

PRELIMINARY COST ESTIMATE

**PROJECT: Marsden Park Section 94 Basins
Bulk Earthworks & Vegetation Only**

CLIENT: Department of Planning C/- APP

JWP Plan Number/Version: 8955SK1-SK14	BASIN K
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NO.	ITEM	QTY.	UNIT	RATE	AMOUNT
				Exc GST\$	Exc GST\$
1	BASIN K				
	Establishment	1	Item	\$30,400.00	\$30,400.00
	Clearing (Allowance Only)	1	Item	\$10,000.00	\$10,000.00
	Strip & stockpile topsoil	13,500	sq.m.	\$1.50	\$20,250.00
	Respread topsoil	12,500	sq.m.	\$2.50	\$31,250.00
	Earthworks - Excavate and Dispose of Unsound Material	1,450	cu.m.	\$200.00	\$290,000.00
	Earthworks - Cut to Fill On Site	1,717	cu.m.	\$5.00	\$8,585.00
	Earthworks - Import material	568	cu.m.	\$30.00	\$17,040.00
	Trim and Compact	13,500	sq.m.	\$1.00	\$13,500.00
	Planting (incl maintenance for 2 years)	12,320	sq.m.	\$9.50	\$117,040.00
	Reinforced Turfing on Weir and Spillway (incl 2 yr maint)	180	sq.m.	\$25.00	\$4,500.00
	Soil & Water Management (Allowance Only)	1	item	\$25,000.00	\$25,000.00
				TOTAL	\$568,000.00

PRELIMINARY COST ESTIMATE

**PROJECT: Marsden Park Section 94 Basins
Bulk Earthworks & Vegetation Only**

CLIENT: Department of Planning C/- APP

JWP Plan Number/Version: 8955SK1-SK14	BASIN G
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NO.	ITEM	QTY.	UNIT	RATE		AMOUNT	
				Exc	GST\$	Exc	GST\$
1	BASIN G						
	Establishment	1	Item		\$117,200.00		\$117,200.00
	Clearing (Allowance Only)	1	Item		\$50,000.00		\$50,000.00
	Strip & stockpile topsoil	29,500	sq.m.		\$1.50		\$44,250.00
	Respread topsoil	23,500	sq.m.		\$2.50		\$58,750.00
	Earthworks - Excavate and Dispose of Unsound Material	4,000	cu.m.		\$200.00		\$800,000.00
	Earthworks - Cut to Fill On Site	5,800	cu.m.		\$5.00		\$29,000.00
	Earthworks - Import material	15,700	cu.m.		\$30.00		\$471,000.00
	Trim and Compact	29,500	sq.m.		\$1.00		\$29,500.00
	Core Riparian Planting Bush Revegetation (incl 2 yr maint)	11,500	sq.m.		\$25.00		\$287,500.00
	Planting (incl maintenance for 2 years)	22,500	sq.m.		\$9.50		\$213,750.00
	Reinforced Turfing on Weir and Spillway (incl 2 yr maint)	1,000	sq.m.		\$25.00		\$25,000.00
	Soil & Water Management (Allowance Only)	1	item		\$25,000.00		\$25,000.00
					TOTAL		\$2,151,000.00

PRELIMINARY COST ESTIMATE

**PROJECT: Marsden Park Section 94 Basins
Bulk Earthworks & Vegetation Only**

CLIENT: Department of Planning C/- APP

JWP Plan Number/Version: 8955SK1-SK14	BASIN I
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NO.	ITEM	QTY.	UNIT	RATE		AMOUNT	
				Exc GST\$		Exc GST\$	
1	BASIN I						
	Establishment	1	Item	\$92,700.00		\$92,700.00	
	Clearing (Allowance Only)	1	Item	\$200,000.00		\$200,000.00	
	Strip & stockpile topsoil	34,700	sq.m.	\$1.50		\$52,050.00	
	Respread topsoil	29,700	sq.m.	\$2.50		\$74,250.00	
	Earthworks - Cut to Fill On Site	19,800	cu.m.	\$5.00		\$99,000.00	
	Earthworks - Cut to Dispose off Site (incl. disposal fees)	10,800	cu.m.	\$75.00		\$810,000.00	
	Trim and Compact	34,700	sq.m.	\$1.00		\$34,700.00	
	Planting (incl maintenance for 2 years)	27,900	sq.m.	\$9.50		\$265,050.00	
	Spillway Weir - 300x500 concrete edge strip	90	lin.m.	\$150.00		\$13,500.00	
	Reinforced Turfing on Weir and Spillway (incl 2 yr maint)	1,800	sq.m.	\$25.00		\$45,000.00	
	Soil & Water Management (Allowance Only)	1	item	\$25,000.00		\$25,000.00	
				TOTAL		\$1,712,000.00	

PRELIMINARY COST ESTIMATE

**PROJECT: Marsden Park Section 94 Basins
Bulk Earthworks & Vegetation Only**

CLIENT: Department of Planning C/- APP

JWP Plan Number/Version: 8955SK1-SK14	BASIN J
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NO.	ITEM	QTY.	UNIT	RATE	AMOUNT
				Exc GST\$	Exc GST\$
1	BASIN J				
	Establishment	1	Item	\$48,400.00	\$48,400.00
	Clearing (Allowance Only)	1	Item	\$50,000.00	\$50,000.00
	Strip & stockpile topsoil	20,000	sq.m.	\$1.50	\$30,000.00
	Respread topsoil	17,000	sq.m.	\$2.50	\$42,500.00
	Earthworks - Excavate and Dispose of Unsound Material	1,700	cu.m.	\$200.00	\$340,000.00
	Earthworks - Cut to Fill On Site	683	cu.m.	\$5.00	\$3,415.00
	Earthworks - Import material	4,970	cu.m.	\$30.00	\$149,100.00
	Trim and Compact	20,000	sq.m.	\$1.00	\$20,000.00
	Planting (incl maintenance for 2 years)	16,300	sq.m.	\$9.50	\$154,850.00
	Reinforced Turfing on Weir and Spillway (incl 2 yr maint)	700	sq.m.	\$25.00	\$17,500.00
	Soil & Water Management (Allowance Only)	1	item	\$25,000.00	\$25,000.00
				TOTAL	\$881,000.00

PRELIMINARY COST ESTIMATE

**PROJECT: Marsden Park Section 94 Basins
Bulk Earthworks & Vegetation Only**

CLIENT: Department of Planning C/- APP

JWP Plan Number/Version: 8955SK1-SK14	BASIN M
---------------------------------------	---------

NO.	ITEM	QTY.	UNIT	RATE	AMOUNT
				Exc GST\$	Exc GST\$
1	BASIN M				
	Establishment	1	Item	\$20,700.00	\$20,700.00
	Clearing (Allowance Only)	1	Item	\$50,000.00	\$50,000.00
	Strip & stockpile topsoil	15,750	sq.m.	\$1.50	\$23,625.00
	Respread topsoil	12,750	sq.m.	\$2.50	\$31,875.00
	Earthworks - Cut to Fill On Site	5,000	cu.m.	\$5.00	\$25,000.00
	Earthworks - Import material	1,200	cu.m.	\$30.00	\$36,000.00
	Trim and Compact	15,750	sq.m.	\$1.00	\$15,750.00
	Planting (incl maintenance for 2 years)	12,550	sq.m.	\$9.50	\$119,225.00
	Spillway Weir - 300x500 concrete edge strip	12	lin.m.	\$150.00	\$1,800.00
	Reinforced Turfing on Weir and Spillway (incl 2 yr maint)	200	sq.m.	\$25.00	\$5,000.00
	Soil & Water Management (Allowance Only)	1	item	\$25,000.00	\$25,000.00
				TOTAL	\$354,000.00

PRELIMINARY COST ESTIMATE

**PROJECT: Marsden Park Section 94 Basins
Bulk Earthworks & Vegetation Only**

CLIENT: Department of Planning C/- APP

JWP Plan Number/Version: 8955SK1-SK14	BASIN O
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NO.	ITEM	QTY.	UNIT	RATE		AMOUNT	
				Exc GST\$		Exc GST\$	
1	BASIN O						
	Establishment	1	Item		\$18,200.00		\$18,200.00
	Clearing (Allowance Only)	1	Item		\$10,000.00		\$10,000.00
	Strip & stockpile topsoil	8,600	sq.m.		\$1.50		\$12,900.00
	Respread topsoil	8,250	sq.m.		\$2.50		\$20,625.00
	Earthworks - Cut to Fill On Site	570	cu.m.		\$5.00		\$2,850.00
	Earthworks - Import material	5,600	cu.m.		\$30.00		\$168,000.00
	Trim and Compact	8,600	sq.m.		\$1.00		\$8,600.00
	Planting (incl maintenance for 2 years)	8,200	sq.m.		\$9.50		\$77,900.00
	Spillway Weir - 300x500 concrete edge strip	6	lin.m.		\$150.00		\$900.00
	Reinforced Turfing on Weir and Spillway (incl 2 yr maint)	50	sq.m.		\$25.00		\$1,250.00
	Soil & Water Management (Allowance Only)	1	item		\$25,000.00		\$25,000.00
					TOTAL		\$347,000.00

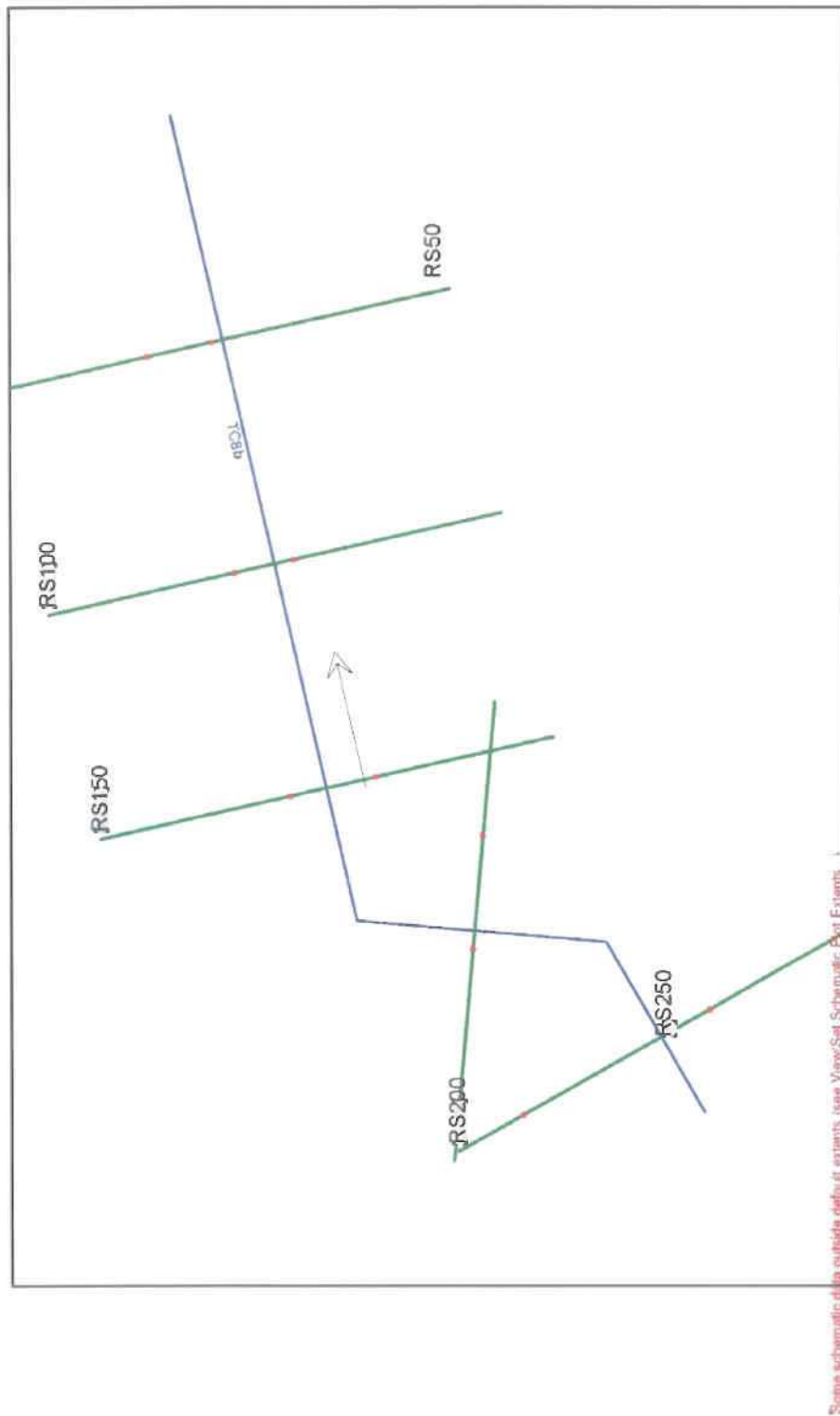
CLARIFICATIONS

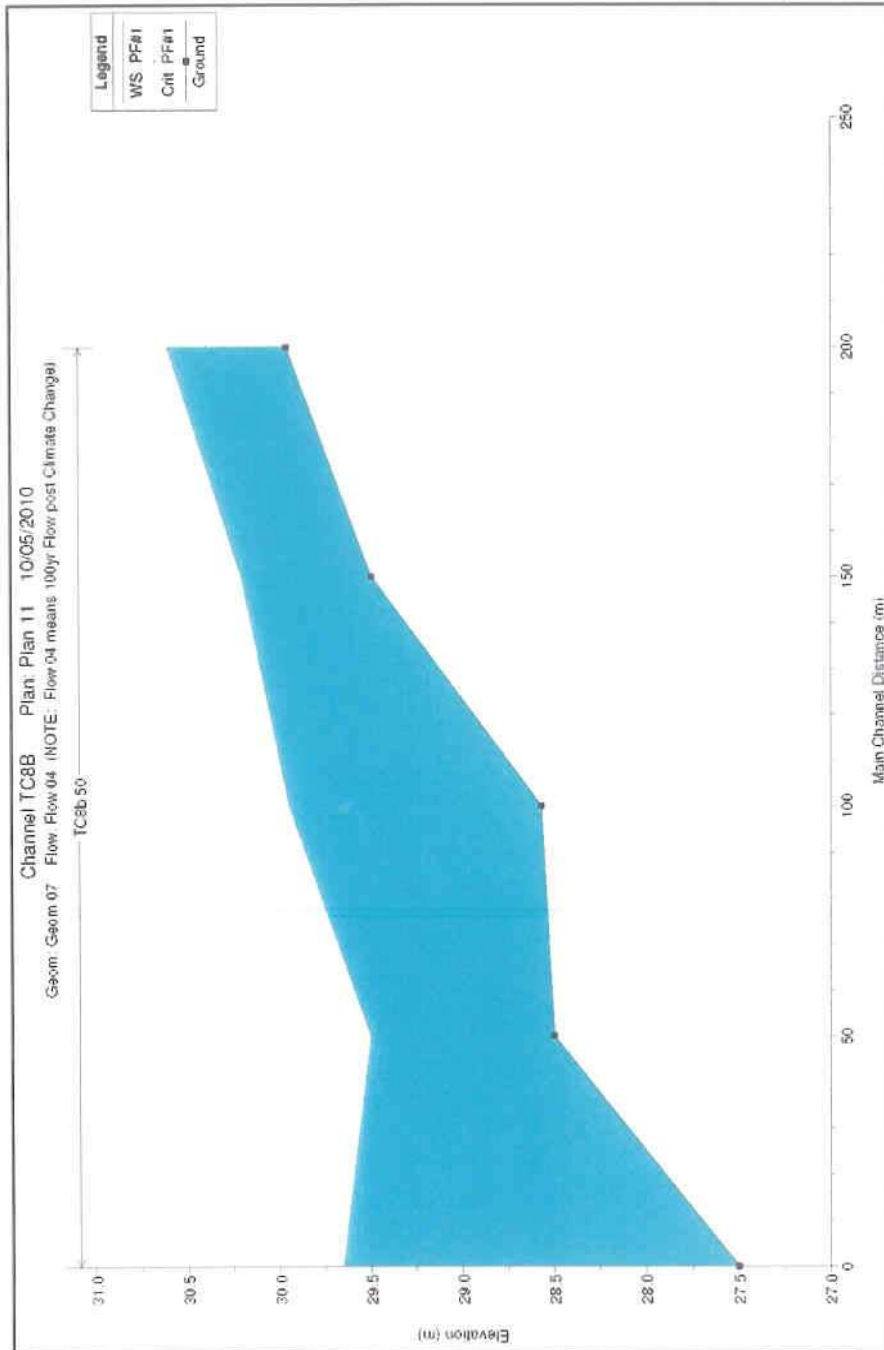
This Opinion Of Probable Cost is based on the following clarifications and assumptions:

- 1 This Opinion of Probable cost is based on J. Wyndham Prince's experience and judgment as a firm of practicing professional civil engineers familiar with the construction industry and that the cost estimate can not be guaranteed as we have no control over Contractor's prices, market forces, material supply costs, competitive bids from tenderers and specific site conditions that may be encountered but not yet investigated.
- 2 This Opinion of Probable Cost is based on the information supplied by the client prior to the date of preparation and is subject to traffic investigation and modelling, geotechnical investigation and design, hydrological and hydraulic investigation and design, utility impact assessment by Utility Authorities, concept and detail investigation and design of civil works.
- 3 This Opinion of Probable Cost is based on present day costs.
- 4 This Opinion of Probable Costs has been prepared for the purposes of identifying indicative Section 94 costs for elements within the proposed Precinct.
- 5 Establishment Costs have been assumed to be approximately 5% of the Construction Works of the elements (including additional contingencies).
- 6 Clearing Costs are indicative only and are based on assumptions after assessing recent aerial photography of the area
- 7 Strip and Stockpile of the Topsoil is based on removing the upper 100mm to 150mm of ground and stockpiling for later use over the site.
- 8 Respread of Topsoil is based on utilising the stockpiled material and spreading over the finished surface, excluding raingarden and riparian areas.
- 9 Excavation and disposing of unsound material is the complete removal offsite of unsuitable material which is usually the result of desilting existing farm dams. Costs include disposal fees.
- 10 Cut to Dispose off Site is the complete removal offsite of excess material which is otherwise suitable for construction or filling. Costs include disposal fees.
- 11 Core Riparian Bush Regeneration Planting includes weeding of the existing corridor of exotic species and limited introduction of endemic riparian planting to complement existing stand of vegetation. Cost rate includes up to two years maintenance of the riparian bush corridor
- 12 Core Riparian Bush Revegetation Planting includes partial introduction of endemic riparian plant species to complement current stand of vegetation. Cost rate includes up to two years maintenance of the riparian bush corridor.
- 13 General Planting includes the planting of endemic, low-maintenance species and up to two years maintenance of the basin/channel floor and embankments
- 14 Spillway Weir is assumed to consist of a formed 300wx500d concrete edge strip along the full length of the weir for level control, cost rate excludes reinforced turfing for the remainder of the 9m wide weir surface and batters to basin crest, which is included in the Spillway item
- 15 Reinforced Turfing on Weir and Spillway is assumed to utilise 18mm 3D synthetic matting, which will be placed on the weir and the downstream side of Spillways from the weir to the finished ground level, for the full width of the spillway and weir.
- 16 Soil & Water Management costs have been assumed to be based on a general allowance involving generic erosion protection measures.

APPENDIX C

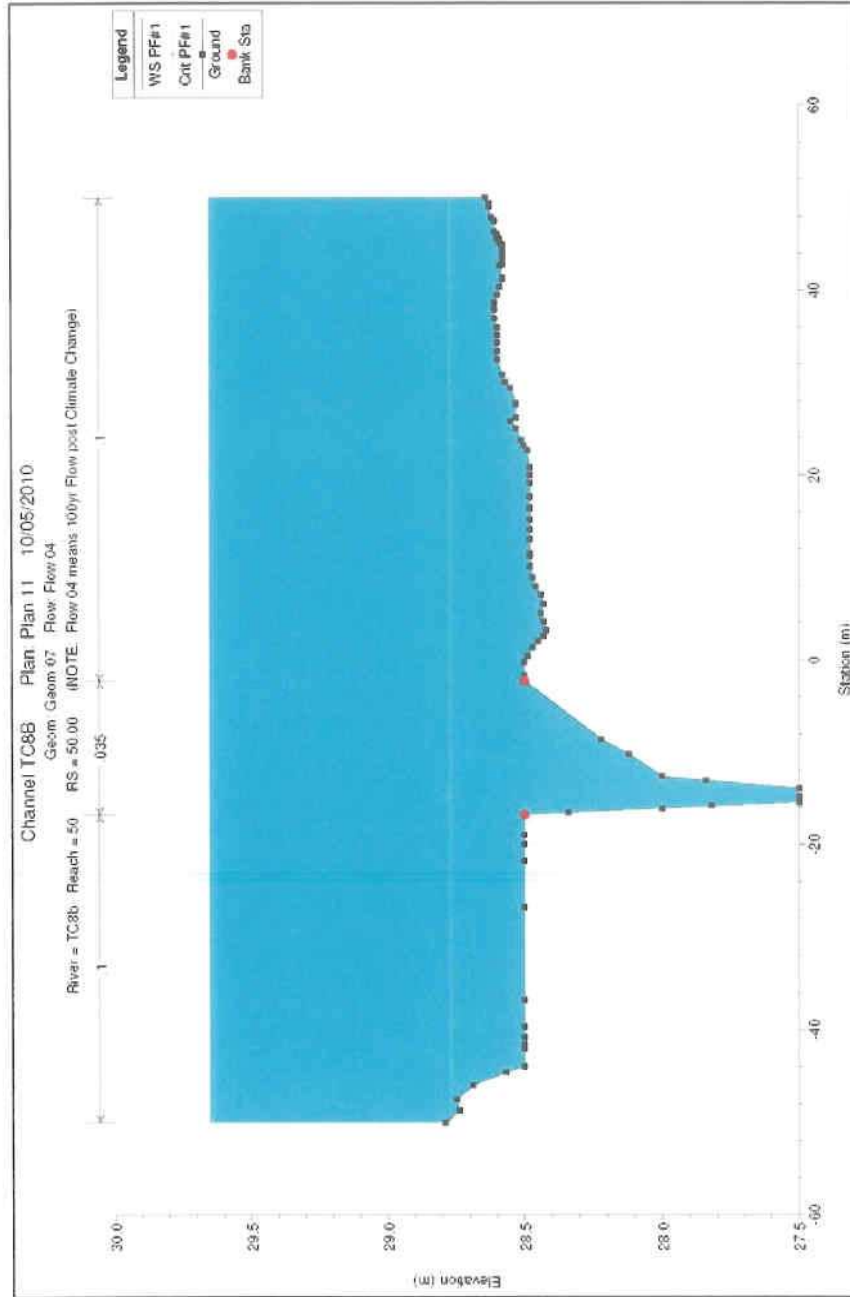
Marsden Park Industrial Precinct Trunk Drainage Channel HEC-RAS Assessment

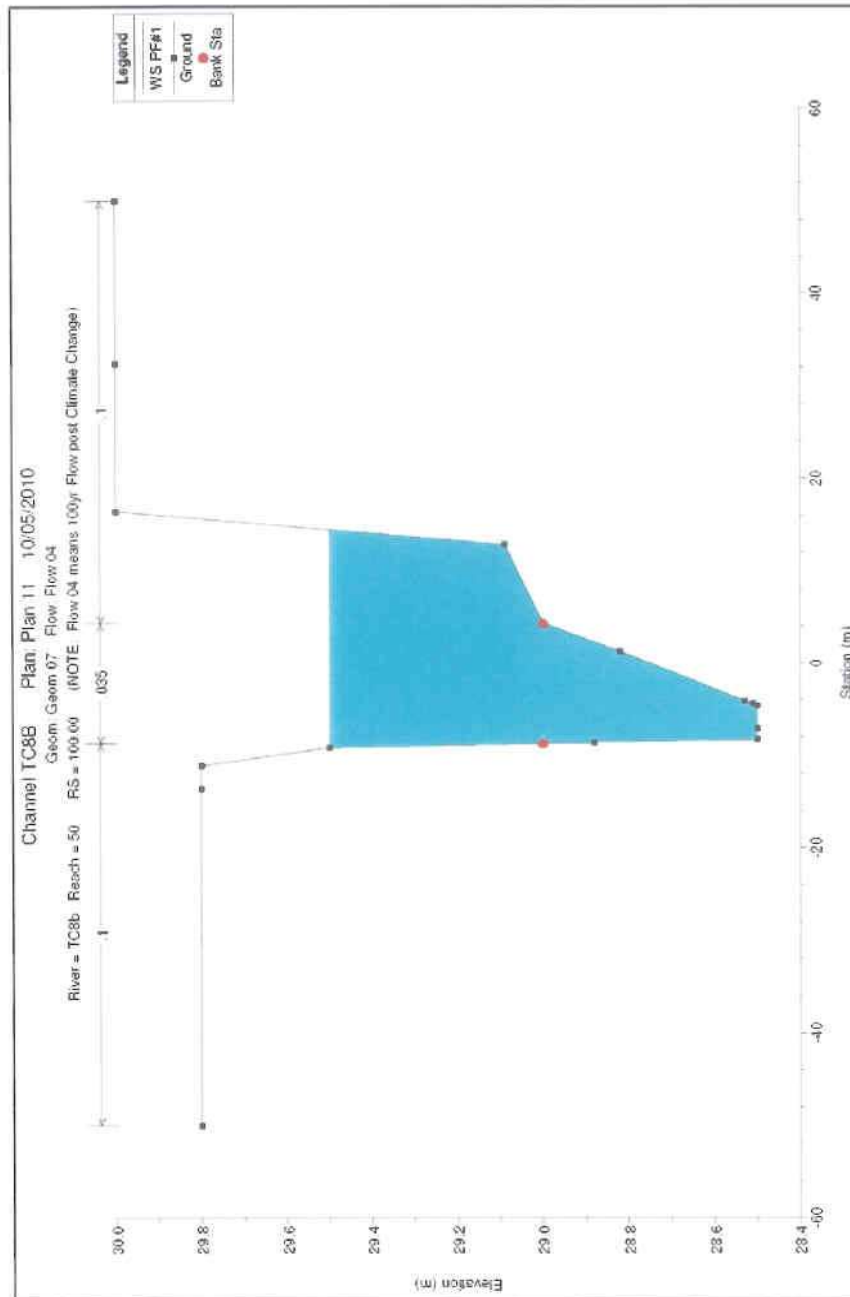


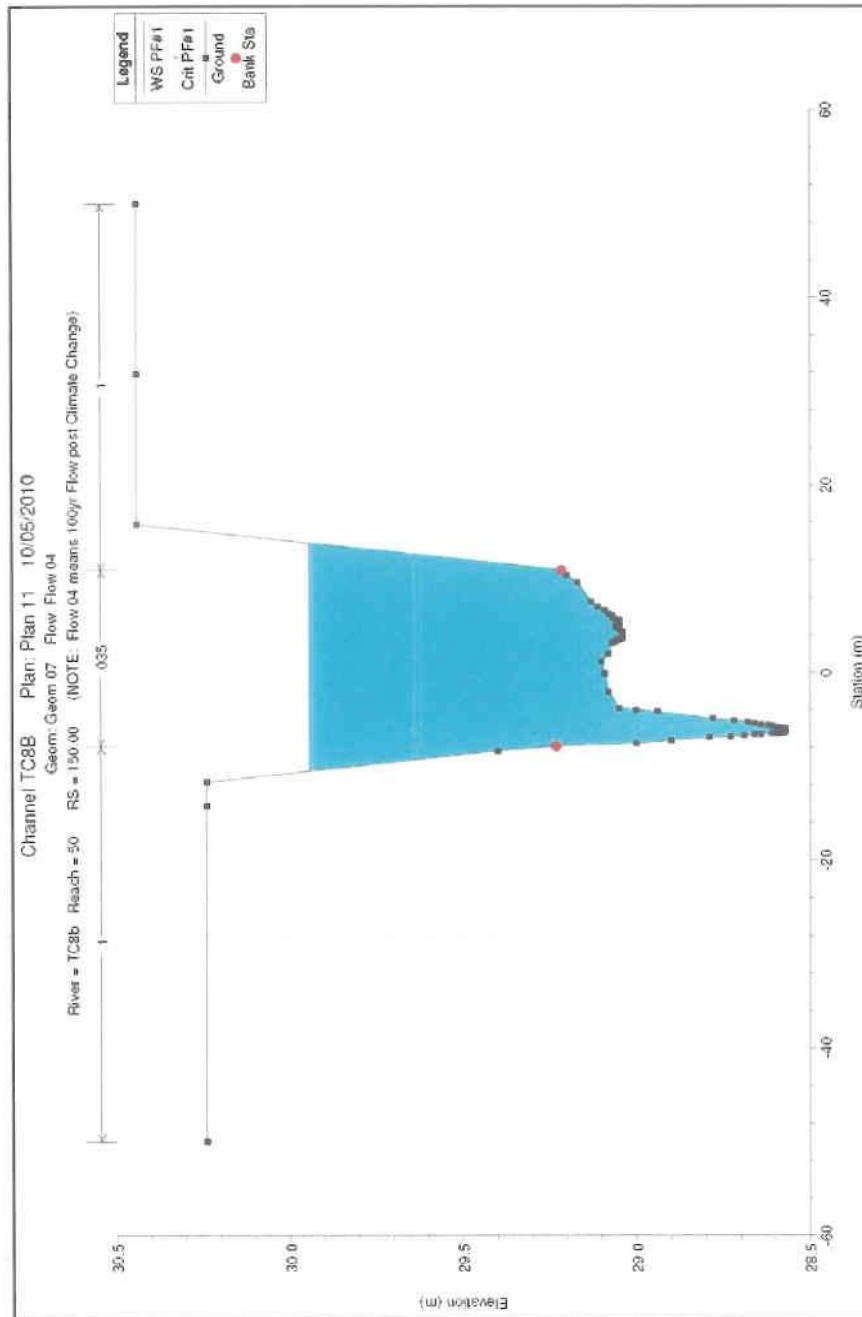


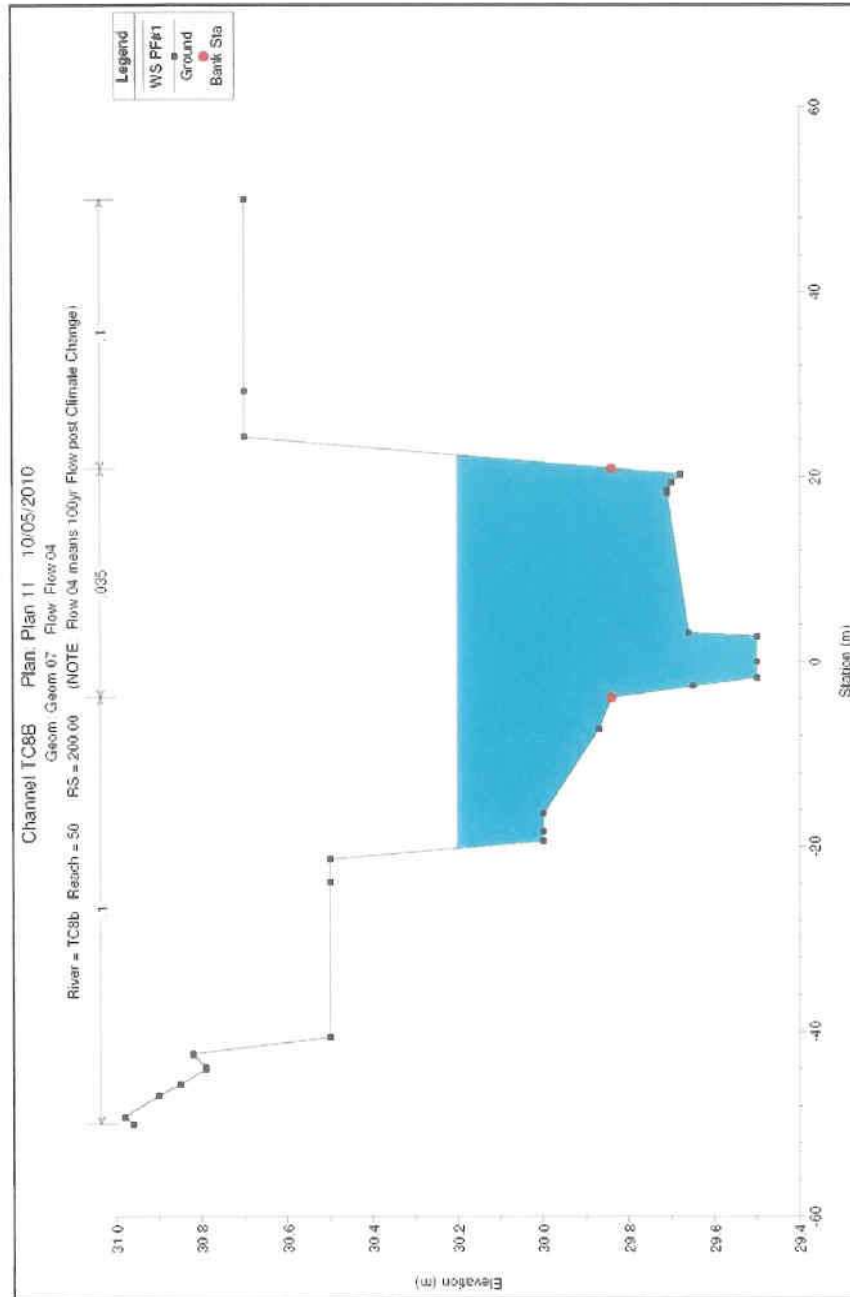
HEC-RAS, Plan: Plan1 River, TC8b, Reach: 50, Profile: PF#1

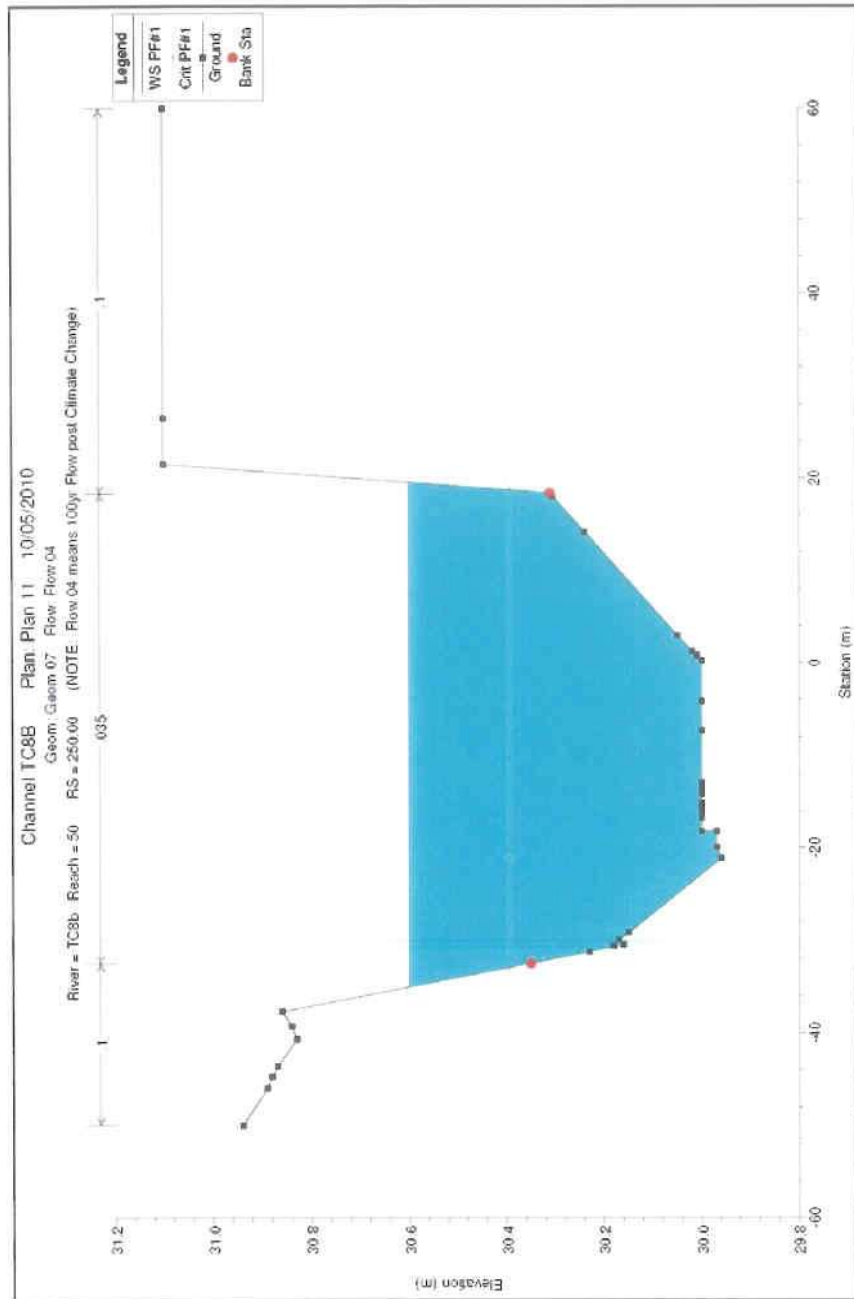
Reach	River Sta	Profile	Q Total (m ³ /s)	Min Ch El (m)	W.S. Elev (m)	Vel Left (m/s)	Vel Chnl (m/s)	Vel Right (m/s)	Top Width (m)	Froude # Ctl	Shear LOB (N/m ²)	Shear Chan (N/m ²)	Shear ROB (N/m ²)
50	250.00	PF#1	28.20	29.96	30.60	0.14	1.06	0.15	54.54	0.47	3.99	16.76	4.51
50	200.00	PF#1	28.20	29.50	30.20	0.42	1.94	0.32	42.47	0.84	26.53	55.28	17.70
50	150.00	PF#1	28.20	28.57	29.84	0.29	1.62	0.30	24.31	0.54	11.76	32.56	12.77
50	100.00	PF#1	28.20	28.50	29.50	0.30	2.43	0.54	23.54	0.86	15.80	76.23	38.95
50	50.00	PF#1	28.20	27.50	29.65	0.16	0.57	0.16	100.00	0.15	2.49	3.42	2.52

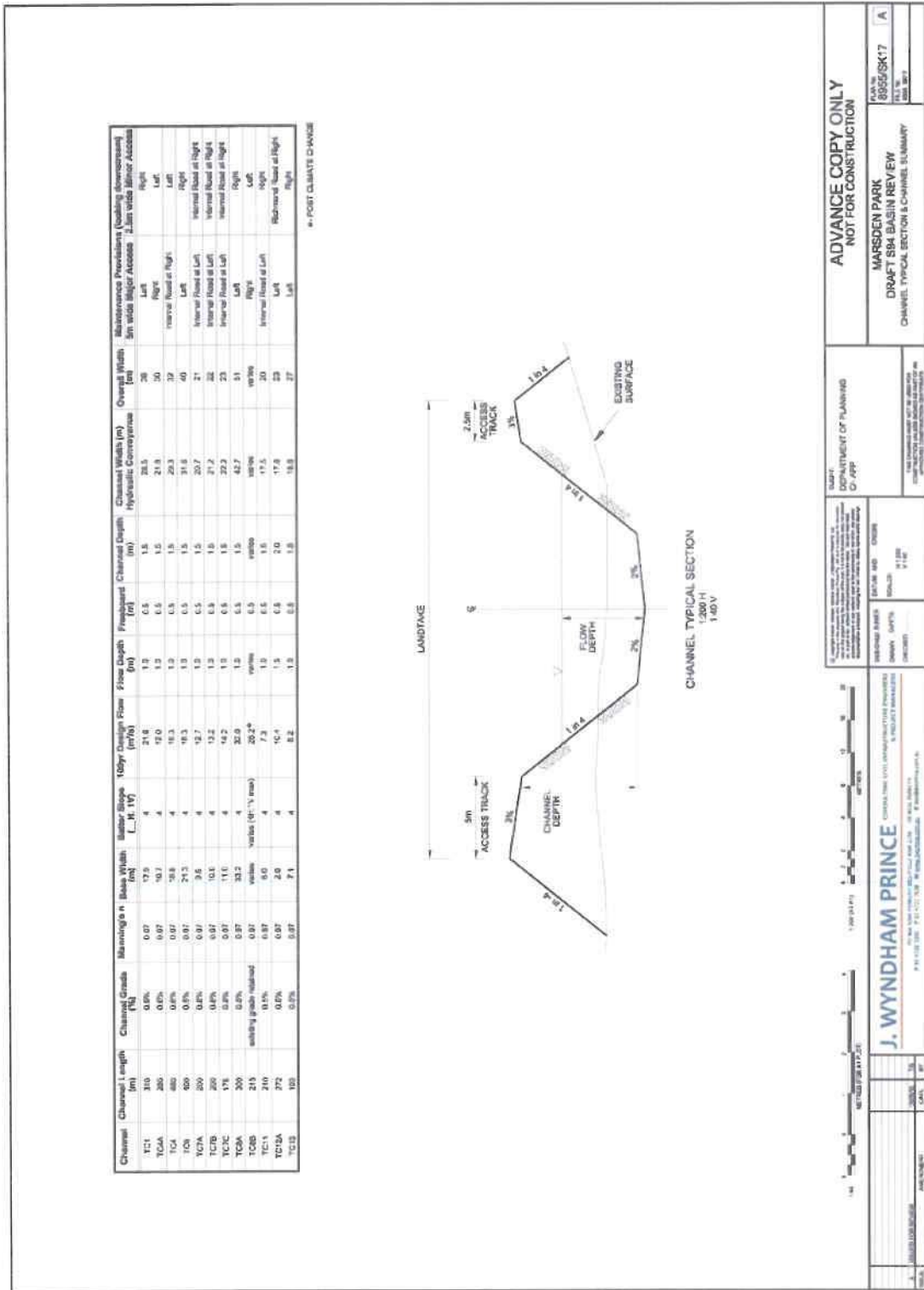








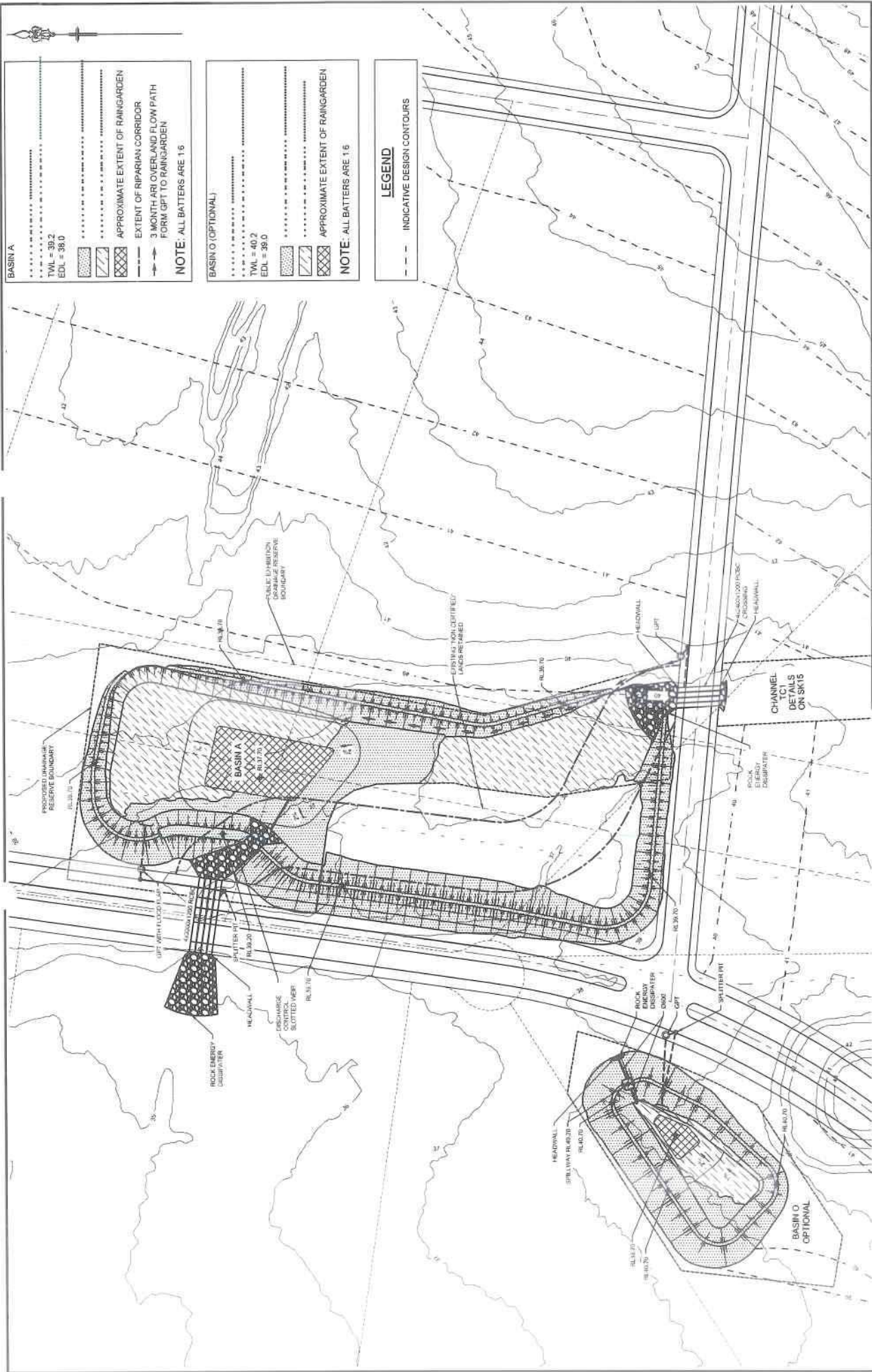




APPENDIX D

PRELIMINARY ENGINEERING CONCEPTS

Marsden Park Industrial Precinct



BASIN A

- TWL = 39.2
- EDL = 38.0
- APPROXIMATE EXTENT OF RAINGARDEN
- EXTENT OF RIPARIAN CORRIDOR
- 3 MONTH ARI OVERLAND FLOW PATH FORM OPT TO RAINGARDEN

NOTE: ALL BATTERS ARE 1:6

BASIN O (OPTIONAL)

- TWL = 40.2
- EDL = 39.0
- APPROXIMATE EXTENT OF RAINGARDEN

NOTE: ALL BATTERS ARE 1:6

LEGEND

- INDICATIVE DESIGN CONTOURS

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**MARSDEN PARK
DRAFT S94 BASIN REVIEW
BASIN A
AND BASIN O (OPTIONAL)**

PLAN NO: 8955/SK2
FILE NO:
ISS. NO:

CLIENT: DEPARTMENT OF PLANNING
CI-APP

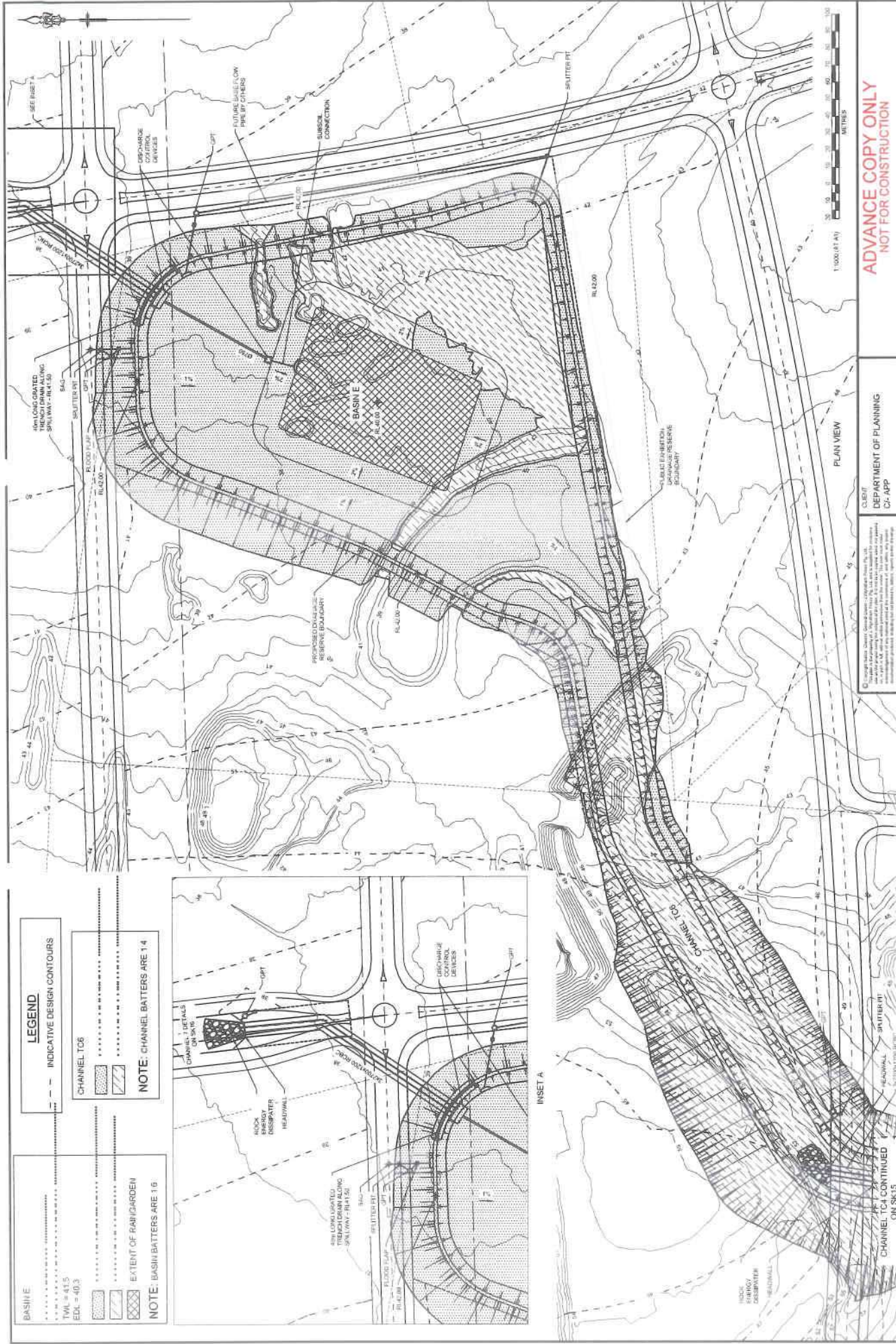
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DESIGNED: D.J.G. DATE: 14/03/19
DRAWN: J.D.E. SCALE: 1:1000 @ A4
CHECKED: DATE: 14/03/19

J. WYNTHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

100, BARRACK STREET, SUITE 100, MELBOURNE VIC 3000
PH: 03 9370 1300 FAX: 03 9370 1399 WWW.JWYNTHAMPRINCE.COM.AU

NO.	DATE	BY



LEGEND

INDICATIVE DESIGN CONTOURS

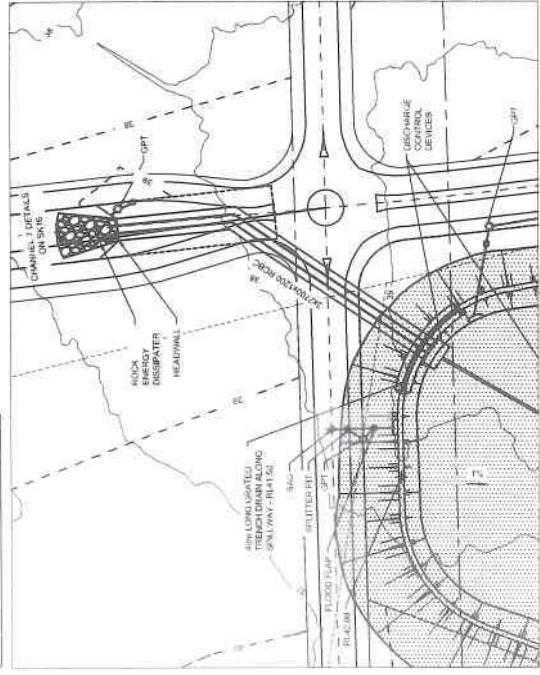
CHANNEL T06

NOTE: CHANNEL BATTERS ARE 14

BASIN E

NOTE: BASIN BATTERS ARE 16

EXTENT OF RAINGARDEN



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PROJECT NO. 8955/SK5
FILE NO. 8955/SK5
DATE 05/12/15

MARSDEN PARK
DRAFT S94 BASIN REVIEW
BASIN E & CHANNEL T06

CLIENT
DEPARTMENT OF PLANNING
C2-APP

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DATE: 05/12/15
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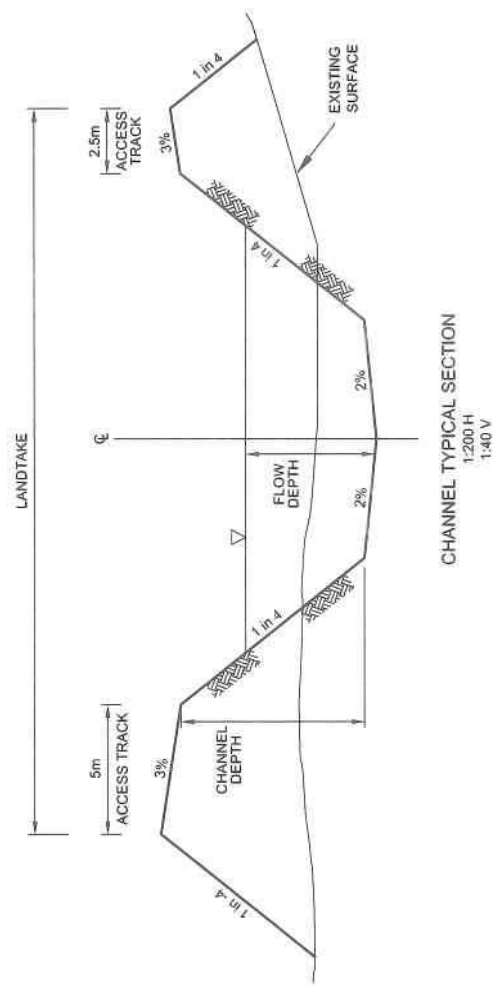
J. WYNDHAM PRINCE CONSULTING CIVIL & INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

105 New Farm Park Drive, Westfield NSW 2137, AUSTRALIA
P: 61 615 237 4711 F: 61 615 237 4712 W: www.jwprince.com.au

NO.	REVISION/DESCRIPTION	DATE	BY

Channel	Channel Length (m)	Channel Grade (%)	Manning's n	Base Width (m)	Batter Slope (H:1V)	100yr Design Flow (m ³ /s)	Flow Depth (m)	Freeboard (m)	Channel Depth (m)	Channel Width (m) Hydraulic Conveyance	Overall Width (m)	Maintenance Provisions (looking downstream) 5m wide Major Access 12.5m wide Minor Access
TC1	310	0.9%	0.07	17.9	4	21.6	1.0	0.5	1.5	28.5	36	Right
TC4A	280	0.6%	0.07	10.7	4	12.0	1.0	0.5	1.5	21.8	30	Right
TC4	480	0.6%	0.07	18.8	4	18.3	1.0	0.5	1.5	29.3	32	Internal Road at Right
TC6	400	0.5%	0.07	21.3	4	18.3	1.0	0.5	1.5	31.6	40	Left
TC7A	200	0.8%	0.07	9.5	4	12.7	1.0	0.5	1.5	20.7	21	Internal Road at Right
TC7B	200	0.8%	0.07	10.0	4	13.2	1.0	0.5	1.5	21.2	22	Internal Road at Right
TC7C	175	0.8%	0.07	11.0	4	14.2	1.0	0.5	1.5	22.2	23	Internal Road at Left
TC8A	300	0.6%	0.07	33.2	4	32.0	1.0	0.5	1.5	42.7	51	Left
TC8B	215	existing grade retained	0.07	varies	varies (4H:1V max)	28.2*	varies	0.5	varies	varies	varies	Right
TC11	210	0.5%	0.07	6.0	4	7.3	1.0	0.5	1.5	17.5	20	Internal Road at Left
TC12A	272	0.5%	0.07	2.0	4	10.4	1.5	0.5	2.0	17.8	23	Richmond Road at Right
TC13	103	0.5%	0.07	7.1	4	8.2	1.0	0.5	1.5	18.6	27	Left

*- POST CLIMATE CHANGE



CHANNEL TYPICAL SECTION
1:200 H
1:400 V



J. WYNNDHAM PRINCE
CONSULTING CIVIL AND INFRASTRUCTURE ENGINEERS
PROJECT MANAGERS

DATE: 13/05/2018 BY: [Signature]

REVISIONS: [Table with columns for No., Description, Date, By]

CLIENT: DEPARTMENT OF PLANNING
C/- APP

DESIGNED BY: [Name]
DRAWN BY: [Name]
CHECKED BY: [Name]

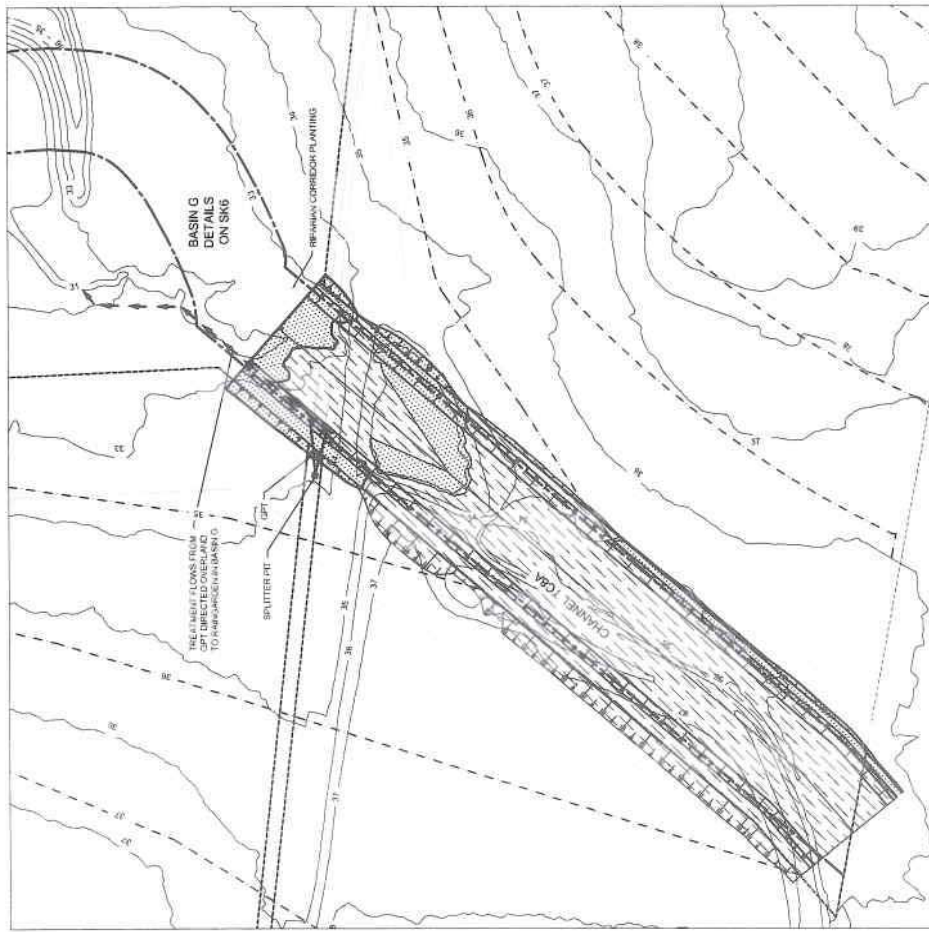
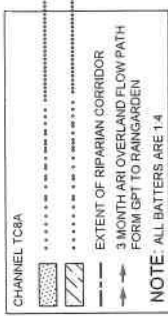
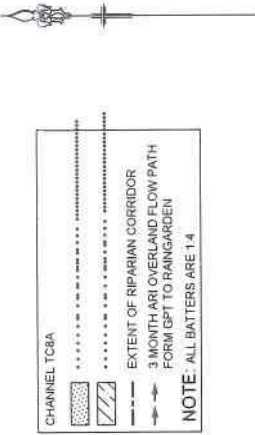
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MARSDEN PARK
DRAFT S94 BASIN REVIEW
CHANNEL TYPICAL SECTION & CHANNEL SUMMARY

PLAN No: 8955/SK17
DATE: 13/05/2018
SCALE: A



CHANNEL TC8A

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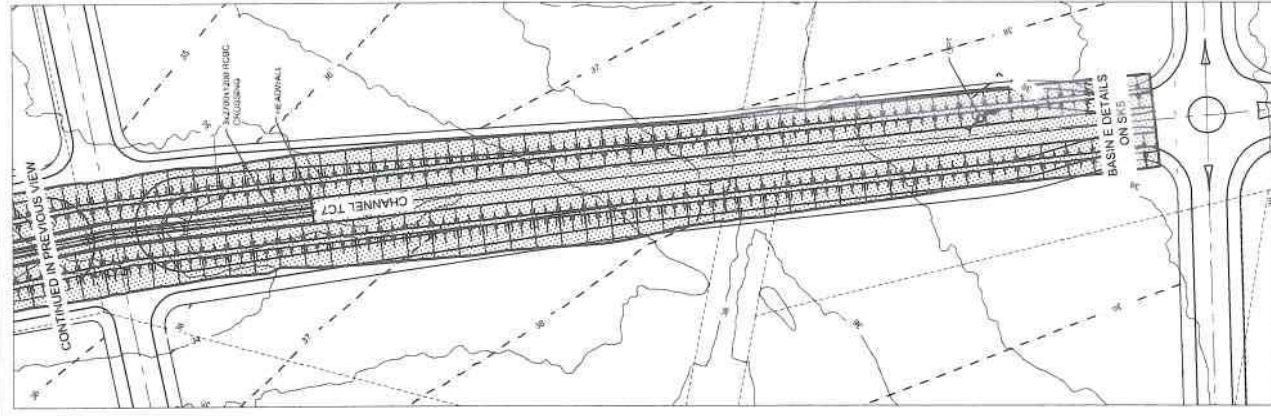
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DATE	18/11/16	
REVISED DATE	18/11/16	
MARSDEN PARK DRAFT S94 BASIN REVIEW CHANNELS 7 AND 8A		

CLIENT
DEPARTMENT OF PLANNING
C/- APP

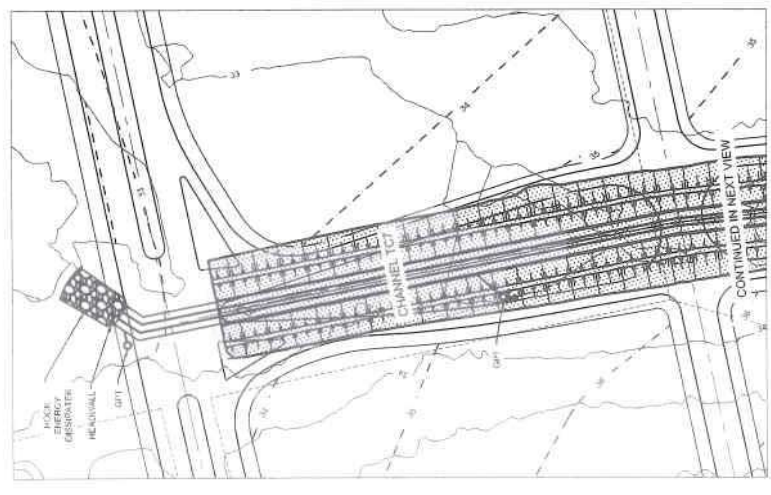
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DATE AND ORIGIN
SCALES 1:1000 @ 1/1

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CHANNEL TC7 (CONTINUED)



CHANNEL TC7



J. WYNTHAM PRINCE
CONSULTING CIVIL, INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

401 BUNNINGS AVENUE SUITE 105 0A WILSON PROMENADE
#11 1211 1200 # 41 4211 1200 WILSON PROMENADE # 41 4211 1200

NO	REVISION/DESCRIPTION	DATE	BY

