOW	= 0.764m^3/s
SPILLWAY WIDTH	= 2.8m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 2b:	
CATCHMENT AREA	= 13.68 Ha
DISTURBED AREA	= 13.68 Ha
REQUIRED BASIN VOLUME	= 3112m^3
BASE DIMENSIONS (L X B)	= 50m x 23m
TOP DIMENSIONS (L X B)	= 62m x 35m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 2.0m
PROVIDED BASIN VOLUME	= 3226m^3
Q10 WEIR PEAK FLOW	= 3.24m^3/s
SPILLWAY WIDTH	= 6.6m
SPILLWAY DEPTH	= 0.5m

SEDIMENT BASIN 5:
COMBINED SEDIMENT BASIN 6

SEDIMENT BASIN 9:	
CATCHMENT AREA	= 2.96Ha
DISTURBED AREA	= 2.96Ha
REQUIRED BASIN VOLUME	= 673m^3
BASE DIMENSIONS (L X B)	= 20m x 14m
TOP DIMENSIONS (L X B)	= 29m x 23m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 690m^3
Q10 WEIR PEAK FLOW	= 1.059m^3/s
SPILLWAY WIDTH	= 3.9m
SPILLWAY DEPTH	= 0.3m

SEDIMENT BASIN 12:	
CATCHMENT AREA	= 2.59 Ha
DISTURBED AREA	= 2.59 Ha
REQUIRED BASIN VOLUME	= 588m^3
BASE DIMENSIONS (L X B)	= 20m x 12m
TOP DIMENSIONS (L X B)	= 29m x 21m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 616m^3
Q10 WEIR PEAK FLOW	= 0.868m^3/s
SPILLWAY WIDTH	= 3.2m
SPILLWAY DEPTH	= 0.3m

STAGE 3 BASIN INFORMATION - REFER DRAWING C013362.02-C3-203

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A
AMENDMENTS	DATE	ISSUE

AMENDMENTS	DATE	ISSUE

AMENDMENTS	DATE	ISSUE

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02- C3-207

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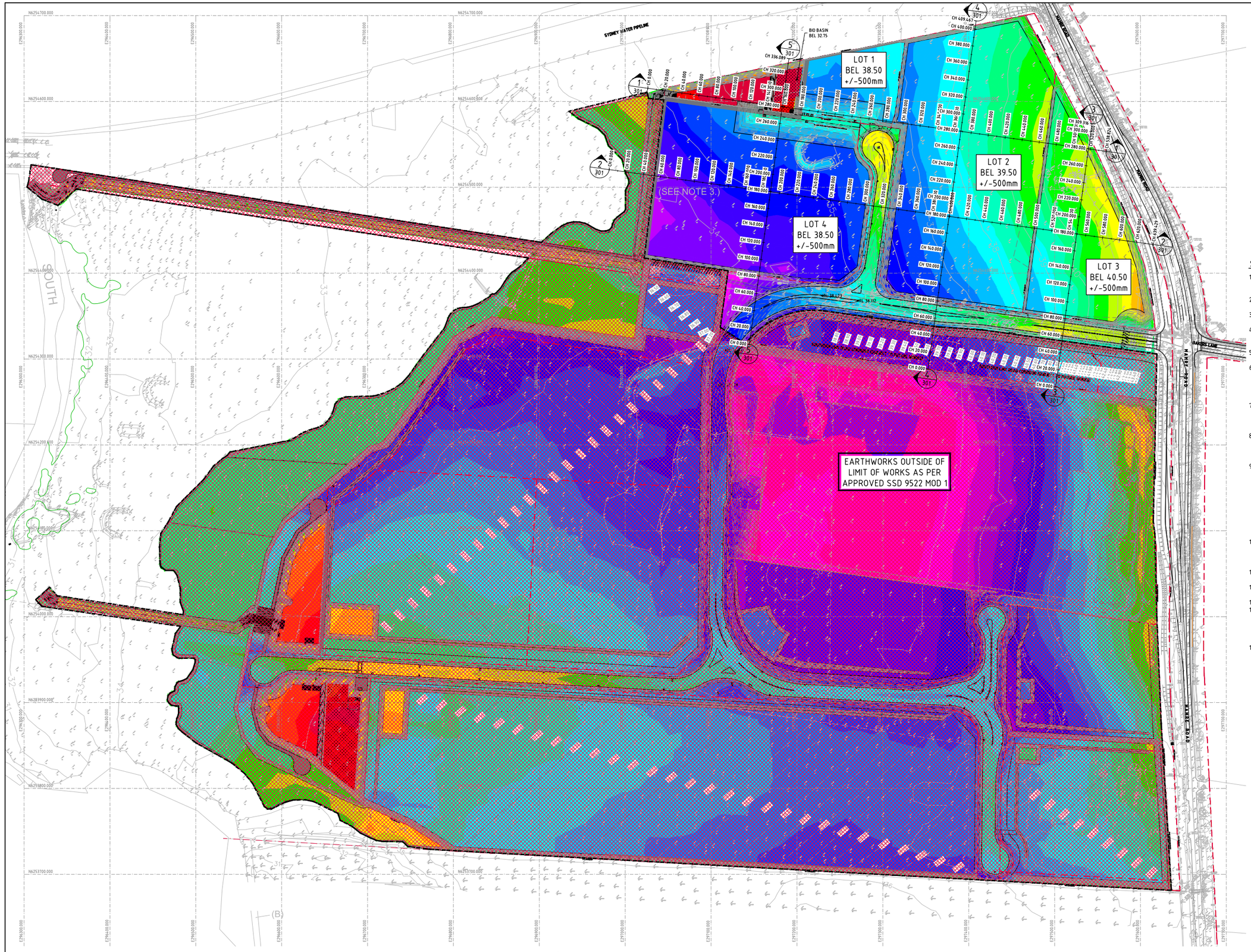
PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: EROSION AND SEDIMENT CONTROL SEDIMENTATION BASIN INFORMATION-MOD 3

DRAWING No: C013362.02- C3-207 ISSUE: A



BULK EARTHWORKS CUT/FILL PLAN
SCALE 1:1500

EARTHWORKS VOLUMES

TOPSOIL VOLUME:

CUT	= - 175 000 m^3

EARTHWORKS VOLUMES:

CUT	= - 69 200m^3
FILL	= + 2 084 100 m^3
ALLOWANCE FOR DETAILED EXCAVATION (1250m^3/Ha)	= - 109 600 m^3
BALANCE	= + 1 905 300 m^3 (IMPORT)

EARTHWORK VOLUMES ARE APPROXIMATE ONLY & ARE CALCULATED ASSUMING A MINIMAL TOPSOIL STRIP OF 200mm.
NO ALLOWANCE HAS BEEN MADE FOR EROSION AND SEDIMENT CONTROL, BULKING, COMPACTION OF FILLED SOILS.

REFER TO DRAWINGS C013362.02-C3-200 TO C3-207 FOR EROSION AND SEDIMENT CONTROL PLANS & DETAILS.

THE EXISTING SURFACE IS BASED ON SURVEY & DESIGN INFORMATION PROVIDED. THIS SURVEY IS MOST CURRENT HOWEVER IT MAY NOT ACCURATELY REFLECT ACTUAL GROUND LEVELS OR STOCKPILES ETC ON SITE. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM VOLUMES AND ALLOWANCES FOR EARTHWORKS.

SITE PREPARATION NOTES :

1. ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT PSM3276-100L PROVIDED BY PELLS SULLIVAN MEYNINK DATED 09.04.17
2. 2.EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY BOXALL TITLED 10129-005-TOPO REV B DATED 12.06.20.
3. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED.
4. COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +0mm/-20mm ELSEWHERE.
5. PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION.
6. AREAS TO RECEIVE FILL (THAT ARE NOT ON BENCHED BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER.
7. SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
8. IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
9. ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 MM SIEVE. ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HILF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% RETAINED ON THE 37.5 MM SIEVE. WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 MM SIEVE THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION
10. ALL THE EARTHWORKS UNDERTAKEN AND THE SUBGRADE CONDITION IN THE CUT AREAS (IN THE STATED PERIOD) ARE DOCUMENTED IN THE REPORTS AND HAVE BEEN UNDERTAKEN IN ACCORDANCE WITH THE SPECIFICATION.
11. PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
12. EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
13. MATCH EXISTING LEVELS AT BATTER INTERFACE.
14. CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.
15. DURING EARTHWORKS THE CONTRACTOR IS TO ENSURE ALL AREAS ARE FREE DRAINING & WILL NOT RETAIN WATER DURING RAINFALL. PROVIDE TEMPORARY MEASURES AS REQUIRED TO ENSURE FREE FLOWING RUNOFF THROUGH MANAGED DRAINAGE PATHS, DIVERSION DRAINS OR OTHER SUITABLE DISPOSAL METHOD AS AGREED DURING THE WORKS. REFER ANY CONCERNS TO THE ENGINEER. REFER TO EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES.

DEPTH RANGE

No.	FROM DEPTH	TO DEPTH	COLOUR
1	-4.000	-3.500	
2	-3.500	-3.000	
3	-3.000	-2.500	
4	-2.500	-2.000	
5	-2.000	-1.500	
6	-1.500	-1.000	
7	-1.000	-0.500	
8	-0.500	0.000	
9	0.000	0.500	
10	0.500	1.000	
11	1.000	1.500	
12	1.500	2.000	
13	2.000	2.500	
14	2.500	3.000	
15	3.000	3.500	
16	3.500	4.000	
17	4.000	4.500	
18	4.500	5.000	
19	5.000	5.500	
20	5.500	6.000	
21	6.000	6.500	
22	6.500	7.000	
23	7.000	7.500	

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	17.11.21	B
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

CLIENT: ALTIS PROPERTY PARTNERS / FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02-C3-300

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PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: BULK EARTHWORKS CUT/FILL PLAN
DRAWING No: C013362.02-C3-300 ISSUE: B

SHEET 1 - REFER TO DRG C3-401

SHEET 2 - REFER TO DRG C3-402

SHEET 2 - REFER TO DRG C3-402

DP 229770

DP 587334
No. 654-674

2
DP 587334
No. 676-702

LOT 1
BEL 38.50
+/-500mm

LOT 2
BEL 39.50
+/-500mm

BIO BASIN
RL 33.50

OSD BASIN

LOT 14
BEL 34.30

LOT 14
(DP 1181733)

34

118173

No. 657-703

(SEE NOTE 3.)

LOT 4
BEL 38.50
+/-500mm

LOT 2
BEL 39.50
+/-500mm

LOT 2
BEL 39.50
+/-500mm

LOT 3
BEL 40.50
+/-500mm

STAGE 1
SUBDIVIDED LOT 3

WORKS WITHIN EXISTING BAKERS LANE ROAD CORRIDOR
SUBJECT TO ROADS ACT APPROVAL - SHOWN HATCHED

LOT 14
BEL 34.30

LOT 15
BEL 34.40

LOT 1 AS PER SSD 9522

LOT 11

LOT 11

LOT 5 AS PER SSD 9522 MOD 1

LOT 5
BEL 41.69

LOT 5
BEL 41.80

LOT 5
BEL 41.27

DP 421633

BAKERS

CIVIL WORKS KEY PLAN
SCALE 1:1000

10m 0 10 20 30 40 50 60 70 80 90 100m
SCALE 1:1000 AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	17.11.21	B
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

AMENDMENTS DATE ISSUE | AMENDMENTS DATE ISSUE

ALTIS PROPERTY PARTNERS

CLIENT
FRASERS PROPERTY

PROJECT
MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF.
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02-C3-400

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DRAWING TITLE
CIVIL WORKS KEY PLAN
MOD 3

DRAWING No. C013362.02- C3-400 ISSUE B

BREAKLINE - REFER TO DRAWING 13362.02-C402

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20.

- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- FIP, FIELD INLET PIT
- OVERLAND FLOW DIRECTION
- SW - PROPOSED DRAINAGE LINE
- SW - EXISTING DRAINAGE LINE
- SS - SUBSOIL LINE
- DENOTES CLEANING EYE
- 35.00 - FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- 35.10 - FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- +35.10 - FINISHED PAVEMENT SPOT HEIGHT

SYDNEY WATER PIPELINE

NOTE: BASIN PROVIDED AS PER APPROVED SSDA9522

ESTATE BASIN 2
STORAGE CAPACITY = 8550m³
OSD MAX DEPTH = 2.1m
BIO-RETENTION SURFACE AREA = 1390m²
BIO-RETENTION MAX DEPTH = 1.2m
HYDRAULIC CONDUCTIVITY = 100mm/hr
FILTER DEPTH = 500mm
EXTENDED DETENTION = 300mm

8m WIDE CONCRETE WEIR AT RL 34.50
PROVIDE 10mx10m RIP RAP MATTRESS LOCATION TO ALIGN WITH CHANNEL FOR BASIN OVERFLOW

BASIN OUTLET 2. REFER TO DETAIL

END RETAINING WALL 2B
START RETAINING WALL 2C

PROVIDE OUTLET AND ENERGY DISSIPATER TO SUIT 100Ø PIPE AT EACH OUTLET LOCATION

ACCESS RAMP TO OSD BASIN 5m WIDE. PROVIDE RETAINING WALL & ARMCO BARRIER TO TOP OF WALL

OSD BASIN

END RETAINING WALL 2A
START RETAINING WALL 2B

RETAINING WALL GEOGRID ZONE SHOWN HATCHED

RETAINING WALL 2B
KEYSTONE WALL IN FILL
MAX HEIGHT 5.2m

RETAINING WALL 2A
KEYSTONE WALL IN FILL
MAX HEIGHT 2.0m

BIO-BASIN
RL 33.50

ACCESS RAMP TO BIO BASIN 3m WIDE. PROVIDE RETAINING WALL & ARMCO BARRIER TO TOP OF WALL

GROSS POLLUTANT TRAP. HUMEGUARD HG27 GPT OR APPROVED EQUIVALENT. TO BE INSTALLED OFFLINE. LOW FLOW PIPE TO BIO-RETENTION BASIN

PROVIDE 5m LONG CAPPED STUB 600Ø. FOR FUTURE LOT 1 DRAINAGE CONNECTION

LOT 1
BEL 38.50
+/-500mm
FFL 39.10

LOT 14
(RL1)

LOT 14
BEL 34.30

1% AEP FLOOD EXTENT

BASIN OUTLET PIPE AS PER SSD 9522 MOD 2

RETAINING WALL 2B
KEYSTONE WALL IN FILL
MAX HEIGHT 5.2m

WALL GEOGRID ZONE
APPROXIMATE EXTENT

PROVIDE PIPE OUTLET THROUGH RETAINING WALL AND ENERGY DISSIPATER TO SUIT 1800Ø PIPE

HIGH FLOW PIPE TO OSD BASIN

PROVIDE PIPE OUTLET THROUGH RETAINING WALL AND ENERGY DISSIPATER TO SUIT 900Ø PIPE

3m WIDE STORMWATER EASEMENT

8m WIDE OVERLAND FLOW/STORMWATER EASEMENT

PROVIDE 5m LONG CAPPED STUB 1050Ø. FOR FUTURE LOT 4 DRAINAGE CONNECTION

PROVIDE 8m LONG CAPPED STUB 1200Ø. FOR FUTURE LOT 2 DRAINAGE CONNECTION

LOT 2
BEL 39.50
+/-500mm
FFL 39.30

RETAINING WALL 2C
KEYSTONE WALL IN FILL
MAX HEIGHT 3.0m

LOT 4
BEL 38.50
+/-500mm
FFL 38.80

(SEE NOTE 3.)

WORKS OUTSIDE LIMIT OF WORKS AS PER SSD 9522 MOD 2

3

END RETAINING WALL 2C

LOT 14
BEL 34.30

1% AEP FLOOD EXTENT

LOT 15
BEL 34.40

PROVIDE HEADWALL AND RIP-RAP MATTRESS TO SUIT 900Ø PIPE

WORKS OUTSIDE LIMIT OF WORKS AS PER SSD 9522 MOD 2

SOUTHERN LINK ROAD SUBJECT TO FUTURE DETAILED DESIGN

PROVIDE CULVERT UNDER ROAD FOR OVERLAND FLOW

FOOTPATH 1.5m WIDE

CL BAKERS LANE & ACCESS ROAD 1

CL ACCESS ROAD 4

FOOTPATH 2.5m WIDE

PROVIDE HEADWALL AND RIP-RAP MATTRESS TO SUIT 900Ø PIPE

WORKS OUTSIDE LIMIT OF WORKS AS PER SSD 9522 MOD 2

SOUTHERN LINK ROAD CORRIDOR (SUBJECT TO FUTURE WORKS)

FOR DEVELOPMENT APPLICATION

CIVIL WORKS PLAN - SHEET 1
1:500 SCALE

5m 0 10 20 30 40 50m
SCALE 1:500 AT A0 SHEET SIZE

BREAKLINE - REFER TO DRAWING 13362.02-C402

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	17.11.21	B
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	JUN 21	MW	A0	AS SHOWN	C013362.02-C3-401

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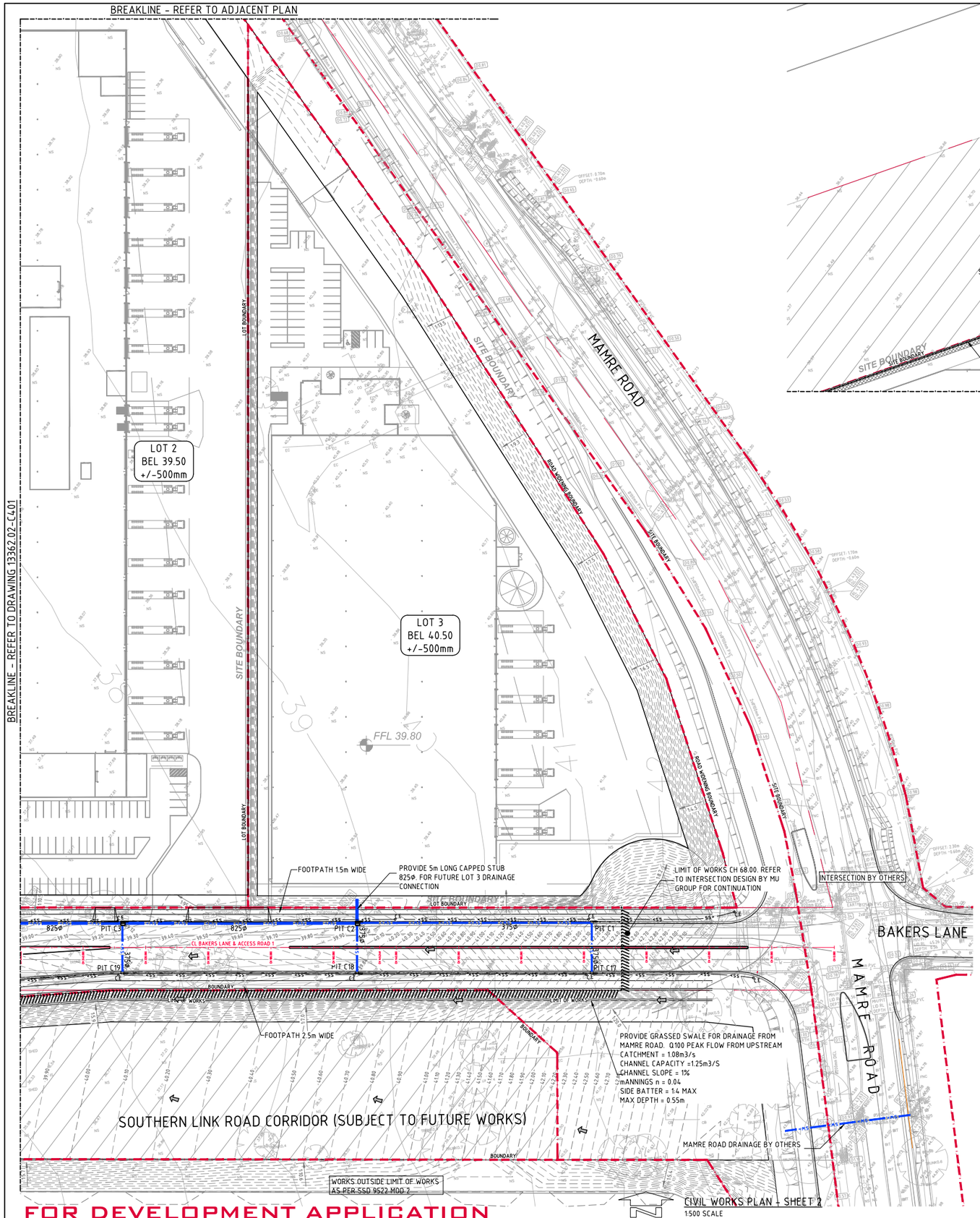
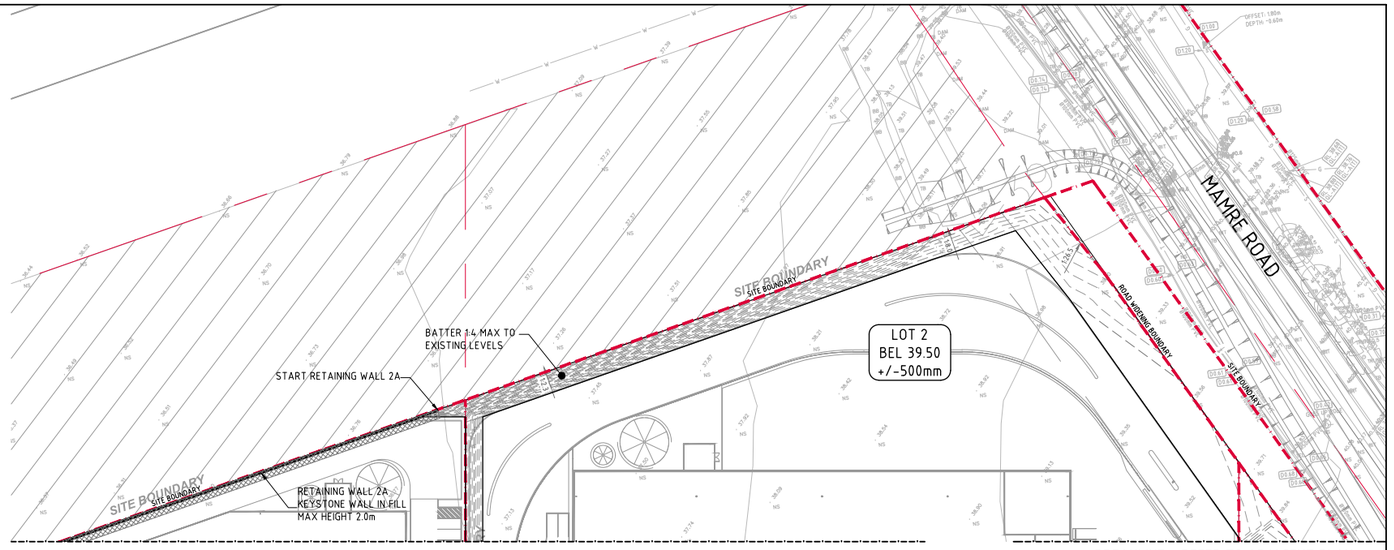
DRAWING TITLE: CIVIL WORKS PLAN
SHEET 1
MOD 3

DRAWING No: C013362.02-C3-401 ISSUE: B

BREAKLINE - REFER TO ADJACENT PLAN

BREAKLINE - REFER TO DRAWING 13362.02-C401





BREAKLINE - REFER TO DRAWING 13362.02-C401

BREAKLINE - REFER TO ADJACENT PLAN

PIT SCHEDULE - LINE C

PIT No.	TYPE	SIZE	COMMENT
PIT C1	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C2	K.I.P	1200x1200	2400 LINTEL ON GRADE
PIT C3	K.I.P	1200x1200	2400 LINTEL ON GRADE
PIT C4	K.I.P	1200x1200	2400 LINTEL ON GRADE
PIT C5	K.I.P	1200x1200	2400 LINTEL ON GRADE
PIT C6	K.I.P	1800x1200	2400 LINTEL ON GRADE
PIT C7	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT C8	K.I.P	1500x900	2400 LINTEL ON GRADE
PIT C9	K.I.P	1500x900	2400 LINTEL ON GRADE
PIT C10	S.J.P	1800x1800	900x900 RISER
PIT C11	S.G.G.P	1800x900	900x900 RISER
PIT C12	S.J.P	1800x1800	900x900 RISER
PIT C13	S.J.P	2100x2100	900x900 RISER
PIT C14	S.J.P	2100x2100	900x900 RISER
PIT C15	S.J.P	2100x2100	900x900 RISER
PIT C16	S.J.P	2100x2100	900x900 RISER
PIT C17	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C18	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C19	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C20	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C21	K.I.P	900x900	2400 LINTEL SAG
PIT C22	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C23	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C24	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C25	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C26	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C27	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C28	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C29	K.I.P	900x900	2400 LINTEL ON GRADE
PIT C30	K.I.P	900x900	2400 LINTEL ON GRADE

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20.

- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- FIP, FIELD INLET PIT
- OVERLAND FLOW DIRECTION
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- SUBSOIL LINE
- DENOTES CLEANING EYE
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- FINISHED PAVEMENT SPOT HEIGHT

5m 0 10 20 30 40 50m

SCALE 1:500 AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

CIVIL WORKS PLAN + SHEET 2
1:500 SCALE

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	17.11.21	B
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
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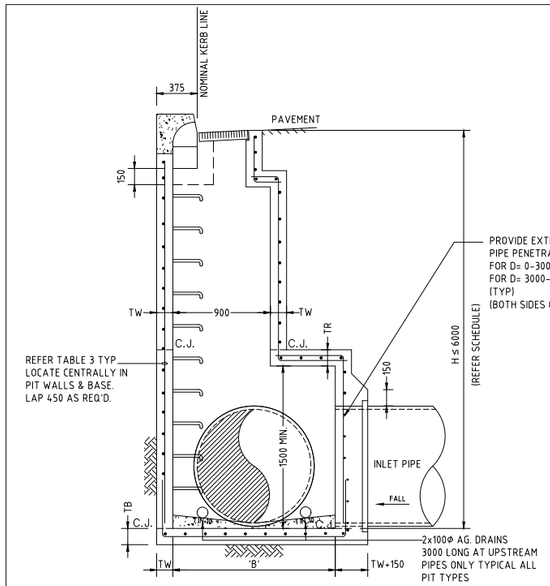
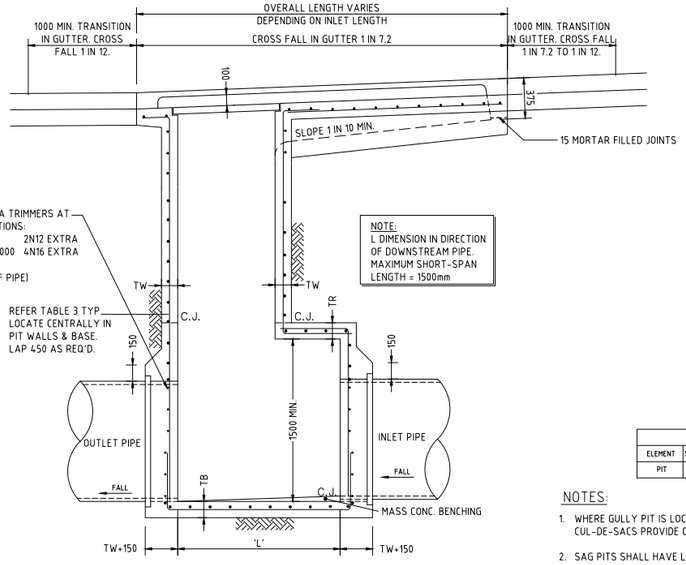
DRAWING TITLE: CIVIL WORKS PLAN
SHEET 2
MOD 3

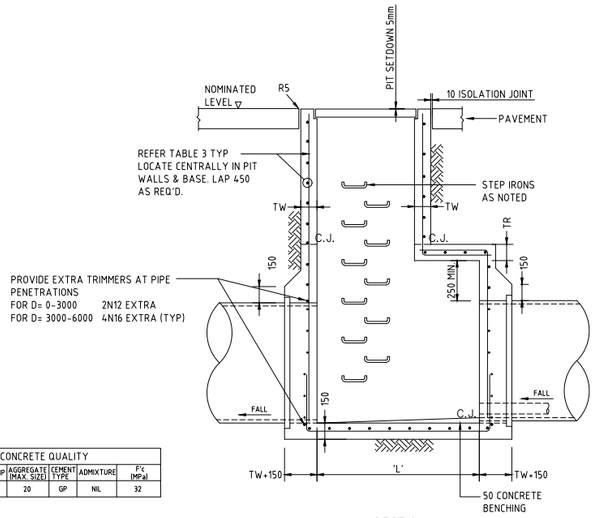
DRAWING No: C013362.02-C3-402 ISSUE: B



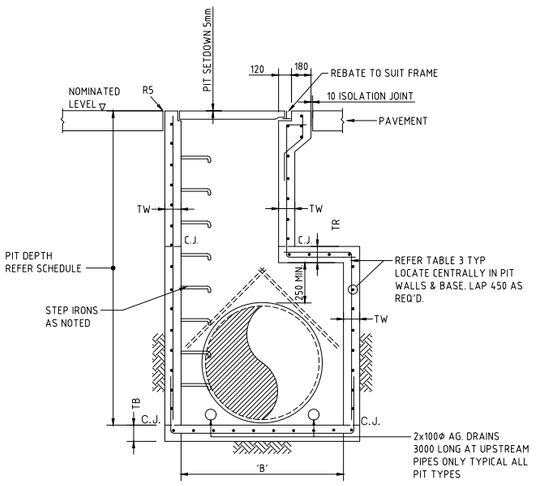
CROSS SECTION.
SCALE 1:20



LONG SECTION.
SCALE 1:20



SECTION
SCALE 1:20

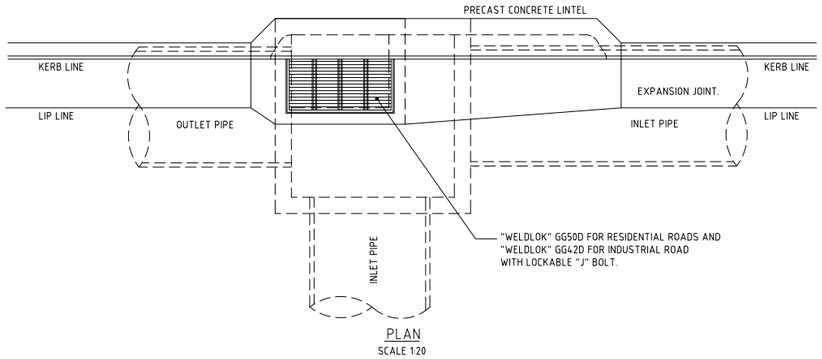


SECTION
SCALE 1:20

CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX. SIZE)	CEMENT TYPE	ADMIXTURE	F'c (MPa)
PIT	80	20	GP	NIL	32

NOTES:

1. WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
2. SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
3. ALL REINFORCING TO HAVE 30 MIN. CLEAR CONCRETE COVER.
4. FOR PITS DEEPER THAN 1200mm STEP IRONS SHALL BE PROVIDED.
5. FOR ALL PITS IN ITV PAVEMENT AREAS, PIT WALLS ARE TO BE INCREASED IN THICKNESS BY 50mm AND REINFORCEMENT TO BE N16 BARS IN LIEU OF N12



PLAN
SCALE 1:20

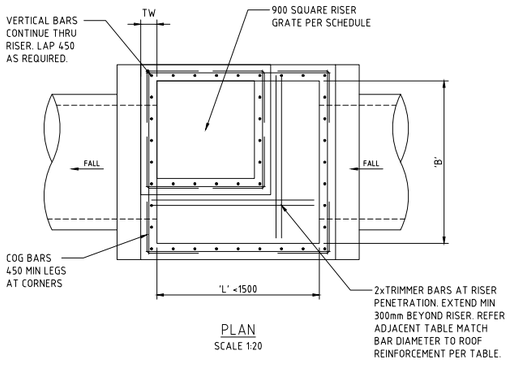
TAPERED KERB INLET PIT - KIP
SUBSOIL NOT SHOWN FOR CLARITY.

TABLE 1 - TAPERED CLASS D PIT
REINFORCEMENT & WALL THICKNESS - MAXIMUM SHORT SPAN 1500mm

DEPTH 'H'	WALL THICKNESS 'TW'	WALL REINFORCEMENT	ROOF THICKNESS 'TR'	ROOF REINFORCEMENT	BASE THICKNESS 'TB'	BASE REINFORCEMENT
<1.5m	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY
1.5m-3.0m	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY
3.0m-4.5m	200mm	N16-200 EACH WAY	200mm	N16-200 EACH WAY	200mm	N12-200 EACH WAY
4.5-6.0	250mm	N16-200 EACH WAY	250mm	N16-200 EACH WAY	250mm	N16-200 EACH WAY

TABLE 2 - TAPERED CLASS D PIT
REINFORCEMENT & WALL THICKNESS - MAXIMUM SHORT SPAN
1500mm-2100mm

DEPTH 'H'	WALL THICKNESS 'TW'	WALL REINFORCEMENT	ROOF THICKNESS 'TR'	ROOF REINFORCEMENT	BASE THICKNESS 'TB'	BASE REINFORCEMENT
<1.5m	200mm	N16-200 EACH WAY	250mm	N16-200 EACH WAY TOP & BTM	200mm	N16-200 EACH WAY
>1.5m	250mm	N16-200 EACH WAY INNER & OUTER FACE	250mm	N16-200 EACH WAY TOP & BTM	250mm	N16-200 EACH WAY



PLAN
SCALE 1:20

TAPERED SINGLE GRATED GULLY PIT - SGGP
SUBSOIL NOT SHOWN FOR CLARITY.

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SIZE SHEET

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

CLIENT: ALTIS PROPERTY PARTNERS / FRASERS PROPERTY

PROJECT
MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	HC	NOV 21	MW	A0	AS SHOWN	C013362.02-C3-405

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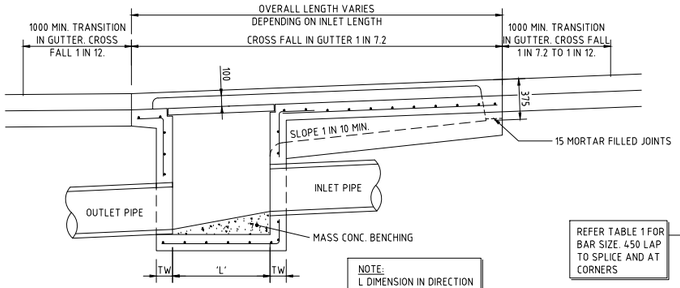
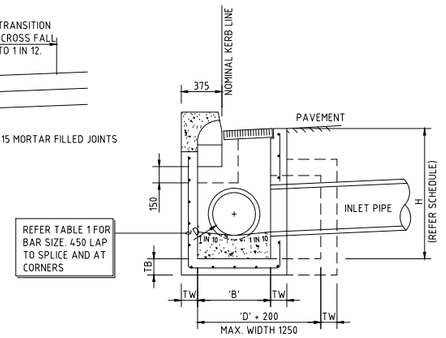
DRAWING TITLE
STORMWATER DRAINAGE
DETAILS - SHEET 1

DRAWING No: C013362.02-C3-405 ISSUE: A



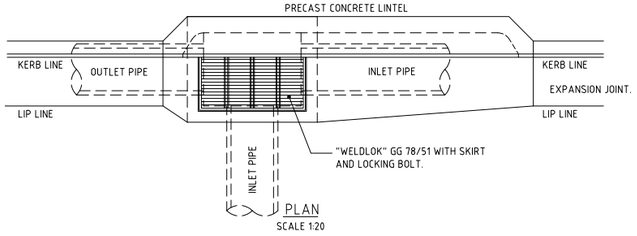
NOTE:
L DIMENSION IN DIRECTION OF DOWNSTREAM PIPE

LONG SECTION.
SCALE 1:20



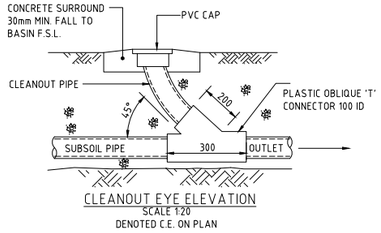
REFER TABLE 1 FOR BAR SIZE. 450 LAP TO SPLICE AND AT CORNERS

CROSS SECTION.
SCALE 1:20



PLAN
SCALE 1:20

KERB INLET PIT - KIP



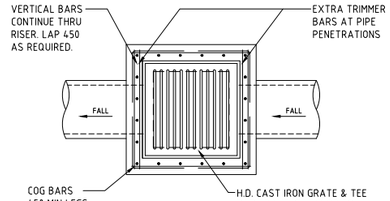
CLEANOUT EYE ELEVATION
SCALE 1:20
DENOTED C.E. ON PLAN

TABLE 3 - CLASS D <1200mm SQUARE PIT REINFORCEMENT & WALL THICKNESS				
DEPTH 'H'	WALL THICKNESS 'TW'	WALL REINFORCEMENT	BASE THICKNESS 'TB'	BASE REINFORCEMENT
< 1.0m	150mm	-	150mm	-
1.0m-3.0m	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY
3.0m-4.5m	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY
4.5-6.0	200mm	N16-200 EACH WAY	200mm	N16-200 EACH WAY

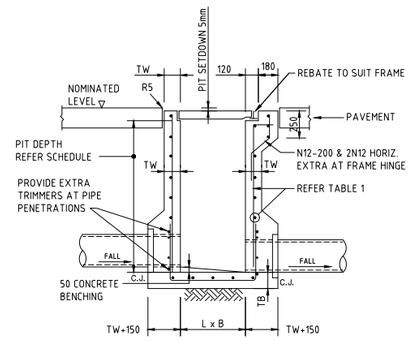
CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX. SIZE)	CEMENT TYPE	ADMIXTURE	F'c (MPa)
PIT	80	20	GP	NIL	32

NOTES:

1. WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
2. SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
3. ALL REINFORCING TO HAVE 30 MIN. CLAER CONCRETE COVER.
4. FOR PITS DEEPER THAN 1200mm CLIMB RAILS SHALL BE PROVIDED.



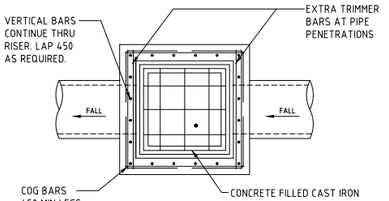
PLAN
SCALE 1:20



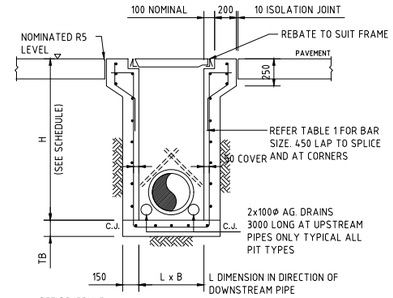
SEE SCHEDULE
L DIMENSION IN DIRECTION OF DOWNSTREAM PIPE

SECTION
SCALE 1:20

SINGLE GRATED GULLY PIT - SGGP



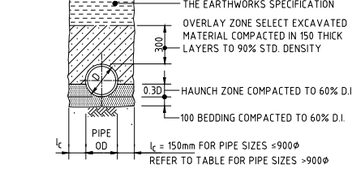
PLAN
SCALE 1:20



SEE SCHEDULE
L DIMENSION IN DIRECTION OF DOWNSTREAM PIPE

SECTION
SCALE 1:20

SEALED PIT - SP

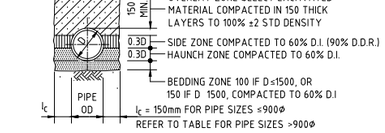


TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS
SCALE 1:20

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	l_c (mm)
≤ 900Ø	150
1050Ø	175
1200Ø	200
1350Ø	225
1500Ø	250
1650Ø	275
1800Ø	300

ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800Ø



TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT
SCALE 1:20
D ≤1350, MAX FILL = 4.0m
D >1350, MAX FILL = 3.0m

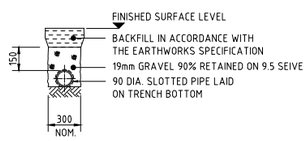
BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	l_c (mm)
≤ 900Ø	150
1050Ø	175
1200Ø	200
1350Ø	225
1500Ø	250
1650Ø	275
1800Ø	300

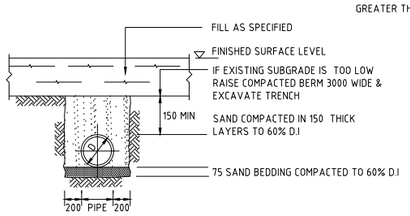
ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800Ø

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 50
0.60	50 TO 15
0.075	25 TO 0

SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725



SUPPORT TO AGRICULTURAL DRAIN
FOR USE UNDER CAR PARK PAVEMENTS/LANDSCAPED AREAS
SCALE 1:20

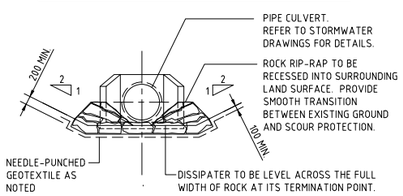


SUPPORT TO uPVC PIPES

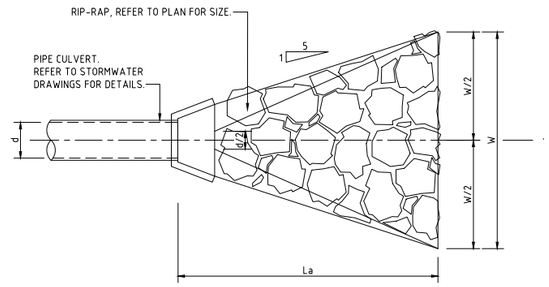
DISSIPATER NOTES :

1. ALIGN STRUCTURE EVENLY WITH BANK.
2. LOCATE STRUCTURE AT INVERT LEVEL OF STREAM AND POINT IN A DOWNSTREAM DIRECTION.
3. PIPE TO REST ON, AND BE PACKED IN, BY RIP-RAP (SIZE AS NOTED).
4. DISCHARGE INTO STREAM WHERE BEDROCK IS PRESENT, OTHERWISE SCOUR PROTECT AS REQUIRED.
5. SCOUR PROTECT THE OPPOSITE BANK AS REQUIRED. SCOUR PROTECTION TO BE PROVIDED WHERE OPPOSITE BANK IS WITHIN 12-14 TIMES THE PIPE DIAMETER.
6. RIP-RAP TO CONSIST OF ANGULAR RUN-OF-QUARRY ROCK (d50= 150mm MINIMUM) AS NOTED ON THE PLAN. RIP-RAP TO BE MINIMUM THICKNESS OF RIP-RAP LAYER TO BE 1.6x AVERAGE ROCK SIZE (d50).
7. RIP-RAP IS TO BE PLACED OVER A 200mm LAYER OF 140mm COBBLES OVER NEEDLE-PUNCHED GEOFAB A44.
8. PLACE ROCK SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS. THE FINISHED RIP-RAP SURFACE SHOULD BE FREE OF POCKETS OF SMALL ROCK OR CLUSTERS OF LARGE ROCKS.
9. GAPS IN RIP-RAP TO BE HAND PACKED WITH TOPSOIL & PLANTED WITH NATIVE SEDGES & RUSHES TO PROVIDE. THE INTENT IS FOR THERE TO BE NO VOIDS BETWEEN RIP-RAP BOULDERS.
10. ENSURE THE FINISHED ROCK SURFACE BLENDS WITH THE SURROUNDING GROUND LEVELS. NO OVERFALL OR PROTRUSION OF ROCK SHOULD BE APPARENT.
11. ENSURE THAT STORMWATER FROM SURROUNDING GROUND IS FREE TO ENTER THE STRUCTURE WITHOUT CAUSING UNDESIRABLE PONDING OR SCOUR.

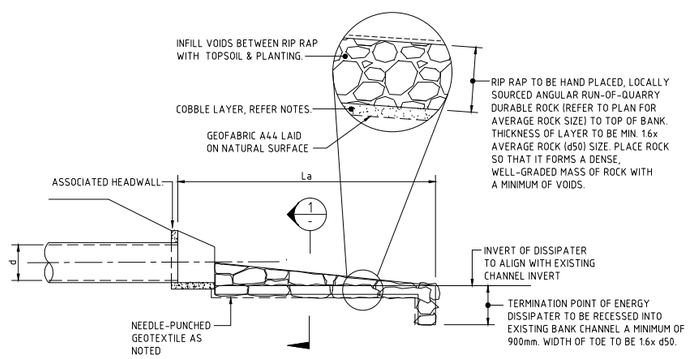
DISSIPATER SCHEDULE				
DISCHARGE POINT	d	La	W	RIP-RAP (d50)
OUTLET 1	2x1800	6000	10000	400
OUTLET 2	3.6x1.5 RCBC	6000	10000	400
OUTLET 3	1200	5000	5000	300
OUTLET 4	2x675Ø	5000	4000	300
OUTLET 5	600Ø	5000	3000	300
OUTLET 6	900Ø	5000	3000	300
OUTLET 7	1800Ø	5000	5000	400



SECTION 1:50 (1)



PLAN



SECTIONAL ELEVATION

STORMWATER OUTLET DISSIPATER WITH HEADWALL

SCALE 1:50

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A0 SIZE SHEET

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SIZE SHEET

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A

CLIENT: ALTIS PROPERTY PARTNERS / FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	NOV 21	MW	A0	AS SHOWN	C013362.02-C3-406

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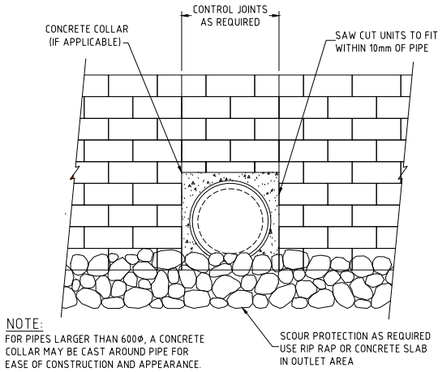
DRAWING TITLE: STORMWATER DRAINAGE DETAILS - SHEET 2

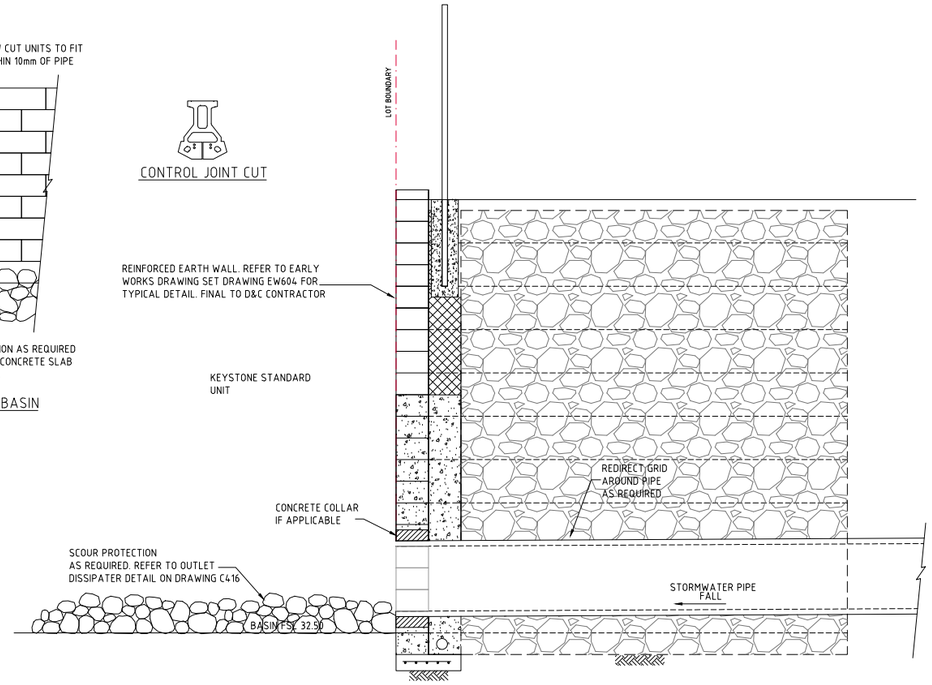
DRAWING No: C013362.02-C3-406 ISSUE: A



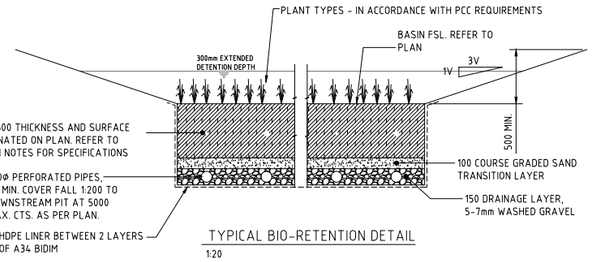
NOTE:
FOR PIPES LARGER THAN 600Φ, A CONCRETE COLLAR MAY BE CAST AROUND PIPE FOR EASE OF CONSTRUCTION AND APPEARANCE.

TYPICAL PIPE OUTLET DETAIL-NORTHERN BASIN
SCALE 1:20

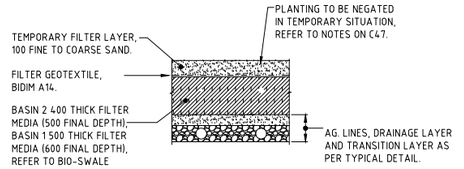
CONTROL JOINT CUT



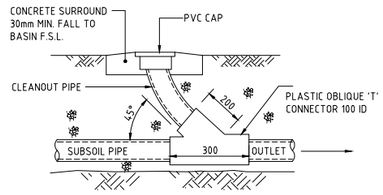
TYPICAL PIPE OUTLET SECTION - NORTHERN BASIN
SCALE 1:20



TYPICAL BIO-RETENTION DETAIL
1:20



BIO-RETENTION CONSTRUCTION DETAIL
SCALE 1:20
TEMPORARY DETAIL FOR USE DURING CONSTRUCTION & SITE STABILISATION PERIOD - REFER TO NOTES FOR IMPLIMENTATION PERIODS.



CLEANOUT EYE ELEVATION
SCALE 1:20
DENOTED C.E. ON PLAN

BIO-RETENTION NOTES:

FILTER MEDIA TO BE LOAMY SAND WITH A PERMEABILITY NOT LESS THAN 200mm/hr. FILTER MEDIA TO BE FREE OF RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND LOCAL WEEDS, AND IS TO NOT BE HYDROPHOBIC.

FILTER MEDIA TO HAVE THE FOLLOWING COMPOSITION RANGE:

CLAY & SILT (<0.05mm)	<3%
VERY FINE SAND (0.05-0.15mm)	5-30%
FINE SAND (0.15-0.25mm)	10-30%
MEDIUM TO COARSE SAND (0.25-1.00mm)	40-60%
COARSE SAND (1.0-2.0mm)	7-10%
FINE GRAVEL (2.0-3.4mm)	<3%

FILTER MEDIA THAT DOES NOT MEET THE FOLLOWING CRITERIA SHALL BE REJECTED:

a. ORGANIC MATTER CONTENT TO BE IDEALLY WITHIN 1% TO 3% (W/W) AND TO BE NO GREATER THAN 5%(W/W).
b. PH TO BE BETWEEN 5.5 AND 7.5
c. PHOSPHOROUS CONTENT TO BE NO GREATER THAN 35mg/kg

FILTER MEDIA TO BE ASSESSED BY QUALIFIED HORTICULTURALIST TO ENSURE CAPABILITY OF SUPPORTING PLANT LIFE.

DRAINAGE LAYER TO BE CLEAN GRAVEL 5-7mm.

PROVIDE 100mm TOPSOIL AND TEMPORARY EROSION PROTECTION (JUTEMASTER OR EQUIV) TO SWALE BATTER SLOPES AND ADJACENT LANDSCAPED AREAS. NOTE THAT NO TOPSOIL IS TO BE PLACED OVER FILTRATION MEDIA. PROVIDE SILT FENCE TO TOP OF BANK UNTIL SUCH TIME AS THIS STABILISING AND VEGETATION HAS BEEN COMPLETED.

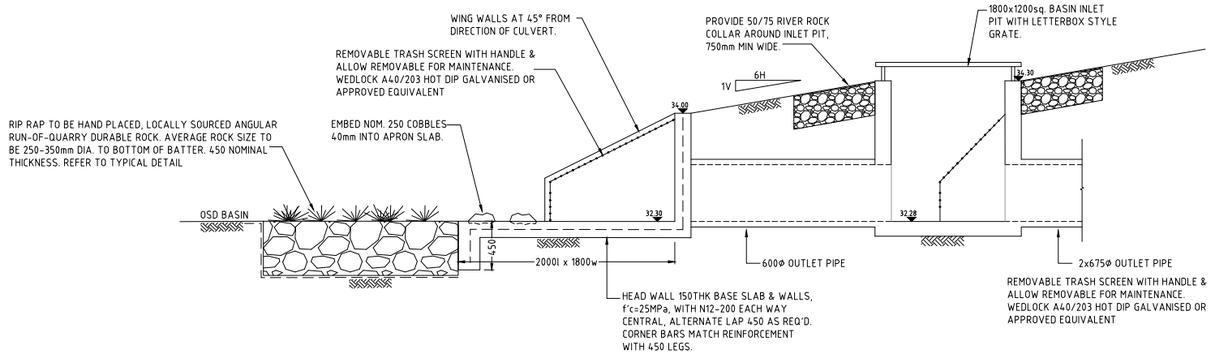
BIO-RETENTION TO BE PARTIALLY INSTALLED, FOLLOWING COMPLETION OF THE ROAD, WITH THE TOP 75-100mm OF FILTER MEDIA REPLACED WITH A FINE TO COARSE SAND UNDERLAIN WITH A GEOTEXTILE LAYER (REFER TO DETAIL). FOLLOWING COMPLETION OF THE UPSTREAM DEVELOPMENT AND SITE STABILISATION, THE SAND IS TO BE REMOVED, REPLACED WITH FILTER MATERIAL AND PLANTED OUT. REFER TO TEMPORARY BIO-BASIN DETAIL

PRIOR TO PLANTING, THE TOP 100mm OF THE BIORETENTION FILTER MEDIA IS TO BE AMELIORATED WITH APPROPRIATE ORGANIC MATTER, FERTILISER AND TRACE ELEMENTS TO AID PLANT ESTABLISHMENT AS PER THE TABLE BELOW:

TABLE: RECIPE FOR AMELIORATING TOP 100mm OF BIORETENTION FILTER MEDIA

CONSTITUENT	QUANTITY (kg/m2 OF FILTER AREA)
GRANULATED POULTRY MANURE FINES	50
SUPERPHOSPHATE	2
MAGNESIUM SULPHATE	3
POTASSIUM SULPHATE	2
TRACE ELEMENT MIX	1
FERTILISER NPK (16.4.14)	4
LIME	20

BIO-RETENTION BASIN TO BE IN ACCORDANCE WITH PENRITH CITY COUNCIL WSUD GUILDELINES



NORTHERN BASIN OUTLET DETAIL
1:20

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SIZE SHEET

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	12.11.21	A
AMENDMENTS	DATE	ISSUE

AMENDMENTS	DATE	ISSUE

AMENDMENTS	DATE	ISSUE

ALTIS PROPERTY PARTNERS

CLIENT: FRASERS PROPERTY

PROJECT: MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
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DRAWING TITLE: STORMWATER DRAINAGE DETAILS - SHEET 3

DRAWING No: C013362.02-C3-407
ISSUE: A