

1. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED AND A REVISED EROSION AND SEDIMENT CONTROL PLAN (ESCP) MUST BE SUBMITTED FOR APPROVAL IN THE EVENT THAT SITE CONDITIONS CHANGE SIGNIFICANTLY FROM THOSE CONSIDERED WITHIN THE ESCP.
2. WHERE THERE IS A HIGH PROBABILITY THAT SERIOUS OR MATERIAL ENVIRONMENTAL HARM MAY OCCUR AS A RESULT OF SEDIMENT LEAVING THE SITE, APPROPRIATE ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED SUCH THAT ALL REASONABLE AND PRACTICABLE MEASURES ARE BEING TAKEN TO PREVENT OR MINIMISE SUCH HARM. ONLY THOSE WORKS NECESSARY TO MINIMISE OR PREVENT ENVIRONMENTAL HARM SHALL BE CONDUCTED ON-SITE PRIOR TO APPROVAL OF THE AMENDED EROSION AND SEDIMENT CONTROL PLAN (ESCP).
3. IN CIRCUMSTANCES WHERE IT IS CONSIDERED NECESSARY TO PREPARE AN AMENDED EROSION AND SEDIMENT CONTROL PLAN (ESCP), AND WHERE THE DELIVERY OF SUCH AN AMENDED ESCP IS NOT IMMINENT, THEN ALL NECESSARY NEW OR MODIFIED EROSION AND SEDIMENT CONTROL WORKS MUST BE IN ACCORDANCE TO BPESC. UPON APPROVAL OF THE AMENDED ESCP, ALL WORKS MUST BE IMPLEMENTED IN ACCORDANCE WITH THE AMENDED PLAN.
4. PRE WET SEASON INSPECTION TO BE UNDERTAKEN WITH DEPWS OFFICERS, TO DETERMINE ADEQUATE LEVEL OF EROSION AND SEDIMENT CONTROLS TO BE IMPLEMENTED FOR THE WET SEASON.
5. CONTRACTOR TO MAINTAIN SUFFICIENT ESC CONTROL MATERIALS ON SITE SUCH AS SPARE SEDIMENT FENCING AND OTHER MATERIALS FOR SHORT NOTICE REPAIRS.
6. THE IMPLEMENTATION OF THE ESCP WILL BE REGULARLY MONITORED BY THE SUPERINTENDENT AND DEPWS.
7. SHOULD IT BE DEEMED NECESSARY FROM MONITORING, THE CONTRACTOR SHALL INSTALL ADDITIONAL MEASURES TO ENSURE THE OBJECTIVES OF THIS ELEMENT ARE MET AND TO MINIMISE THE IMPACT OF CONSTRUCTION ACTIVITIES ON THE SURROUNDING ENVIRONMENT. THE SUPERINTENDENT MAY, AT THEIR DISCRETION, DIRECT THE CONTRACTOR TO CARRY OUT ADDITIONAL CONTROLS, AS AND WHEN REQUIRED. THE CONTRACTOR MAY ALSO, AT THEIR DISCRETION OPT TO INCLUDE ADDITIONAL DEVICES AS MAY BE REQUIRED TO ENSURE COMPLIANCE WITH THE APPROVALS AS THEY SEE FIT. IT IS IMPORTANT TO NOTE THAT THE DETAILS CONTAINED HEREIN AND ON THE EROSION AND SEDIMENT CONTROL PLANS ARE NOT NECESSARILY ALL THE MEASURES THAT MAY BE NECESSARY TO FULFIL THE DEVELOPMENT APPROVAL REQUIREMENTS AND ARE TO BE USED AS A GUIDE FOR THE CONSTRUCTION CONTRACTOR.

8. LAND CLEARING MUST BE DELAYED AS LONG AS PRACTICABLE AND MUST BE UNDERTAKEN IN CONJUNCTION WITH DEVELOPMENT OF EACH STAGE OF WORKS, UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT.
9. ALL REASONABLE AND PRACTICABLE EFFORTS MUST BE TAKEN TO DELAY THE REMOVAL OF, OR DISTURBANCE TO, EXISTING GROUND COVER (ORGANIC OR INORGANIC) PRIOR TO LAND-DISTURBING ACTIVITIES.
10. BULK TREE CLEARING MUST OCCUR IN A MANNER THAT MINIMISES DISTURBANCE TO EXISTING GROUND COVER (ORGANIC OR INORGANIC).
11. DISTURBANCE TO NATURAL WATERCOURSES (INCLUDING BED AND BANKS) AND THEIR ASSOCIATED RIPARIAN ZONES MUST BE LIMITED TO THE MINIMUM PRACTICABLE.
12. NO LAND CLEARING SHALL BE UNDERTAKEN UNLESS PRECEDED BY THE INSTALLATION OF ADEQUATE DRAINAGE AND SEDIMENT CONTROL MEASURES, UNLESS SUCH CLEARING IS REQUIRED FOR THE PURPOSE OF INSTALLING SUCH MEASURES, IN WHICH CASE, ONLY THE MINIMUM CLEARING REQUIRED TO INSTALL SUCH MEASURES SHALL OCCUR.
13. LAND CLEARING MUST BE LIMITED TO 5M FROM THE EDGE OF PROPOSED CONSTRUCTED WORKS, 2M OF ESSENTIAL CONSTRUCTION TRAFFIC ROUTES, AND A TOTAL OF 10M WIDTH FOR CONSTRUCTION ACCESS, UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT.
14. PRIOR TO LAND CLEARING, AREAS OF PROTECTED VEGETATION, AND SIGNIFICANT AREAS OF RETAINED VEGETATION MUST BE CLEARLY IDENTIFIED (E.G. WITH HIGH-VISIBILITY TAPE, OR LIGHT FENCING) FOR THE PURPOSES OF MINIMISING THE RISK OF UNNECESSARY LAND CLEARING.
15. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO MINIMISE THE REMOVAL OF, OR DISTURBANCE TO, THOSE TREES, SHRUBS AND GROUND COVERS (ORGANIC OR INORGANIC) THAT ARE INTENDED TO BE RETAINED.
16. ALL LAND CLEARING MUST BE IN ACCORDANCE WITH THE FEDERAL, STATE AND LOCAL GOVERNMENT VEGETATION PROTECTION/PRESERVATION REQUIREMENTS AND/OR POLICIES.
17. LAND CLEARING IS LIMITED TO THE MINIMUM PRACTICABLE DURING THOSE PERIODS WHEN SOIL EROSION DUE TO WIND, RAIN OR SURFACE WATERS IS POSSIBLE.
18. LAND CLEARING MUST NOT EXTEND BEYOND THAT NECESSARY TO PROVIDE UP TO EIGHT (8) WEEKS OF SITE ACTIVITY DURING THOSE MONTHS WHEN THE EXPECTED RAINFALL EROSIVITY IS LESS THAN 100, SIX (6) IF BETWEEN 100 AND 285, FOUR (4) WEEKS IF BETWEEN 285 AND 1500, AND TWO (2) WEEKS IF GREATER THAN 1500. REFER TABLE BELOW FOR MONTHLY EROSIVITY VALUES AND EROSION RISK RATINGS FOR SITES IN DARWIN.

19. PRIOR TO THE COMMENCEMENT OF SITE WORKS, THE LOCATION OF THE SITE ACCESS POINT(S) MUST BE VERIFIED WITH THE SUPERINTENDENT.
20. SITE ACCESS MUST BE RESTRICTED TO THE MINIMUM PRACTICAL NUMBER OF LOCATIONS.
21. SITE EXIT POINTS MUST BE APPROPRIATELY MANAGED TO MINIMISE THE RISK OF SEDIMENT BEING TRACKED ONTO SEALED, PUBLIC ROADWAYS.
22. STORMWATER RUNOFF FROM ACCESS ROADS AND STABILISED ENTRY/EXIT POINTS MUST DRAIN TO AN APPROPRIATE SEDIMENT CONTROL DEVICE.

23. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO OBTAIN THE MAXIMUM BENEFIT FROM EXISTING TOPSOIL, INCLUDING:

- (i) WHERE THE PROPOSED AREA OF SOIL DISTURBANCE EXCEEDS 2500M², AND THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 50MM OF SOIL MUST BE STRIPPED AND STOCKPILED SEPARATELY FROM THE REMAINING TOPSOIL, AND SPREAD AS A FINAL SURFACE SOIL.
- (ii) LOCUS WHERE THE TOPSOIL CONTAINS UNDESIRABLE WEED SEED, THE AFFECTED SOIL MUST BE SUITABLY BURIED OR REMOVED FROM THE SITE.

24. STOCKPILES OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, MUST BE:

- (i) LESS THAN 1.5m HIGH (WHERE PRACTICAL) AND SHOULD NOT BE COMPACTED IN ORDER TO PROTECT SOIL QUALITY AND SEED VIABILITY.
- (ii) APPROPRIATELY PROTECTED FROM WIND, RAIN, CONCENTRATED SURFACE FLOW AND EXCESSIVE UP-SLOPE STORMWATER SURFACE FLOWS.
- (iii) LOCATED AT LEAST 2M FROM ANY HAZARDOUS AREA, RETAINED VEGETATION, OR CONCENTRATED DRAINAGE LINE.
- (iv) LOCATED UP-SLOPE OF AN APPROPRIATE SEDIMENT CONTROL SYSTEM.
- (v) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK.
- (vi) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK.
- (vii) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 5 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK.
- (viii) PROVIDED WITH SEDIMENT CONTROLS (SEDIMENT FENCE, MULCH BERMS OR APPROVED ALTERNATIVE) INSTALLED AROUND THE DOWNSLOPE EXTENT.

25. A SUITABLE FLOW DIVERSION SYSTEM MUST BE ESTABLISHED IMMEDIATELY UP-SLOPE OF A STOCKPILE OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, IF THE UP-SLOPE CATCHMENT AREA DRAINING TO THE STOCKPILE EXCEEDS 1500M².

26. ALL OFFICE FACILITIES AND OPERATIONAL ACTIVITIES MUST BE LOCATED SUCH THAT ANY LIQUID EFFLUENT (E.G. PROCESS WATER, WASH-DOWN WATER, EFFLUENT FROM EQUIPMENT CLEANING, OR PLANT WATERING), CAN BE TOTALLY CONTAINED AND TREATED WITHIN THE SITE.
27. THE CONSTRUCTION SCHEDULE MUST AIM TO MINIMISE THE DURATION THAT ANY AND ALL AREAS OF SOIL ARE EXPOSED TO THE EROSION EFFECTS OF WIND, RAIN AND SURFACE WATER.
28. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND ASSOCIATED DEVELOPMENT CONDITIONS.
29. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN SUCH A MANNER THAT ALLOWS ALL REASONABLE AND PRACTICABLE MEASURES TO BE UNDERTAKEN TO:
 - (i) ALLOW STORMWATER TO PASS THROUGH THE SITE IN A CONTROLLED MANNER AND AT NON-EROSIVE FLOW VELOCITIES UP TO THE SPECIFIED DESIGN STORM DISCHARGE;
 - (ii) MINIMISE SOIL EROSION RESULTING FROM RAIN, WATER FLOW AND/OR WIND;
 - (iii) MINIMISE ADVERSE EFFECTS OF SEDIMENT RUNOFF, INCLUDING SAFETY ISSUES;
 - (iv) PREVENT, OR AT LEAST REDUCE, ENVIRONMENTAL HARM RESULTING FROM WORK-RELATED SOIL EROSION AND SEDIMENT RUNOFF;
 - (v) ENSURE THAT THE VALUE AND USE OF LAND/PROPERTIES ADJACENT TO THE DEVELOPMENT (INCLUDING ROADS) ARE NOT DIMINISHED AS A RESULT OF THE ADOPTED ESC MEASURES.
30. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST CONFORM TO THE STANDARDS AND SPECIFICATIONS CONTAINED IN:
 - (i) THE DEVELOPMENT APPROVAL CONDITION ISSUED BY DEVELOPMENT CONSENT AUTHORITY; AND
 - (ii) THE APPROVED ESCP AND SUPPORTING DOCUMENTATION; OR
 - (iii) THE LATEST VERSION OF BPESC IF THE STANDARDS AND SPECIFICATIONS ARE NOT CONTAINED IN THE APPROVED ESCP.
31. ANY WORKS THAT MAY CAUSE SIGNIFICANT SOIL DISTURBANCE AND ARE ANCILLARY TO ANY ACTIVITY FOR WHICH REGULATORY BODY APPROVAL IS REQUIRED, MUST NOT COMMENCE BEFORE THE ISSUE OF THAT APPROVAL.
32. ADDITIONAL AND/OR ALTERNATIVE ESC MEASURES MUST BE IMPLEMENTED IN THE EVENT THAT SITE INSPECTIONS, THE SITE'S MONITORING AND MAINTENANCE PROGRAM, OR THE REGULATORY AUTHORITY, IDENTIFIES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF THE WORK ACTIVITIES.

33. LAND-DISTURBING ACTIVITIES MUST NOT CAUSE UNNECESSARY SOIL DISTURBANCE IF AN ALTERNATIVE CONSTRUCTION PROCESS IS AVAILABLE THAT ACHIEVES THE SAME OR EQUIVALENT OUTCOMES AT AN EQUIVALENT COST.
34. SEDIMENT (INCLUDING CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT AND CERAMIC WASTE) DEPOSITED OFF THE SITE AS A DIRECT RESULT OF AN ON-SITE ACTIVITY, MUST BE COLLECTED AND THE AREA APPROPRIATELY CLEANED/REHABILITATED AS SOON AS REASONABLE AND PRACTICABLE, AND IN A MANNER THAT GIVES APPROPRIATE CONSIDERATION TO THE SAFETY AND ENVIRONMENTAL RISKS ASSOCIATED WITH THE SEDIMENT DEPOSITION.
35. WHEREVER REASONABLE AND PRACTICABLE, BRICK, TILE AND MASONRY CUTTING MUST BE CARRIED OUT ON A PERVIOUS SURFACE, SUCH AS ASPHALT, CONCRETE, OR IN SUCH A MANNER THAT ALL SEDIMENT-LADEN RUNOFF IS PREVENTED FROM DISCHARGING INTO A GUTTER, DRAIN, OR WATER BODY.
36. ADEQUATE WASTE COLLECTION BINS MUST BE PROVIDED ON-SITE AND MAINTAINED SUCH THAT POTENTIAL AND ACTUAL ENVIRONMENTAL HARM RESULTING FROM SUCH MATERIAL WASTE IS MINIMISED.
37. CONCRETE WASTE AND CHEMICAL PRODUCTS, INCLUDING PETROLEUM AND OIL-BASED PRODUCTS, MUST BE PREVENTED FROM ENTERING AN INTERNAL WATER BODY, OR AN EXTERNAL DRAIN, STORMWATER SYSTEM, OR WATER BODY.
38. ALL FLAMMABLE AND COMBUSTIBLE LIQUIDS, INCLUDING ALL LIQUID CHEMICALS IF SUCH CHEMICALS COULD POTENTIALLY BE WASHED OR DISCHARGED FROM THE SITE, ARE STORED AND HANDLED ON-SITE IN ACCORDANCE WITH RELEVANT STANDARDS SUCH AS AS1940 THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS.
39. TREE HOLES NOT LOW TIED WITHIN ROADWAYS MUST BE FULLY STABILISED, CAPPED WITH TOPSOIL, AND COMPACTED TO A LEVEL AT LEAST 75MM ABOVE ADJOINING GROUND LEVEL AND APPROPRIATELY STABILISED.
40. ALL STORMWATER, SEWER LINE AND OTHER SERVICE TRENCHES, NOT LOCATED WITHIN ROADWAYS, MUST BE MULCHED AND SEEDED, OR OTHERWISE APPROPRIATELY STABILISED WITHIN 7 DAYS AFTER BACKFILL.
41. NO MORE THAN 150M OF A STORMWATER, SEWER LINE OR OTHER SERVICE TRENCH MUST TO BE OPEN AT ANY ONE TIME.
42. SITE SOIL MUST BE LAWFULLY DISPOSED OF IN A MANNER THAT DOES NOT RESULT IN ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
43. ALL FILL MATERIAL PLACED ON SITE MUST COMPRISE ONLY NATURAL EARTH AND ROCK, AND IS TO BE FREE OF CONTAMINANTS, BE FREE DRAINING, AND BE COMPACTED IN LAYERS NOT EXCEEDING 300MM TO 90% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289.

44. ALL DRAINAGE CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH APPROVED ESCP DRAWINGS AND BPESC GUIDELINES.
45. WHEREVER REASONABLE AND PRACTICABLE, STORMWATER RUNOFF ENTERING THE SITE FROM EXTERNAL AREAS, AND NON-SEDIMENT LADEN (CLEAN) STORMWATER RUNOFF ENTERING A WORK AREA OR AREA OF SOIL DISTURBANCE, MUST BE DIVERTED AROUND OR THROUGH THAT AREA IN A MANNER THAT MINIMISES SOIL EROSION AND THE CONTAMINATION OF THAT WATER FOR ALL DISCHARGES UP TO THE SPECIFIED DESIGN STORM DISCHARGE.
46. DURING THE CONSTRUCTION PERIOD, ALL REASONABLE AND PRACTICABLE MEASURES MUST BE IMPLEMENTED TO CONTROL FLOW VELOCITIES IN A MANNER THAT PREVENTS SOIL EROSION ALONG DRAINAGE PATHS AND AT THE ENTRANCE AND EXIT OF ALL DRAINS AND DRAINAGE PIPES DURING ALL STORMS UP TO THE RELEVANT DESIGN STORM DISCHARGE.
47. TO THE MAXIMUM DEGREE REASONABLE AND PRACTICABLE, ALL WATERS DISCHARGED DURING THE CONSTRUCTION PHASE MUST DISCHARGE ONTO STEADY LAND, IN A NON-EROSIVE MANNER, AND AT A LEGAL POINT OF DISCHARGE.
48. WHEREVER REASONABLE AND PRACTICABLE, "CLEAN" SURFACE WATERS MUST BE DIVERTED AWAY FROM SEDIMENT CONTROL DEVICES AND ANY UNTREATED, SEDIMENT-LADEN WATERS.
49. DURING THE CONSTRUCTION PERIOD, ROOF WATER MUST BE MANAGED IN A MANNER THAT MINIMISES SOIL EROSION THROUGHOUT THE SITE, AND SITE WETNESS WITHIN ACTIVE WORK AREAS.

50. ALL EROSION CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH APPROVED ESCP DRAWINGS AND BPESC GUIDELINES.
51. THE APPLICATION OF LIQUID-BASED DUST SUPPRESSION MEASURES MUST ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
52. THE CONSTRUCTION AND STABILISATION OF EARTH BATTERS STEEPER THAN 6:1 (H:V) MUST BE STAGED SUCH THAT NO MORE THAN 3 VERTICAL-METRES OF ANY BATTER IS EXPOSED TO RAINFALL AT ANY INSTANT.
53. SYNTHETIC REINFORCED EROSION CONTROL MATS AND BLANKETS MUST NOT BE PLACED WITHIN, OR ADJACENT TO, RIPARIAN ZONES AND WATERCOURSES IF SUCH MATERIALS ARE LIKELY TO CAUSE ENVIRONMENTAL HARM TO WILDLIFE OR WILDLIFE HABITATS.
54. ALL TEMPORARY EARTH BANKS AND EMBANKMENTS MUST BE MACHINE-COMPACTED, SEEDED AND MULCHED FOR THE PURPOSE OF ESTABLISHING A TEMPORARY VEGETATIVE COVER WITHIN 10 DAYS AFTER GRADING. FLOW DIVERSION SYSTEMS TO BE STABILISED USING COMPOST OR MULCH ARE SUBJECT TO THE SAME COVERED AREA REQUIREMENTS.
55. A MINIMUM 70% GRASS COVER MUST BE ACHIEVED ON ALL NON-COMPLETED EARTHWORKS EXPOSED TO ACCELERATED SOIL EROSION IF FURTHER CONSTRUCTION ACTIVITIES OR SOIL DISTURBANCES ARE LIKELY TO BE SUSPENDED FOR MORE THAN 30 DAYS DURING THOSE MONTHS WHEN THE EXPECTED RAINFALL EROSIVITY IS LESS THAN 60; MINIMUM 70% COVER WITHIN 30 DAYS IF BETWEEN 60 AND 100; MINIMUM 70% COVER WITHIN 20 DAYS IF BETWEEN 100 AND 285; MINIMUM 75% COVER WITHIN 10 DAYS IF BETWEEN 285 AND 1500; AND MINIMUM 80% COVER WITHIN 5 DAYS IF GREATER THAN 1500. REFER TABLE ON DRAWING ES02 FOR MONTHLY RAINFALL EROSIVITY VALUES AND EROSION RISK RATINGS FOR SITES IN DARWIN.
56. IF INSIGNIFICANT RAINFALL IS FORECAST PRIOR TO THE STABILISATION OF ANY CHANNEL WORKS AREAS, THEN THE CONTRACTOR SHOULD CONSIDER TEMPORARY STABILISATION OF THE EXPOSED SOIL AREAS WITH A HYDRAULICALLY APPLIED BLANKET SUITABLE FOR USE IN CONCENTRATED FLOW AREAS. FOR HIGH BATTER AREAS ABOVE NORMAL, STREAM FLOWS TEMPORARY COVERINGS SUCH AS EROSION CONTROL BLANKETS AND MATS (OR APPROVED EQUIVALENT) APPROPRIATELY ANCHORED TO MANUFACTURER'S SPECIFICATION MAY BE UTILISED.

57. ALL DUST CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH APPROVED ESCP DRAWINGS AND CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN.

58. WIND EROSION IS NORMALLY CONTROLLED USING ONE OR MORE OF THE FOLLOWING TECHNIQUES:

- (i) REVEGETATION
- (ii) MAINTAINING MOIST SOIL CONDITIONS
- (iii) SURFACE ROUGHENING
- (iv) WIND BREAKS
- (v) HYDRAULICALLY APPLIED SEALANTS/SOIL BINDERS PLACED OVER SOIL SURFACES

59. DUST PROBLEMS CAN ALSO BE REDUCED BY THESE ACTIVITIES:

- (i) LIMITING THE AREA OF SOIL DISTURBANCES AT ANY GIVEN TIME.
- (ii) PROMPTLY REPLACING TOPSOIL
- (iii) PROGRAMMING WORKS TO MINIMISE THE LIFE OF SOIL STOCKPILES.
- (iv) TEMPORARY STABILISING (E.G. WITH VEGETATION OR MULCHING) OF LONG TERM STOCKPILES.
- (v) USING A WELL-GRADED GRAVEL-SAND MIXTURE WITH A SMALL QUANTITY OF CLAY AS A WEAR SURFACE ON UNSEALED CONSTRUCTION ROADS
- (vi) MINIMISING TRAFFIC MOVEMENTS ON EXPOSED SURFACES.
- (vii) LIMITING VEHICULAR TRAFFIC TO 15KPH.
- (viii) MAINTAINING EXPOSED SOIL SURFACES IN A MOIST CONDITION.
- (ix) PROVIDING OR RETAINING VEGETATION WIND BREAKS.
- (x) PROMPTLY REVEGETATING EXPOSED SOILS
- (xi) INSTALLING WINDBREAKS (60% SHADE CLOTHS, 40% POROUS)

60. ALL SEDIMENT CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH APPROVED ESCP DRAWINGS AND BPESC GUIDELINES.
61. OPTIMUM BENEFIT MUST BE MADE OF EVERY OPPORTUNITY TO TRAP SEDIMENT WITHIN THE WORK SITE, AND AS CLOSE AS PRACTICABLE TO ITS SOURCE.
62. SEDIMENT TRAPS MUST BE INSTALLED AND OPERATED TO BOTH COLLECT AND RETAIN SEDIMENT.
63. THE POTENTIAL SAFETY RISK OF A PROPOSED SEDIMENT TRAP TO SITE WORKERS AND THE PUBLIC MUST BE GIVEN APPROPRIATE CONSIDERATION, ESPECIALLY THOSE DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS.
64. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT FROM THE SITE.
65. SUITABLE ALL-WEATHER MAINTENANCE ACCESS MUST BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES.
66. SEDIMENT CONTROL DEVICES MUST BE DE-SILTED AND MADE FULLY OPERATIONAL AS SOON AS REASONABLE AND PRACTICABLE AFTER A SEDIMENT-PRODUCING EVENT, WHETHER NATURAL OR ARTIFICIAL, IF THE DEVICE'S SEDIMENT RETENTION CAPACITY FALLS BELOW 75% OF ITS DESIGN RETENTION CAPACITY.
67. MATERIALS, WHETHER LIQUID OR SOLID, REMOVED FROM SEDIMENT CONTROL DEVICES DURING MAINTENANCE OR DECOMMISSIONING, MUST BE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
68. CONSTRUCTED SEDIMENT BASINS MUST BE MAINTAINED AND FULLY OPERATIONAL THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL EACH BASIN'S CATCHMENT AREA ACHIEVES 80% GROUND COVER ON ALL SOIL SURFACES.
69. SETTLED SEDIMENT MUST BE REMOVED FROM SEDIMENT BASINS WHEN THE VOLUME OF THE SEDIMENT EXCEEDS THE DESIGNATED SEDIMENT STORAGE VOLUME, OR THE DESIGN MAXIMUM SEDIMENT STORAGE VOLUME.
70. WHERE APPROPRIATE, THE CONTRACTOR MAY CONSIDER PASSIVE APPLICATION OF TECHNIQUES OF COAGULANTS AND / OR FLOCCULANTS, SUCH AS PLACING 'FLOC BLOCKS' OR SPREADING LIME OR GYPSUM WITHIN CATCH DRAINS, TO IMPROVE THE EFFICIENCY AND EFFECTIVENESS OF THE FLOCCULATION PROCESS. SHOULD PASSIVE APPLICATION OF FLOCCULANTS BE PROPOSED, THEN THE DETAILED

DEWATERING - GOAL IS TO MITIGATE SEDIMENT RELATED ENVIRONMENTAL HARM AND/OR IMPACT TO STORMWATER INFRASTRUCTURE RESULTING FROM DEWATERING ACTIVITIES.

FLOW DIVERSION BARRIERS, OR OTHER APPROPRIATE SYSTEMS, WILL BE USED TO MINIMISE THE QUANTITY OF WATER ENTERING EXCAVATIONS AND TRENCHES.

DEWATERING CONTROL MAY INCLUDE GEOFABRIC FILTERS, NON WOVEN FILTER FENCING.

SEDIMENT LADEN WATER WILL NOT BE DISCHARGED TO THE STORMWATER SYSTEM WITHOUT FIRST BEING TREATED SATISFACTORILY.

ALL DISTURBED AREAS IDENTIFIED AS VERY LOW, LOW, MEDIUM, HIGH, OR EXTREME EROSION RISK MUST BE SUITABLY STABILISED WITHIN 30, 30, 20, 10 OR 5 DAYS RESPECTIVELY. IF SIGNIFICANT RAINFALL IS ANTICIPATED WITHIN THE TIMEFRAMES LISTED ABOVE, THEN CONSIDER TEMPORARY STABILISATION METHODS WHERE PRACTICAL.

A MINIMUM 60% GROUND COVER MUST BE ACHIEVED ON ALL COMPLETED EARTHWORKS EXPOSED TO ACCELERATED SOIL EROSION WITHIN 30 DAYS DURING THOSE MONTHS WHEN THE EXPECTED RAINFALL DEPTH IS LESS THAN 30mm (EROSIVITY < 60); MINIMUM 70% COVER WITHIN 30 DAYS IF BETWEEN 30 AND 45mm (EROSIVITY 60 TO 100); MINIMUM 70% COVER WITHIN 20 DAYS IF BETWEEN 45 AND 100mm (EROSIVITY 100 TO 285); MINIMUM 75% COVER WITHIN 10 DAYS IF BETWEEN 100 AND 225mm (EROSIVITY 285 TO 1500); AND MINIMUM 80% COVER WITHIN 5 DAYS IF GREATER THAN 225mm (EROSIVITY > 1500).

NO COMPLETED EARTHWORKS SURFACE MUST REMAIN DENUDE FOR LONGER THAN 30 DAYS.

THE TYPE OF GROUND COVER APPLIED TO COMPLETED EARTHWORKS IS COMPATIBLE WITH THE ANTICIPATED LONG-TERM LAND USE, ENVIRONMENTAL RISK, AND SITE REHABILITATION MEASURES.

UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT OR WHERE DIRECTED BY THE APPROVED REVEGETATION PLAN, TOPSOIL MUST BE PLACED AT A MINIMUM DEPTH OF 100mm ON SLOPES 4:1 (H:V) OR FLATTER, AND 150mm ON SLOPES STEEPER THAN 4:1.

THE PH LEVEL (SOIL:WATER 1:5) OF TOPSOIL MUST BE ADEQUATE TO ENABLE ESTABLISHMENT AND GROWTH OF THE SPECIFIED VEGETATION. SOIL AMELIORANTS MUST BE ADDED TO THE SOIL IN ACCORDANCE WITH THE APPROVED LANDSCAPE/REVEGETATION PLANS AND/OR SOIL ANALYSIS.

TEMPORARY SITE STABILISATION PROCEDURES MUST COMMENCE AT LEAST 30 DAYS PRIOR TO THE NOMINATED SITE SHUTDOWN DATE. AT LEAST 80% STABLE COVER OF ALL UNSTABLE AND/OR DISTURBED SOIL SURFACES MUST BE ACHIEVED PRIOR TO THE START OF THE SHUTDOWN PERIOD. THE STABILISATION WORKS MUST NOT RELY UPON THE LONGEVITY OF NON-VEGETATED EROSION CONTROL BLANKETS, OR TEMPORARY SOIL BINDERS.

ALL UNSTABLE OR DISTURBED SOIL SURFACES MUST BE ADEQUATELY STABILISED AGAINST EROSION (MINIMUM 80% COVER) PRIOR TO COMMENCEMENT OF USE, OR SURVEY PLAN ENDORSEMENT.

E MONITORING

AT INSTREAM WATER MONITORING SITES, A MINIMUM OF 3 WATER SAMPLES MUST BE TAKEN AND ANALYSED, AND THE AVERAGE RESULT USED TO DETERMINE QUALITY.

SEDIMENT BASIN WATER QUALITY SAMPLES MUST BE TAKEN AT A DEPTH NO GREATER THAN 200MM ABOVE THE LEVEL OF SETTLED SEDIMENT.

ALL ENVIRONMENTALLY RELEVANT INCIDENTS AND REGULAR INSPECTION CHECK SHEETS MUST BE RECORDED IN A FIELD LOG THAT MUST REMAIN ACCESSIBLE TO ALL RELEVANT REGULATORY AUTHORITIES.

IT IS RECOMMENDED THAT PHOTOGRAPHS OF THE IMPLEMENTED CONTROL DEVICES BE TAKEN DURING THE REGULAR INSPECTIONS TO ASSIST WITH DEMONSTRATING THE IMPLEMENTATION OF THE EROSION AND SEDIMENT MEASURES ON SITE.

ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THEIR OPERATIONAL LIVES.

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE FULLY OPERATIONAL AND MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THE MAINTENANCE PERIOD AS SPECIFIED BY DEPWS.

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE REMOVED AFTER ACHIEVING A SATISFACTORY "OFF-MAINTENANCE INSPECTION" BY DEPWS, AND ADEQUATE STABILISATION OF THE CONTRIBUTING CATCHMENT HAS BEEN ACHIEVED.

ALL DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED:

- i) AT LEAST DAILY (WHEN WORK IS OCCURRING ON-SITE);
- ii) AT LEAST WEEKLY (WHEN WORK IS NOT OCCURRING ON-SITE);
- iii) WITHIN 24 HOURS OF EXPECTED RAINFALL, AND
- iiii) WITHIN 18 HOURS OF A RAINFALL EVENT OF SUFFICIENT INTENSITY AND DURATION TO CAUSE RUNOFF ON-SITE.

WASHING/FLUSHING OF SEALED ROADWAYS MUST ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS). IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES MUST BE USED TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT INTO RECEIVING WATERS. ONLY THOSE MEASURES THAT WILL NOT CAUSE SAFETY AND PROPERTY FLOODING ISSUES SHALL BE EMPLOYED. SEDIMENT REMOVED FROM ROADWAYS MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.

SEDIMENT REMOVED FROM SEDIMENT TRAPS AND PLACES OF SEDIMENT DEPOSITION MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.

MAINTENANCE MOWING OF ALL ROAD SHOULDERS, TABLE DRAINS, BATTERS AND OTHER SURFACES LIKELY TO EXPERIENCE ACCELERATED SOIL EROSION MUST AIM TO LEAVE THE GRASS LENGTH NO SHORTER THAN 50MM WHERE REASONABLE AND PRACTICABLE.

MAINTENANCE MOWING MUST BE DONE IN A MANNER THAT WILL NOT DAMAGE THE PROFILE OF FORMED, SOFT EDGES, SUCH AS THE CREST OF EARTH EMBANKMENTS.

THE CONTRACTOR SHOULD ALSO CONSIDER ESTABLISHING A WET WEATHER PREPAREDNESS PLAN THAT OUTLINES WHAT EROSION AND SEDIMENT CONTROL MEASURES / ACTIONS SHOULD BE UNDERTAKEN ON SITE IN THE EVENT OF A PREDICTED RAINFALL EVENT. AS A GUIDE THE CONTRACTOR COULD ADOPT THE EXPECTED 24-HOUR RAINFALL RANGES OUTLINED IN TABLE BELOW AS TRIGGERS FOR TAKING ACTION IN REGARDS TO PREPARING THE CONSTRUCTION SITE AND EXPOSED SURFACES FOR THE PREDICTED RAINFALL.

ALTERNATIVE EROSION RISK BASED ON EXPECTED DAILY AND AVERAGE MONTHLY RAINFALL		
EROSION RISK RATING	EXPECTED 24-HOUR RAINFALL	AVERAGE MONTHLY RAINFALL
VERY LOW	0 to 2mm	0 to 30mm
LOW	2+ to 10mm	30+ to 45mm
MODERATE	10+ to 25mm	45+ to 100mm
HIGH	25+ to 100mm	100+ to 225mm
EXTREME	> 100mm	> 225mm

EROSION AND SEDIMENT CONTROL TECHNIQUES AND ACTIONS THAT MAY BE UNDERTAKEN INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING MEASURES:

REVIEW THE CONDITION OF ALL EROSION, DRAINAGE AND SEDIMENT CONTROL DEVICES IMPLEMENTED ON SITE AND ENSURE THAT THESE MEASURES ARE IN AN EFFECTIVE OPERATIONAL CONDITION PRIOR TO THE EVENT. WORN, DAMAGED OR OTHERWISE DEFECTIVE MATERIALS AND COMPONENTS ARE TO BE REPAIRED OR REPLACED.

SEDIMENT CONTROL DEVICES WITH ACCUMULATED SEDIMENT VOLUMES IN EXCESS OF DESIGN CAPACITY SHOULD BE CLEANED OUT TO REINSTATE THE SEDIMENT AND STORAGE ZONE VOLUMES. MATERIALS REMOVED MUST BE DISPOSED OF IN A MANNER APPROVED BY THE COMPETENT AUTHORITY THAT DOES NOT CAUSE POLLUTION.

COVERING EXPOSED SOIL SURFACES STILL SUBJECT TO CONSTRUCTION WITH TEMPORARY EROSION CONTROL TECHNIQUES SUCH AS TEMPORARY EROSION CONTROL BLANKETS OR MATS, OR HYDRAULICALLY APPLIED BLANKETS. THE CONTRACTOR SHOULD CONSIDER RETAINING A STOCKPILE OF EROSION CONTROL MATERIALS ON SITE TO ENSURE MEASURES ARE READILY AVAILABLE AS NEEDED.

DEVELOPMENT PERMIT: DP18/0409
CONSTRUCTION PERIOD: SEPTEMBER 2024 - APRIL 2025 (TBC)
SUPERINTENDENT CONTACT: DAVID BRAMLEY (08 8942 8200)
ENGINEERING CONTACT: DAVID BRAMLEY (08 8942 8200)

CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature:

A	10/09/2024	FOR APPROVAL			
Rev.	Date	Description	Des.	Verif.	Appd.



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Drawn OAR
Checked C dB
Designed C dB
Verified AGO
Approved J. Carol

Client	DEFENCE HOUSING AUSTRALIA
Project	LEE POINT STAGE 2 (2CRU STAGE 1) LEE POINT ROAD, MUIRHEAD CITY OF DARWIN
Title	EROSION AND SEDIMENT CONTROL GENERAL NOTES

Status				FOR APPROVAL	
NOT TO BE USED FOR CONSTRUCTION PURPOSES					
Date	Date	Scale	Size		
AHD	Aug' 2024	As Shown	A1		
Drawing Number				Revision	
DC1603-2CRU-01-ES01				A	

CAD File: U:\304700475\Design Technical\Design Drawings\2CRU Design\DC1603-2CRU-01-ES01ES02.dwg

GENERIC INSTALLATION SEQUENCE:

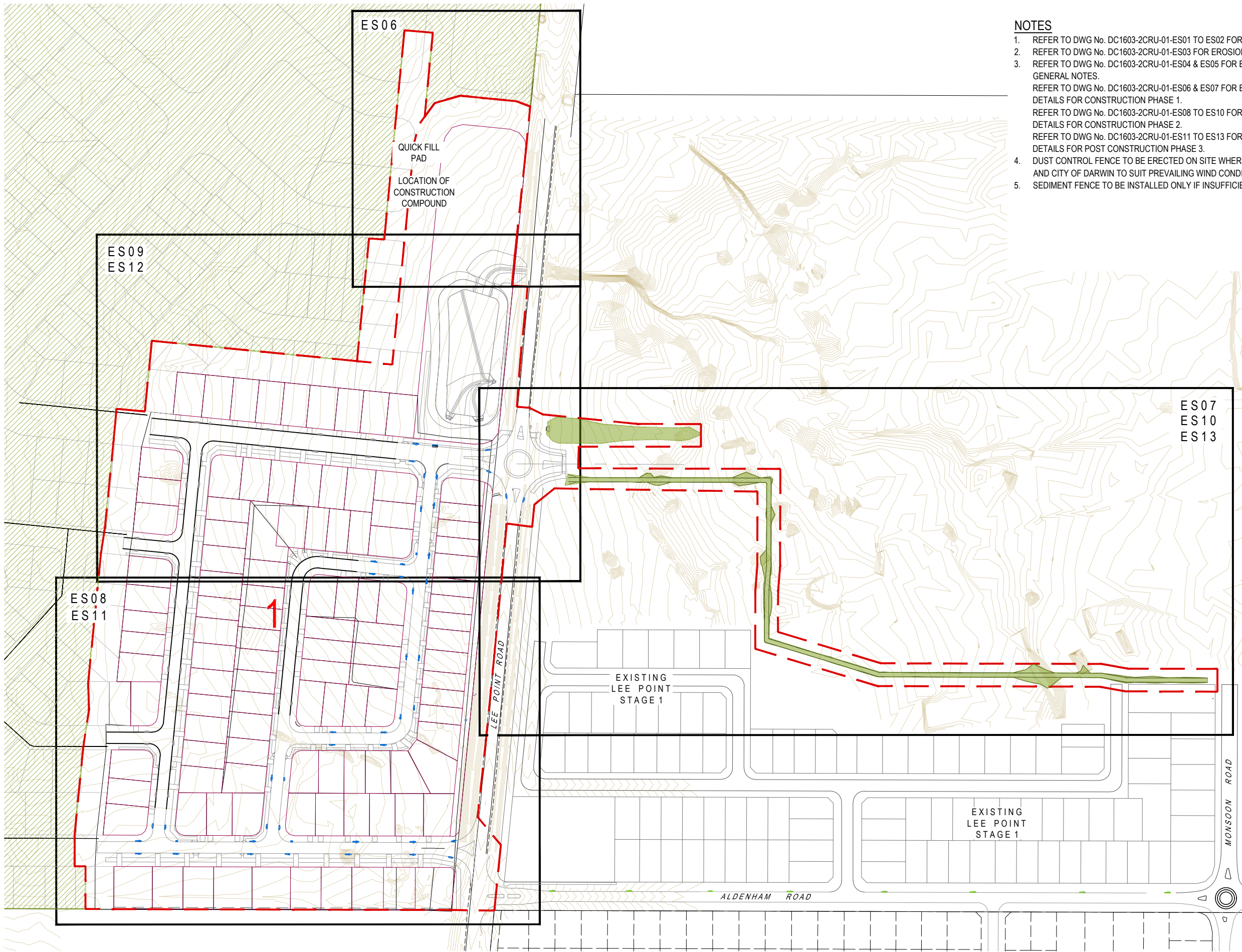
THIS INSTALLATION SEQUENCE ONLY SERVES AS A GENERIC GUIDE FOR THE MINIMUM EROSION AND SEDIMENT CONTROL (ESC) MEASURES FOR EVERY STAGE OF WORK, SITE CONDITION SUCH AS DISPERSIVE SOIL MAY WARRANT HIGHER ESC STANDARD (CONTACT SUPERINTENDENT OR THE ENGINEER PRIOR TO WORK).

CODE	ITEM	PLAN	INSTALLED	REMOVED
MARK OUT INITIAL LIMITS OF DISTURBANCE. IDENTIFY LOCATION OF DISPERSIVE SOIL IF ANY. IF DISPERSIVE SOIL IS ENCOUNTERED CONTACT THE SUPERINTENDENT PRIOR TO COMMENCING WORK.				
Entry/Exit	Construction entry/exit – vibration grid	DWG. DC1603-MHN-1B-ES04, DC1603-MHN-1B-ES20 & DC1603-MHN-1B-ES10	Day One	When Entry/Exit is no longer required
SF	Sediment Fence with Woven Fabric	DWG. DC1603-MHN-1B-ES04 TO DC1603-MHN-1B-ES08 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	Prior to clearing of upslope areas	When site office and Stockpile is removed and when upslope site is suitably stabilised
Site Office	Site Office		Day One	End of Work
Stockpile	Stockpile/Waste/Parts Washdown Area		Day One	End of Work
CD	Parabolic Catch Drain without bank – Type A	DWG. DC1603-MHN-1B-ES04 TO DC1603-MHN-1B-ES08 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	Day One	After site stabilisation
MB	Mulch Filter Berms	DWG. DC1603-MHN-1B-ES04 TO DC1603-MHN-1B-ES08 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	As soon as construction activities allows. Install as required	After site stabilisation or house construction on each individual lots commenced
OG, SA, FD	On Grade, Sag, and Fabric Drop Inlet Protection	DWG. DC1603-MHN-1B-ES07 & DC1603-MHN-1B-ES08	As soon as inlets and pipes are constructed	After site stabilisation
GFS	1.2m Grass Filter Strip	DWG. DC1603-MHN-1B-ES07 & DC1603-MHN-1B-ES08		NA
LS	Level Spreader	DWG. DC1603-MHN-1B-ES04 & DC1603-MHN-1B-ES06 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	As soon as construction activities allows. Downslope land condition to be determined on site	When next stage begins and LS is no longer required
FR	Fibre Roll	DWG. DC1603-MHN-1B-ES04 TO DC1603-MHN-1B-ES08 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	As soon as open drains are constructed	After site stabilisation
RCD	Rock Check Dam	DWG. DC1603-MHN-1B-ES04 TO DC1603-MHN-1B-ES08 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	As soon as construction activities allows. Provide geotextile splash pad and ensure 150mm is provided between centre and outer check dam wing.	After drain stabilisation
RFD	Rock Filter Dam	DWG. DC1603-MHN-1B-ES04 TO DC1603-MHN-1B-ES08 & DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	Following installation of boundary sediment controls and prior to land clearing	After adequate stabilisation of contributing upslope catchment
Dust	Dust Suppression		At sufficient interval to suppress dust generation	N/A
Revegetation	Revegetation by native species grassing in any disturbed areas		As soon as practicable	N/A
SB	Sediment Basin	DWG. DC1603-MHN-1B-ES20 TO DC1603-MHN-1B-ES22	Following installation of boundary sediment controls and prior to land clearing	After adequate stabilisation of contributing upslope catchment

EROSION RISK ASSESSMENT - DECEMBER									
CATCHMENT ID	AREA (ha)	R	K	LS	P	C	A (t/ha/month)	A (t/month)	CONTROL
WHOLE SITE (ANNUAL)	10.36	15724	0.053	0.58	1.3	1	628	6510	TYPE 1
1A	7.6	2355	0.053	1.00	1.3	1	162	1249	TYPE 1
1B	2.66	2355	0.053	0.58	1.3	1	94	250	TYPE 1
1C	0.25	2355	0.053	0.58	1.3	1	94	24	TYPE 1

CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature:

[illegible]



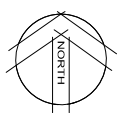
- NOTES**
1. REFER TO DWG No. DC1603-2CRU-01-ES01 TO ES02 FOR GENERAL NOTES.
 2. REFER TO DWG No. DC1603-2CRU-01-ES03 FOR EROSION AND SEDIMENT CONTROL KEY PLAN.
 3. REFER TO DWG No. DC1603-2CRU-01-ES04 & ES05 FOR EROSION AND SEDIMENT CONTROL GENERAL NOTES.
 4. REFER TO DWG No. DC1603-2CRU-01-ES06 & ES07 FOR EROSION AND SEDIMENT CONTROL DETAILS FOR CONSTRUCTION PHASE 1.
 5. REFER TO DWG No. DC1603-2CRU-01-ES08 TO ES10 FOR EROSION AND SEDIMENT CONTROL DETAILS FOR CONSTRUCTION PHASE 2.
 6. REFER TO DWG No. DC1603-2CRU-01-ES11 TO ES13 FOR EROSION AND SEDIMENT CONTROL DETAILS FOR POST CONSTRUCTION PHASE 3.
 7. DUST CONTROL FENCE TO BE ERECTED ON SITE WHERE DIRECTED BY THE SUPERINTENDENT AND CITY OF DARWIN TO SUIT PREVAILING WIND CONDITIONS.
 8. SEDIMENT FENCE TO BE INSTALLED ONLY IF INSUFFICIENT MULCH AVAILABLE ON SITE.

CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature: *T. Clark*

Rev.	Date	Description	Des.	Verif.	Appd.



Development Permit: DP018/0409



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Drawn	Date	Client
OAR	Aug 24	DEFENCE HOUSING AUSTRALIA
Checked	Date	Project
C dB	Aug 24	LEE POINT STAGE 2 (2CRU STAGE 1)
Designed	Date	LEE POINT ROAD, MUIRHEAD
C dB	Aug 24	CITY OF DARWIN
Verified	Date	Title
AGO	Aug 24	EROSION AND SEDIMENT CONTROL
Approved	Date	KEY PLAN

T. Clark

Status					FOR APPROVAL						
NOT TO BE USED FOR CONSTRUCTION PURPOSES											
Datum			Date		Scale			Size		A1	
AHD			Aug' 2024		Not to Scale						
Drawing Number								Revision			
DC1603-2CRU-01-ES03											

MATERIALS

* SANDBAGS: GEOTEXTILE BAGS (WOVEN SYNTHETIC, OR NON-WOVEN BIODEGRADABLE) FILLED WITH CLEAN COARSE SAND, CLEAN AGGREGATE, OR COMPOST.

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. PRIOR TO PLACEMENT OF THE SEDIMENT TRAP, ENSURE THE DRAINAGE CHANNEL IS DEEP ENOUGH TO PREVENT WATER BEING UNSAFELY DIVERTED OUT OF THE DRAIN ONCE THE CHECK DAMS ARE INSTALLED.
3. LOCATE EACH CHECK DAM SEDIMENT TRAP AS DIRECTED WITHIN THE APPROVED PLANS, OR OTHERWISE AS SUCH A SPACING TO ACHIEVE THE REQUIRED SEDIMENT TRAPPING OUTCOMES.
4. IF THE CHECK DAMS ARE ALSO BEING USED TO CONTROL EROSION WITHIN THE DRAINAGE CHANNEL, THEN LOCATE EACH SUCCESSIVE CHECK DAM SUCH THAT THE CREST OF THE IMMEDIATE DOWNSTREAM DAM IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM CHECK DAM.
5. CONSTRUCT EACH CHECK DAM TO THE DIMENSIONS AND PROFILE SHOWN WITHIN THE APPROVED PLAN.
6. WHERE THE CHECK DAM IS TO BE CONSTRUCTED ON A SHEET OF GEOTEXTILE FABRIC USED AS A DOWNSTREAM SPLASH PAD.
7. EACH CHECK DAM MUST BE EXTENDED UP THE CHANNEL BANK (WHERE PRACTICABLE) TO AN ELEVATION AT LEAST 150MM ABOVE THE CREST LEVEL OF THE DAM.

1. INSPECT EACH CHECK DAM AND THE DRAINAGE CHANNEL AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.
2. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN ANY OF THE CHECK DAMS, THEN CHECK THE SPACING OF THE DAMS AND WHERE NECESSARY INSTALL INTERMEDIATE CHECK DAMS OR A SUITABLE CHANNEL LINER.
3. CHECK FOR DISPLACEMENT OF THE CHECK DAMS.
4. CHECK FOR EROSION AROUND THE ENDS OF EACH CHECK DAM. IF SUCH EROSION IS OCCURRING, CONSIDER ENLARGING THE WIDTH OF THE CHECK DAMS TO AVOID SUCH PROBLEMS.
5. IF SEVERE SOIL EROSION OCCURS EITHER UNDER OR AROUND THE CHECK DAMS, THEN SEEK EXPERT ADVICE ON AN ALTERNATIVE TREATMENT MEASURE.
6. DE-SILT SEDIMENT TRAP IF THE SEDIMENT LEVEL EXCEEDS 1/3 THE CREST HEIGHT.
7. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

1. WHEN CONSTRUCTION WORK WITHIN THE DRAINAGE AREA ABOVE THE CHECK DAMS HAS BEEN COMPLETED AND DISTURBED AREAS SUFFICIENTLY STABILIZED TO RESTRAIN EROSION, THE DAMS MUST BE REMOVED, UNLESS THE SEDIMENT TRAPS ARE TO REMAIN AS A PERMANENT FEATURE.
2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. REMOVE AND APPROPRIATELY DISPOSE OF ALL MATERIALS INCLUDING ANY GEOTEXTILE FABRIC.
4. STABILISE THE DISTURBED CHANNEL WITH A LINING OF FABRIC AND ROCK, OR ESTABLISH VEGETATION AS APPROPRIATE.

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.
3. INSTALL SEDIMENT TRAP IN ACCORDANCE WITH STANDARD DRAWING SUPPLIED WITH THE APPROVED PLAN, OR AS DIRECTED BY THE SITE SUPERVISOR.
4. ENSURE THE SEDIMENT TRAP IS LOCATED AT THE UP-SLOPE OF AN ON-GRADGE KERB INLET. THE SEDIMENT TRAP MUST NOT SURROUND THE KERB INLET UNLESS SPECIFICALLY DIRECTED BY THE SITE SUPERVISOR.
5. IF NECESSARY, INSTALL ADDITIONAL SEDIMENT TRAPS UP-SLOPE OF THE KERB INLET TO ADEQUATELY RETAIN THE EXPECTED QUANTITY OF SEDIMENT RUNOFF.
6. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.

1. INSPECT ALL SEDIMENT TRAPS DAILY AND IMMEDIATELY AFTER RUNOFF-PRODUCING RAINFALL. MAKE REPAIRS AS NEEDED.
2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. ENSURE SEDIMENT DOES NOT ENTER THE STORMWATER DRAIN DURING DE-SILTING OPERATIONS AND MAINTENANCE OF THE TRAP.
4. SEDIMENT ON THE ROAD MUST BE REMOVED IMMEDIATELY IF IT REPRESENTS A SAFETY HAZARD.

1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.
3. INSTALL SEDIMENT TRAP IN ACCORDANCE WITH STANDARD DRAWING SUPPLIED WITH THE APPROVED PLAN, OR AS DIRECTED BY THE SITE SUPERVISOR.
4. ENSURE THE SEDIMENT TRAP IS ON THE DOWN-SLOPE OF AN ON-GRAD KERB INLET. THE SEDIMENT TRAP MUST NOT SURROUND THE KERB INLET UNLESS SPECIFICALLY DIRECTED BY THE SITE SUPERVISOR.
5. IF NECESSARY, INSTALL ADDITIONAL SEDIMENT TRAP(S) ON THE DOWN-SLOPE OF THE KERB INLET TO ADEQUATELY RETAIN THE EXPECTED QUANTITY OF SEDIMENT RUNOFF.
6. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.

1. INSPECT ALL SEDIMENT TRAPS DAILY AND IMMEDIATELY AFTER RUNOFF-PRODUCING RAINFALL. MAKE REPAIRS AS NEEDED.
2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. ENSURE SEDIMENT DOES NOT ENTER THE STORMWATER DRAIN DURING DE-SILTING OPERATIONS AND MAINTENANCE OF THE TRAP.
4. SEDIMENT ON THE ROAD MUST BE REMOVED IMMEDIATELY IF IT REPRESENTS A SAFETY HAZARD.

1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

FOR INSTALLATION, MAINTENANCE AND REMOVAL NOTES REFER TO STANDARD DRAWING SD-RFD-02.

INSTALLATION

MAINTENANCE

REMOVAL

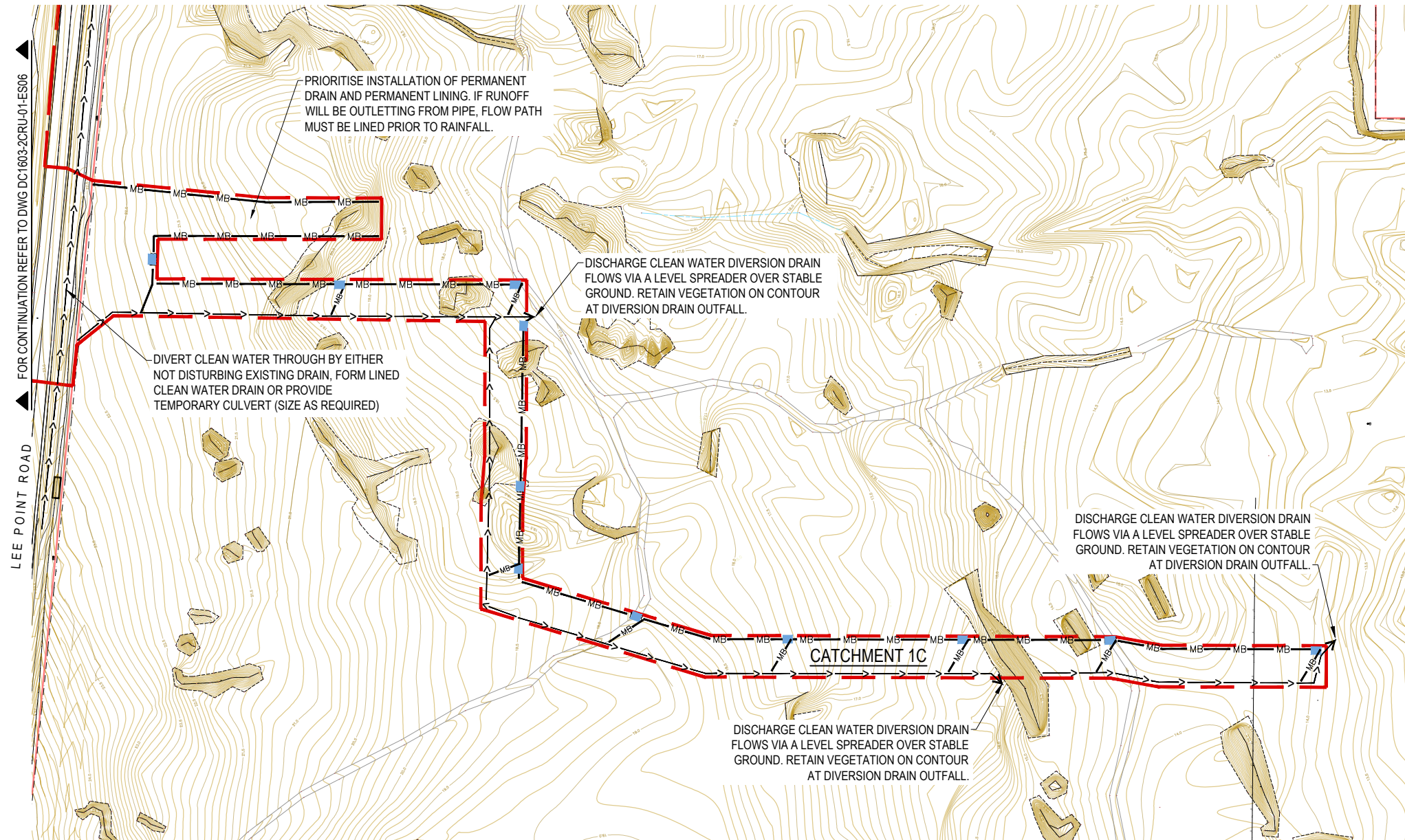
METHODOLOGY

MAINTENANCE

FUTURE USE

1. WIND BUFFER AREA WILL BE REPLACED WITH RURAL RESIDENTIAL LOTS AND A STABILISED DETENTION BASIN DURING FUTURE STAGE WORKS

[illegible]



LEGEND	
	SEDIMENT FENCE
	ON GRADE KERB INLET SEDIMENT TRAP
	SAG KERB INLET SEDIMENT TRAP
	FABRIC DROP INLET PROTECTION
	GULLY BAG INLET PROTECTION
	ROCK CHECK DAM
	FIBRE ROLL
	ROCK WEIR AT END OF BERM. REFER DWG No. DC1603-2CRU-01-ES15 FOR DETAILS
	EXISTING SURFACE CONTOURS
	MULCH FILTER BERM (REFER NOTE 8)
	CATCH DRAIN
	DIVERSION DRAIN - (FOR LABELLED DIVERSION DRAINS REFER TABLE ON DWG No. DC1603-2CRU-01-ES14 FOR DETAILS)
	FLOW DIRECTION
	ROCK FILTER DAM (REFER TABLE ON DWG No. DC1603-2CRU-01-ES14 FOR DETAILS)
	AREA TO BE CLEARED FOR CONSTRUCTION WORKS
	NO-GO RESTRICTED AREA
	TYPE B SEDIMENT BASIN (REFER TO TABLE ON DWG. NO. DC1603-2CRU-01-ES19)

NOTES

- THE CONTRACTOR IS TO IMPLEMENT PRE-CONSTRUCTION CONTROLS PRIOR TO COMMENCEMENT OF ANY EARTHWORKS ON SITE.
- REFER TO DWG No. DC1603-2CRU-01-ES01 TO ES02 FOR GENERAL NOTES.
- REFER TO DWG No. DC1603-2CRU-01-ES03 FOR EROSION AND SEDIMENT CONTROL KEY PLAN.
- REFER TO DWG No. DC1603-2CRU-01-ES12 TO ES09 FOR EROSION AND SEDIMENT CONTROL DETAILS FOR CONSTRUCTION PHASE 2. REFER TO DWG No. DC1603-2CRU-01-ES11 TO ES12 FOR EROSION AND SEDIMENT CONTROL DETAILS FOR CONSTRUCTION PHASE 3.
- REFER TO DWG No. DC1603-2CRU-01-ES15 TO ES17 AND ES23 TO ES24 FOR EROSION AND SEDIMENT CONTROL DETAILS.
- REFER TO DWG No. DC1603-2CRU-01-ES04 & ES05 FOR EROSION AND SEDIMENT CONTROL DETAILS NOTES.
- DUST CONTROL FENCE TO BE ERECTED ON SITE WHERE DIRECTED BY THE SUPERINTENDENT AND CITY OF DARWIN TO SUIT PREVAILING WIND CONDITIONS.
- SEDIMENT FENCE TO BE INSTALLED ONLY IF INSUFFICIENT MULCH AVAILABLE ON SITE. MAXIMUM SPACING OF LATERAL BERM/DRAINS IS 80m.

WET SEASON NOTES

- WORKS MUST BE STAGED TO THE MAXIMUM EXTENT PRACTICAL, GIVEN INCREASED EROSION RISK DURING WET SEASON.
- WORKS SHALL BE LIMITED TO THAT WHICH CAN BE COMPLETED (CLEARED, TRENCH, PIPE INSTALLATION, BACKFILL AND STABILISATION) WITHIN A MAXIMUM 5 DAYS.
- STABILISATION CAN BE ACHIEVED BY TOPSOIL AND HYDROMULCH. AS AN INTERIM MEASURE TOPSOIL CAN BE APPLIED WITH A HEAVY APPLICATION OF SOIL BINDER UNTIL SUFFICIENT AREA IS COMPLETED FOR HYDROMULCH APPLICATION.

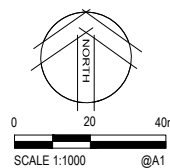
CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature:

T. Clark

Rev.	Date	Description	Des.	Verif.	Appd.
A	10/09/2024	FOR APPROVAL			



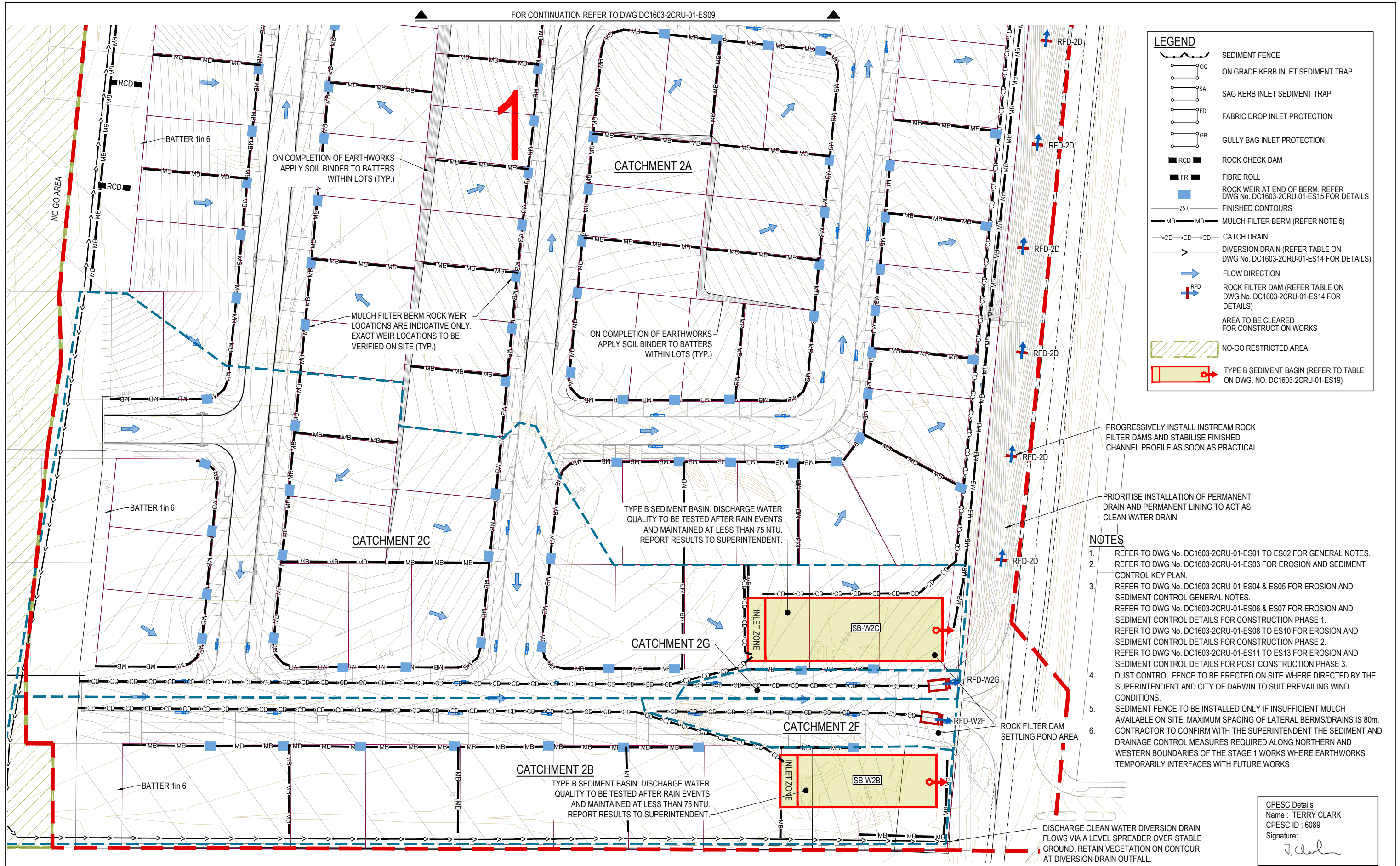
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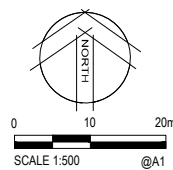
Drawn OAR	Date June '22	Client DEFENCE HOUSING AUSTRALIA	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Checked C dB	Date June '22	Project LEE POINT STAGE 2 (2CRU STAGE 1)	Datum AHD
Designed C dB	Date June '22	City of Darwin	Date Aug' 2024
Verified AGO	Date June '22	Title EROSION AND SEDIMENT CONTROL PHASE 1 - PRE CONSTRUCTION LAYOUT PLAN - SHEET 2 OF 2	Scale As Shown
Approved <i>T. Clark</i>	Date June '22		Size A1
			Drawing Number DC1603-2CRU-01-ES07
			Revision A



Rev.	Date	Description	Des.	Verif.	Appd.
A	10/09/2024	FOR APPROVAL			



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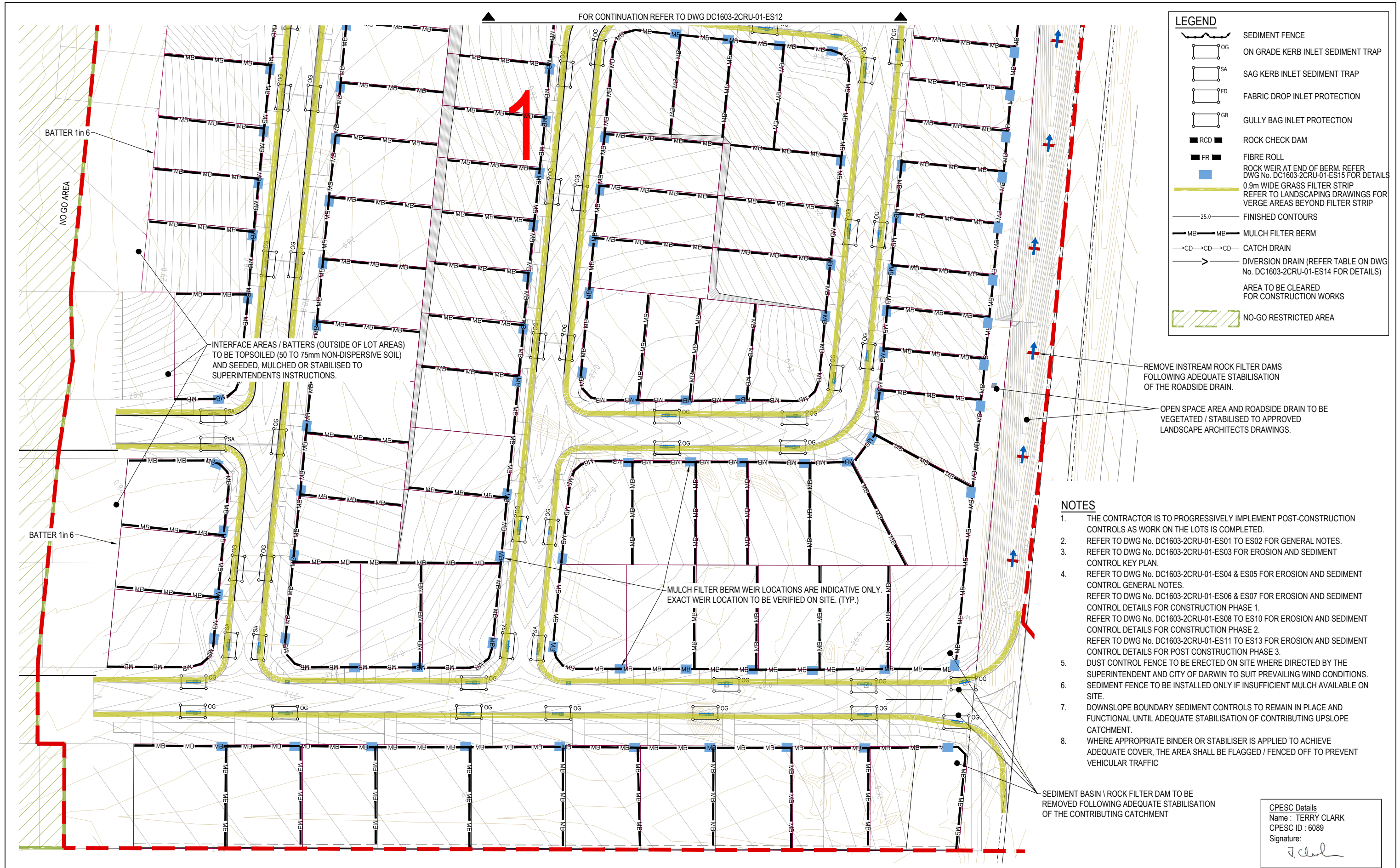
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Drawn	OAR	Date	Aug 24
Checked	C dB	Date	Aug 24
Designed	C dB	Date	Aug 24
Verified	AGO	Date	Aug 24
Approved	J. Clark	Date	

Client	DEFENCE HOUSING AUSTRALIA
Project	LEE POINT STAGE 2 (2CRU STAGE 1)
	LEE POINT ROAD, MURHEAD
	CITY OF DARWIN
Title	EROSION AND SEDIMENT CONTROL PLAN
	CONSTRUCTION PHASE 2
	SHEET 1 OF 3

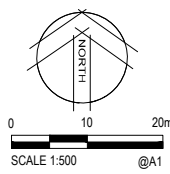
Status	FOR APPROVAL
Datum	AHD
Date	Aug 2024
Scale	As Shown
Size	A1
Drawing Number	DC1603-2CRU-01-ES08
Revision	A



Rev.	Date	Description	Des.	Verif.	Appd.



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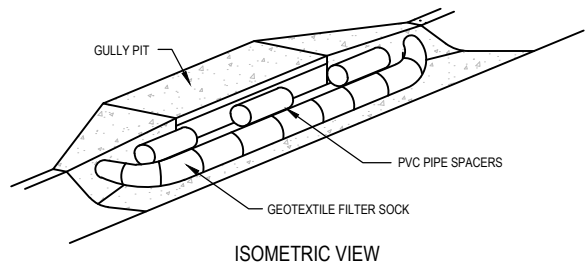


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Drawn OAR	Date Aug 24	Client DEFENCE HOUSING AUSTRALIA
Checked C dB	Date Aug 24	Project LEE POINT STAGE 2 (2CRU STAGE 1)
Designed C dB	Date Aug 24	Location LEE POINT ROAD, MURHEAD CITY OF DARWIN
Verified AGO	Date Aug 24	Title EROSION AND SEDIMENT CONTROL PLAN POST CONSTRUCTION PHASE 3
Approved <i>T. Clark</i>	Date Aug 24	Sheet SHEET 1 OF 3

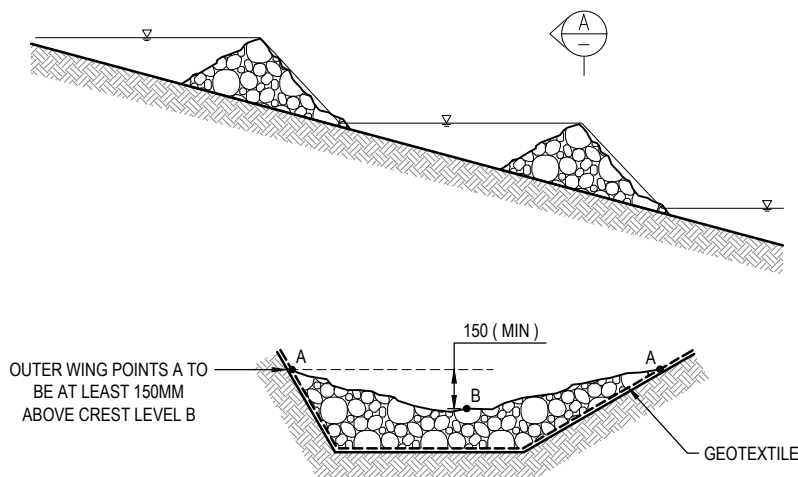
Status NOT TO BE USED FOR CONSTRUCTION PURPOSES	Date Aug 2024	Scale As Shown	Size A1
Datum AHD	Date Aug 2024	Scale As Shown	Size A1
Drawing Number DC1603-2CRU-01-ES11	Revision		



REFER DWG. NO. DC1603-2CRU-01-ES05 AND IECA BPESC STD. DWG. SD-SA-01 FOR FURTHER INFORMATION.

SAG KERB INLET SEDIMENT TRAP

N.T.S.



SECTION A

NTS

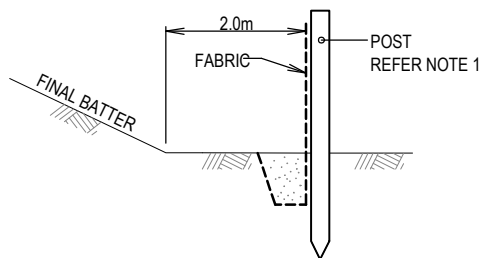
REFER DWG. NO. DC1603-2CRU-01-ES05 AND IECA BPESC STD. DWG. SD-RCD-01 FOR FURTHER INFORMATION.

ROCK CHECK DAM

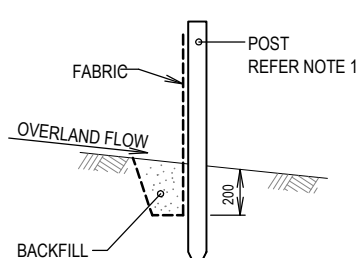
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DIMENSIONS - ROCK CHECK DAM

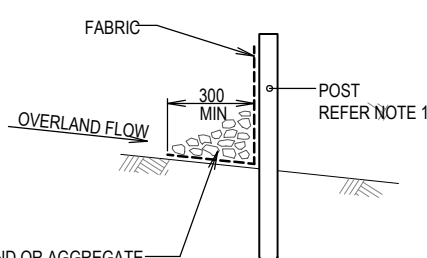
- MAXIMUM HEIGHT OF 0.5m UNLESS FORMALLY DESIGNED.
- MAXIMUM HEIGHT 1m IF FORMALLY DESIGNED.
- WEIR INVERT TO BE AT LEAST 150mm LOWER THAN OUTER EDGES.
- MAXIMUM BANK SLOPE OF 2(H): 1(V).
- ROCK 150mm-300mm NOMINAL DIAMETER, HARD, EROSION RESISTANT ROCK. SMALLER ROCK MAY BE USED IF SUITABLE LARGE ROCK IS NOT AVAILABLE



LOCATION OF FENCE RELATIVE TO BASE OF SLOPE



ALTERNATIVE 1



ALTERNATIVE 2

ANCHORING BASE OF FABRIC

ROCK FILTER DAM DETAILS TABLE

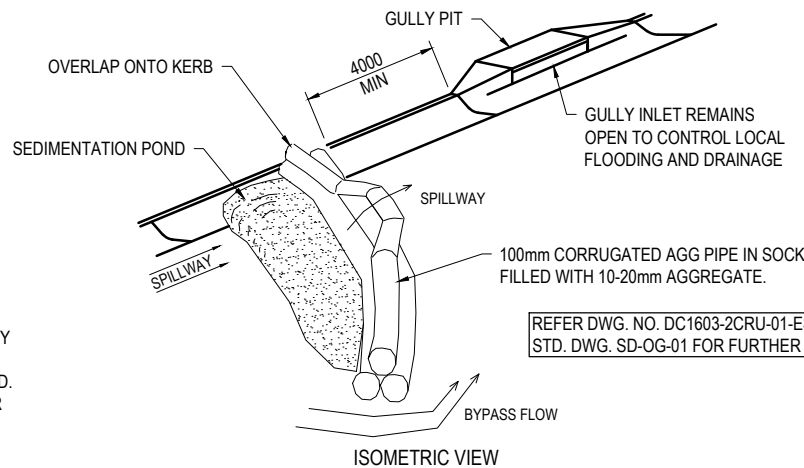
DEVICE ID	CATCHMENT ID	MIN. SETTLING POND SURFACE AREA	SUGGESTED SETTLING POND LENGTH	SUGGESTED SETTLING POND WIDTH	DEVICE THICKNESS (IN DIRECTION OF FLOW) (D)	HEIGHT OF ROCK FILTER (WEIR) (H _i)	FILTER AGGREGATE SIZE	MIN. THICKNESS OF FILTER AGGREGATE	MIN. CORE ROCK SIZE	WIDTH OF FILTER DAM (W _i)	SPILLWAY LENGTH (W ₂)	SPILLWAY DEPTH	EMBANKMENT HEIGHT (H ₂)
RFD-W1C	1C	154m ²	5.0m	3.0m	MIN. 1.50m	0.30m	25mm	0.30m	250mm	2.0m	2.0m	0.45m	0.60m
RFD-W2F	2F	11m ²	2.0m	6.0m	MIN. 1.50m	0.3m	25mm	0.30m	250mm	1.5m	1.5m	0.45m	0.60m
RFD-W2G	2G	7m ²	2.0m	4.0m	MIN. 1.50m	0.30m	25mm	0.30m	250mm	1.0m	1.0m	0.45m	0.60m
RFD-2D	ROADSIDE DRAIN	VARIES	VARIES	VARIES	MIN. 1.50m	0.30m	25mm	0.30m	250mm	1.5m	5.0m	VARIES	0.65m

- REFER TYPICAL ROCK FILTER DAM OUTLET WEIR DETAILS FOR LOCATION OF VARIABLES 'D' 'H_i' 'H₂' 'W_i' AND 'W₂' FROM THE ABOVE TABLE.
- OFF-LINE ROCK FILTER DAM DETAILS BASED ON 3 MONTH ARI PEAK FLOWS FILTERING THROUGH FILTER AGGREGATE, WITH SPILLWAY SIZED FOR 2 YEAR ARI PEAK FLOWS.
- SUITABILITY OF DEVICE AND DEVICE DETAILS TO BE CONFIRMED ON SITE.
- REFER IECA STD DWG SD-RFD-01 AND SD-RFD-02 FOR TYPICAL ROCK FILTER DAM DETAILS
- REFER IECA STD DWG SD-RFD-03 AND SD-RFD-04 FOR TYPICAL INSTREAM ROCK FILTER DAM DETAILS (RFD-2D ONLY)

CLEAN WATER DIVERSION DRAINS DETAILS TABLE

DEVICE ID	CATCHMENT ID	LINING MATERIAL	MINIMUM LONGITUDINAL GRADE	LEFT HAND BATTER SLOPE	CHANNEL BASE WIDTH	RIGHT HAND BATTER SLOPE	DEPTH OF FLOW	MINIMUM FREEBOARD	ADOPTED DEPTH
DD-EX1	EX1	GEOTEXTILE LINING	1.0%	1 IN 2	0.5m	1 IN 2	0.25m	0.15m	0.4m
DD-EX2	EX2	GEOTEXTILE LINING	1.0%	1 IN 2	0.5m	1 IN 2	0.35m	0.15m	0.5m
DD-EX3	EX2 + EX3	GEOTEXTILE LINING	1.0%	1 IN 2	0.9m	1 IN 2	0.35m	0.15m	0.5m
DD-EX4	EX4	GEOTEXTILE LINING	1.0%	1 IN 2	0.5m	1 IN 2	0.25m	0.15m	0.4m
DD-EX5	EX2 + EX3 + EX4	GEOTEXTILE LINING	1.0%	1 IN 2	1.2m	1 IN 2	0.35m	0.15m	0.5m

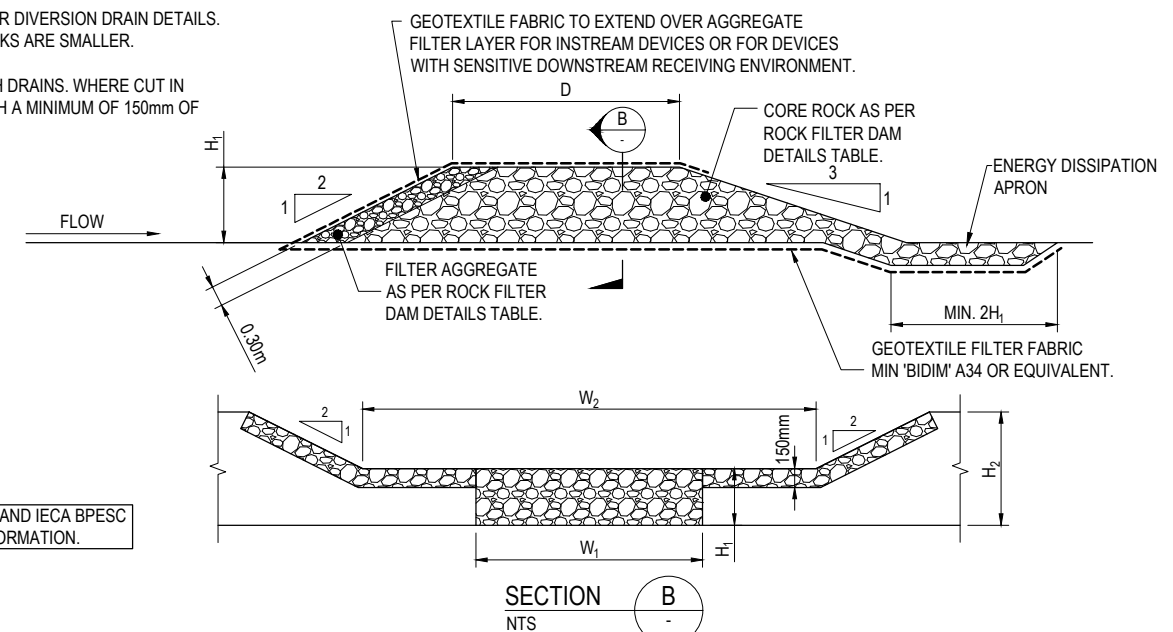
- LEFT AND RIGHT HAND SIDE ARE BASED ON THE ASSUMPTION OF FACING DOWNSTREAM
- REFER TO IECA STD DWG SD-DC-01, SD-CD-01, SD-CD-02, SD-CD-03, SD-CD-04 AND SD-CD-05 FOR TYPICAL CLEAN WATER DIVERSION DRAIN DETAILS.
- d50 ROCK SIZE DENOTES THE DIAMETER OF WHICH 50% OF THE ROCKS ARE SMALLER, d90 OF WHICH 90% OF THE ROCKS ARE SMALLER.
- ROCK SIZE DISTRIBUTION (d50/d90) ASSUMED TO BE 0.67
- FOR IDENTIFIED DISPERSIVE SOILS AREAS, FLOW DIVERSION BUNDS/BANKS SHOULD BE ADOPTED OVER CUT IN CATCH DRAINS. WHERE CUT IN DRAINS ARE NECESSARY WITHIN DISPERSIVE SOIL AREAS, THESE CATCH DRAINS SHOULD BE ADEQUATELY LINED WITH A MINIMUM OF 150mm OF NON-DISPERSIVE MATERIAL PRIOR TO THE INSTALLATION OF OTHER TEMPORARY CHANNEL LININGS OR CHECK DAMS.



ON-GRADE KERB INLET SEDIMENT TRAP

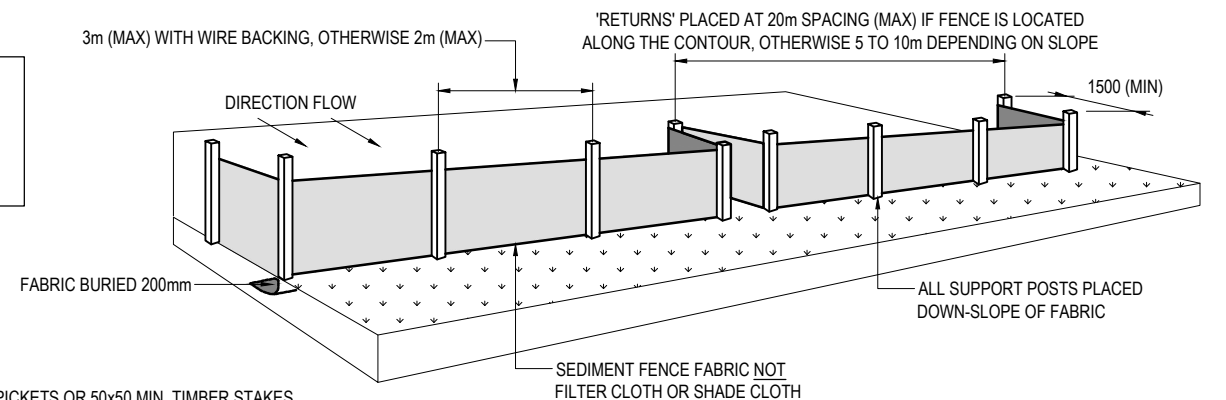
N.T.S.

REFER DWG. NO. DC1603-2CRU-01-ES05 AND IECA BPESC STD. DWG. SD-OG-01 FOR FURTHER INFORMATION.



TYPICAL ROCK FILTER DAM OUTLET WEIR

N.T.S.



INSTALLATION OF SEDIMENT FENCE

N.T.S.

NOTES

- POSTS ARE TO BE STAR PICKETS OR 50x50 MIN. TIMBER STAKES. STEEL DROPPERS ARE NOT TO BE USED.
- REFER DWG. NO. DC1603-2CRU-01-ES04 AND IECA BPESC STD. DWG. SD-SF-01 AND SD-SF-02 FOR FURTHER INFORMATION.

Rev.	Date	Description	Des.	Verif.	Appd.
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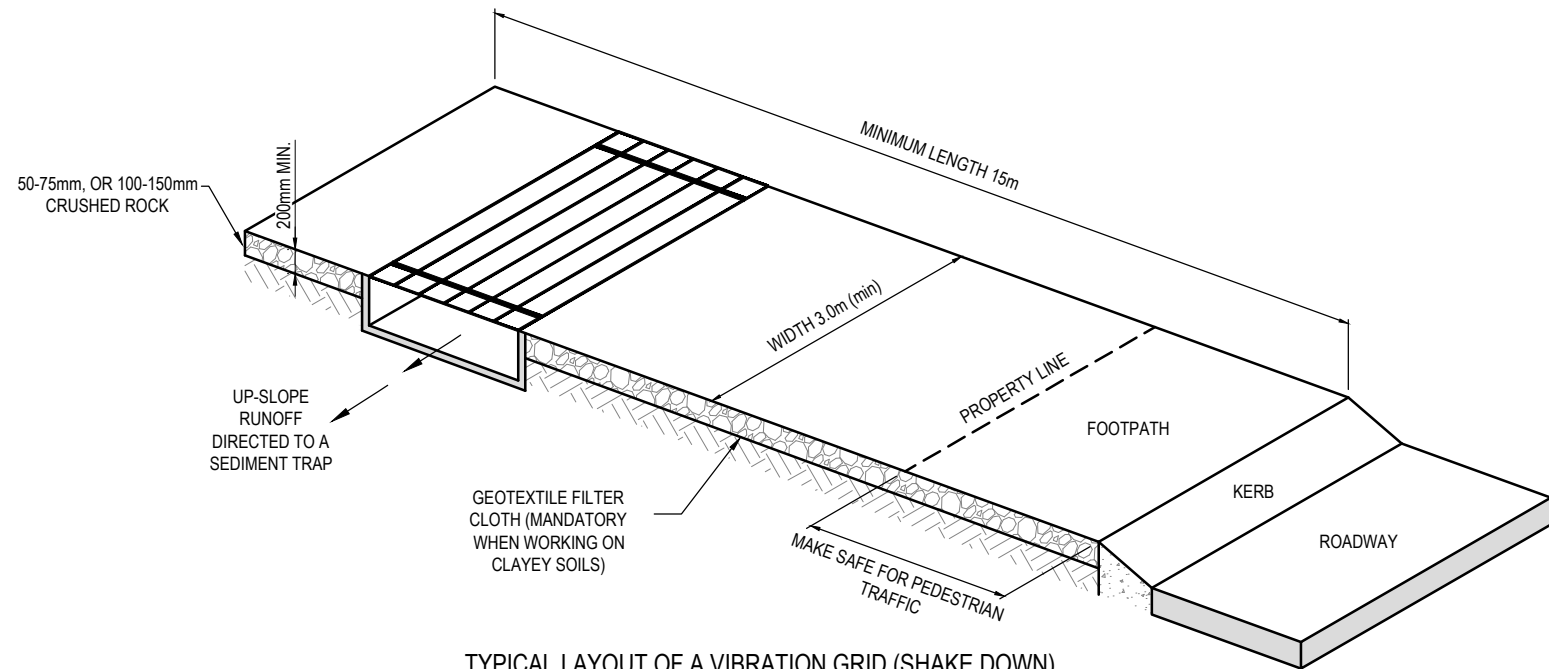


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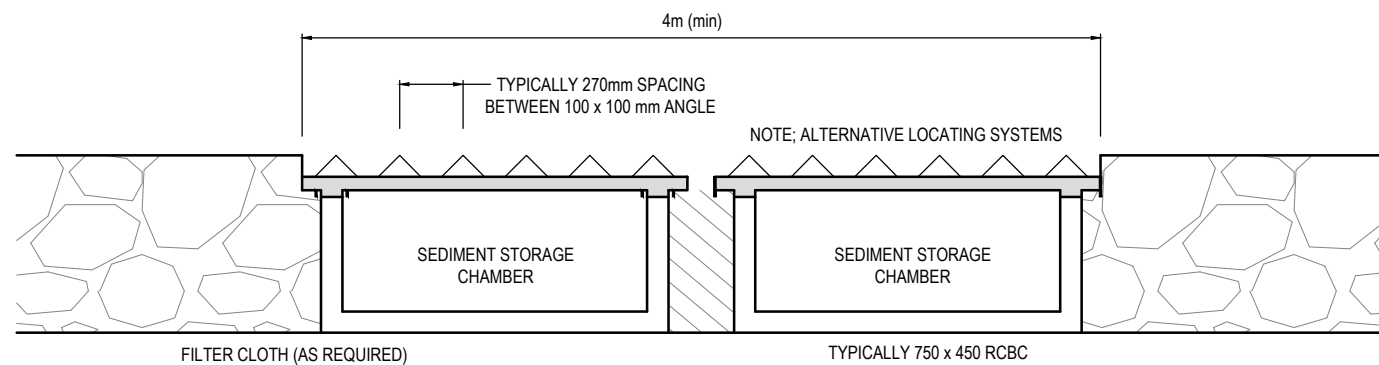
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Drawn OAR	Date June '22	Client DEFENCE HOUSING AUSTRALIA
Checked C dB	Date June '22	Project LEE POINT STAGE 2 (2CRU STAGE 1)
Designed C dB	Date June '22	Location LEE POINT ROAD, MUIRHEAD CITY OF DARWIN
Verified AGO	Date June '22	Title EROSION AND SEDIMENT CONTROL DETAILS
Approved J. Clark	Date	Sheet SHEET 1 OF 3
Status NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Datum AHD	Date Aug 2024	Scale As Shown
Drawing Number DC1603-2CRU-01-ES14	Size A1	Revision A

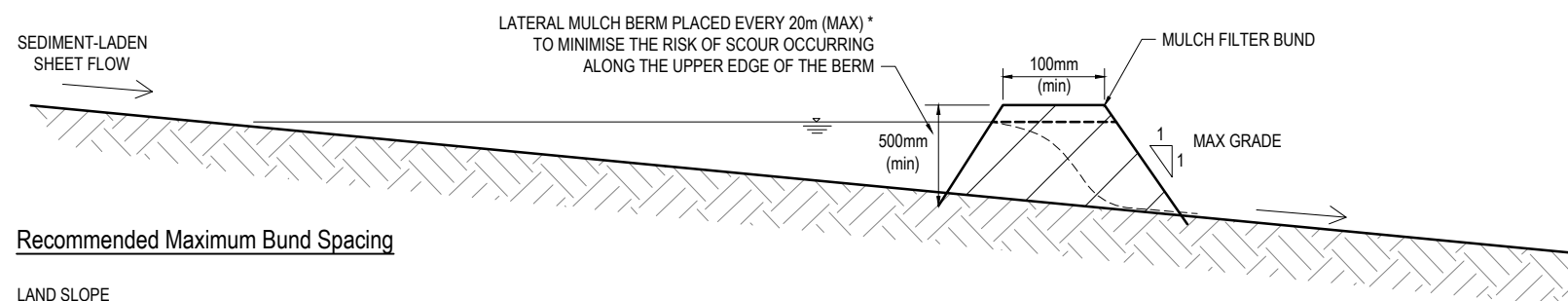


TYPICAL LAYOUT OF A VIBRATION GRID (SHAKE DOWN)
N.T.S.



REFER DWG. NO. DC1603-2CRU-01-ES04 AND IECA BPESC STD.
DWG. SD-EXIT-04 AND SD-EXIT-05 FOR FURTHER INFORMATION.

TYPICAL PROFILE OF VIBRATION PANELS
N.T.S.



Recommended Maximum Bund Spacing

LAND SLOPE
2%
5%
10%
20%

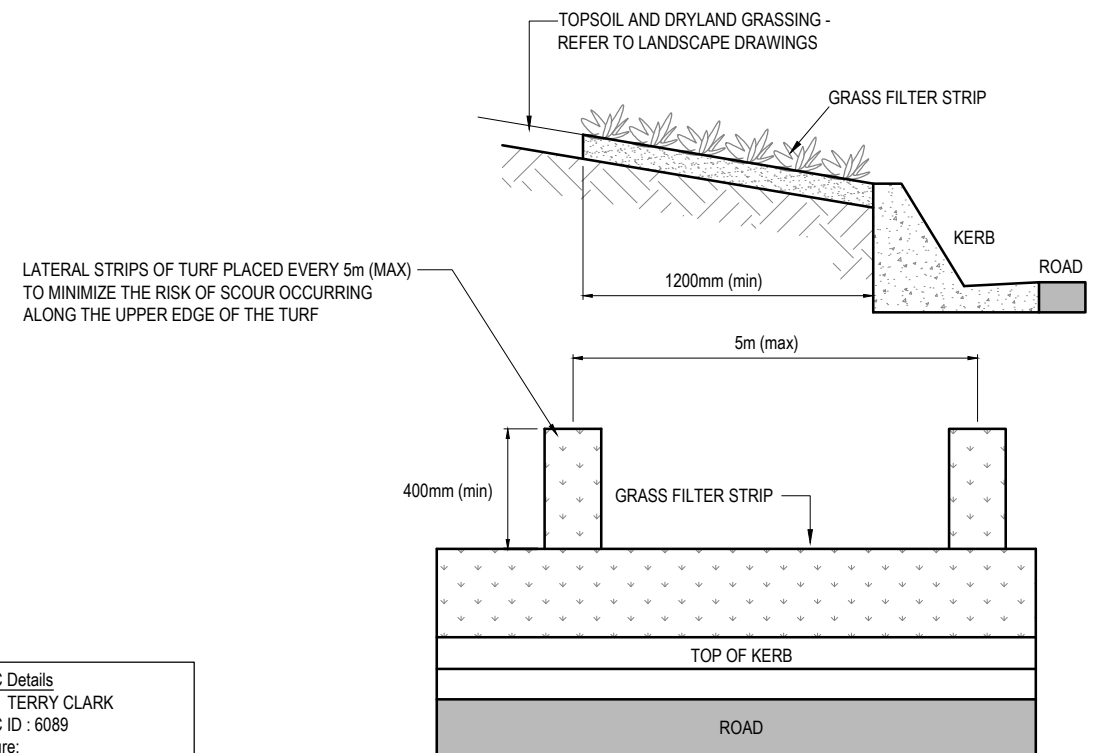
30m
25m
15m
8m

* MULCH BUNDS TO BE INSTALLED WITH MINIMUM 20m RETURNS TO AVOID SCOUR BEHIND THE BUNDS. SITE SUPERINTENDENT AND DEPWS REPRESENTATIVE TO INSPECT PRIOR TO ACCEPTANCE.

REFER DWG. NO. DC1603-2CRU-01-ES04 AND IECA BPESC STD.
DWG. SD-MB-01 FOR FURTHER INFORMATION.

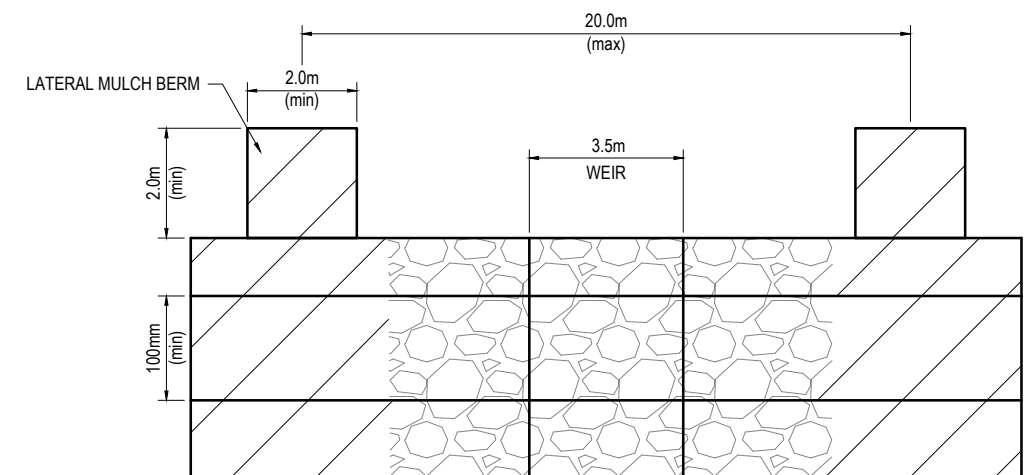
TYPICAL MULCH FILTER BERM DETAIL
N.T.S.

CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature: *T. Clark*

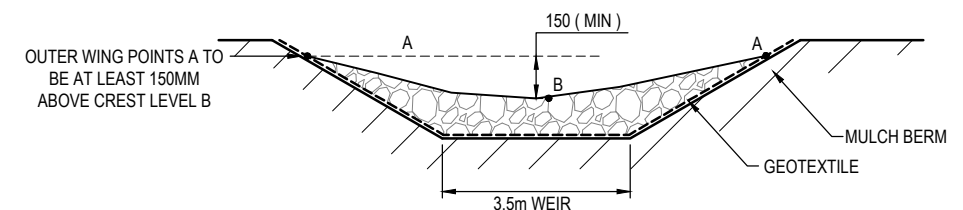


REFER DWG. NO. DC1603-2CRU-01-ES04 AND IECA BPESC STD.
DWG. SD-GFS-01 AND SD-GFS-02 FOR FURTHER INFORMATION.

PLACEMENT OF GRASS FILTER STRIPS
ALONG EDGE OF IMPERVIOUS SURFACE
N.T.S.



TYPICAL MULCH FILTER BERM PLAN DETAIL
N.T.S.



WEIR AT BERM SECTION
N.T.S.

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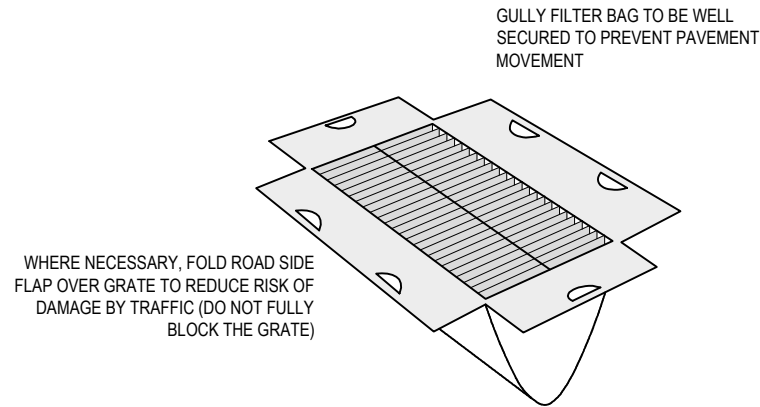


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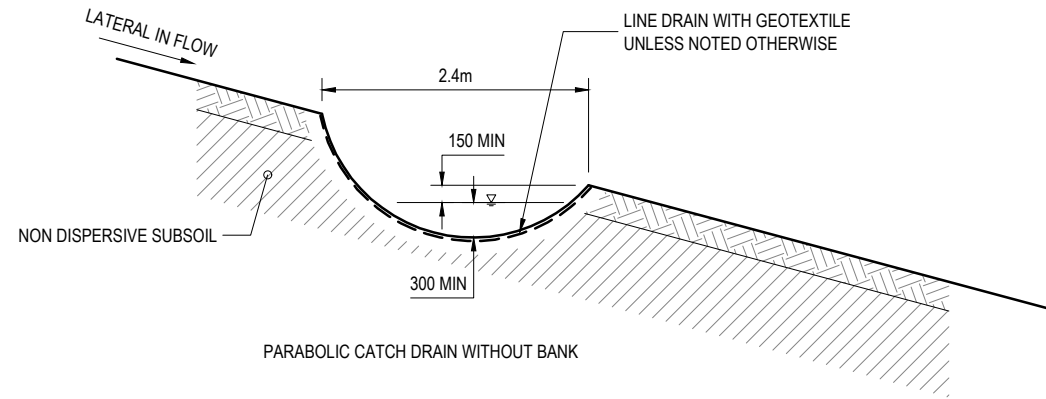
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Drawn OAR	Date June '22	Client DEFENCE HOUSING AUSTRALIA	Status FOR APPROVAL
Checked C dB	Date June '22	Project LEE POINT STAGE 2 (2CRU STAGE 1)	NOT TO BE USED FOR CONSTRUCTION PURPOSES
Designed C dB	Date June '22	Location LEE POINT ROAD, MUIRHEAD CITY OF DARWIN	Datum AHD
Verified AGO	Date June '22	Title EROSION AND SEDIMENT CONTROL DETAILS	Date Aug' 2024
Approved <i>T. Clark</i>	Date	Sheet SHEET 2 OF 3	Scale As Shown
			Size A1
			Revision A
			Drawing Number DC1603-2CRU-01-ES15

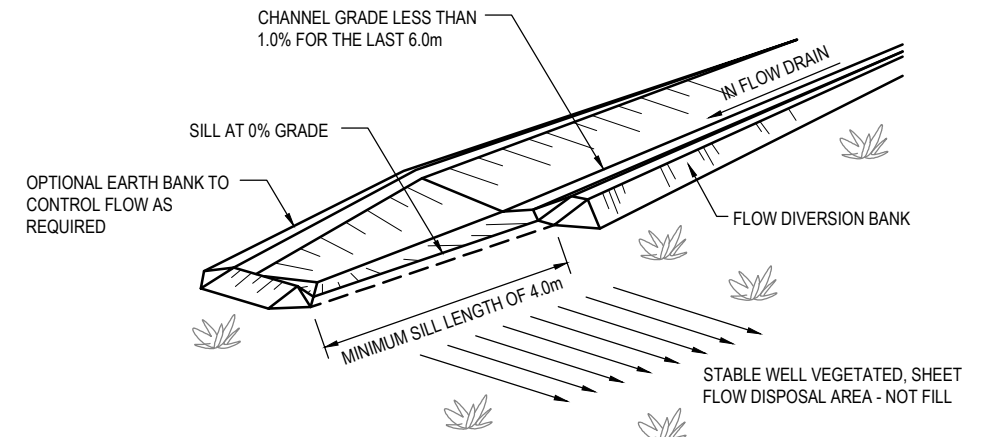


GULLY FILTER BAG
N.T.S.

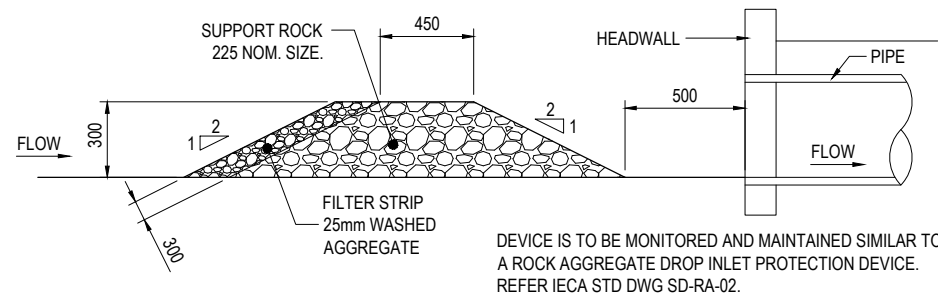


REFER DWG. NO. DC1603-2CRU-01-ES04 AND IECA BPESC STD.
DWG. SD-CD-01 AND SD-CD-05 FOR FURTHER INFORMATION.

CATCH DRAINS
N.T.S.

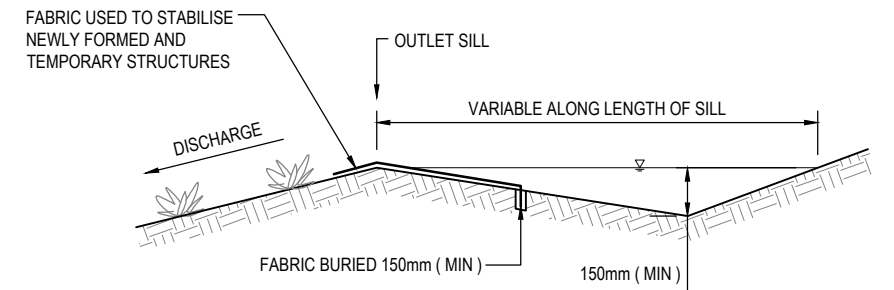


REFER DWG. NO. DC1603-2CRU-01-ES05 AND IECA
BPESC STD. DWG. SD-LS-01 FOR FURTHER
INFORMATION.
TYPICAL LAYOUT OF THE LEVEL SPREADER
N.T.S.

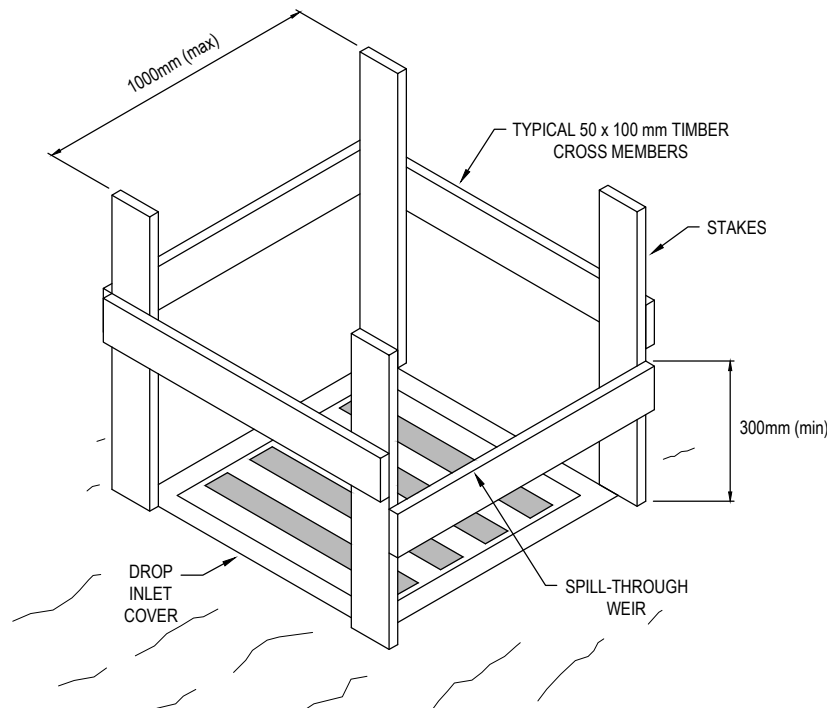


**INLET PROTECTION
ROCK & AGGREGATE SYSYEM**
N.T.S.

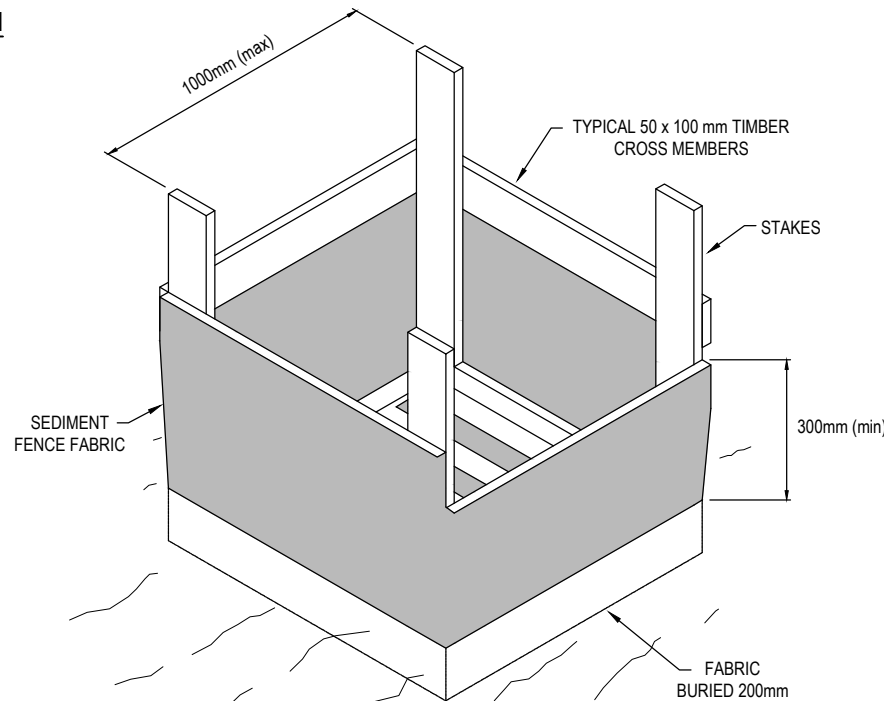
CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature: *T. Clark*



TYPICAL PROFILE OF THE OUTLET WEIR
N.T.S.

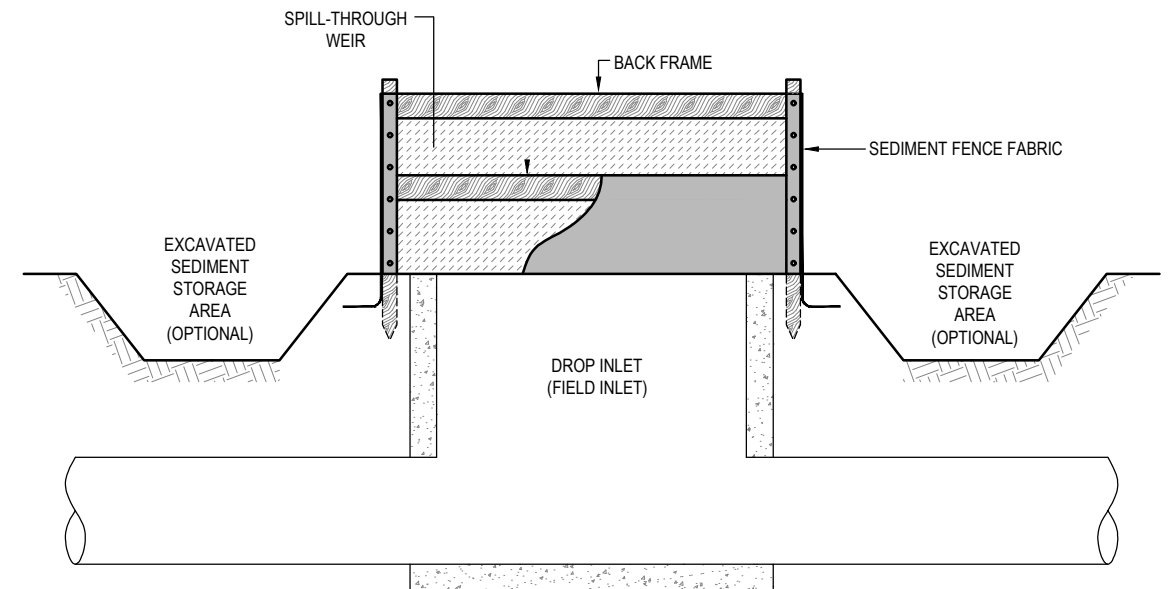


**DETAILS OF SUPPORT FRAME
WITH SPILL-THROUGH WEIR**
N.T.S.



**DETAILS OF SUPPORT FRAME
WITH SPILL-THROUGH WEIR**
N.T.S.

REFER DWG. NO. DC1603-2CRU-01-ES04 AND IECA BPESC STD.
DWG. SD-FD-01 AND SD-FD-02 FOR FURTHER INFORMATION.



**FABRIC DROP INLET PROTECTION WITH OPTIONAL EXCAVATED
SEDIMENT STORAGE AREA AND SETTLING POND**
N.T.S.

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A	10/09/2024	FOR APPROVAL			



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Drawn OAR	Date June '22	Client DEFENCE HOUSING AUSTRALIA	Status FOR APPROVAL
Checked C dB	Date June '22	Project LEE POINT STAGE 2 (2CRU STAGE 1)	NOT TO BE USED FOR CONSTRUCTION PURPOSES
Designed C dB	Date June '22	Location LEE POINT ROAD, MUIRHEAD CITY OF DARWIN	Datum AHD
Verified AGO	Date June '22	Title EROSION AND SEDIMENT CONTROL DETAILS	Date Aug' 2024
Approved <i>T. Clark</i>	Date	Sheet SHEET 3 OF 3	Scale As Shown
			Size A1
			Drawing Number DC1603-2CRU-01-ES16
			Revision A

1. FOR IDEAL SIZED SEDIMENT BASIN THE NOTED MINIMUM AVERAGE SETTLING ZONE AREAS, LENGTHS AND WIDTHS ARE AT THE MID-DEPTH OF THE SETTLING ZONE. THE TOTAL BASIN DIMENSIONS NEED TO CONSIDER THE ADOPTED BATTERS SLOPES.
2. IDEAL SIZED SEDIMENT BASIN RECOMMENDED 3:1 EFFECTIVE LENGTH TO WIDTH RATIO.
3. BASIN DEPTH MINIMUM ADOPTED FOR COMBINED SETTLING, FREE WATER AND STORAGE VOLUME.
4. ADDITIONAL 0.5m MINIMUM REQUIRED ABOVE FOR SPILLWAY HEIGHT AND FREEBOARD (0.3m)
5. FOR IDEAL SIZED SEDIMENT BASIN:
 - SETTLING ZONE 0.6m MINIMUM DEPTH.
 - FREE WATER ZONE DEPTH 0.2m MINIMUM DEPTH.
 - SEDIMENT STORAGE ZONE 0.2m MINIMUM DEPTH.
6. FOR IDEAL SIZED SEDIMENT BASIN, SEDIMENT STORAGE VOLUME BASED ON 30% OF SETTLING ZONE VOLUME. A MARKER SHALL BE PLACED WITHIN THE BASIN TO SHOW THE LEVEL AT WHICH THE SEDIMENT STORAGE ZONE DESIGN CAPACITY OCCURS.
7. FOR IDEAL SIZED SEDIMENT BASIN EMERGENCY SPILLWAY WEIR LENGTHS BASED ON CONVEYING THE 20 YEAR ARI PEAK DISCHARGE, FOR THE CONTRIBUTING CATCHMENT AREA, WITH A MAXIMUM DEPTH OVER THE WEIR OF 0.20m.
8. SEDIMENT BASIN CUT/FILL BATTERS TO BE CONSTRUCTED TO TIE IN WITH THE EXISTING GROUND.
9. DEWATERING AND SPILLWAY OUTLET LOCATIONS ARE TO BE SPECIFIED ON SITE BY THE CONTRACTOR'S ENVIRONMENTAL MANAGER AND CONFIRMED BY THE SUPERINTENDENT.
10. WHERE ROCK IS ENCOUNTERED, THE CUT BATTER OF THE SEDIMENT BASIN MAY BE CONSTRUCTED WITH A NOMINAL BATTER SLOPE OF 1(V) : 1(H). FOR OTHER SOILS, THE CUT BATTER SLOPE SHALL BE CONSTRUCTED WITH A NOMINAL BATTER SLOPE OF 1(V) : 2(H) OR FLATTER IF IT IS CONSIDERED THAT THE 1(V) : 2(H) SLOPE IS NOT SUFFICIENTLY STABLE FOR THE SOILS ENCOUNTERED. APPROPRIATE BASIN BATTER SLOPES FOR THE ON SITE CONDITIONS ENCOUNTERED TO BE CONFIRMED BY GEOTECHNICAL ENGINEER.

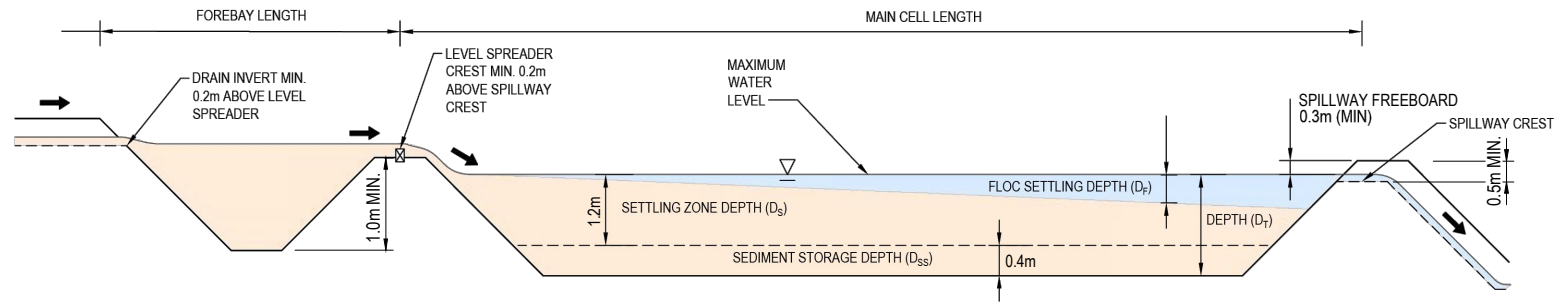
11. EARTH EMBANKMENTS IN EXCESS OF 1m IN HEIGHT SHOULD BE CERTIFIED BY GEOTECHNICAL ENGINEER.
12. IF BATTER SLOPES STEEPER THAN 1(V) : 4(H) ARE USED AROUND EDGE OF SEDIMENT BASIN, THEN SAFETY FENCING IS TO BE SUPPLIED TO THE FULL PERIMETER FOR THE DURATION OF THE BASIN'S OPERATION.
13. TO INCREASE THE EFFECTIVE TREATMENT OF THE SEDIMENT BASINS, REFER TO SEDIMENT BASIN DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE GUIDELINES FOR DETAILS ON THE INCORPORATION OF ANCILLARY ITEMS SUCH AS INTERNAL BAFFLES.
14. REFER ICA 'BEST PRACTICE EROSION AND SEDIMENT CONTROL' GUIDELINES APPENDIX B - SEDIMENT BASIN DESIGN AND OPERATION (REV. JUNE '2018) FOR THE FOLLOWING:
 - EXAMPLE BASIN PERFORMANCE REPORT.
 - SECTION B4 DEFAULT CONSTRUCTION SPECIFICATION.
15. REFER ABOVE, TO ICA STD DWGS SD-SB-05 AND SD-SB-06, AND TO APPENDIX A OF THE WATER BY DESIGN SEDIMENT MANAGEMENT ON CONSTRUCTION SITES DOCUMENT FOR TYPICAL SEDIMENT BASIN DETAILS.

1. TESTING OF pH, TOTAL SUSPENDED SOLIDS (TSS) AND TURBIDITY WITHIN ANY TEMPORARY SEDIMENT BASINS IS TO OCCUR PRIOR TO ANY CONTROLLED DISCHARGES FROM THE SITE AND AT THE FOLLOWING FREQUENCIES FOR THE DURATION OF THE CONSTRUCTION PHASE:
 - IMMEDIATELY FOLLOWING RAIN EVENTS > 25mm IN A 24 HOUR PERIOD.
2. IF THE pH OR TSS / TURBIDITY READINGS ARE OUTSIDE THE ALLOWABLE RELEASE CRITERIA, THEN FURTHER DOSING WITH GYPSUM, LIME OR OTHER APPROPRIATE APPROVED COAGULANT AND / OR FLOCCULANT IS REQUIRED UNTIL ACCEPTABLE LEVELS ARE REACHED.
3. WATER QUALITY MONITORING RESULTS ARE TO BE RETAINED ON SITE AND BE MADE AVAILABLE FOR VIEWING UPON REQUEST.
4. PRIOR TO A RAINFALL EVENT, TO IMPROVE THE EFFICIENCY AND EFFECTIVENESS OF THE FLOCCULATION PROCESS, IT IS RECOMMENDED THAT THE CONTRACTOR UNDERTAKE TRIAL TESTING TO DETERMINE APPROPRIATE FLOCCULANT AND / OR COAGULANT TYPES, AND DOSING RATES FOR THE ON-SITE SOILS. THIS GENERALLY INVOLVES CONDUCTING SOIL JAR TESTS OF THE ON-SITE SOILS. FOR THE CHARACTERISTICS OF VARIOUS FLOCCULATING AGENTS REFER TO TABLE 1 IN THE 'CHEMICAL COAGULANTS AND FLOCCULANTS' FACT SHEET BY IECA, OBTAINABLE FROM THE IECA WEBSITE UNDER THE BEST PRACTICE EROSION AND SEDIMENT CONTROL 'APPENDIX B - REVISION JUNE '2018' SECTION. FOR DETAILS ON THE SOIL JAR TESTING PROCEDURE, REFER TO SECTION 5 OF THE FACT SHEET MENTIONED ABOVE.
5. MANAGING THE FLOCCULATION OF THE SEDIMENT BASINS SHOULD BE UNDERTAKEN USING AUTOMATED DOSING SYSTEMS SUCH AS RAINFALL OR FLOW ACTIVATED FLOCKING SYSTEMS. THIS WILL ALLOW MAXIMUM TIME FOR FLOCCULATION TO OCCUR TO ASSIST IN REDUCING THE RUNOFF HOLDING TIMES. THE EFFECTIVENESS OF THE FLOCCULANT WILL DETERMINE THE ACTUAL RUNOFF HOLDING TIMES FOR EACH BASIN. THE DETAILED METHODS FOR FLOCCULATION AND TYPES OF FLOCCULANTS TO BE USED ARE TO BE CONFIRMED BY THE CONTRACTOR.
6. TO ASSIST WITH THE PERFORMANCE OF THE SEDIMENT BASINS, IN-LINE PERMEABLE INTERNAL BAFFLES CAN BE INCORPORATED ACROSS THE BASIN SETTLING ZONE PERPENDICULAR TO THE DIRECTION OF FLOW.

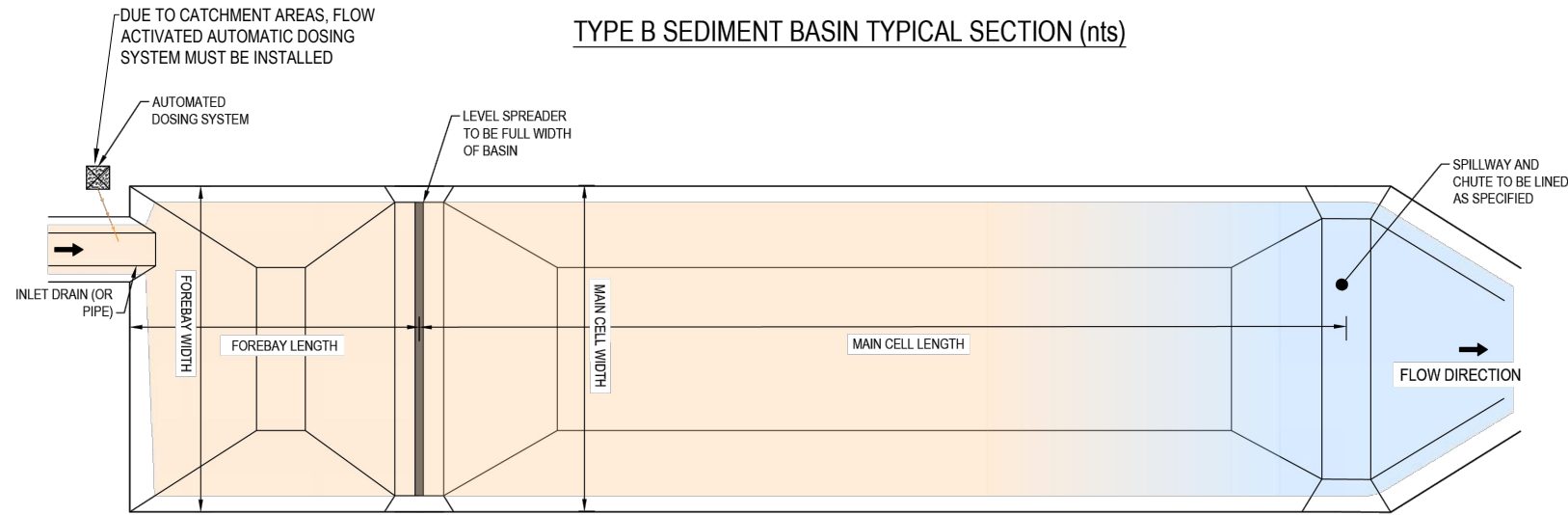
7. THE SEDIMENT BASINS MUST OPERATE AS WET BASINS, WITH THE TREATED RUNOFF TO BE DECANDED FROM THE BASINS ONCE COMPLIANT WITH THE 'DISCHARGE PERFORMANCE CRITERIA'. AS SOON AS CONDITIONS ALLOW, THE WATER LEVEL WITHIN THE BASINS SHOULD BE LOWERED BACK DOWN TO AT LEAST THE TOP OF THE FREE WATER ZONE. THIS WILL ALLOW THE SETTLING ZONE VOLUME OF THE BASINS TO BE AVAILABLE FOR THE NEXT RAINFALL EVENT.
8. IN THE EVENT THAT THE SEDIMENT BASIN CANNOT BE DE-WATERED TO RE-INSTATE THE SETTLING ZONE VOLUME PRIOR TO BEING SURCHARGED BY THE FOLLOWING RAINFALL EVENT, THE CONTRACTOR MUST RECORD THE OCCURRENCE OF SUCH AN EVENT AND REPORT IT TO THE LOCAL AUTHORITY. SUBJECT TO CONSULTATION WITH AND APPROVAL FROM THE LOCAL AUTHORITY, ALTERNATIVE OPERATING PROCEDURES FOR THE SEDIMENT BASINS MAY NEED TO BE ADOPTED IN ORDER TO ACHIEVE OPTIMUM ENVIRONMENTAL PROTECTION.

J. Carl

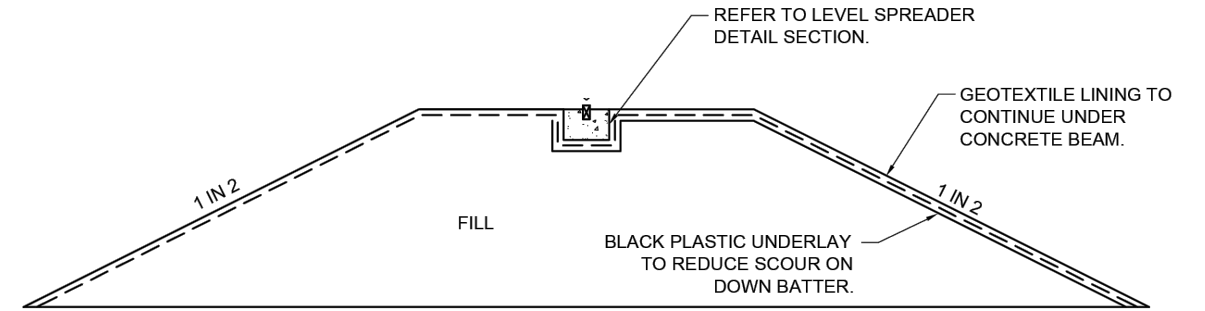
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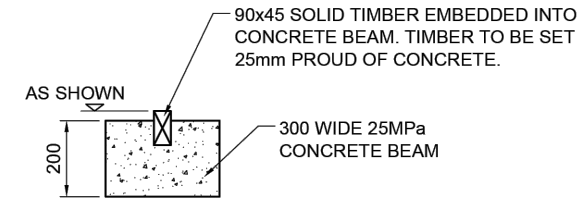
TYPE B SEDIMENT BASIN TYPICAL SECTION (nts)



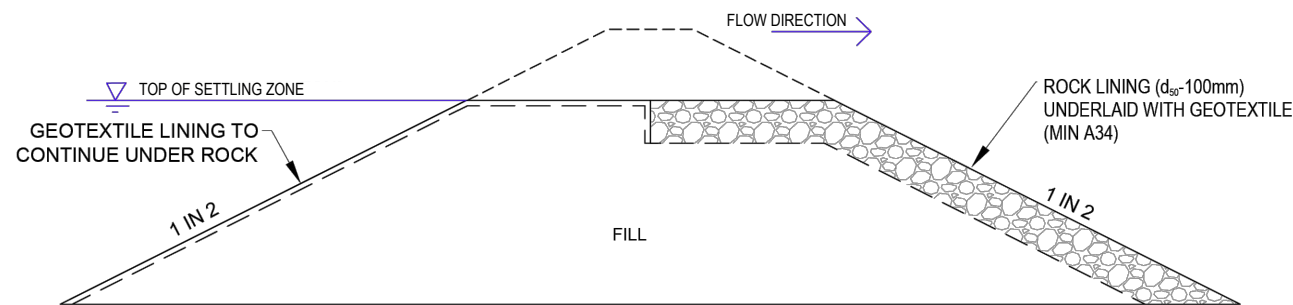
TYPE B SEDIMENT BASIN PLAN VIEW (nts)



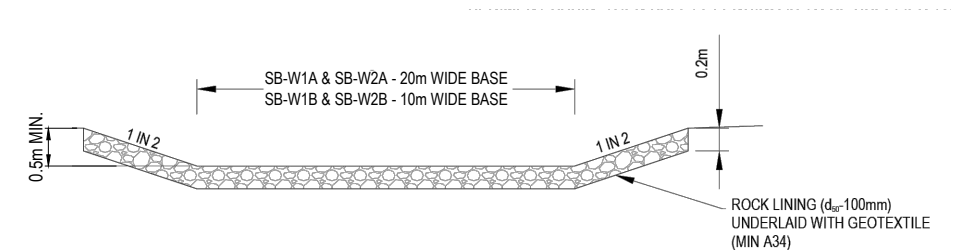
LEVEL SPREADER TYPICAL SECTION



LEVEL SPREADER DETAIL SECTION



SPILLWAY TYPICAL SECTION



SPILLWAY - TYPICAL CROSS SECTION

CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature: *T. Clark*

Rev.	Date	Description	Des.	Verif.	Appd.
A	10/09/2024	FOR APPROVAL			



Development Permit: DP018/0409

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Drawn OAR	Date June '22	Client DEFENCE HOUSING AUSTRALIA	Status FOR APPROVAL
Checked C dB	Date June '22	Project LEE POINT STAGE 2 (2CRU STAGE 1)	NOT TO BE USED FOR CONSTRUCTION PURPOSES
Designed C dB	Date June '22	City of Darwin	Datum AHD
Verified AGO	Date June '22	Title EROSION AND SEDIMENT CONTROL SEDIMENT BASIN CALCULATIONS AND SIZING	Date Aug' 2024
Approved <i>T. Clark</i>	Date	Drawing Number DC1603-2CRU-01-ES18	Scale As Shown
		Revision A	Size A1

TYPE B SEDIMENT BASIN CALCULATIONS

													SEDIMENT STORAGE					APPROX. DIMENSIONS					
BASIN ID	CATCH AREA (HA)	BATTERS (1 IN X)	L:W RATIO	SETTLING DEPTH D _s (m)	C _i	TIME OF CONC (MINS)	I _i (mm/hr)	0.5Q ₂ (m³/s)	JAR TEST SETTLE AFTER 15 MINUTES (mm)	FLOC SETTLE DEPTH D _f (m)	MINIMUM A _c (m²)	ACTUAL V _s (m³)	SCOUR CHECK	SED STORAGE OPTION?	RUSLE SOIL LOSS (t/ha/yr)	CLEAN OUT FREQUENCY (MONTHS)	MIN SED. STORAGE VOLUME (m³)	APPROX. REQ. SED STORAGE DEPTH (m)	APPROX. LENGTH AT SPILLWAY (m)	APPROX. WIDTH AT SPILLWAY (m)	APPROX. DEPTH AT SPILLWAY (m)	SETTLING VOLUME (m³)	TOTAL VOLUME AT SPILLWAY (m³)
SB-W1B	2.3	2	3	1.20	0.62	10	120	0.239	150	0.60	957	1148	NOT OK	30% VSET			344	0.4	60.8	20.3	1.6	1148	1493
SB-W1A	7.9	2	3	1.20	0.62	20	93	0.636	150	0.60	2544	3053	NOT OK	30% VSET			916	0.4	94.6	31.5	1.6	3053	3969
SB-W2A	7.5	2	3	1.20	0.62	20	93	0.604	150	0.60	2415	2898	NOT OK	30% VSET			870	0.4	92.3	30.8	1.6	2898	3768
SB-W2B	1	2	3	1.20	0.62	10	120	0.104	150	0.60	416	499	OK	30% VSET			150	0.4	42.5	14.2	1.6	499	649
SB-W2C	1.8	2	3	1.20	0.62	10	120	0.187	150	0.60	749	899	NOT OK	30% VSET			270	0.4	54.6	18.2	1.6	899	1168

TABLE NOTES:

1. SEDIMENT BASINS HAVE BEEN SIZED BASED ON A SETTLEMENT RATE OF 150mm IN 15 MINS. DUE TO TIME CONSTRAINTS, NO JAR TESTS HAVE BEEN UNDERTAKEN. SETTLEMENT RATE IS TO BE VERIFIED PRIOR TO CONSTRUCTION OF SEDIMENT BASINS.
2. DUE TO EXCEEDANCE OF SCOUR CHECK, PERMEABLE BAFFLES TO BE INSTALLED AND BASIN PERFORMANCE MONITORED.
3. SB-W1A TO BE CONSTRUCTED DURING PHASE 1 WORKS AND WILL SATISFY PHASE 2 BASED ON CATCHMENT CHANGES (PER SB-W2A)

TYPE B SEDIMENT BASIN SIZING SUMMARY

		FOREBAY			MAIN CELL						
BASIN ID	CATCHMENT (ha)	LENGTH (m)	WIDTH (m)	MINIMUM DEPTH (m)	APPROX. VOLUME TO SPILLWAY (m³)	LENGTH (m)	WIDTH (m)	TOTAL DEPTH (m)	SEDIMENT STORAGE DEPTH (m)	FREE WATER DEPTH (m)	SETTLING ZONE DEPTH (m)
SB-W1B	2.3	6.2	22.3	1.0	1,493	62.3	22.3	2.1	0.4	N/A	1.2
SB-W1A	7.9	9.6	33.5	2.0	3,969	96.1	33.5	2.1	0.4	N/A	1.2
SB-W2A	7.5	9.4	32.8	3.0	3,768	93.8	32.8	2.1	0.4	N/A	1.2
SB-W2B	1.0	5.0	16.2	4.0	649	44.0	16.2	2.1	0.4	N/A	1.2
SB-W2C	1.8	5.6	20.2	5.0	1,168	56.1	20.2	2.1	0.4	N/A	1.2

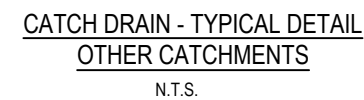
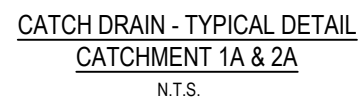
SEDIMENT BASIN SPILLWAY SUMMARY

						WEIR						CHUTE						DISSIPATER				
BASIN ID	CATCH AREA (HA)	ARI	C _{ARI}	TIME OF CONC (MINS)	I _{ARI}	FLOW - Q (m³/s)	BASE WIDTH	SIDE SLOPE 1 (1 in x)	U/S WATER LEVEL (m)	FREEBOAR D (m)	MIN. HEIGHT SPILLWAY TO TOB (m)	TOP WIDTH (m)	LONG. SLOPE (m/m)	ROCK SIZE - D ₅₀ (mm)	MANNING ROUGH COEFF	DESIGN VEL (m/s)	DEPTH OF FLOW (m)	DEPTH WITH F/BOARD (m)	MEAN ROCK SIZE - D ₅₀ (mm)	WIDTH 1 (m)	WIDTH 2 (m)	LENGTH (m)
SB-W1B	2.3	50	0.897	10	218	1.25	10	2	0.17	0.3	0.47	11.89	0.2	83	0.080	1.20	0.10	0.40	100	12.2	12.4	2.1
SB-W1A	7.9	50	0.897	20	168	3.31	20	2	0.21	0.3	0.51	22.04	0.2	99	0.082	1.33	0.12	0.42	100	22.3	22.5	2.1
SB-W2A	7.5	50	0.897	20	168	3.14	20	2	0.20	0.3	0.50	22.01	0.2	96	0.081	1.31	0.12	0.42	100	22.3	22.5	2.1
SB-W2B	1	50	0.897	10	218	0.54	10	2	0.10	0.3	0.40	11.60	0.2	48	0.073	0.92	0.06	0.36	100	12.0	12.0	1.3
SB-W2C	1.8	50	0.897	10	218	0.98	10	2	0.15	0.3	0.45	11.79	0.2	70	0.078	1.11	0.09	0.39	100	12.1	12.1	1.3

CPESC Details
Name : TERRY CLARK
CPESC ID : 6089
Signature:

J. Carol

[illegible]



NOTE : IF ROCK CHECK DAMS ARE INSTALLED, DRAIN DIMENSIONS MUST BE INCREASED BY DEPTH OF ROCK CHECK DAM.



Status				FOR APPROVAL			
NOT TO BE USED FOR CONSTRUCTION PURPOSES							
Datum		Date		Scale		Size	
AHD		Aug' 2024		As Shown		A1	
Drawing Number						Revision	
DC1603-2CRU-01-ES20						A	