Riparian Corridors - Soil and Water Management Plan Report

FINAL REPORT

FEBRUARY 2014

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Contents

1. Introduction

An erosion and sediment control plan has been prepared for the construction of the Riparian Corridor and an area upstream of the proposed Riparian Corridor at Jordan Springs. The plan is included in **Appendix A**.

2. Strategy

Appendix A shows the proposed erosion and sediment control strategy and the location of the proposed Riparian Corridor temporary sediment basin. The proposed erosion and sediment control strategy is based on the following five principles:

- Controlling the occurrence of erosion.
- Controlling the movement of sediment.
- Diverting offsite “clean” water away from construction areas using temporary clean diversion drains.
- Diverting onsite “dirty” water towards a sediment basin using temporary dirty diversion drains..

- Capturing and treating sediments from the cleared areas that are transported using sediment basin.

The developed catchment upstream of Jordan Springs Lake will be captured by Jordan Springs Lake and will bypass the Riparian Corridor using a temporary clean diversion drain. The existing 'clean' catchments upstream of Village 5 will also be diverted around the construction site using temporary 'clean' diversion drains. In total, four temporary clean drains (CD) will be required.

Runoff from the construction areas will be diverted to sediment basin locations. The majority of runoff will diverted to the Riparian Corridor which will act as a sediment basin during construction. This basin (Basin No 1- 46,000m3) will be built at the beginning of construction using local sediment controls.

Another much smaller temporary sediment basin (Basin No 2 – 300m3) will be required to capture a small catchment located south of the Jordan Springs Lake that cannot be diverted to the Riparian Corridor sediment basin, due to constraints of the natural topography.

Six temporary dirty drains (DD) will be required to divert dirty construction runoff to the Riparian Corridor sediment basin. One of these will be the proposed East West channel, which will be built at the beginning of construction as per the permanent design using local sediment controls to protect downstream waterways. It will then act as a dirty drain, called DD2, during construction. An existing channel, called DD3, will also be used as one of the required dirty drains.

Any small construction area that cannot be diverted to a sediment basin will receive treatment through the implementation of local controls such as sediment fences, in line with the Blue Book.

3. Catchment sizes

Catchments were measured using 12d modelling software based on existing contours. The catchment sizes flowing to each of the diversion drains are given in Table 3-1.

- **Table 3-1 Catchment areas flowing to dirty drains (DD) and clean drains (CD)**

Area (m^2)	DD1	DD2	DD3	DD4	DD5	DD6	CD1	CD2	CD3	CD4
Disturbed catchment	156,540	85,457	248,015	33,399	70,300	65,657	-	-	-	-
Upstream clean catchment	178,163	-	-	3,719	-	-	10,332	-	11,662	220,043
Total catchment	334,703	85,457	248,015	37,118	70,300	65,657	10,332	-	11,662	220,043

4. Soil type

Soil testing has been undertaken in the location of the proposed Riparian Corridor to determine soil erosivity. The results are provided in Table 4-1. The highest value at borehole 2 was used in the calculation of the sediment basin volumes. This is a conservative design approach.

- **Table 4-1 Soil erosivity (K value)**

Borehole	Erosivity (k factor)
1	0.025
2	0.031
3	0.027
4	0.025

5. Peak flow during construction

The 2 year ARI peak flows in each of the drains were calculated using the Rational Method. IFD data was taken from Penrith City Council's Draft Stormwater Drainage Strategy, which is consistent with the Bureau of Meteorology data. For CD2, the RAFTs modelling undertaken for the design of the East West channel was used to determine the 2 year ARI peak flow, rather than the Rational Method. The results of the calculations are given in Table 6-1.

- **Table 5-1 Rainfall and peak flows**

	DD1	DD2	DD3	DD4	DD5	DD6	CD1	CD2	CD3	CD4
IFD 2yr (mm/hr)	65.7	65.7	61.5	90	90	76.9	90	-	84.9	56.4
Runoff coefficient	0.8	0.8	0.8	0.8	0.8	0.8	0.8	-	0.8	0.8
Q_{2yr} (m^3/s)	4.89	1.25	3.39	0.74	1.41	1.12	0.21	7.1	0.22	2.76

6. Temporary drain sizes

The temporary drains have been designed as trapezoidal channels with a base width of 0.5m, minimum grade of 0.5% and 1:2 side slopes. The required depth was calculated using Manning's formula for open channel flow in a trapezoidal channel. An additional freeboard depth of 0.3m was included to determine the required depth of the channel. The resulting depths are shown in Table 8-2.

- **Table 6-1 Temporary drain depths and widths**

	DD1	DD2	DD3	DD4	DD5	DD6	CD1	CD2	CD3	CD4
Depth (m)	1.4	0.9	1.3	0.8	1.0	0.9	0.6	1.6	0.7	1.2
Top width (m)	6.2	4.2	5.5	3.7	4.3	4.1	2.9	6.9	3.4	5.2

The East West channel (DD2) will be built as per the design and will act as a dirty drain during construction. The design dimensions of the East West channel are greater than the required dimension given in Table 6-1 therefore no modifications to the channel are required

As stated previously, DD3 is an existing channel on site that is to be retained for use during construction. The dimensions of the existing channel are greater than the required dimension given in Table 6-1 therefore no modifications to the channel are required.

7. Temporary drain levels

Spot levels for the drains are included on the plan in **Appendix A**. These levels represent the invert level of the drain.

8. Riparian Corridor sediment basin sizing

Sediment basins will be used to treat runoff form the construction area where the calculated total annual soil loss from the disturbed area is more than 150 cubic metres. This is in line with the requirements of the Blue Book, Appendix M, Clause (54) (Landcom 2004 and DECC 2008b).

Sediment basins have been sized using the principles of the Blue Book (Landcom 2004 and DECC 2008). The construction phase controls have been designed for an anticipated duration of less than 24 months, using Blue Book parameters for the design of sediment basins selected for this time frame. The sediment basin have been designed as Type D under the Blue Book (Landcom 2004 and DECC 2008) classifications. The basins would provide a volume for settling and storage. The settling zone volume has been estimated using the appropriate design rainfall depth and catchment areas. The storage zone has been estimated using the Revised Universal Soil Loss Equation (RUSLE). The 85th percentile five day rainfall value has been adopted. The parameters used to size the sediment basins are outlined in Table 8-1.

Table 8-1 Design criteria for sizing the Riparian Corridor sediment basin

Parameter	Value	Comments
Rainfall parameters		
Rainfall depth duration (days)	5	5 day adopted as standard duration
Rainfall percentile	85th	85th adopted for sensitive receiving downstream environment with construction duration between 6 months and 3 years
Rainfall depth (mm) – 5 day	85th =35 mm	
Volumetric runoff coefficient, Cv	0.64	Adopted for expected type of activities on site and compacted surfaces.
Rainfall intensity for 2 year ARI, 6 hr duration	10.15 mm/hr	Refer to rainfall erosivity value below
RUSLE parameters		
Soil/sediment type	D	Soil type to be confirmed during detailed design through site specific soil testing. Type D has been adopted until soil testing results are confirmed
Erodibility, k	0.031	Based on site specific soil testing at borehole 2 (BH2)
Rainfall erosivity, R	2273	Based on site specific rainfall intensityfrom Map10 of the Blue Book
Hydrologic Soil Group	D	For high runoff potential, (refer to Appendix F of Blue Book)
Soil cover, C	1	Corresponding to expected type of activities on site
Soil conservation practices, P	1.3	Corresponding to expected type of activities on site
Length slope factors, LS	0.91	
Sediment yield time period (months)	2 to 6	Depending on site constraints. 6 months adopted as a conservative value

The key sediment basin parameters are given in Table 8-2. A summary calculation sheet is included in **Appendix B**.

- **Table 8-2 Sediment basin parameters**

	Riparian Corridor temporary sediment basin
Total catchment area (ha)	108
Disturbed area (ha)	90
Minimum required Volume (m^3)	27,200
Sediment basin volume provided (m3) in 12d model	Min 46,000 m3 as shown in Appendix A
Water depth (m)	2

9. Local sediment controls

In locations where sediment basins are not used, local erosion and sediment controls will be installed. This is in line with the Blue Book, Section 6.3.2, Clause (d) (Landcom 2004 and DECC 2008b), that states:

".....the average annual soil loss from the total area of land disturbance can be estimated. Where this is less than 150m^3 per year, the building of a sediment retention basin can be considered unnecessary. In such circumstances, alternate measures may be employed to protect the receiving waters."

Local sediment controls may include sediment fences and filters, rock check dams and vegetated buffer strips. These will be implemented and managed by the contractor.

10. References

- Landcom 2004, Managing Urban Stormwater: Soils and Construction, Volume 1 (Known as the Blue Book Volume 1), Landcom, Sydney.
- NSW DECC 2008b, Managing Urban Stormwater, Soils and Construction, Volume 2, Main Road Construction (known as the Blue Book Volume 2), NSW Government, Sydney.
- Penrith City Council unknown date, Draft Stormwater Drainage Policy, Accessed from:http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/DraftStormwaterPolicy.pdf

Appendix A - Erosion and sediment control plan

LEGEND

- EXISTING CONTOUR
- "CLEAN" RUNOFF DIVERSION DRAIN
- "DIRTY" RUNOFF DRAIN (TO SEDIMENT BASIN)
- SUB-CATCHMENT BOUNDARY
- EXTENT OF DISTURBANCE
- CD1 "CLEAN" RUNOFF - ID NUMBERS
- DD1 "DIRTY" RUNOFF - ID NUMBERS
- TEMPORARY CULVERT
- SEDIMENT BASIN

NOTES

1. REFER TO DRAWING No. EN02754C-704 FOR NOTES AND TYPICAL DETAILS.
2. REFER TO DRAWING No. EN02754C-705 FOR BASIN PLAN

VILLAGE 3
VILLAGE 3 "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 4
EXISTING SEDIMENT BASIN TO BE RETAINED
IL 39.4m
IL 40.6m
NORTH / SOUTH OPEN CHANNEL
VC 13
VILLAGE OVAL
IL 42.4m
DD6
TEMPORARY SEDIMENT BASIN NO. 4 FOR THE VILLAGE OVAL VOLUME = 1500m³
CONNECT "CLEAN" RUNOFF TO EXISTING DRAINAGE SYSTEM TO DRAIN TO 'JORDAN SPRINGS LAKE'
VILLAGE 1
VILLAGE 2
VILLAGE 5
IL 35.8m
IL 29.8m
CD4
IL 26.7m
IL 26.9m
OPEN CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 3
IL 33.1m
DD5
"CLEAN" RUNOFF FROM VILLAGE 1 INTO THE JORDAN SPRINGS CONSTRUCTED LAKE
JORDAN SPRINGS LAKE
TEMPORARY SEDIMENT BASIN NO. 3 FOR VC12 VOLUME = 1150m³
IL 29.7m
VILLAGE 2 STORM WATER OUTLET
IL 27.1m
IL 24.0m
RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
WATER LEVEL RL 23.9m
46,000m³
IN
OUT
IL 23.6m
IL 23.94m
EAST / WEST OPEN CHANNEL
UPPER CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 2
NEW CULVERT UNDER ROAD 21
IL 25.8m
IL 28.83m
IL 32.5m
IL 31.8m
IL 32.1m
CD2
DD2
TEMPORARY SEDIMENT BASIN NO. 1
BASE RL 21.9m
DD4
4E
"CLEAN" EXTERNAL RUNOFF
IL 31.8m
IL 31.43m
IL 26.27m
IL 34.4m
IL 32.3m
STAGE 2 DECOMMISSIONING OF TEMPORARY BASIN 4E (NTS). VOLUME = 4380m³
IL 28.6m
REFER TO DRAWING EN02754-C-705
TEMPORARY SEDIMENT BASIN NO. 2 FOR THE UPPER END OF THE EAST / WEST CHANNEL VOLUME = 300m³
BASE RL 30.0m
4B/C
4D
IL 29.46m
DD1
TEMPORARY BOX CULVERT - 2 CELLS EACH 1.5m WIDE x 0.9m HIGH
STAGE 1 DECOMMISSIONING OF TEMPORARY BASIN 4B/C (NTS). VOLUME = 915Dm³
EAST / WEST CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 1
STAGE 3 DECOMMISSIONING OF TEMPORARY BASIN 4D (NTS). VOLUME = 745m³
EXISTING BOX CULVERT
CD1
CD3
VILLAGE 4
IL 38.2m
IL 36.6m

SCALE 1:2500 (A1) 25 0 25 50 75 100 125
SCALE 1:5000 (A3)

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
D	14.02.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR APPROVAL
C	16.01.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
B	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COMMENTS
A	27.09.13	L.B.	J.C.	J.C.	J.W.	ISSUED TO LEND LEASE FOR COMMENTS

Lend Lease

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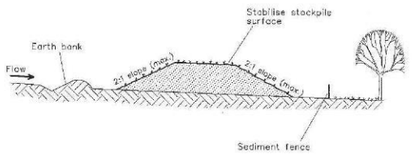
CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
M.M.	J.C.		

TITLE: EROSION AND SEDIMENT CONTROL PLAN (ESCP) FOR THE DISTURBED CATCHMENTS UPSTREAM OF THE RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN

SCALE	SKM PROJECT No	DRAWING No	AMDT
1:2500	EN02754	EN02754-C-703	D

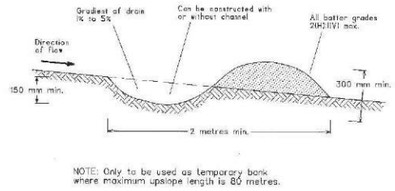
Plot Date: 14 Feb 2014 @ 11:03:49 Login Name: pdayal (Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-703.dwg)



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

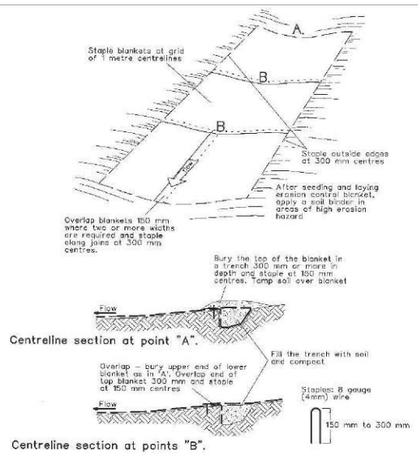


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

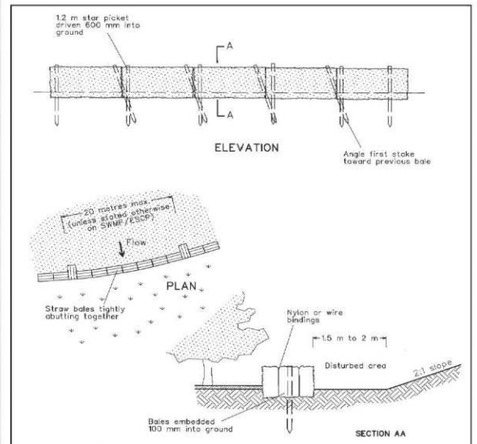
EARTH BANK (LOW FLOW) SD 5-5



Construction Notes

1. Remove any rocks, clods, sticks or grass from the surface before laying matting
2. Ensure that topsoil is at least 75 mm deep.
3. Complete fertilising and seeding before laying the matting.
4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end (Standard Drawing 5-7b).
6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
7. Divert water from the structure until vegetation is stabilised properly.

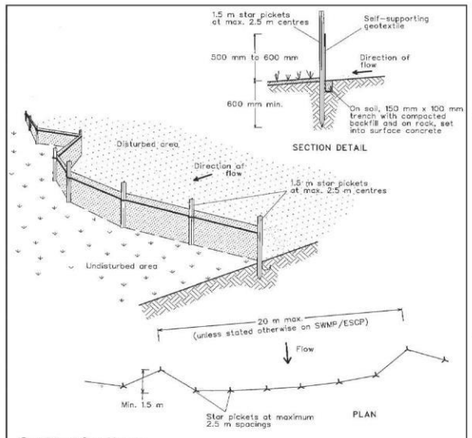
RECP : CONCENTRATED FLOW SD 5-7



Construction Notes

1. Construct the straw bale filter as close as possible to being parallel to the contours of the site.
2. Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws are to be placed parallel to ground.
3. Ensure that the maximum height of the filter is one bale.
4. Embed each bale in the ground 75 mm to 100 mm and anchor with two 1.2 metre star pickets or stakes. Angle the first star picket or stake in each bale towards the previously laid bale. Drive them 600 mm into the ground and, if possible, flush with the top of the bales. Where star pickets are used and they protrude above the bales, ensure they are fitted with safety caps.
5. Where a straw bale filter is constructed downslope from a disturbed batter, ensure the bales are placed 1 to 2 metres downslope from the toe.
6. Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.

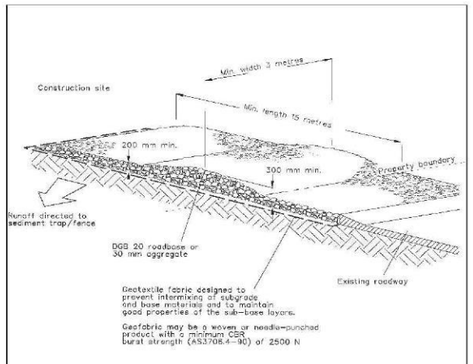
STRAW BALE FILTER SD 6-7



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.

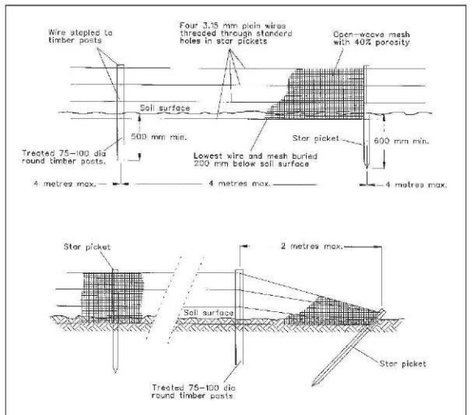
SEDIMENT FENCE SD 6-8



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

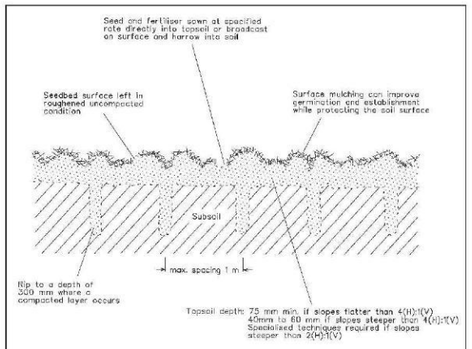
STABILISED SITE ACCESS SD 6-14



Construction Notes

1. Install the fence to the height specified in the ESCP/SWMP.
2. Cut a channel 200 mm deep along the fence line.
3. Place wire and light resistant, open-weave polymer mesh with 40 percent porosity on the prevailing wind side of fence.
4. Fasten the mesh to all wires using ring fasteners at 100 mm to 150 mm intervals on top wire and 300 mm intervals on other wires.
5. Use one 75-mm to100-mm diameter treated round timber post every 20 metres.
6. Where star pickets are used, ensure they are fitted with safety caps.

CONTROL OF WIND EROSION SD 6-15



Construction Notes

1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300 mm. Avoid rotary hoe cultivators.
2. Work the ground only as much as necessary to achieve the desired filth 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

NOTES

1. THE SEQUENCE OF CONSTRUCTION SHALL BE AS FOLLOWS:
   A) THE CONSTRUCTION OF THE SEDIMENT BASINS Nos 1,2 AND 3 WITH ALL ASSOCIATED EROSION AND SEDIMENT CONTROLS.
   B) IDENTIFY LOCATION OF ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES ON SITE.
   C) INSTALLATION OF BARRIER AND SEDIMENT FENCES.
   D) INSTALLATION OF ALL DIVERSION DRAINS AND LEVEL SPREADERS.
   E) INSTALLATION OF ALL REMAINING EROSION AND SEDIMENT CONTROLS.
   F) CLEARING AND REGRADING OF OPEN CHANNEL, TO BULK EARTHWORKS PLAN.
   G) DEWATERING IF REQUIRED.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS FOR "EROSION AND SEDIMENT CONTROL DCP AND CODE OF PRACTICE" ON DEVELOPMENT SITES OF PENRITH CITY COUNCIL AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE 'BLUE BOOK', SOILS AND CONSTRUCTION LANDCOM 2004, DECCW 2008 VOLUMES 1 AND 2, AND ANY ADDITIONAL REQUIREMENTS BY PENRITH CITY COUNCIL.
3. REFER TO ALL TYPICAL SWMP DETAILS IN BLUE BOOK (EG; SD6-3) FOR CONSTRUCTION DETAILS. ALSO REFER TO MOST RELEVENT TYPICAL DETAILS ON DRAWING EN02754-C-702.
4. WIND EROSION CONTROLS (NOT SHOWN ON THIS PLAN) SHALL BE CONSTRUCTED AS REQUIRED BY THE SITE SUPERINTENDENT. REFER TO SD6-15 TYPICAL DETAIL ON DRAWING EN02754-C-702.
5. ESCP DETAILS ON THIS LAYOUT ARE SCHEMATIC ONLY. ANY ADDITIONAL INFORMATION REQUIRED IS TO BE OBTAINED FROM THE SITE SUPERINTENDENT. ADDITIONAL CONTROLS AND CHANGES TO THIS PLAN MAY BE NECESSARY DURING THE PROCESS OF IMPLEMENTATION OF THE ESCP. ONGOING INSPECTIONS BY A QUALIFIED SUPERINTENDENT ARE REQUIRED TO PROVIDE RELEVANT CHANGES, AS REQUIRED. THE ESCP IDENTIFIES THE EROSION AND SEDIMENT CONTROLS NEEDED ON SITE, BUT ARE NOT CONSTRUCTION DRAWINGS. REFERENCE NEEDS TO BE MADE TO TYPICAL DETAILS IN THE BLUE BOOK.
6. PROVIDE JUTE MESH LINING FOR ALL DIVERSION DRAINS AND THE OPEN CHANNELS AND SPRAY WITH BITUMEN EMULSION.
7. IF STRAW BALES ARE USED IN CONJUNCTION AND IN ADDITION TO SEDIMENT FENCES, THE STRAW BALES SHALL BE WEED FREE.
8. ALL DISTURBED AND REGRADED AREAS INCLUDING EMBANKMENTS THAT ARE EXPOSED FOR LONGER THAN 2 WEEKS, SHALL BE REHABILITATED AS SOON AS POSSIBLE BY HYDROSEEDING OR AS DIRECTED BY THE SITE SUPERINTENDENT.
9. WATER CAPTURED IN THE EAST SEDIMENT BASIN WILL BE USED FOR REUSE ON SITE FOR DUST SUPPRESSION PURPOSES OR DISCHARGED DOWNSTREAM WITH APPROVAL. GYPSUM FLOCCULATION MAY BE REQUIRED IF SETTLEMENT OF SOIL PARTICLES DOES NOT OCCUR IN THE SEDIMENT BASIN.
10. THIS EROSION AND SEDIMENT CONTROL PLAN IS FOR THE OPEN CHANNELS ONLY.
11. SEDIMENT BASIN NO. 1 WILL BE DESIGNED TO TREAT ALL THE "DIRTY" RUNOFF FROM THE EAST / WEST CHANNEL AND VILLAGE 2.
12. ALL EXTERNAL RUNOFF TO BE DIVERTED AROUND THE CONSTRUCTION AREAS, AS REQUIRED.
13. ALL DETAILS SHOWN ON THIS DRAWING ARE REFERENCED FROM 'THE BLUE BOOK' - MANAGING URBAN STORMWATER (MUS): SOILS AND CONSTRUCTION BY LANDCOM. IT IS THE RESPONSIBILTY OF THE CONTRACTOR ON SITE TO HAVE THE LATEST PUBLICATION.
14. ALL TEMPORARY SEDIMENT BASINS USED FOR THE CONSTRUCTION STAGE WILL NEED TO BE DECOMMISSIONED AND ADEQUATELY BACKFILLED AND REHABILITATED. THIS IS TO BE UNDERTAKEN AFTER ITS UPSTREAM CATCHMENT IS FULLY STABILISED OR IF LOCAL EROSION AND SEDIMENT CONTROLS ARE ADEQUATELY IMPLEMENTED AT THE SOURCE, FOR INSTANCE AT THE LOTS.

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
B	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR D.A.
A	27.09.13	L.B.	J.C.	J.C.	J.W.	ISSUED TO LEND LEASE FOR COMMENTS

Lend Lease

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Facsimile: 02 9928 2500

CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS – EAST LAKE BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.		J.C.	J.W.
DESIGNED	DESIGN REVIEW		
-	J.C.		

TITLE: EROSION AND SEDIMENT CONTROL DETAILS

SCALE	SKM PROJECT No	DRAWING No.	AMDT
NTS	EN02754	EN02754-C-704	B

Plot Date: 31 Jan 2014 @ 09:49:11 Login Name: scouley Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-704.dwg

VILLAGE 5

N

NOTE

REFER TO DRAWING No. EN02754C-704 FOR NOTES AND TYPICAL DETAILS.

VILLAGE 2 "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 1

STAGE 1 EXCAVATION EXTENT, PRIOR TO DECOMMISSIONING OF 4B/C TEMP BASIN

STAGE 2 EXCAVATION EXTENT, PRIOR TO DECOMMISSIONING OF 4E TEMP BASIN

STAGE 3 EXCAVATION EXTENT, PRIOR TO DECOMMISSIONING OF 4D TEMP BASIN

RIPARIAN CORRIDOR SEDIMENT BASIN

WATER LEVEL RL 23.9m
BASE RL 21.9m
46,000m³

TEMPORARY SEDIMENT BASIN NO. 1

EROSION CONTROL AT OUTLET. PROPOSED TURFING OF CHANNEL, MINMUM LENGTH = 15m

CONNECT "CLEAN" RUNOFF DIVERSION DRAIN TO EXISTING CREEK

IL 23.94m

OUT

IL 23.9m

IL OF EXISTING CREEK 23.6m

NEW CULVERT UNDER ROAD 21

IN

TEMPORARY SANDBAGS TO SEPARATE "CLEAN" AND "DIRTY" RUNOFF.

IL 25.4m

EAST / WEST CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 1

"CLEAN" RUNOFF DIVERSION DRAIN. TRAPEZOIDAL CHANNEL BASE WIDTH = 3m, SIDE SLOPES=1:2 (V:H). LONGITUDINAL SLOPE=0.4%

EAST / WEST OPEN CHANNEL

TEMPORARY SANDBAGS TO SEPARATE "CLEAN" AND "DIRTY" RUNOFF.

ROAD No. 21

IL 25.75m

IL 25.8m

"CLEAN" EXTERNAL RUNOFF

IL 26.27m

TEMPORARY BOX CULVERT - 2 CELLS EACH 1.5m WIDE x 0.9m HIGH, UNDER "DIRTY" RUNOFF DRAIN.

IL 27.725m

IL 24.530m

VILLAGE 4

LEGEND

- EXISTING CONTOUR
- "CLEAN" RUNOFF DIVERSION DRAIN
- "DIRTY" RUNOFF DRAIN (TO SEDIMENT BASIN)
- SUB-CATCHMENT BOUNDARY
- EXTENT OF DISTURBANCE
- CD1 "CLEAN" RUNOFF - ID NUMBERS
- DD1 "DIRTY" RUNOFF - ID NUMBERS
- TEMPORARY CULVERT
- SEDIMENT BASIN

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
C	14.02.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
B	16.01.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
A	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COMMENTS

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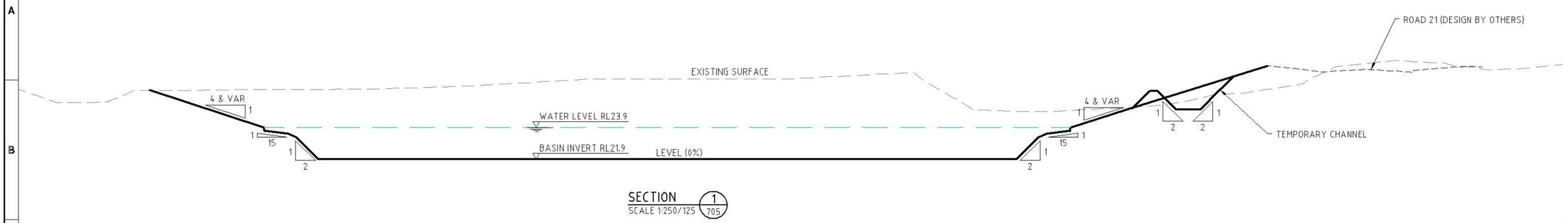
CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
S.K.	J.C.		

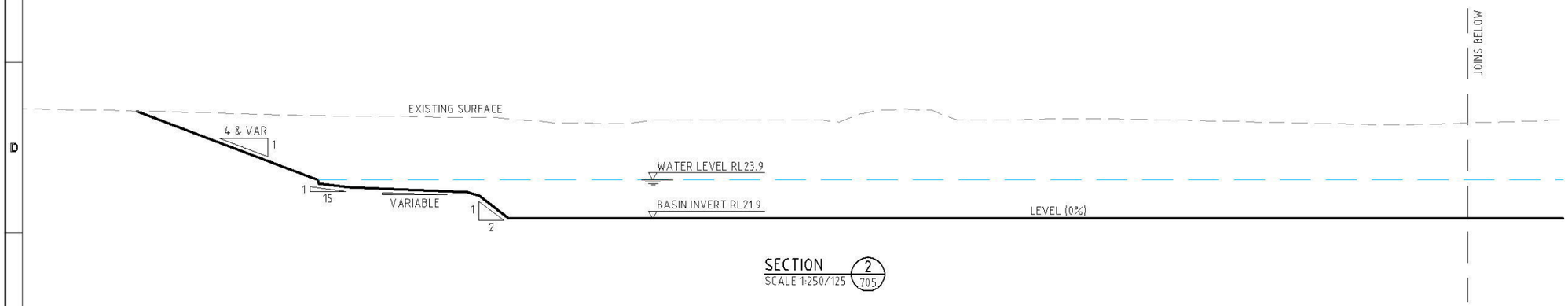
TITLE: RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
PLAN

SCALE	SKM PROJECT No	DRAWING No	AMDT
1:500	EN02754	EN02754-C-705	C

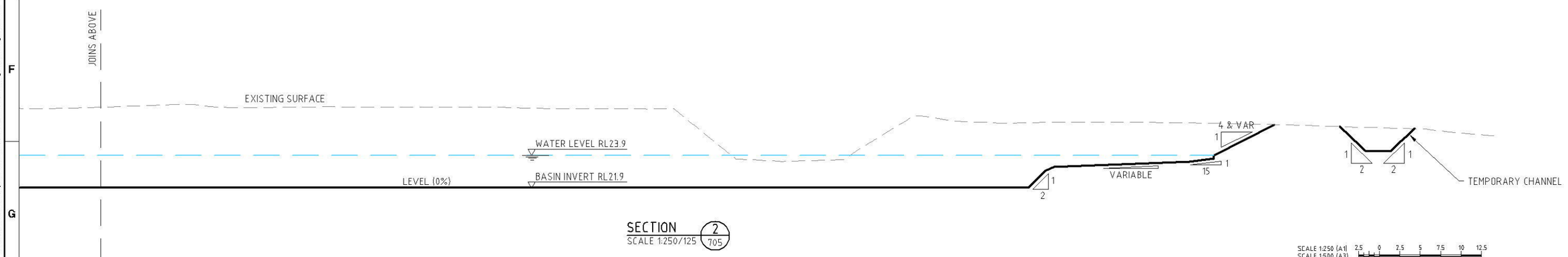
Plot Date: 14 Feb 2014 @ 10:41:06 Login Name: pdayal Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-705.dwg



SECTION 1
SCALE 1:250/125 (1/705)



SECTION 2
SCALE 1:250/125 (2/705)



SECTION 2
SCALE 1:250/125 (2/705)

SCALE 1:250 (A1) / SCALE 1:500 (A3) HORIZONTAL 2.5 0 2.5 5 7.5 10 12.5

SCALE 1:125 (A1) / SCALE 1:250 (A3) VERTICAL 1.25 0 1.25 2.5 3.75 5.0 6.25

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
B	16.01.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
A	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COMMENTS

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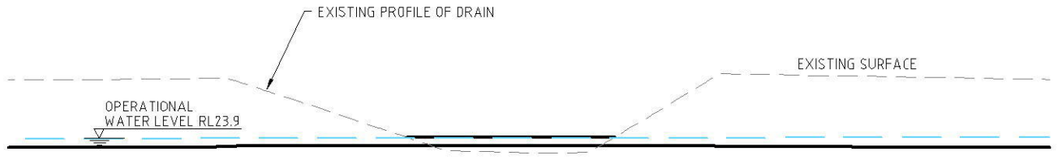
CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
S.K.	J.C.		

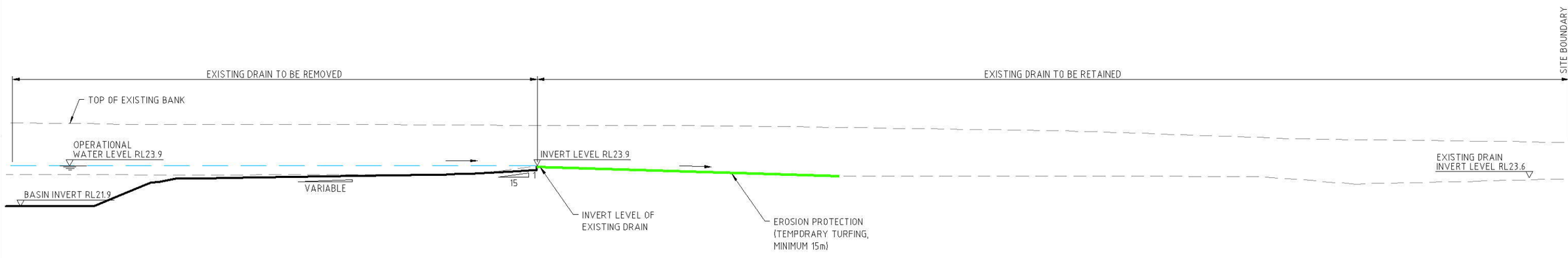
TITLE: RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
TYPICAL SECTIONS

SCALE	SKM PROJECT No.	DRAWING No.	AMDT
AS SHOWN	EN02754	EN02754-C-706	B

Plot Date: 16 Jan 2014 @ 09:53:24 Login Name: PDoyal Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-706.dwg



SECTION 4 / 705
SCALE 1:250/125



SECTION 3 / 705
SCALE 1:250/125

SCALE 1:250 (A1) SCALE 1:500 (A3) 2.5 0 2.5 5 7.5 10 12.5 HORIZONTAL

SCALE 1:125 (A1) SCALE 1:250 (A3) 1.25 0 1.25 2.5 3.75 5.0 6.25 VERTICAL

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
A	14.02.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL

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CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
S.K.	J.C.		

TITLE: RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
TYPICAL SECTIONS

SCALE	SKM PROJECT No	DRAWING No	AMDT
AS SHOWN	EN02754	EN02754-C-707	A

Appendix B – Riparian Corridor temporary sediment basin sizing summary calculations

Job Description:	Riparian Corridor sediment basin
Job Number:	EN04189

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Design of Sediment Basin (construction phase) - Output summary

Project data

Sediment Basin No:	**Riparian Corridor**
Receiving creek name:	South Creek
Location:	Western Precinct

Sedimentation basin dimensions

Basin Volume (at water line) :	**27203 m3**	12D model volume provided = **46,000m3**
Basin Surface Area (at water line):	14700 m2	
Length incl 0.5m freeboard (Approx)	212 m	
Width incl 0.5m freeboard (Approx)	72 m	
Max depth incl 0.5m freeboard:	2.5 m	
Length at water line:	210 m	
Width at water line:	70 m	
Max water depth:	2 m	
Basin Side slopes, incl free board slopes:	2	:1 side slopes H:V
Length to width ratio of basin	3.0 to 1	(L:W)

Site specific input parameters

	Total area		
Catchment Area:	108 ha		
Disturbed Area:	90 ha		0.9 ha or 1% of total area
Soil Type:	D		
5 Day, 85 %ile rainfall depth	**35**	**mm**	For sensitive receiving environment
2 year ARI, 6 hour rainfall intensity	10.16	mm/hr	
Rainfall Erosivity (R)	2273	From Map 10 of Blue Book	
Volumetric runoff coefficient (Cv)	0.64		
Soil Hydrologic Group	D	*Moderate to High* ' to *'High'* runoff potential	
Soil Erodibility (K)	0.031	*Moderate* From soil test pit No:	**BH2**
Sediment Yield Time Period:	6 months		dated Aug 2013
Main area gradient:	4%		
Steep area/ road embankment gradient:	50%	1 in 2 V:H	

Estimated data

	Main area	**Steep batters**
Soil Loss class, a per Blue Book classifications	1	6
Soil Erosion Hazard:	Very Low	Very High

LEGEND

- EXISTING CONTOUR
- "CLEAN" RUNOFF DIVERSION DRAIN
- "DIRTY" RUNOFF DRAIN (TO SEDIMENT BASIN)
- SUB-CATCHMENT BOUNDARY
- EXTENT OF DISTURBANCE
- CD1 "CLEAN" RUNOFF - ID NUMBERS
- DD1 "DIRTY" RUNOFF - ID NUMBERS
- TEMPORARY CULVERT
- SEDIMENT BASIN

NOTES

1. REFER TO DRAWING No. EN02754C-704 FOR NOTES AND TYPICAL DETAILS.
2. REFER TO DRAWING No. EN02754C-705 FOR BASIN PLAN

VILLAGE 3
VILLAGE 3 "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 4
EXISTING SEDIMENT BASIN TO BE RETAINED
IL 39.4m
IL 40.6m
NORTH / SOUTH OPEN CHANNEL
VC 13
VILLAGE OVAL
IL 42.4m
DD6
TEMPORARY SEDIMENT BASIN NO. 4 FOR THE VILLAGE OVAL VOLUME = 1500m³
CONNECT "CLEAN" RUNOFF TO EXISTING DRAINAGE SYSTEM TO DRAIN TO 'JORDAN SPRINGS LAKE'
VILLAGE 1
VILLAGE 2
VILLAGE 5
IL 35.8m
IL 29.8m
CD4
IL 26.7m
IL 26.9m
OPEN CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 3
IL 33.1m
DD5
"CLEAN" RUNOFF FROM VILLAGE 1 INTO THE JORDAN SPRINGS CONSTRUCTED LAKE
JORDAN SPRINGS LAKE
TEMPORARY SEDIMENT BASIN NO. 3 FOR VC12 VOLUME = 1150m³
IL 29.7m
VILLAGE 2 STORM WATER OUTLET
IL 27.1m
IL 24.0m
RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
WATER LEVEL RL 23.9m
46,000m³
IN
OUT
IL 23.6m
IL 23.94m
EAST / WEST OPEN CHANNEL
UPPER CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 2
NEW CULVERT UNDER ROAD 21
IL 25.8m
IL 28.83m
IL 32.5m
IL 31.8m
IL 32.1m
CD2
DD2
TEMPORARY SEDIMENT BASIN NO. 1
BASE RL 21.9m
DD4
4E
"CLEAN" EXTERNAL RUNOFF
IL 31.8m
IL 31.43m
IL 26.27m
IL 34.4m
IL 32.3m
STAGE 2 DECOMMISSIONING OF TEMPORARY BASIN 4E (NTS). VOLUME = 4380m³
IL 28.6m
REFER TO DRAWING EN02754-C-705
TEMPORARY SEDIMENT BASIN NO. 2 FOR THE UPPER END OF THE EAST / WEST CHANNEL VOLUME = 300m³
BASE RL 30.0m
4B/C
4D
IL 29.46m
DD1
TEMPORARY BOX CULVERT - 2 CELLS EACH 1.5m WIDE x 0.9m HIGH
STAGE 1 DECOMMISSIONING OF TEMPORARY BASIN 4B/C (NTS). VOLUME = 915Dm³
EAST / WEST CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 1
STAGE 3 DECOMMISSIONING OF TEMPORARY BASIN 4D (NTS). VOLUME = 745m³
EXISTING BOX CULVERT
CD1
CD3
VILLAGE 4
IL 38.2m
IL 36.6m

SCALE 1:2500 (A1) 25 0 25 50 75 100 125
SCALE 1:5000 (A3)

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
D	14.02.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR APPROVAL
C	16.01.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
B	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COMMENTS
A	27.09.13	L.B.	J.C.	J.C.	J.W.	ISSUED TO LEND LEASE FOR COMMENTS

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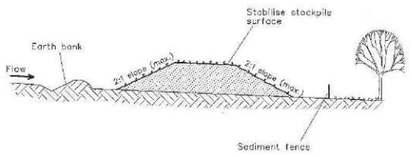
CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
M.M.	J.C.		

TITLE: EROSION AND SEDIMENT CONTROL PLAN (ESCP) FOR THE DISTURBED CATCHMENTS UPSTREAM OF THE RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN

SCALE	SKM PROJECT No	DRAWING No	AMDT
1:2500	EN02754	EN02754-C-703	D

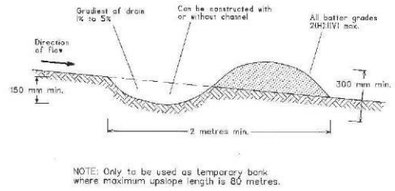
Plot Date: 14 Feb 2014 @ 11:03:49 Login Name: pdayal (Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-703.dwg)



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

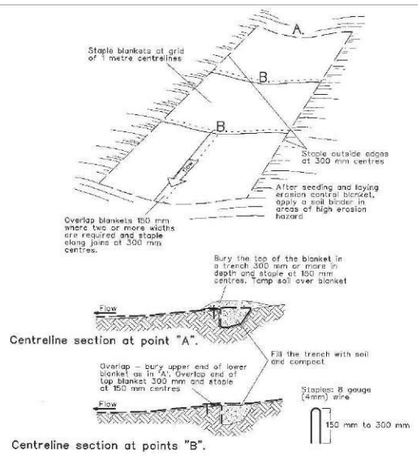


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

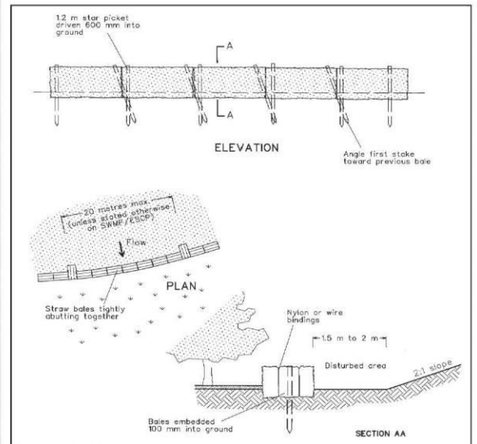
EARTH BANK (LOW FLOW) SD 5-5



Construction Notes

1. Remove any rocks, clods, sticks or grass from the surface before laying matting
2. Ensure that topsoil is at least 75 mm deep.
3. Complete fertilising and seeding before laying the matting.
4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end (Standard Drawing 5-7b).
6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
7. Divert water from the structure until vegetation is stabilised properly.

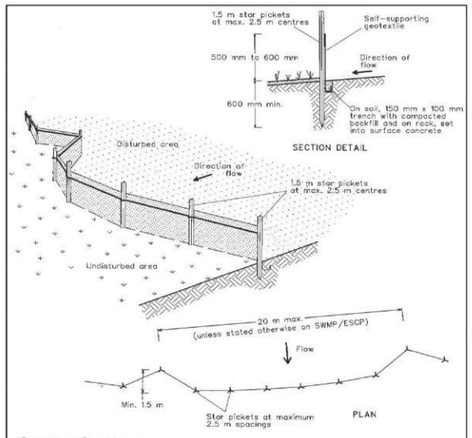
RECP : CONCENTRATED FLOW SD 5-7



Construction Notes

1. Construct the straw bale filter as close as possible to being parallel to the contours of the site.
2. Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws are to be placed parallel to ground.
3. Ensure that the maximum height of the filter is one bale.
4. Embed each bale in the ground 75 mm to 100 mm and anchor with two 1.2 metre star pickets or stakes. Angle the first star picket or stake in each bale towards the previously laid bale. Drive them 600 mm into the ground and, if possible, flush with the top of the bales. Where star pickets are used and they protrude above the bales, ensure they are fitted with safety caps.
5. Where a straw bale filter is constructed downslope from a disturbed batter, ensure the bales are placed 1 to 2 metres downslope from the toe.
6. Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.

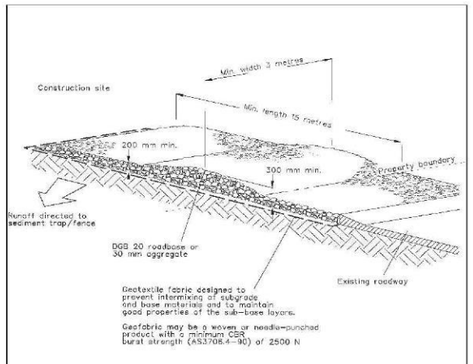
STRAW BALE FILTER SD 6-7



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.

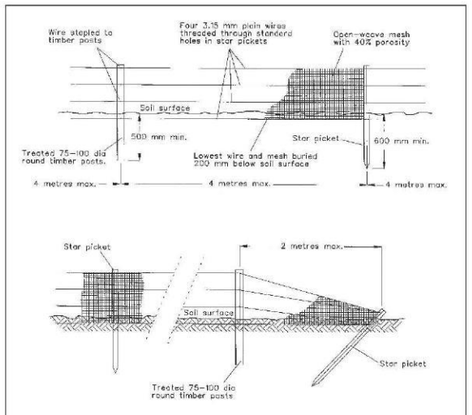
SEDIMENT FENCE SD 6-8



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

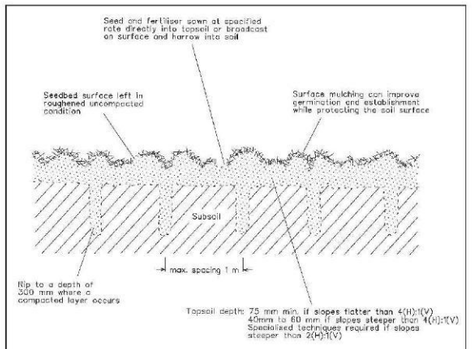
STABILISED SITE ACCESS SD 6-14



Construction Notes

1. Install the fence to the height specified in the ESCP/SWMP.
2. Cut a channel 200 mm deep along the fence line.
3. Place wire and light resistant, open-weave polymer mesh with 40 percent porosity on the prevailing wind side of fence.
4. Fasten the mesh to all wires using ring fasteners at 100 mm to 150 mm intervals on top wire and 300 mm intervals on other wires.
5. Use one 75-mm to100-mm diameter treated round timber post every 20 metres.
6. Where star pickets are used, ensure they are fitted with safety caps.

CONTROL OF WIND EROSION SD 6-15



Construction Notes

1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300 mm. Avoid rotary hoe cultivators.
2. Work the ground only as much as necessary to achieve the desired filth 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

NOTES

1. THE SEQUENCE OF CONSTRUCTION SHALL BE AS FOLLOWS:
   A) THE CONSTRUCTION OF THE SEDIMENT BASINS Nos 1,2 AND 3 WITH ALL ASSOCIATED EROSION AND SEDIMENT CONTROLS.
   B) IDENTIFY LOCATION OF ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES ON SITE.
   C) INSTALLATION OF BARRIER AND SEDIMENT FENCES.
   D) INSTALLATION OF ALL DIVERSION DRAINS AND LEVEL SPREADERS.
   E) INSTALLATION OF ALL REMAINING EROSION AND SEDIMENT CONTROLS.
   F) CLEARING AND REGRADING OF OPEN CHANNEL, TO BULK EARTHWORKS PLAN.
   G) DEWATERING IF REQUIRED.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS FOR "EROSION AND SEDIMENT CONTROL DCP AND CODE OF PRACTICE" ON DEVELOPMENT SITES OF PENRITH CITY COUNCIL AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE 'BLUE BOOK', SOILS AND CONSTRUCTION LANDCOM 2004, DECCW 2008 VOLUMES 1 AND 2, AND ANY ADDITIONAL REQUIREMENTS BY PENRITH CITY COUNCIL.
3. REFER TO ALL TYPICAL SWMP DETAILS IN BLUE BOOK (EG; SD6-3) FOR CONSTRUCTION DETAILS. ALSO REFER TO MOST RELEVENT TYPICAL DETAILS ON DRAWING EN02754-C-702.
4. WIND EROSION CONTROLS (NOT SHOWN ON THIS PLAN) SHALL BE CONSTRUCTED AS REQUIRED BY THE SITE SUPERINTENDENT. REFER TO SD6-15 TYPICAL DETAIL ON DRAWING EN02754-C-702.
5. ESCP DETAILS ON THIS LAYOUT ARE SCHEMATIC ONLY. ANY ADDITIONAL INFORMATION REQUIRED IS TO BE OBTAINED FROM THE SITE SUPERINTENDENT. ADDITIONAL CONTROLS AND CHANGES TO THIS PLAN MAY BE NECESSARY DURING THE PROCESS OF IMPLEMENTATION OF THE ESCP. ONGOING INSPECTIONS BY A QUALIFIED SUPERINTENDENT ARE REQUIRED TO PROVIDE RELEVANT CHANGES, AS REQUIRED. THE ESCP IDENTIFIES THE EROSION AND SEDIMENT CONTROLS NEEDED ON SITE, BUT ARE NOT CONSTRUCTION DRAWINGS. REFERENCE NEEDS TO BE MADE TO TYPICAL DETAILS IN THE BLUE BOOK.
6. PROVIDE JUTE MESH LINING FOR ALL DIVERSION DRAINS AND THE OPEN CHANNELS AND SPRAY WITH BITUMEN EMULSION.
7. IF STRAW BALES ARE USED IN CONJUNCTION AND IN ADDITION TO SEDIMENT FENCES, THE STRAW BALES SHALL BE WEED FREE.
8. ALL DISTURBED AND REGRADED AREAS INCLUDING EMBANKMENTS THAT ARE EXPOSED FOR LONGER THAN 2 WEEKS, SHALL BE REHABILITATED AS SOON AS POSSIBLE BY HYDROSEEDING OR AS DIRECTED BY THE SITE SUPERINTENDENT.
9. WATER CAPTURED IN THE EAST SEDIMENT BASIN WILL BE USED FOR REUSE ON SITE FOR DUST SUPPRESSION PURPOSES OR DISCHARGED DOWNSTREAM WITH APPROVAL. GYPSUM FLOCCULATION MAY BE REQUIRED IF SETTLEMENT OF SOIL PARTICLES DOES NOT OCCUR IN THE SEDIMENT BASIN.
10. THIS EROSION AND SEDIMENT CONTROL PLAN IS FOR THE OPEN CHANNELS ONLY.
11. SEDIMENT BASIN NO. 1 WILL BE DESIGNED TO TREAT ALL THE "DIRTY" RUNOFF FROM THE EAST / WEST CHANNEL AND VILLAGE 2.
12. ALL EXTERNAL RUNOFF TO BE DIVERTED AROUND THE CONSTRUCTION AREAS, AS REQUIRED.
13. ALL DETAILS SHOWN ON THIS DRAWING ARE REFERENCED FROM 'THE BLUE BOOK' - MANAGING URBAN STORMWATER (MUS): SOILS AND CONSTRUCTION BY LANDCOM. IT IS THE RESPONSIBILTY OF THE CONTRACTOR ON SITE TO HAVE THE LATEST PUBLICATION.
14. ALL TEMPORARY SEDIMENT BASINS USED FOR THE CONSTRUCTION STAGE WILL NEED TO BE DECOMMISSIONED AND ADEQUATELY BACKFILLED AND REHABILITATED. THIS IS TO BE UNDERTAKEN AFTER ITS UPSTREAM CATCHMENT IS FULLY STABILISED OR IF LOCAL EROSION AND SEDIMENT CONTROLS ARE ADEQUATELY IMPLEMENTED AT THE SOURCE, FOR INSTANCE AT THE LOTS.

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
B	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR D.A.
A	27.09.13	L.B.	J.C.	J.C.	J.W.	ISSUED TO LEND LEASE FOR COMMENTS

Lend Lease

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CLIENT: LEND LEASE
PROJECT: JORDAN SPRINGS – EAST LAKE BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.		J.C.	J.W.
DESIGNED	DESIGN REVIEW		
-	J.C.		

TITLE: EROSION AND SEDIMENT CONTROL DETAILS

SCALE	SKM PROJECT No	DRAWING No.	AMDT
NTS	EN02754	EN02754-C-704	B

Plot Date: 31 Jan 2014 @ 09:49:11 Login Name: scouley Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-704.dwg

VILLAGE 5

N

NOTE

REFER TO DRAWING No. EN02754C-704 FOR NOTES AND TYPICAL DETAILS.

VILLAGE 2 "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 1

STAGE 1 EXCAVATION EXTENT, PRIOR TO DECOMMISSIONING OF 4B/C TEMP BASIN

STAGE 2 EXCAVATION EXTENT, PRIOR TO DECOMMISSIONING OF 4E TEMP BASIN

STAGE 3 EXCAVATION EXTENT, PRIOR TO DECOMMISSIONING OF 4D TEMP BASIN

RIPARIAN CORRIDOR SEDIMENT BASIN

WATER LEVEL RL 23.9m
BASE RL 21.9m
46,000m³

TEMPORARY SEDIMENT BASIN NO. 1

EROSION CONTROL AT OUTLET. PROPOSED TURFING OF CHANNEL, MINMUM LENGTH = 15m

CONNECT "CLEAN" RUNOFF DIVERSION DRAIN TO EXISTING CREEK

IL 23.94m

OUT

IL 23.9m

IL OF EXISTING CREEK 23.6m

NEW CULVERT UNDER ROAD 21

IN

TEMPORARY SANDBAGS TO SEPARATE "CLEAN" AND "DIRTY" RUNOFF.

IL 25.4m

EAST / WEST CHANNEL "DIRTY" RUNOFF TO SEDIMENT BASIN NO. 1

"CLEAN" RUNOFF DIVERSION DRAIN. TRAPEZOIDAL CHANNEL BASE WIDTH = 3m, SIDE SLOPES=1:2 (V:H). LONGITUDINAL SLOPE=0.4%

EAST / WEST OPEN CHANNEL

TEMPORARY SANDBAGS TO SEPARATE "CLEAN" AND "DIRTY" RUNOFF.

ROAD No. 21

IL 25.75m

IL 25.8m

"CLEAN" EXTERNAL RUNOFF

IL 26.27m

TEMPORARY BOX CULVERT - 2 CELLS EACH 1.5m WIDE x 0.9m HIGH, UNDER "DIRTY" RUNOFF DRAIN.

IL 27.725m

IL 24.530m

VILLAGE 4

LEGEND

- EXISTING CONTOUR
- "CLEAN" RUNOFF DIVERSION DRAIN
- "DIRTY" RUNOFF DRAIN (TO SEDIMENT BASIN)
- SUB-CATCHMENT BOUNDARY
- EXTENT OF DISTURBANCE
- CD1 "CLEAN" RUNOFF - ID NUMBERS
- DD1 "DIRTY" RUNOFF - ID NUMBERS
- TEMPORARY CULVERT
- SEDIMENT BASIN

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
C	14.02.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
B	16.01.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
A	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COMMENTS

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PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

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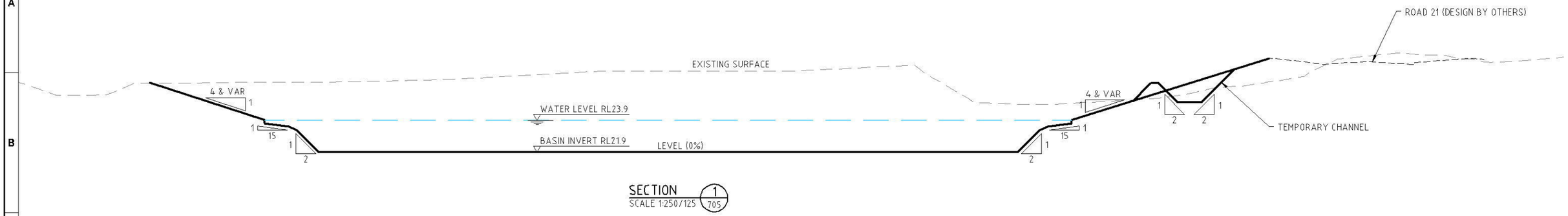
DESIGNED	DESIGN REVIEW		
S.K.	J.C.		

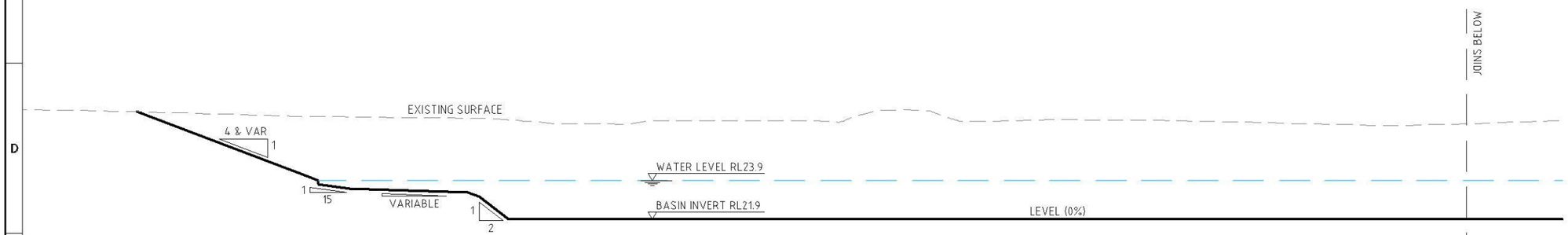
TITLE: RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
PLAN

SCALE	SKM PROJECT No	DRAWING No	AMDT
1:500	EN02754	EN02754-C-705	C

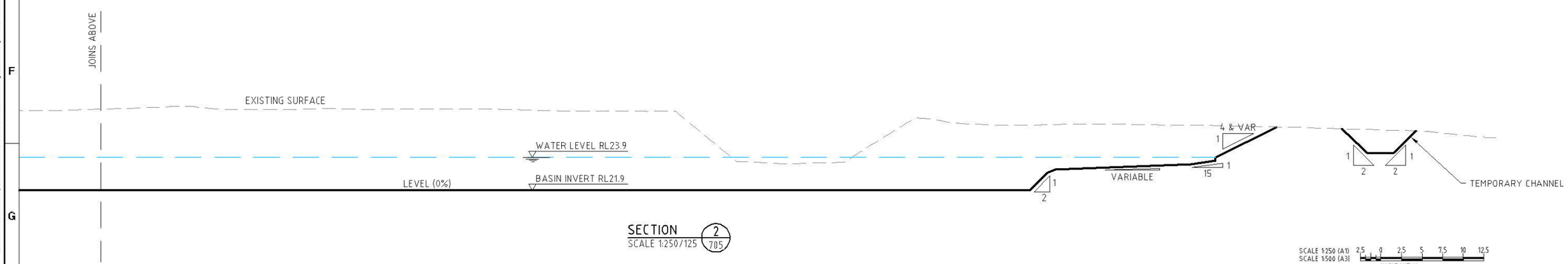
Plot Date: 14 Feb 2014 @ 10:41:06 Login Name: pdayal Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-705.dwg



SECTION 1
SCALE 1:250/125 (1/705)



SECTION 2
SCALE 1:250/125 (2/705)



SECTION 2
SCALE 1:250/125 (2/705)

SCALE 1:250 (A1)
SCALE 1:500 (A3)
2.5 0 2.5 5 7.5 10 12.5
HORIZONTAL

SCALE 1:125 (A1)
SCALE 1:250 (A3)
1.25 0 1.25 2.5 3.75 5.0 6.25
VERTICAL

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
B	16.01.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL
A	18.12.13	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COMMENTS

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PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

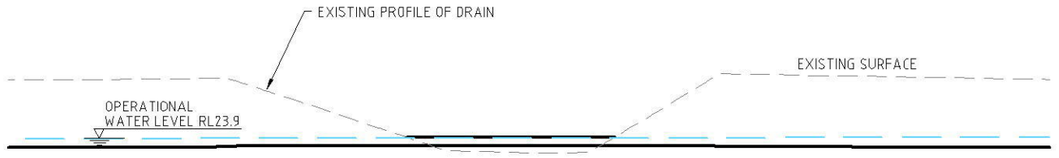
DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
S.K.	J.C.		

TITLE: RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN

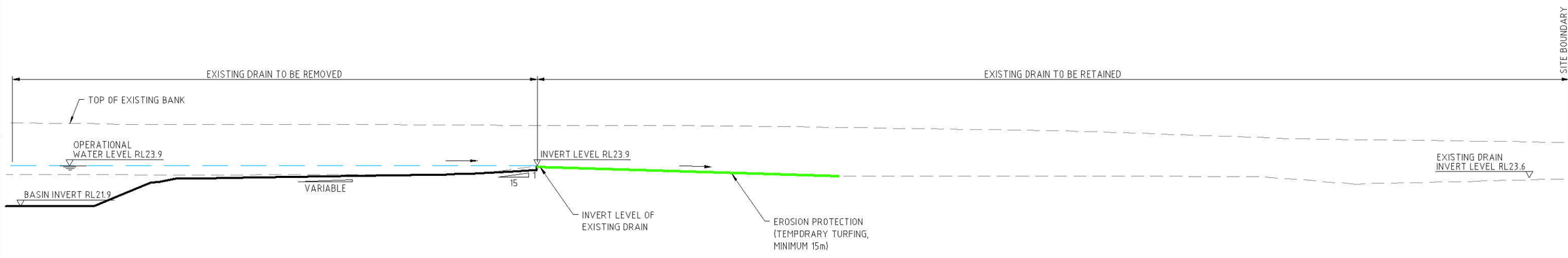
TYPICAL SECTIONS

SCALE	SKM PROJECT No	DRAWING No	AMDT
AS SHOWN	EN02754	EN02754-C-706	B

Plot Date: 14 Feb 2014 @ 10:44:32 Login Name: pdayal Cad File: I:\ENVR\Projects\EN02754\Deliverables\Drawings\Civil\Dwg\EN02754C-706.dwg



SECTION 4 / 705
SCALE 1:250/125



SECTION 3 / 705
SCALE 1:250/125

SCALE 1:250 (A1) SCALE 1:500 (A3) 2.5 0 2.5 5 7.5 10 12.5 HORIZONTAL

SCALE 1:125 (A1) SCALE 1:250 (A3) 1.25 0 1.25 2.5 3.75 5.0 6.25 VERTICAL

No	DATE	DRAFTING CHECK	DESIGN REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
A	14.02.14	L.B.	J.C.	J.C.	J.W.	ISSUED FOR COUNCIL APPROVAL

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PROJECT: JORDAN SPRINGS - RIPARIAN CORRIDOR BASIN

DRAFTER	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
L.B.	P.D.	J.C.	J.W.
DESIGNED	DESIGN REVIEW		
S.K.	J.C.		

TITLE: RIPARIAN CORRIDOR TEMPORARY SEDIMENT BASIN
TYPICAL SECTIONS

SCALE	SKM PROJECT No	DRAWING No	AMDT
AS SHOWN	EN02754	EN02754-C-707	A