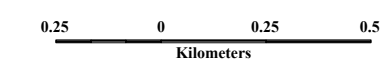


LEGEND/NOTES

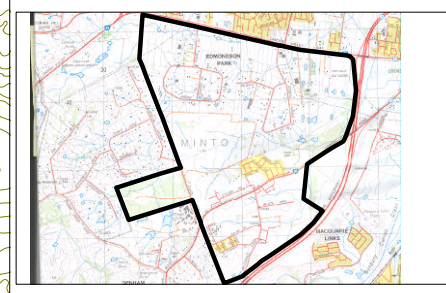
PLEASE NOTE:
 The flood extent line shown on the plans are for planning purposes only, and should not be used to stake out positions on the ground.
 Furthermore, it is important to be aware of the assumptions used to produce the flood extents, as documented in Section 3.3.2 of the Report.

- Cross-Section
- 2m Contour
- Site

♦ ♦ ♦ Flood Extents not accurate due to local effects, such as adjacent detention basins or survey deficiency.



LOCALITY MAP



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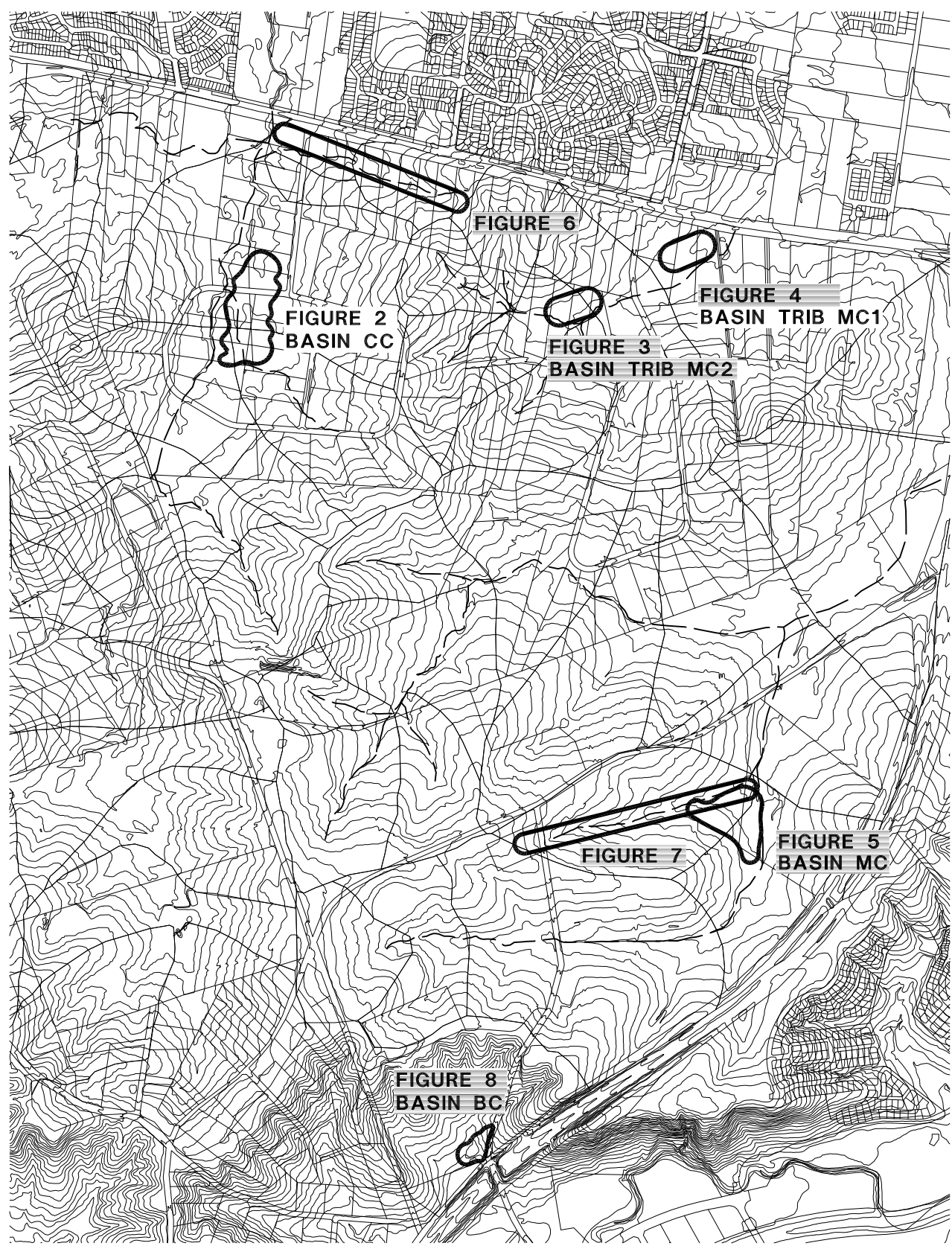
Horiz. Datum	MGA-Zone 56a	Projection	UTM
Height Datum	Metadata Recorded		
Created	Checked	Approved	
Date	File Location		
Revision	Drawing Number		



Edmondson Park Master Plan
FIGURE B-7
 PMF
 Developed Conditions Flood Levels and Extents, with Mitigation


Appendix C
Conceptual Drainage Element Layouts

DO NOT SCALE



SCALE 1:20000

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<p>Revise on CAD do not amend by hand</p>	<p>This Drawing must not be used for Construction unless signed as Approved</p>	<p>Designed</p>	<p>SITE PLAN</p>	
<p>Revision:</p>	<p>File: I:\FIGURES\FIGURE 1.DWG</p>	<p>Drafting Check</p>	<p>A4 Drg. No. FIGURE 1</p>	
	<p>Appr. _____ Date. _____</p>	<p>Design Check</p>	<p>Rev A</p>	
		<p>Approved</p>		

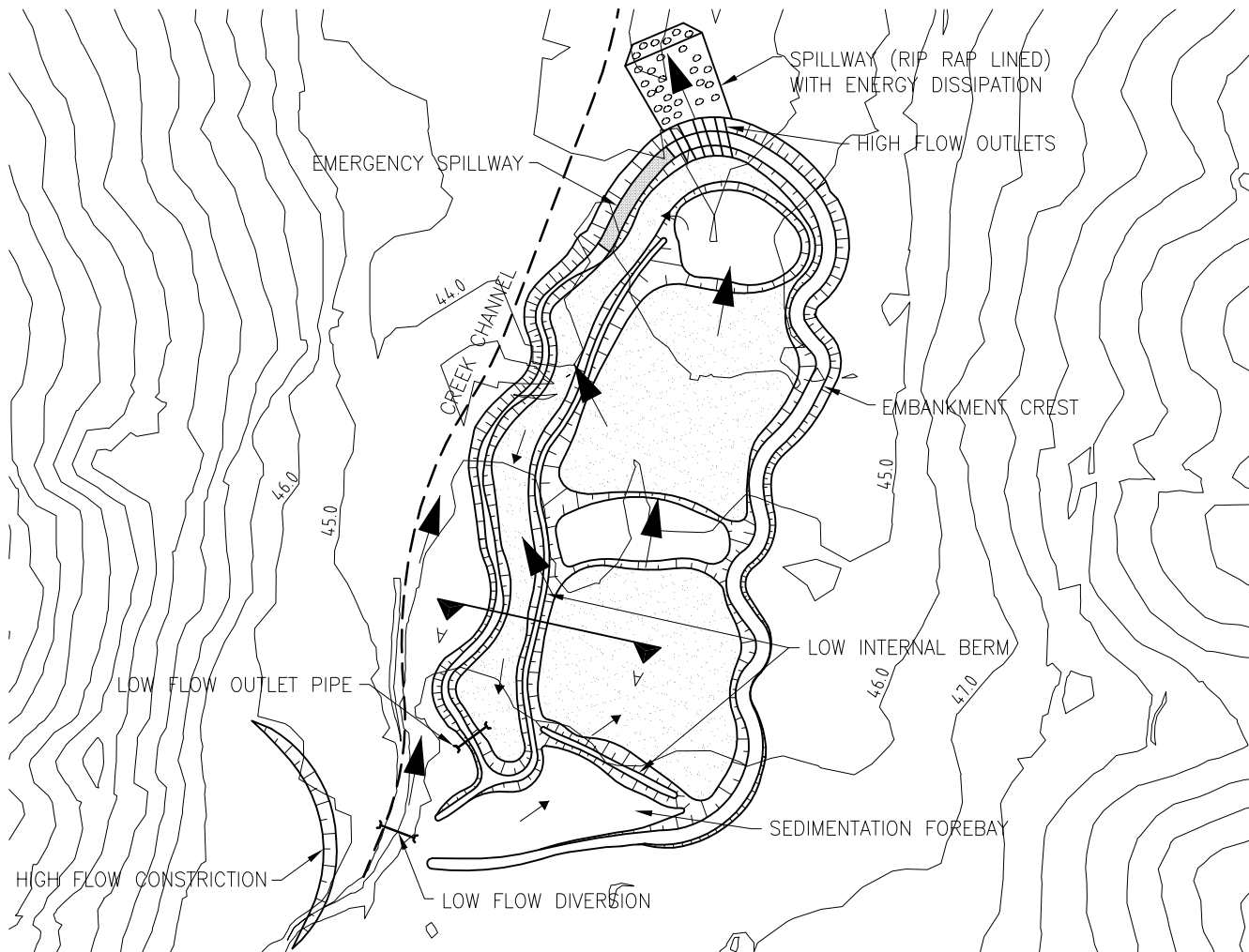
DO NOT SCALE

BASIN CC DETAILS

TOTAL VOLUME: 115,000m³
 SURFACE AREA: 65,000m²
 FLOOD STORAGE DEPTH: 2m

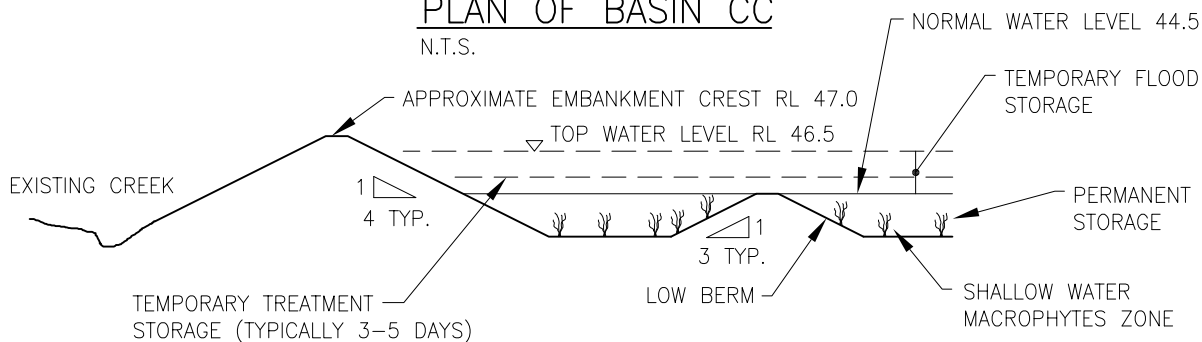
LEGEND

- LOW FLOW
- ▶ HIGH FLOW
-  MACROPHYTE ZONE
-  OPEN WATER ZONE



PLAN OF BASIN CC

N.T.S.



SECTION A-A

N.T.S.

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EDMONDSON PARK
 MASTER PLANNING

EXTENDED DETENTION WET/
 DRY BASIN CC

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File: I:\FIGURES\FIGURE 2

A4 Drg. No. FIGURE 2

Rev A

Appr.



Date.

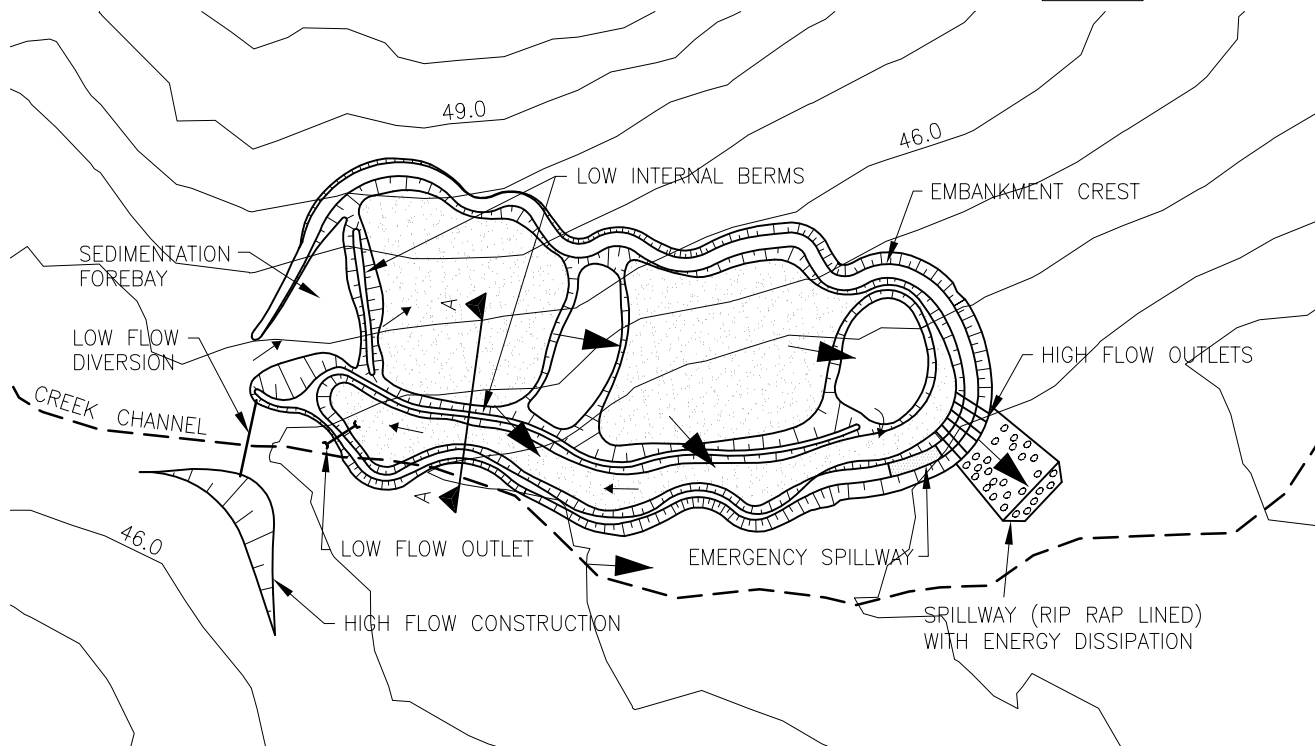
DO NOT SCALE

BASIN TRIB MC2 DETAILS

TOTAL VOLUME: 19,000m³
 SURFACE AREA: 11,000m²
 PERMANENT WATER DEPTH: 2m

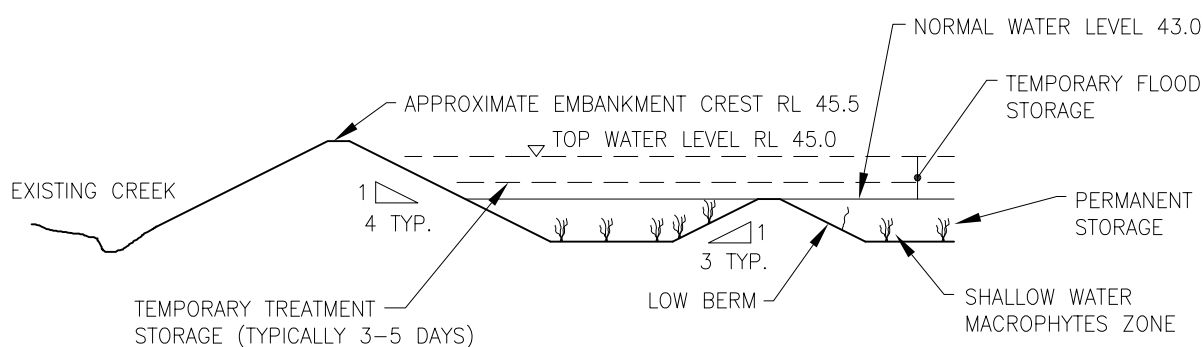
LEGEND

- LOW FLOW
- ➔ HIGH FLOW
-  MACROPHYTE ZONE
-  OPEN WATER ZONE



PLAN OF BASIN TRIB MC2


N.T.S.



SECTION A-A

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		Designed	EXTENDED DETENTION WET/ DRY BASIN TRIBUTARY MC2	
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	Date.			

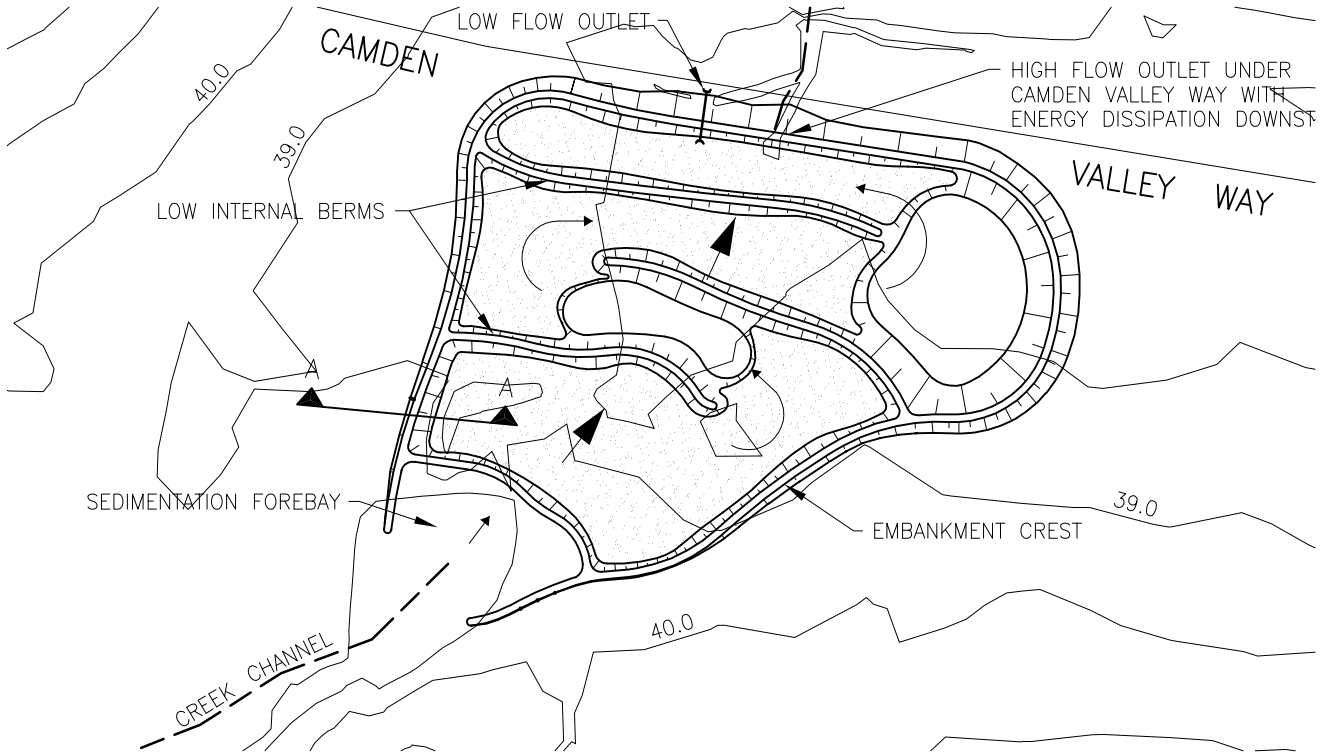
DO NOT SCALE

BASIN TRIB MC1 DETAILS

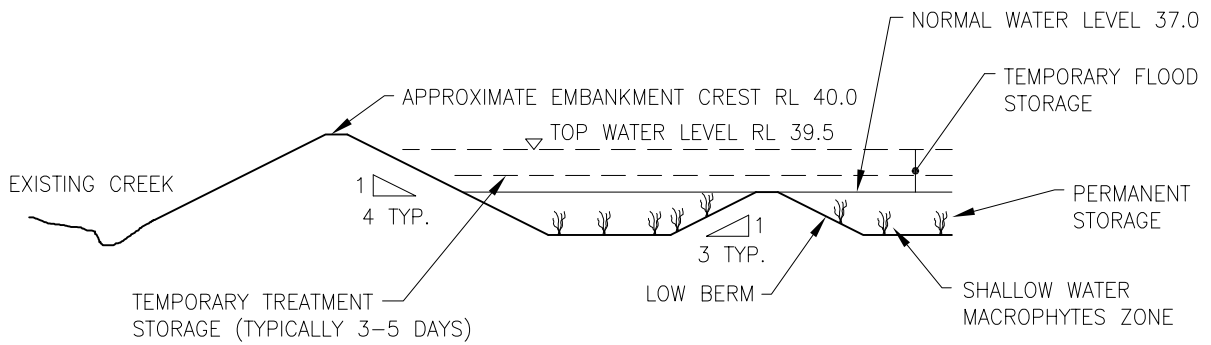
TOTAL VOLUME: 34,000m³
 SURFACE AREA: 15,000m²
 PERMANENT WATER DEPTH: 2.5m

LEGEND

-  LOW FLOW
-  HIGH FLOW
-  MACROPHYTE ZONE
-  OPEN WATER ZONE




PLAN OF BASIN TRIB MC1
 N.T.S.



SECTION A-A
 N.T.S.

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			Designed	EXTENDED DETENTION WET/ DRY BASIN TRIBUTARY MC1	
Revise on CAD do not amend by hand	This Drawing must not be used for Construction unless signed as Approved		Drafting Check	Approved	
Revision:	File: I:\FIGURES\FIGURE 4.DWG		Design Check	A4 Drg. No. FIGURE 4	Rev A
Appr.	Date.	Approved			

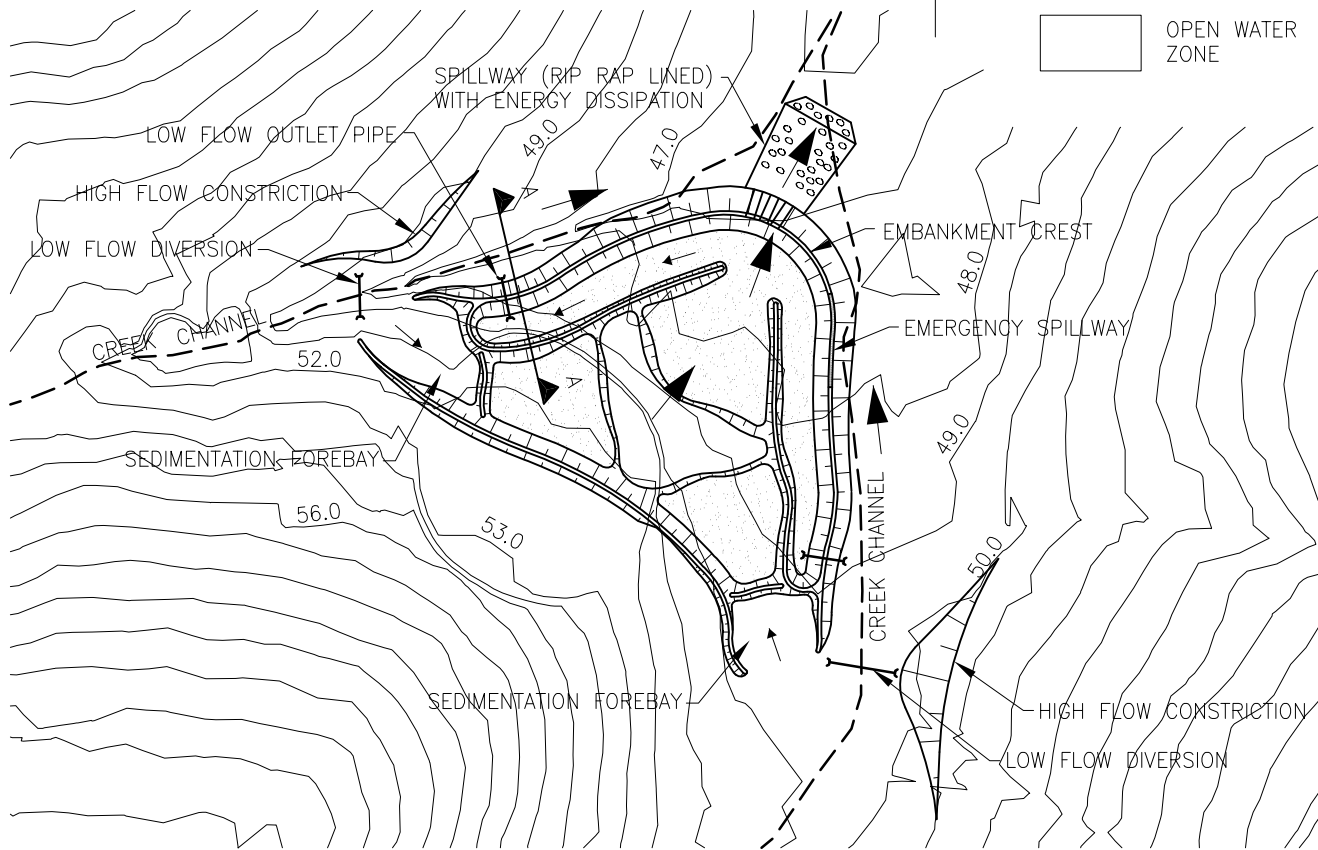
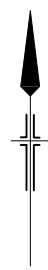
DO NOT SCALE

BASIN MC DETAILS

TOTAL VOLUME: 60,00m³
 SURFACE AREA: 33,000m²
 PERMANENT WATER DEPTH: 2.5m

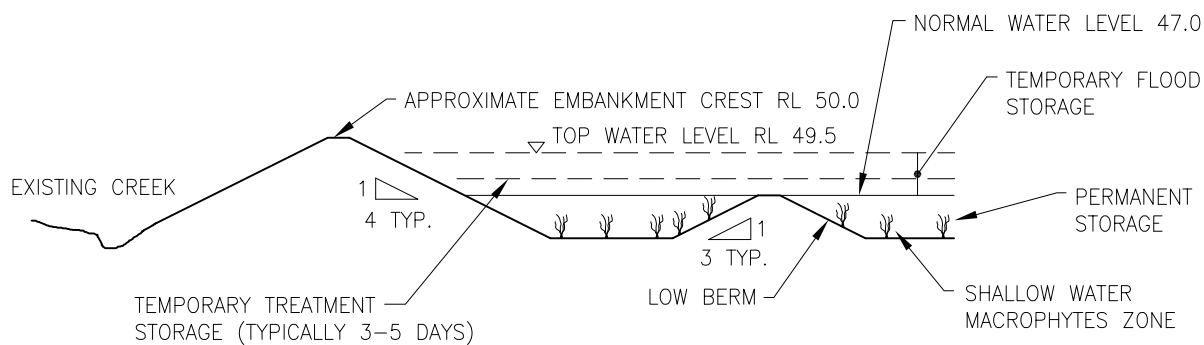
LEGEND

-  LOW FLOW
-  HIGH FLOW
-  MACROPHYTE ZONE
-  OPEN WATER ZONE



PLAN OF BASIN MC


N.T.S.



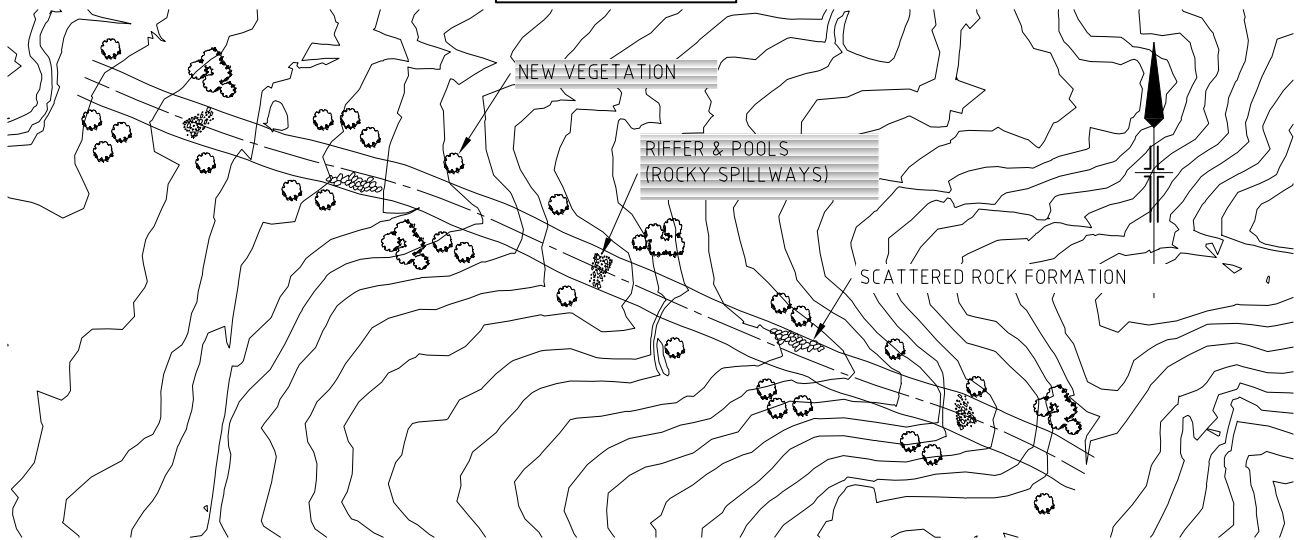
SECTION A-A

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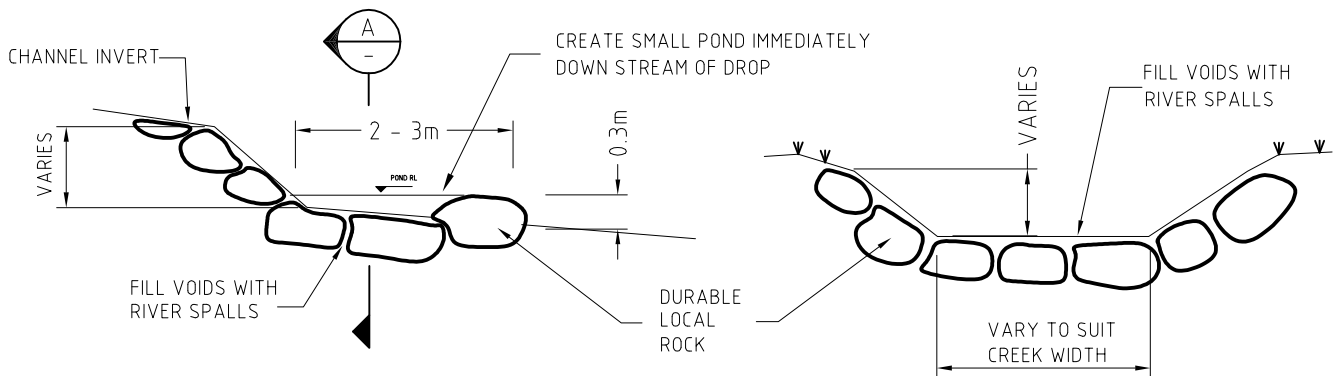
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Revision:	File: I:\FIGURES\FIGURE 5.DWG			A4 Drg. No. FIGURE 5	
	Appr.	Date.			

DO NOT SCALE

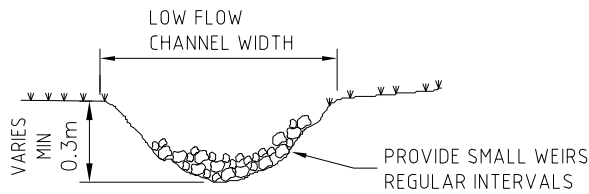


PLAN
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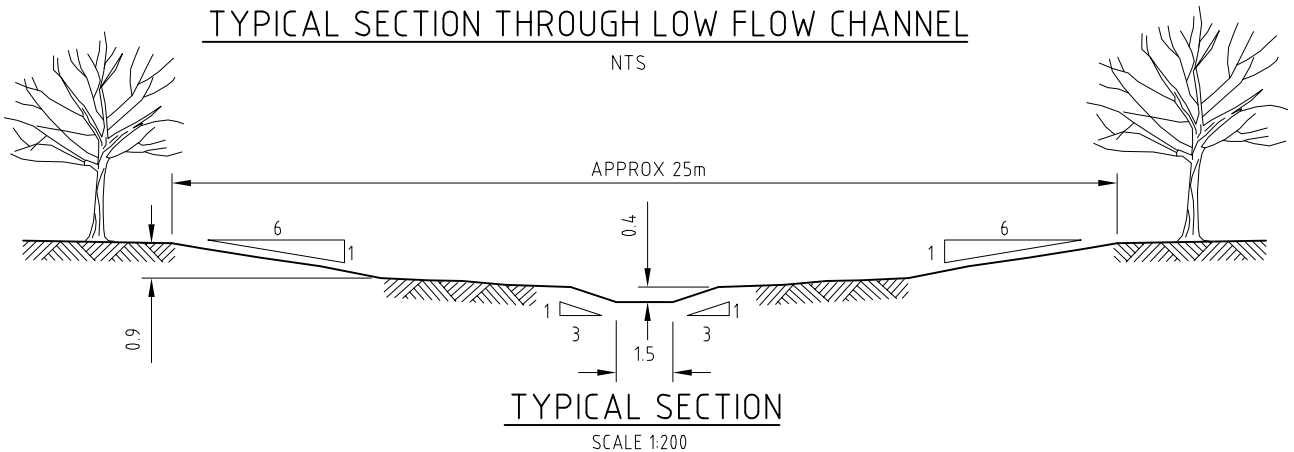


TYPICAL ROCKY SPILLWAY ELEVATION
N.T.S.

ROCKY SPILLWAY - SECTION A
N.T.S.




TYPICAL SECTION THROUGH LOW FLOW CHANNEL
N.T.S.

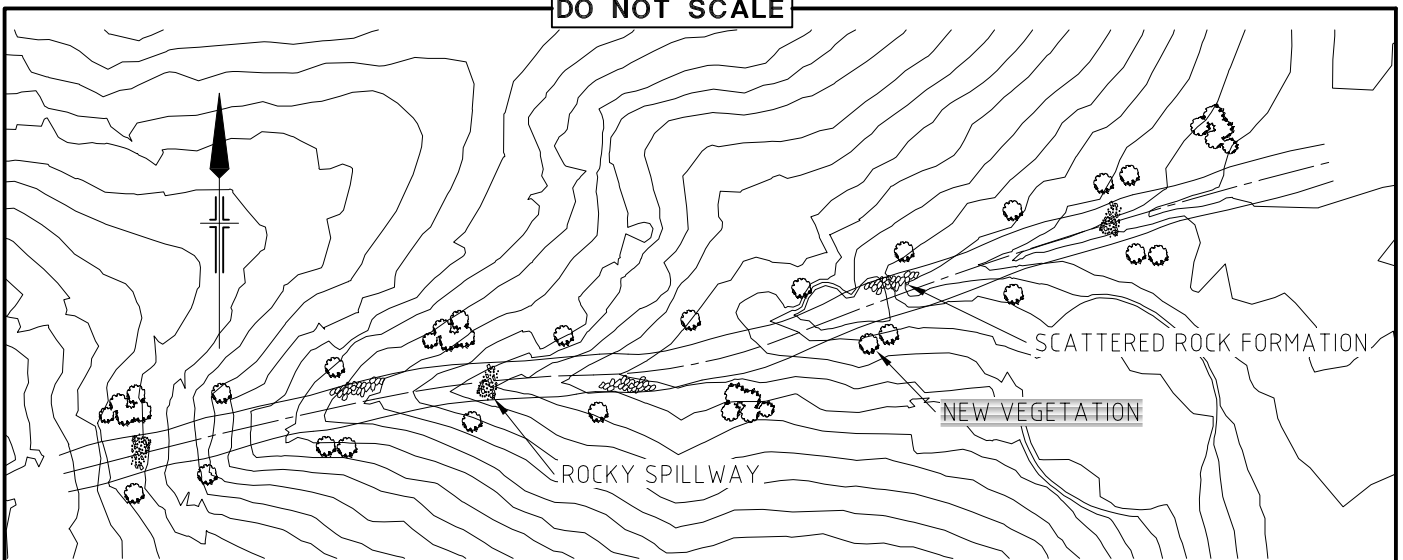


TYPICAL SECTION
SCALE 1:200

CONCEPT ONLY

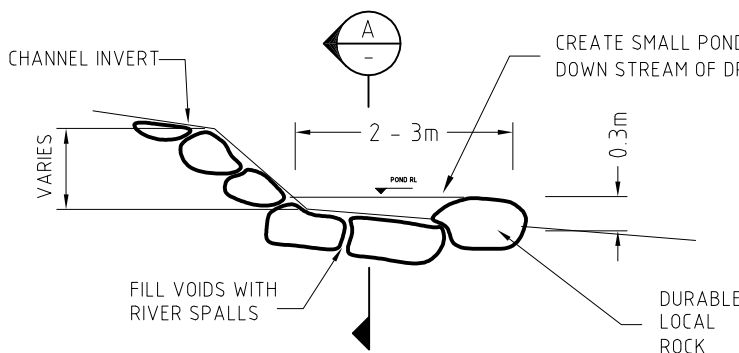
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<p>Revision:</p>	<p>File: I:\FIGURES\FIGURE 6.DWG</p>	<p>Drafting Check</p>	<p>A4 Drg. No. FIGURE 6</p>	
<p>Apr.</p>	<p>Date.</p>	<p>Design Check</p>	<p>Rev A</p>	
<p>Approved</p>		<p>Approved</p>	<p>Rev A</p>	

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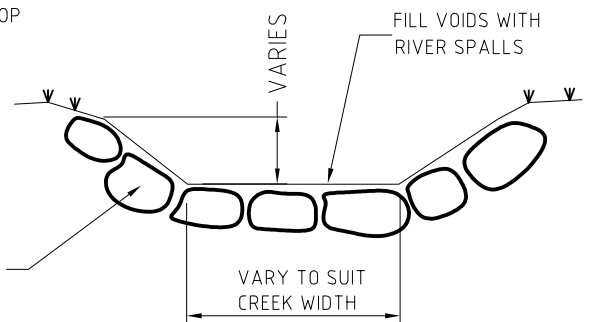
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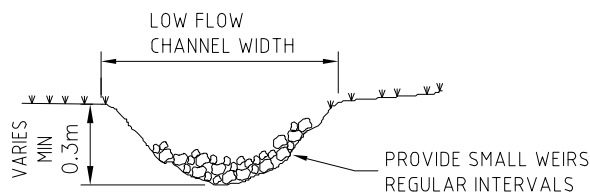
TYPICAL ROCKY SPILLWAY ELEVATION

NTS



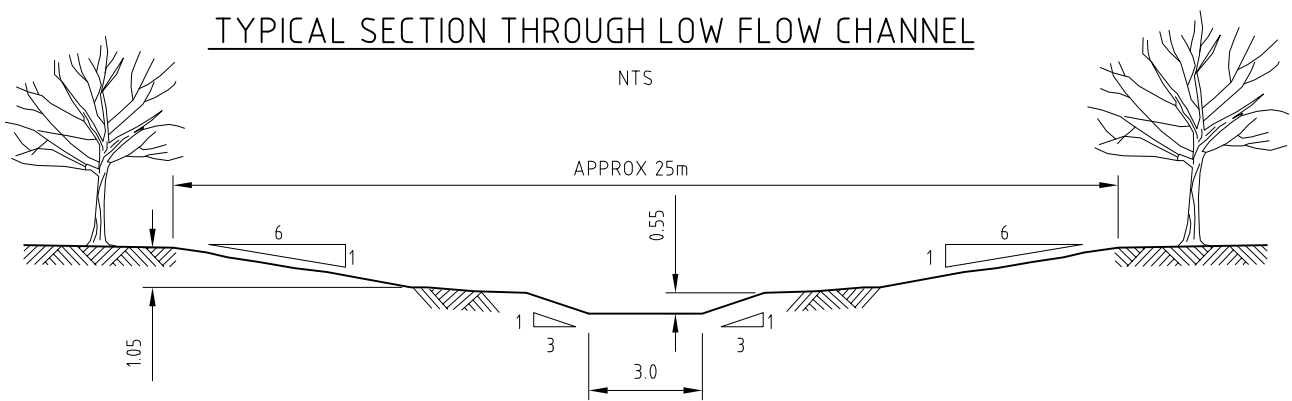
ROCKY SPILLWAY - SECTION A

NTS



TYPICAL SECTION THROUGH LOW FLOW CHANNEL


NTS



TYPICAL SECTION

SCALE 1:200

CONCEPT ONLY





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<p>Revision:</p>	<p>File: I:\FIGURES\FIGURE 7.DWG</p>	<p>Drafting Check</p>	<p>Approved</p>	
<p>Apr.</p>	<p>Date.</p>	<p>Design Check</p>	<p>A4 Drg. No. FIGURE 7</p>	<p>Rev A</p>

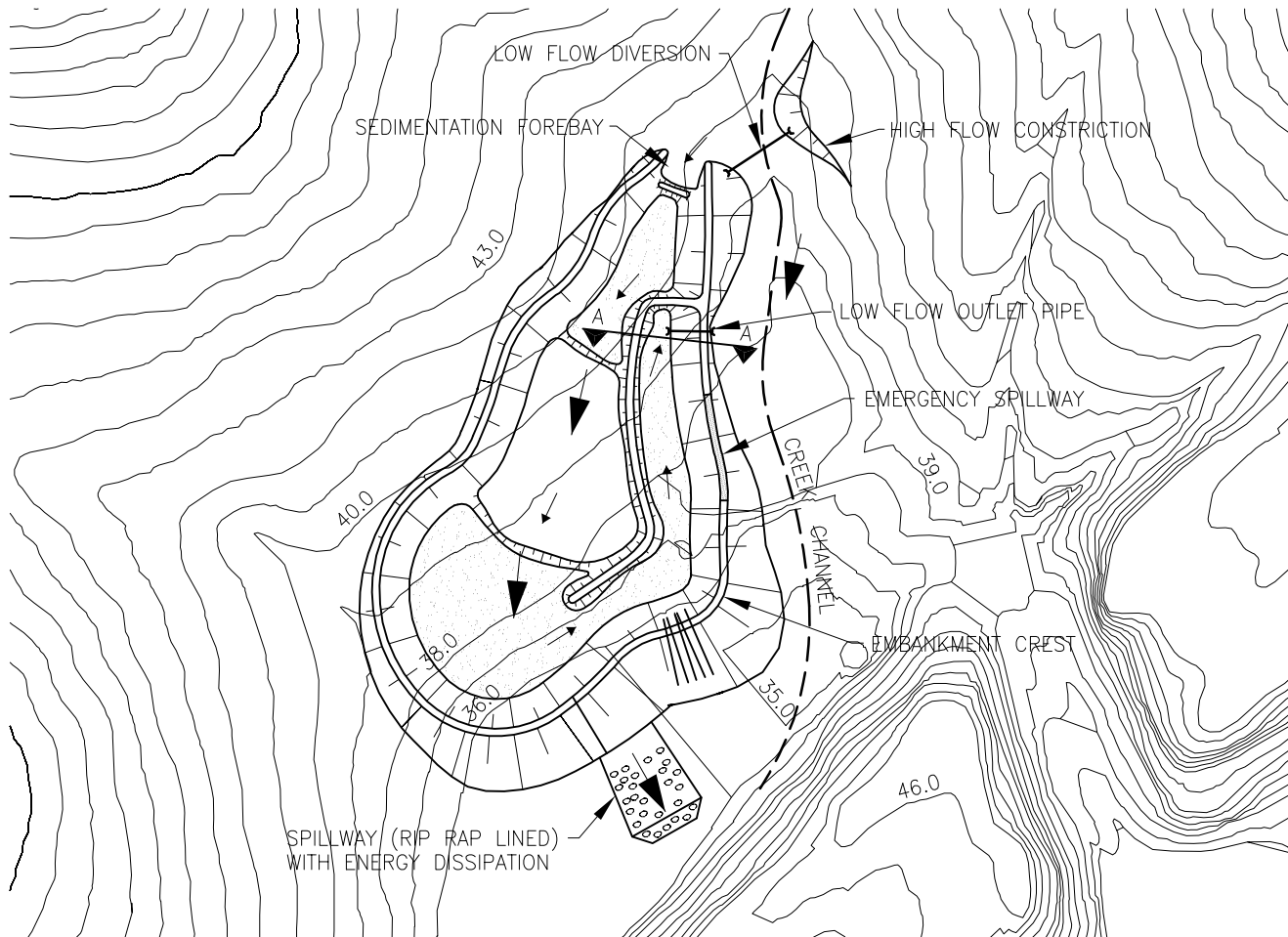
DO NOT SCALE

BASIN BC DETAILS

TOTAL VOLUME: 15,000m³
 SURFACE AREA: 9,000m²
 PERMANENT WATER DEPTH: 2.0m

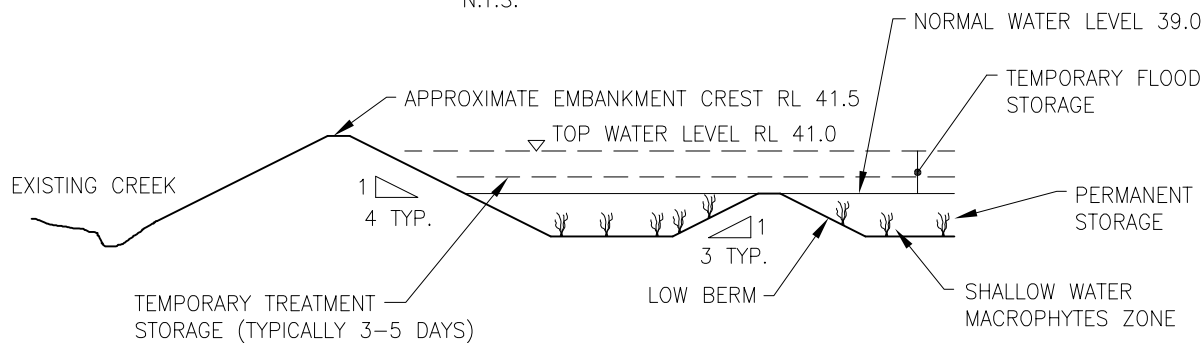
LEGEND

-  LOW FLOW
-  HIGH FLOW
-  MACROPHYTE ZONE
-  OPEN WATER ZONE



PLAN OF BASIN BC


N.T.S.



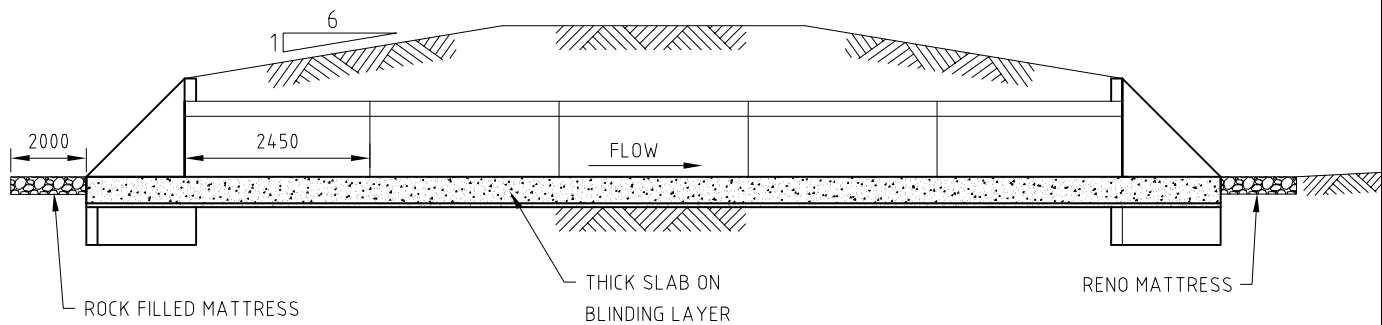
SECTION A-A

N.T.S.

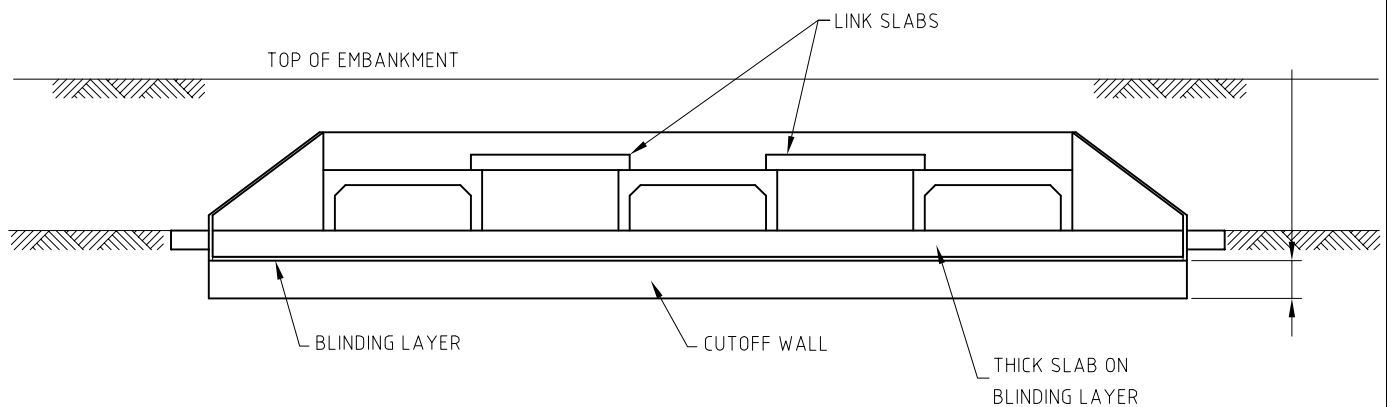
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		Designed	EXTENDED DETENTION WET/ DRY BASIN BC	
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Revision:	File: I:\FIGURES\FIGURE 8.DWG	Design Check		
	Aprr. _____ Date. _____	Approved	A4 Drg. No. FIGURE 8	Rev A

DO NOT SCALE




SIDE ELEVATION OF CULVERT
NOT TO SCALE



FRONT ELEVATION OF HEADWALL
NOT TO SCALE

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<p>Revise on CAD do not amend by hand</p>	<p>This Drawing must not be used for Construction unless signed as Approved</p>	<p>Designed</p>	<p>TYPICAL OUTLET DETAILS</p>		
<p>Revision:</p>	<p>File: I:\FIGURES\FIGURE 9.DWG</p>	<p>Drafting Check</p>	<p>A4</p>	<p>Drg. No. FIGURE 9</p>	<p>Rev A</p>
<p>Apr.</p>	<p>Date.</p>	<p>Design Check</p>			
		<p>Approved</p>			

Appendix D
Scoping Level Costing

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater
Liverpool City Council

Note: The preliminary cost estimates presented in this section have been developed solely for the purpose of comparing and evaluating competing options. They are sufficiently accurate to serve this purpose. They cannot be used for budget-setting purposes as common elements between options may have been omitted and/or the works not fully scoped. A functional design is recommended if a budget estimate is required.

Extended Detention Wet/Dry Basin: CC
SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	6.5	ha	2,400.00	\$ 15,597	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	9,748	m ³	4.25	\$ 41,428	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	24,582	m ³	14.55	\$ 357,668	
2.4	Excavation of basin and cart to spoil heaps within 10km	9,378	m ³	9.60	\$ 90,029	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	19,496	m ³	14.00	\$ 272,940	Assuming 300mm thick
	SUBTOTAL				\$ 777,662	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	10,000.00	\$ 10,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 42,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	49	m ³	196.00	\$ 9,604	
4.2	Rip rap concrete spillway	15	m ³	266.00	\$ 3,990	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	37	m	1,041.00	\$ 38,257	
4.4	Supply and deliver link slabs	25	m	710.00	\$ 17,395	
4.5	Lay and join high flow culvert and link slabs	61	m	263.00	\$ 16,109	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	90	m ³	14.55	\$ 1,310	
	SUBTOTAL				\$ 95,852	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	9,748	m ³	4.80	\$ 46,790	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	25,994	m ²	20.00	\$ 519,886	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	23,395	ha	0.40	\$ 9,358	grass
6.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 586,034	
	SUBTOTAL ITEMS 1-6				\$ 1,554,623	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 233,194	
	SUBTOTAL				\$ 233,194	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 388,656	
	SUBTOTAL				\$ 388,656	
	EXTENDED DETENTION WET/DRY BASIN "CC" TOTAL				\$ 2,176,473	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

Note: The preliminary cost estimates presented in this section have been developed solely for the purpose of comparing and evaluating competing options. They are sufficiently accurate to serve this purpose. They cannot be used for budget-setting purposes as common elements between options may have been omitted and/or the works not fully scoped. A functional design is recommended if a budget estimate is required.

Extended Detention Wet/Dry Basin: MC1

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	1.3	ha	2,400.00	\$ 3,055	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	1,910	m ³	4.25	\$ 8,116	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	3,297	m ³	14.55	\$ 47,971	
2.4	Excavation of basin and cart to spoil heaps within 10km	13,653	m ³	9.60	\$ 131,069	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	3,819	m ³	14.00	\$ 53,467	Assuming 300mm thick
	SUBTOTAL				\$ 243,678	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	10,000.00	\$ 10,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 42,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	49	m ³	196.00	\$ 9,604	
4.2	Rip rap concrete spillway	15	m ³	266.00	\$ 3,990	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	37	m	1,041.00	\$ 38,257	
4.4	Supply and deliver link slabs	25	m	710.00	\$ 17,395	
4.5	Lay and join high flow culvert and link slabs	61	m	263.00	\$ 16,109	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	90	m ³	14.55	\$ 1,310	
	SUBTOTAL				\$ 95,852	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	1,910	m ³	4.80	\$ 9,166	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	5,092	m ²	20.00	\$ 101,842	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	4,583	ha	0.40	\$ 1,833	grass
6.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 122,841	
	SUBTOTAL ITEMS 1-6				\$ 557,447	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 83,617	
	SUBTOTAL				\$ 83,617	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 139,362	
	SUBTOTAL				\$ 139,362	
	EXTENDED DETENTION WET/DRY BASIN "MC1" TOTAL				\$ 780,425	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater
Liverpool City Council

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Extended Detention Wet/Dry Basin: MC2
SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	1.3	ha	2,400.00	\$ 3,157	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	1,973	m ³	4.25	\$ 8,387	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	4,805	m ³	14.55	\$ 69,913	
2.4	Excavation of basin and cart to spoil heaps within 10km	4,874	m ³	9.60	\$ 46,790	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	3,947	m ³	14.00	\$ 55,255	Assuming 300mm thick
	SUBTOTAL				\$ 183,503	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	10,000.00	\$ 10,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 42,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	49	m ³	196.00	\$ 9,604	
4.2	Rip rap concrete spillway	15	m ³	266.00	\$ 3,990	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	37	m	1,041.00	\$ 38,257	
4.4	Supply and deliver link slabs	25	m	710.00	\$ 17,395	
4.5	Lay and join high flow culvert and link slabs	61	m	263.00	\$ 16,109	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	90	m ³	14.55	\$ 1,310	
	SUBTOTAL				\$ 95,852	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	1,973	m ³	4.80	\$ 9,472	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	5,262	m ²	20.00	\$ 105,248	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	4,736	ha	0.40	\$ 1,894	grass
6.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 126,615	
	SUBTOTAL ITEMS 1-6				\$ 501,045	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 75,157	
	SUBTOTAL				\$ 75,157	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 125,261	
	SUBTOTAL				\$ 125,261	
	EXTENDED DETENTION WET/DRY BASIN "MC2" TOTAL				\$ 701,462	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater
Liverpool City Council

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Extended Detention Wet/Dry Basin: MC
SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	3.4	ha	2,400.00	\$ 8,199	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	5,125	m ³	4.25	\$ 21,779	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	28,239	m ³	14.55	\$ 410,877	
2.4	Form and compact embankments using spoil from other basins	5,595	m ³	9.60	\$ 53,712	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	10,249	m ³	14.00	\$ 143,488	Assuming 300mm thick
	SUBTOTAL				\$ 638,056	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	10,000.00	\$ 10,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 42,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	49	m ³	196.00	\$ 9,604	
4.2	Rip rap concrete spillway	15	m ³	266.00	\$ 3,990	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	37	m	1,041.00	\$ 38,257	
4.4	Supply and deliver link slabs	25	m	710.00	\$ 17,395	
4.5	Lay and join high flow culvert and link slabs	61	m	263.00	\$ 16,109	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	90	m ³	14.55	\$ 1,310	
	SUBTOTAL				\$ 95,852	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	5,125	m ³	4.80	\$ 24,598	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	13,666	m ²	20.00	\$ 273,310	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	12,299	ha	0.40	\$ 4,920	grass
6.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 312,828	
	SUBTOTAL ITEMS 1-6				\$ 1,141,811	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 171,272	
	SUBTOTAL				\$ 171,272	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 285,453	
	SUBTOTAL				\$ 285,453	
	EXTENDED DETENTION WET/DRY BASIN "MC" TOTAL				\$ 1,598,535	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Extended Detention Wet/Dry Basin: BC

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	0.9	ha	2,400.00	\$ 2,274	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	1,421	m ³	4.25	\$ 6,039	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	14,001	m ³	14.55	\$ 203,715	
2.4	Form and compact embankments using spoil from other basins	1,588	m ³	9.60	\$ 15,245	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	2,842	m ³	14.00	\$ 39,787	Assuming 300mm thick
	SUBTOTAL				\$ 267,060	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	10,000.00	\$ 10,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 42,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	49	m ³	196.00	\$ 9,604	
4.2	Rip rap concrete spillway	15	m ³	266.00	\$ 3,990	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	37	m	1,041.00	\$ 38,257	
4.4	Supply and deliver link slabs	25	m	710.00	\$ 17,395	
4.5	Lay and join high flow culvert and link slabs	61	m	263.00	\$ 16,109	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	90	m ³	14.55	\$ 1,310	
	SUBTOTAL				\$ 95,852	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	1,421	m ³	4.80	\$ 6,821	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	3,789	m ²	20.00	\$ 75,786	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	3,410	ha	0.40	\$ 1,364	grass
6.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 93,970	
	SUBTOTAL ITEMS 1-6				\$ 551,957	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 82,794	
	SUBTOTAL				\$ 82,794	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 137,989	
	SUBTOTAL				\$ 137,989	
	EXTENDED DETENTION WET/DRY BASIN "BC" TOTAL				\$ 772,740	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater
Liverpool City Council

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Bioengineered Channel One
SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	1.8	ha	2,400.00	\$ 4,320	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	3,000	m ³	4.25	\$ 12,750	Assuming light soil (not clay)
2.3	Excavation of channel and cart to spoil heaps within 10km	16,446	m ³	9.60	\$ 157,882	Assuming maximum 2m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.4	Supply and form impermeable clay lining	896	m ³	14.00	\$ 12,550	Assuming 300mm thick
2.5	Supply and form rock channel with 0.25*0.25*0.25m rocks	1,195	t	180.00	\$ 215,136	
	SUBTOTAL				\$ 402,637	
3	Landscaping and planting					
3.1	Prepare ground for planting	3,000	m ³	4.80	\$ 14,400	I.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
3.2	Supply, deliver and plant trees	45	each	25.00	\$ 1,125	
3.3	Landscape channel (except for rock lined area)	15,000	m ²	0.40	\$ 6,000	
3.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 31,525	
	SUBTOTAL ITEMS 1-3				\$ 474,162	
4	Design, Supervision, Project Management & Contractor On-Costs					
4.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 71,124	
	SUBTOTAL				\$ 71,124	
5	Contingencies					
5.1	General Contingencies (25%)	25	%		\$ 118,541	
	SUBTOTAL				\$ 118,541	
	Bioengineered Channel One TOTAL				\$ 663,827	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater
Liverpool City Council

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Bioengineered Channel Two
SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	20,000.00	\$ 20,000	
1.2	Erosion and sediment control	1	item	20,000.00	\$ 20,000	
	SUBTOTAL				\$ 40,000	
2	Earthworks					
2.1	Clearing and grubbing	2.1	ha	2,400.00	\$ 5,040	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	3,500	m ³	4.25	\$ 14,875	Assuming light soil (not clay)
2.3	Excavation of channel and cart to spoil heaps within 10km	14,602	m ³	9.60	\$ 140,179	Assuming maximum 2m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.4	Supply and form impermeable clay lining	1,161	m ³	14.00	\$ 16,258	Assuming 300mm thick
2.5	Supply and form rock channel with 0.25*0.25*0.25m rocks	1,548	t	180.00	\$ 278,712	
	SUBTOTAL				\$ 455,064	
3	Landscaping and planting					
3.1	Prepare ground for planting	3,500	m ³	4.80	\$ 16,800	I.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
3.2	Supply, deliver and plant trees	50	each	25.00	\$ 1,250	
3.3	Landscape channel (except for rock lined area)	17,500	m ²	0.40	\$ 7,000	
3.4	Establishment maintenance	1	item	10,000.00	\$ 10,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 35,050	
	SUBTOTAL ITEMS 1-3				\$ 530,114	
4	Design, Supervision, Project Management & Contractor On-Costs					
4.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 79,517	
	SUBTOTAL				\$ 79,517	
5	Contingencies					
5.1	General Contingencies (25%)	25	%		\$ 132,529	
	SUBTOTAL				\$ 132,529	
	Bioengineered Channel Two TOTAL				\$ 742,160	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Wetland: WQ1

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	1.7	ha	2,400.00	\$ 3,960	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	2,475	m ³	4.25	\$ 10,519	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	6,000	m ³	14.55	\$ 87,300	
2.4	Excavation of basin and cart to spoil heaps within 10km	3,000	m ³	9.60	\$ 28,800	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	4,950	m ³	14.00	\$ 69,300	Assuming 300mm thick
	SUBTOTAL				\$ 199,879	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	2,475	m ³	4.80	\$ 11,880	I.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	6,600	m ²	20.00	\$ 132,000	16 plants per m ² (0.25m centres)
6.3	Landscape embankments	5,940	ha	0.40	\$ 2,376	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 151,256	
	SUBTOTAL ITEMS 1-6				\$ 491,768	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 73,765	
	SUBTOTAL				\$ 73,765	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 122,942	
	SUBTOTAL				\$ 122,942	
	Wetland: WQ1 TOTAL				\$ 688,475	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Wetland: WQ2

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	0.3	ha	2,400.00	\$ 792	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	495	m ³	4.25	\$ 2,104	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	1,200	m ³	14.55	\$ 17,460	
2.4	Excavation of basin and cart to spoil heaps within 10km	600	m ³	9.60	\$ 5,760	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	990	m ³	14.00	\$ 13,860	Assuming 300mm thick
	SUBTOTAL				\$ 39,976	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	495	m ³	4.80	\$ 2,376	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	1,320	m ²	20.00	\$ 26,400	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	1,188	ha	0.40	\$ 475	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 34,251	
	SUBTOTAL ITEMS 1-6				\$ 214,860	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 32,229	
	SUBTOTAL				\$ 32,229	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 53,715	
	SUBTOTAL				\$ 53,715	
	Wetland: WQ2 TOTAL				\$ 300,804	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Wetland: WQ7

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	0.4	ha	2,400.00	\$ 1,056	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	660	m ³	4.25	\$ 2,805	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	1,600	m ³	14.55	\$ 23,280	
2.4	Excavation of basin and cart to spoil heaps within 10km	800	m ³	9.60	\$ 7,680	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	1,320	m ³	14.00	\$ 18,480	Assuming 300mm thick
	SUBTOTAL				\$ 53,301	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	660	m ³	4.80	\$ 3,168	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	1,760	m ²	20.00	\$ 35,200	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	1,584	ha	0.40	\$ 634	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 44,002	
	SUBTOTAL ITEMS 1-6				\$ 237,935	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 35,690	
	SUBTOTAL				\$ 35,690	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 59,484	
	SUBTOTAL				\$ 59,484	
	Wetland: WQ7 TOTAL				\$ 333,110	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Wetland: WQ9&10

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	1.1	ha	2,400.00	\$ 2,640	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	1,650	m ³	4.25	\$ 7,013	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	4,000	m ³	14.55	\$ 58,200	
2.4	Excavation of basin and cart to spoil heaps within 10km	2,000	m ³	9.60	\$ 19,200	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	3,300	m ³	14.00	\$ 46,200	Assuming 300mm thick
	SUBTOTAL				\$ 133,253	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	1,650	m ³	4.80	\$ 7,920	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	4,400	m ²	20.00	\$ 88,000	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	3,960	ha	0.40	\$ 1,584	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 102,504	
	SUBTOTAL ITEMS 1-6				\$ 376,389	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 56,458	
	SUBTOTAL				\$ 56,458	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 94,097	
	SUBTOTAL				\$ 94,097	
	Wetland: WQ9&10 TOTAL				\$ 526,945	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Wetland: WQ11

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	0.2	ha	2,400.00	\$ 528	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	330	m ³	4.25	\$ 1,403	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	800	m ³	14.55	\$ 11,640	
2.4	Excavation of basin and cart to spoil heaps within 10km	400	m ³	9.60	\$ 3,840	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	660	m ³	14.00	\$ 9,240	Assuming 300mm thick
	SUBTOTAL				\$ 26,651	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	330	m ³	4.80	\$ 1,584	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	880	m ²	20.00	\$ 17,600	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	792	ha	0.40	\$ 317	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 24,501	
	SUBTOTAL ITEMS 1-6				\$ 191,784	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 28,768	
	SUBTOTAL				\$ 28,768	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 47,946	
	SUBTOTAL				\$ 47,946	
	Wetland: WQ11 TOTAL				\$ 268,498	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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Wetland: WQ12

SCHEDULE OF ESTIMATED QUANTITIES

PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	0.7	ha	2,400.00	\$ 1,584	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	990	m ³	4.25	\$ 4,208	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	2,400	m ³	14.55	\$ 34,920	
2.4	Excavation of basin and cart to spoil heaps within 10km	1,200	m ³	9.60	\$ 11,520	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	1,980	m ³	14.00	\$ 27,720	Assuming 300mm thick
	SUBTOTAL				\$ 79,952	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	990	m ³	4.80	\$ 4,752	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	2,640	m ²	20.00	\$ 52,800	16 plants per m ² (0.25m centres)
6.3	Landscape embankments	2,376	ha	0.40	\$ 950	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 63,502	
	SUBTOTAL ITEMS 1-6				\$ 284,087	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 42,613	
	SUBTOTAL				\$ 42,613	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 71,022	
	SUBTOTAL				\$ 71,022	
	Wetland: WQ12 TOTAL				\$ 397,721	

Preliminary Cost Estimate



Edmonson Park Master Planning; Water Cycle Management: Stormwater

Liverpool City Council

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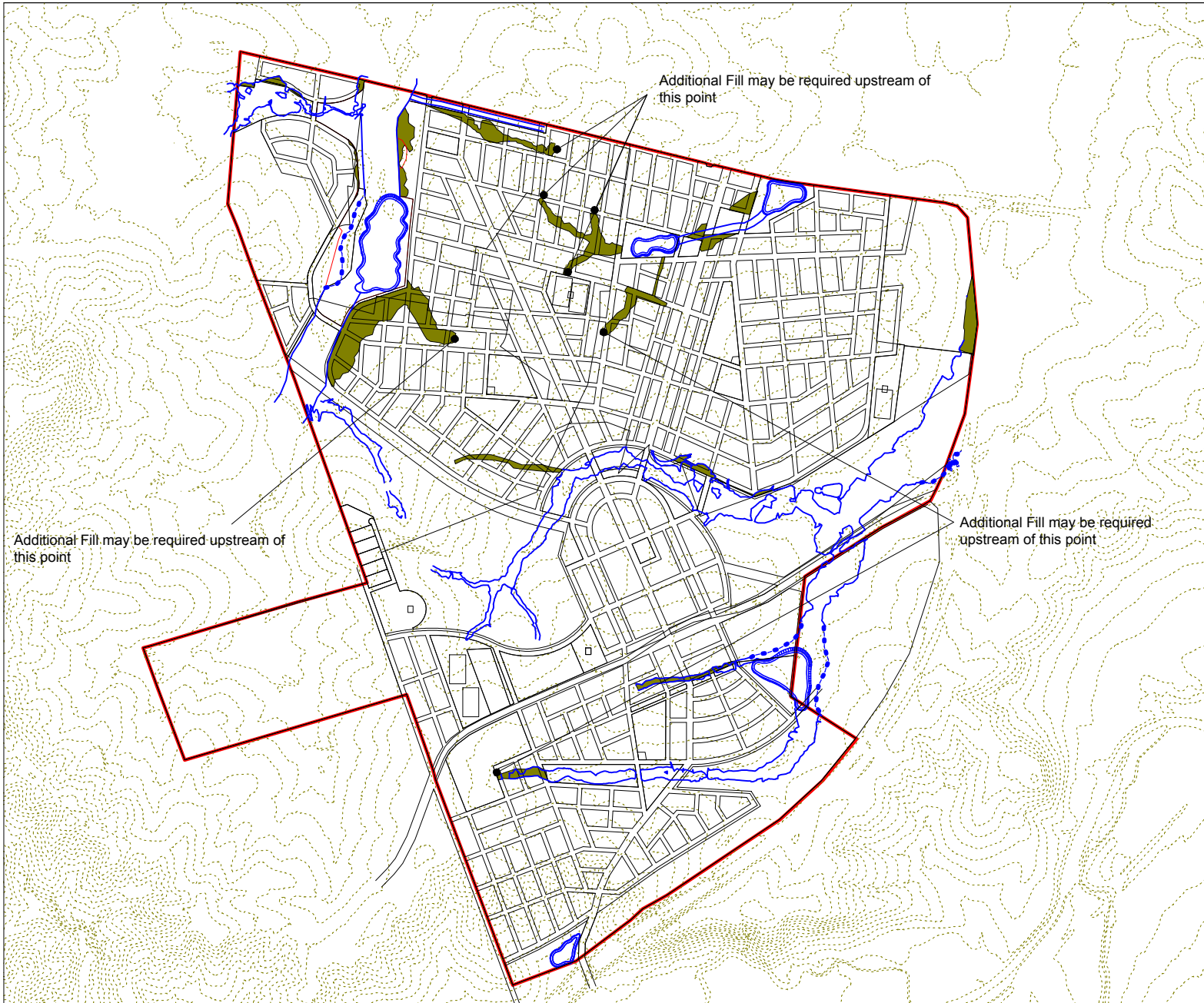
Wetland: WQ13

SCHEDULE OF ESTIMATED QUANTITIES


PAY ITEM	DESCRIPTION OF WORK	QUANTITY	UNIT	RATE	AMOUNT	NOTES
1	Preliminaries					
1.1	Establishment	1	item	10,000.00	\$ 10,000	
1.2	Erosion and sediment control	1	item	10,000.00	\$ 10,000	
	SUBTOTAL				\$ 20,000	
2	Earthworks					
2.1	Clearing and grubbing	0.7	ha	2,400.00	\$ 1,584	Assuming medium density bushland
2.2	Topsoil stripping and storing for later use	990	m ³	4.25	\$ 4,208	Assuming light soil (not clay)
2.3	Excavation of basin to embankment fill; forming and compacting embankments to survey levels	2,400	m ³	14.55	\$ 34,920	
2.4	Excavation of basin and cart to spoil heaps within 10km	1,200	m ³	9.60	\$ 11,520	Assuming maximum 3m deep excavation in light soil and/or clay; assume no charge for disposal of spoil
2.5	Supply and form clay lining	1,980	m ³	14.00	\$ 27,720	Assuming 300mm thick
	SUBTOTAL				\$ 79,952	
3	Weir					
3.1	Prepare creek for weir construction including diversion and excavation	1	item	3,000.00	\$ 3,000	
3.2	Supply and construct sandy clay core of weir	480	m ³	14.00	\$ 6,720	
3.3	Supply and construct fill embankment around clay core	1,800	m ³	14.55	\$ 26,190	
	SUBTOTAL				\$ 35,910	
4	High Flow Outlet and Spillway					
4.1	Concrete apron and high flow outlet slab	20	m ³	196.00	\$ 3,842	
4.2	Rip rap concrete spillway	6	m ³	266.00	\$ 1,596	
4.3	Supply and deliver 0.6 x 1.8m high flow culvert	29	m	1,041.00	\$ 30,605	
4.4	Supply and deliver link slabs	20	m	710.00	\$ 13,916	
4.5	Lay and join high flow culvert and link slabs	49	m	263.00	\$ 12,887	
4.6	Construct wingwalls	4	each	2,297.00	\$ 9,188	
4.6	Form spillway crest	36	m ³	14.55	\$ 524	
	SUBTOTAL				\$ 72,558	
5	Low Flow Outlet					
5.1	Supply, deliver, lay and join 200mm DI/CL pipe	20	m	134.00	\$ 2,680	
5.2	Supply, deliver, lay and join 450mm RCP	30	m	157.00	\$ 4,710	
5.3	Supply, deliver, lay and join 900mm square pit with grated inlet	1	item	2,775.00	\$ 2,775	
5.4	Supply, deliver and connect lockable gate valve with spindle and wheel	1	item	2,000.00	\$ 2,000	
	SUBTOTAL				\$ 12,165	
6	Landscaping and planting					
6.1	Prepare ground for planting	990	m ³	4.80	\$ 4,752	i.e. provision of 0.2m deep substratum soil; use soil stockpiled from clearing
6.2	Supply, deliver and plant macrophyte plants	2,640	m ²	20.00	\$ 52,800	16 plants per m2 (0.25m centres)
6.3	Landscape embankments	2,376	ha	0.40	\$ 950	grass
6.4	Establishment maintenance	1	item	5,000.00	\$ 5,000	includes monitoring for water level, weeds, insects, waterbirds, damage
	SUBTOTAL				\$ 63,502	
	SUBTOTAL ITEMS 1-6				\$ 284,087	
7	Design, Supervision, Project Management & Contractor On-Costs					
7.1	Design, Supervision, Project Management & Contractor On-Costs (15%)	15	%		\$ 42,613	
	SUBTOTAL				\$ 42,613	
8	Contingencies					
8.1	General Contingencies (25%)	25	%		\$ 71,022	
	SUBTOTAL				\$ 71,022	
	Wetland: WQ13 TOTAL				\$ 397,721	

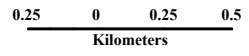
Appendix E

Landform Adjustments: Typical Cross-sections

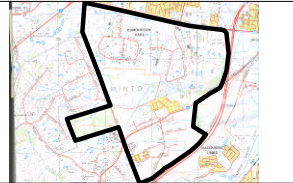


LEGEND/NOTES

 Potential Fill Areas



LOCALITY MAP



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Horiz. Datum MGA- Zone 56s Projection UTM

Height Datum Metadata Recorded

Created	Checked	Approved
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Date	File Location
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Revision	Drawing Number
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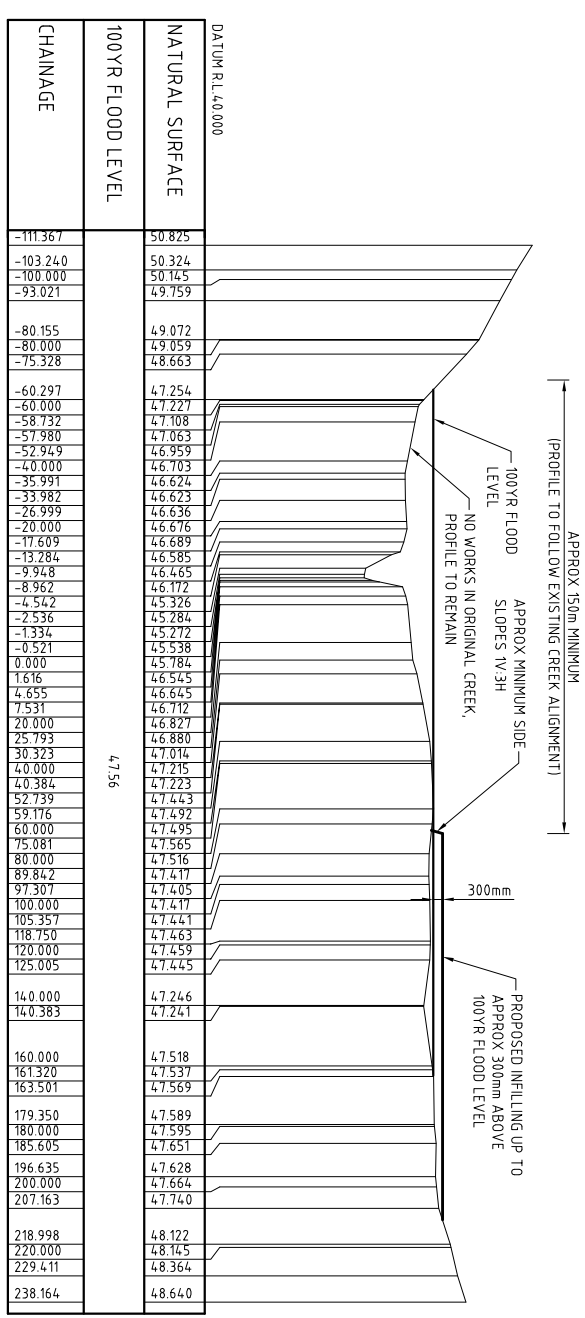


Edmondson Park Master Plan

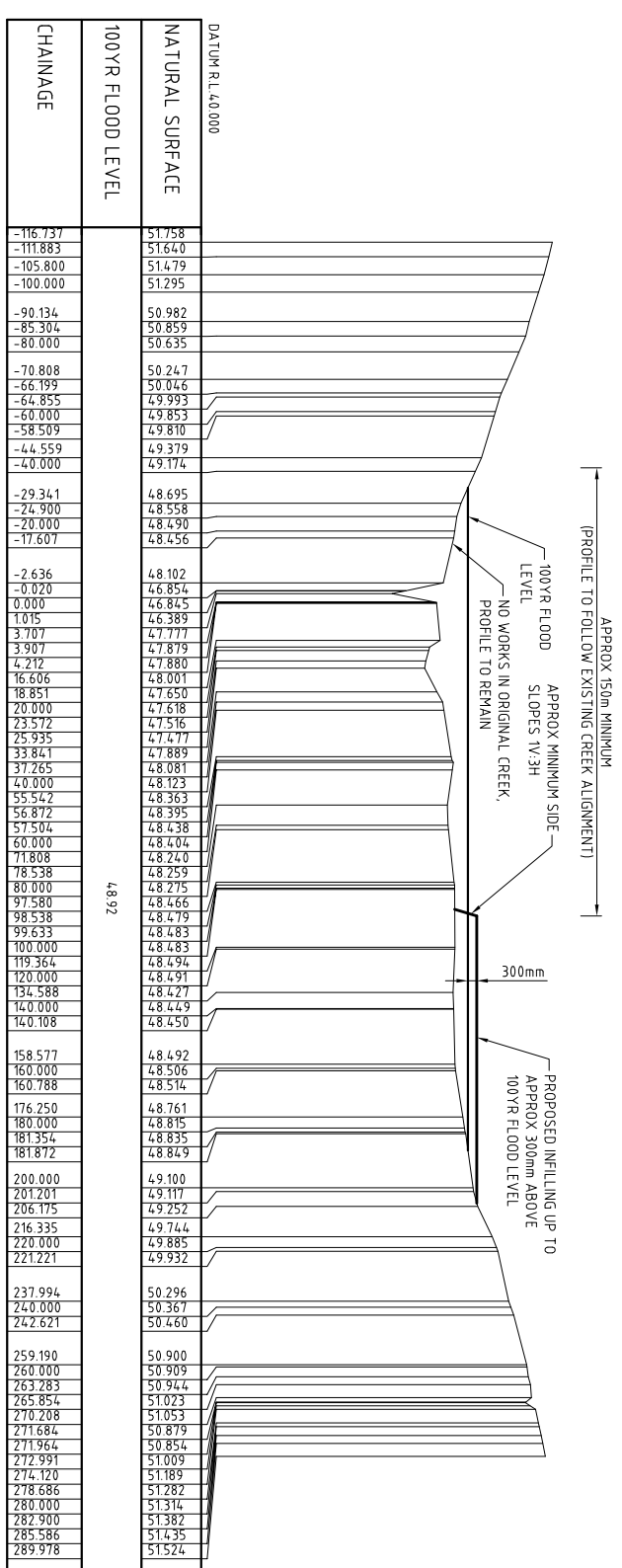
FIGURE E.1
Potential Land Fill
Requirements

GHD Project Number: 21/11429

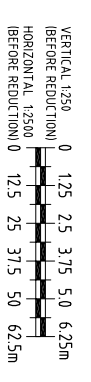
DO NOT SCALE



LONGITUDINAL SECTION SECT 6-327.64.1



LONGITUDINAL SECTION SECT 6-122.64.7

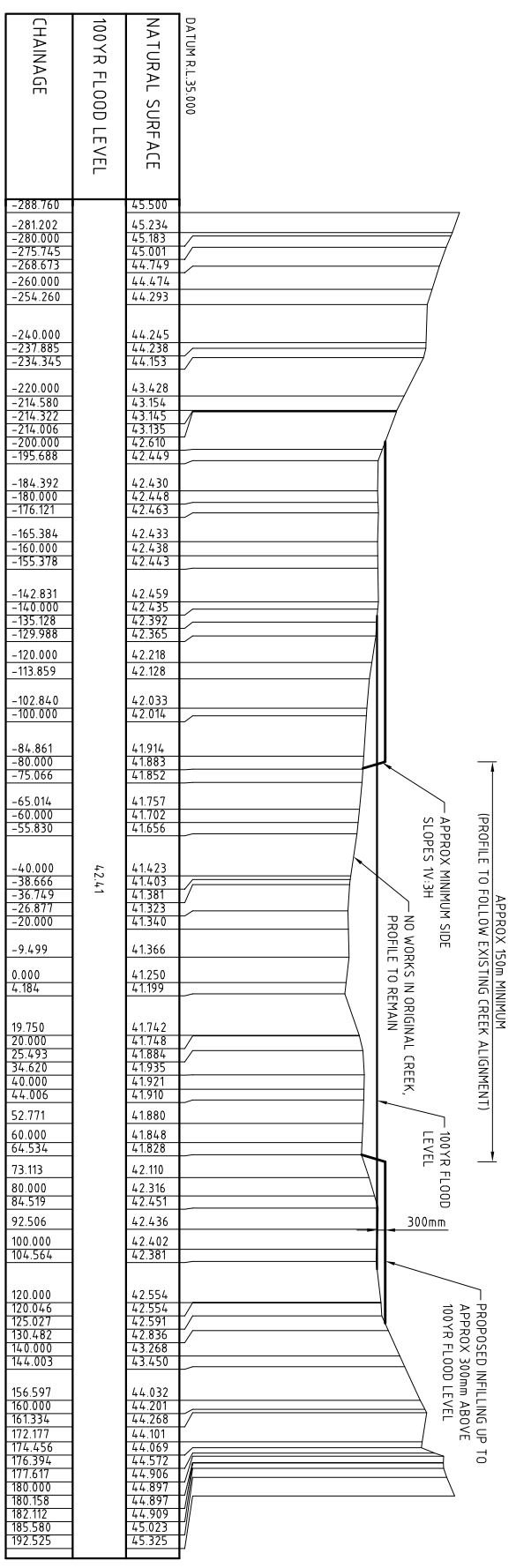


CONCEPT ONLY

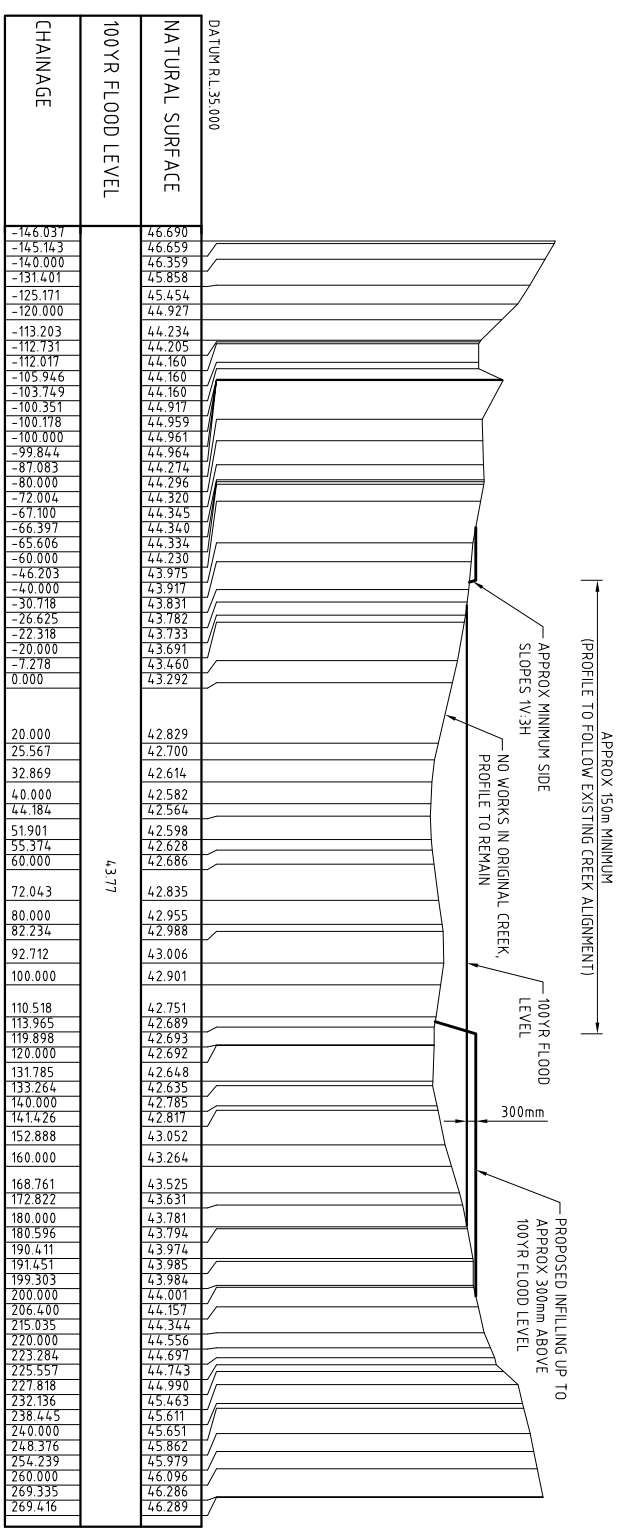
No.	Revision - Revise on CAD do not amend by hand	Chk'd App'd Date	M/Film	File: I:\FIGURES\FIGURE 13	This Drawing must not be used for Construction unless signed as Approved	<p>MANAGEMENT ENGINEERING ENVIRONMENT</p> <p>10 Bond Street, Sydney, NSW, 2000 Telephone (02) 9239 7100 Facsimile (02) 9239 7199 Email: sydmil@ghd.com.au</p> <p>Gutteridge Hoskins & Doney Pty Ltd - ACN 008 488 373</p>	<p>Client and job</p> <p>EDMONSON PARK WATER CYCLE MANAGEMENT: STORMWATER</p> <p>Title</p> <p>PROPOSED INFILLING ADJACENT TO CABRAMATTA CREEK - TYP SECTIONS</p>	<p>Drawn NJ 04.08.03</p> <p>Designed RB 04.08.03</p> <p>Drafting</p> <p>Check</p> <p>Design</p> <p>Check</p> <p>Approved</p>	<p>A3 Drg. No.</p> <p>FIGURE 13</p> <p>Rev</p>
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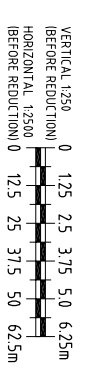
DO NOT SCALE



LONGITUDINAL SECTION SECT 6-1164.139



LONGITUDINAL SECTION SECT 6-917.029



CONCEPT ONLY

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<p style="text-align: center;">MANAGEMENT ENGINEERING ENVIRONMENT</p> <p style="text-align: center;">10 Bond Street, Sydney, NSW, 2000 Telephone (02) 9239 7100 Facsimile (02) 9239 7199 Email: sydmil@ghd.com.au</p> <p style="text-align: center; font-size: x-small;">Gutteridge Haskins & Doney Pty Ltd - ACN 008 488 373</p>							
<p style="font-size: x-small;">This Drawing must not be used for Construction unless signed as Approved</p>							
		Drawn	NJ 04.08.03		Client EDMONSON PARK		
		Designed	RB 04.08.03		and job WATER CYCLE MANAGEMENT: STORMWATER		
		Drafting			Title PROPOSED INFILLING ADJACENT TO		
		Check			CABRAMATTA CREEK - TYP SECTIONS		
		Design					
		Check					
		Approved					
		A3	Dr9.		FIGURE 14		
		No.			Rev		

