### **Urban CHI Forms**

NDICATORS	UNHEALTHY				HEALTHY
Catchment land use	Land heavily modified     Wetlands, marshes lost	2	3	4	5. Appears unmodified
Vegetation – banks & mar (100m either side)	rgins  1. Little or no vegetation - neither exotic or indigenous	2	3	4	Complete cover of vegetation – mostly indigenous
. Use of the river banks + margins (100m either side	e) 1. Margins heavily modified	2	3	4	5. Margins unmodified
Riverbed condition (sediment)	Covered by mud/sand slime, weed	2	3	4	<ol><li>Clear of mud/sand/sediment/weed</li></ol>
Changes to river channel	Evidence of modification e.g. stopbanks, straighteningravel removal, shingle builtings.	ng,	3	4	5. Appears unmodified
Water quality	Appears polluted eg foams, oils slime, weeds etc	2	3	4	5. No pollution evident
. Water Clarity	1. Water badly discoloured	2	3	4	5. Water is clear
A variety of habitats	Little or no current,     Uniform depth and limited     Variety of flow related habit	2 atst .	3	4	5 Current and depth varies creating a variety of different flow related habitats
. Are you satisfied that the	e present condition of the ri	ver prote	ects cultural v	alues at this s	site?
	1(No)	2	3	4	5(Yes)

10. What actions would you	u like to see tak	en at this site to impro	eve its condition?	
	Y.			
11. How would you describe	e the overall he	alth of the river at this	site?	
Very unhealthy	2	3	4.	5. Very healthy
12. BIRDS: Please list the m	nahinga kai bird	species that you can	see at this site	
1.	2.		3.	4.
5	6		7	8
13. PLANTS: Please list the	mahinga kai pl	ant species that you ca	an see at this site	
1	2		3	4
5	6		7	8
14. ACCESS: Do you consid	der access to th	is site is sufficient to e	enable the gathering	g of mahinga kai?
Not able to gather at this s	site 2.	3.	4.	5. Able to gather - no restrictions
15. Would you return to this	s site in the futu	ire?		
1. NO		5. YES.		

# In-depth impact assessment forms

# **STORM WATER OUTFALLS**

CATCHMENT					DATE:			ASSESSED BY:			
SURVEY REACH	ID:			TIME:			РНОТО	O ID:			
SITE ID				AIVI/P	IVI				GPS:		
FLOW:  None   Trickle  Moderate  Substantial		TYPE:  Closed Pipe  Open chann	losed   Concrete ipe  PVC/Plast  Other:		e □ Metal stic □ Brick	Single      Circular     Double     Elliptical     Triple     Other:  Depth:  Width (Top):		SUBMERGED:  □ No  Diameter:(m) □ Partially □ Fully (m)			
CONDITION:  None Chip/Cracked Peeling Paint Corrosion Other:	□ None No □ Chip/Cracked □ Gas □ Peeling Paint □ Sewage □ Corrosion □ Rancid/Sour		e [	DEPOSITS/STAINS:  None Oily Flow Line Paint Other:		DENSITY: None  None Br Normal Ot Inhibited Excessive POO Other: Go		None  Brow  Othe  POOL C	Ot QUALITY:  No pool Good  Odours  Colours Oils Soaps  Algae		
FOR	COLOR:		□ Clear	□ Brow	n □ Grey □ \	′ellow □	ı		nge □ Red □ Other:		
FLOWING	TURBIDI		□ None	☐ Sligh	□ Slight Cloudiness □ Cloudy □ Opaque □ Sewage (toilet paper, etc.) □ Petroleur			que			
ONLY OTHER CONCERNS:		Trash (pa	per/plast	ic bags)	ge (tollet pape Dumping (back Bank Erosic	oulk) 🗆 I		-			
OUTFALL SEVERITY: (circle #)	ALL Heavy discharge with a discontraction of the colour and/or a strong sm				clear and odourless. If the discharge has a colour and/or odour, the amount of discharge is very small compared to the stream's bas flow and any impact appears			r sta ca pr	utfall does not have dry eather discharge; aining; or appearance of using any erosion oblems.		
		1			3			5			
SKETCH/NOTES	:					RE	PORTE	р то со	DUNCIL:   YES   NO		

# **SEVERE BANK EROSION**

CATCHMENT		DATE:			ASS	ASSESSED BY:				
SURVEY REACH ID:		TIME:	:	AM/PM	РНОТО І	D:				
SITE ID						GPS:				
PROCESS:	☐ Currently	BANK O	F CONC	ERN: 🗆 LT 🗆 RT 🗀 I	Both <i>(looki</i>	ing downstream)				
□ Widening	unknown	LOCATION: ☐ Meander bend ☐ Straight section ☐ Steep slope/valley wall								
□ Aggrading	☐ Bed scour		_	Other:						
□ Sed.	□ Bank failure	DIMENS								
deposition	□ Channelized	Length LTm and/or RTm Bank Ht LTm and/or RTm								
LAND OWNERSHIP	: □ Private □ Public	□ Unkno	wn	LAND COVER: □	Forest $\square$	Field / pasture □ Developed:				
THREAT TO PROPE	RTY/INFRASTRUCTURE	∷ □ No	□ Yes	(Describe):						
EXISTING RIPARIAI	N WIDTH:	□ ≤3m	□ 3-5	5m 🗆 5-10m 🗆	10-20m	□ > 20m				
	Active downcutting;			Part downcutting		Grade and width stable;				
EROSION	both sides of the stre		_	active stream wic	_	isolated areas of bank				
SEVERITY (circle)	a fast rate; erosion o		_	banks actively ero		failure/erosion; likely				
	significant amount o			moderate rate; n		,				
Channelized = □ 1	stream; obvious thre	eat to prop	perty	property or infras	structure	local scour, riparian				
Channelized = 🗆 1	or infrastructure.				vegetation or adjacent use not impaired.					
	1			3		110t impaired.				
ACCESS:	Good access: Open a	area in pul	blic	Fair access: Fores	ted or	Difficult access. Must cross				
	ownership, sufficien	-		developed area a	djacent to	wetland, steep slope or				
	stockpile materials,		m	stream. Access re	-	other sensitive areas to				
	channel access for h	eavy		tree removal or in	npact to	access stream. Minimal				
	equipment using exi	sting road	s or	landscaped areas	. Stockpile	stockpile areas available				
	trails.			areas small or dis	tant from	and/or located a great				
				stream.		distance from stream				
						section. Specialized heavy				
	_					equipment required.				
NOTES (SPOSS SES	5				3	1				
NOTES/CROSS SEC	TION SKETCH:									
				REP	ORTED TO	COUNCILS:   YES   NO				

#### **IMPACTED RIPARIAN MARGIN**

CATCHMENT	D/	ATE:	ASSESSED BY:							
CLIDVEY DE ACILIDA		//	BUOTO ID.							
SURVEY REACH ID:	TIME:	_: AM/PM	PHOTO ID:							
SITE ID				GPS:						
IMPACTED BANK: REASON INADEQUATE: □ Lack of vegetation □ Too narrow □ Widespread invasive plants □ RT □ Both □ Recently planted □ Other:										
LAND USE: Priva	ate Institutional	Golf Course Park	Other Public							
(Facing downstream) LT BANK			□ □:							
RT BANK				. 0.1						
	ved Bare ground	=		rees Other:						
EXOTIC / INVASIVE PLANTS:	□ None □ Rare	☐ Partial coverage								
EXOTIC / INVASIVE FEARITS.	- None - Nate	- Tartial coverage	- Extensive covera	ge unknown						
STREAM SHADE PROVIDED?	None	□ Full								
POTENTIAL RESTORATION CANDID	ACTE Active refor	estation - Greenwa	v design - Datural re	generation						
□ No	□ Invasives re		y design - Natural re	generation						
RESTORABLE AREA		Impacted area on	Impacted area	Impacted area on						
		public land where	on either public	private land						
	REFORESTATION	the riparian area	or private land	where road;						
Left Right	POTENTIAL:	does not appear to	that is presently	building						
Length (m):	(Circle)	be used for any	used for a	encroachment or						
Width (m):		specific purpose;	specific purpose;	other feature						
		plenty of area	available area for	significantly						
		available for planting		limits available						
			adequate	area for planting						
		5	3	1						
POTENTIAL CONFLICTS WITH REFO		idespread invasive pla								
☐ Lack of sun ☐ Poor/unsafe acce	ss to site   Existing	g impervious cover $\Box$	Severe animal impac	ts (deer, beaver)						
☐ Other:										
NOTES:										

# INSTREAM CROSSING

CATCHMENT			DATE:				ASSESSED BY:			
SURVEY REACH	ID:	TIME	1E::AM/PM			РНОТО ID:				
SITE ID									GPS:	
TYPE:   Road (	Crossing   Railroad Cro	ssing 🗆	Mann	made Dam 🗆 G	eologica	l Form	nation	□ Other:		
	SHAPE:	# BARR	ELS:	MATERIAL:	ALIGNI	MENT	:	ONS: (if		
	□ Arch □	☐ Single	e	☐ Concrete	☐ Flow	-align	ed	variable,	sketch)	
FOR ROAD/	bottomless	□ Doub		□ Metal	□ Not	-		Barrel dia	ameter:(m)	
RAILROAD	□ Box □ Elliptical	☐ Triple		□ Other:	aligned					
CROSSINGS	☐ Circular	□ Othe	r:		□ Do n	ot kno	ow	Height:_	(m)	
ONLY	□ Other:									
	<b>CONDITION:</b> (Evidence			_					ength: (m)	
	☐ Cracking/chipping/co			□ Downstream s		le		V	Vidth: (m)	
	☐ Sediment deposition			☐ Failing emban	kment			<b>D</b> 1		
	☐ Other (describe):	_ =:				. ,			elevation:(m)	
	TORATION CANDIDATE									
□ no	EXTENT OF PHYSICAL	□ Upstr		storage retrofit  CKAGE SEVERITY			n repair	□ Oth	er:	
	BLOCKAGE:		BLUC	RAGE SEVERIT	. (circie)					
	☐ Total ☐ Partis	اد	A str	ucture such as a	A to	A total fish blockage			mporary barrier	
If yes for	☐ Temporary ☐ Unkn			am or road culvert		on a tributary that			lockage at the	
fish barrier				on a 3 <sup>rd</sup> order or			ate a	very	head of a	
<i>y</i>	CAUSE:		greater stream			significant reach of			am with very	
	☐ Drop too high			_		stream, or partial			viable fish	
	Water Drop:	(m)	-	ream movement		blockage that may			tat above it;	
	☐ Flow too shallow		of anadromous fish;			interfere with the			iral barriers such	
	Water depth:	(m)				migration of anadromous fish.			aterfalls.	
	□ Other:		devic	ce present.	anac	iromo	us fish.			
				1		3			5	
NOTES/SKETCH	:									
					REPO	ORTED	то со	UNCIL: 🗆	YES 🗆 NO	

# **CHANNEL MODIFICATION**

CATCHMENT		DA	TE: / /	ASSE	SSED BY:			
SURVEY REACH ID:		TIME:	_:AM/PM	PHOTO ID	<u> </u>			
SITE ID					GPS:			
TYPE:   Channelisat	ion 🗆 Bank armouri	ng 🗆 concrete	e channel 🗆 Floodpl	ain encroach	nment   Other:			
MATERIAL:	Does ch	annel have pe	rennial flow?		□ Yes □ No			
□ Concrete □ 0	Gabion Is there	evidence of se	diment deposition?		□ Yes □ No			
□ Rip Rap □	Earthen Is veget	ation growing	in channel?		□ Yes □ No			
<ul><li>☐ Metal</li><li>☐ Other:</li></ul>	Is chan	nel connected t	o floodplain		□ Yes □ No			
BASE FLOW CHANNE	:L		ADJACENT STREA	AMI CORRIDO	OR			
Depth of flow			Available width	LT(	m) RT (m)			
Defined low flow cha	innel? 🗆 Yes 🗆 I	No	Utilities Present?	Utilities Present? Fill in floodplain?				
% of channel bottom	%		□ Yes □ No		□ Yes □ No			
POTENTIAL RESTORA	ATION CANDIDATE	Structural rep	pair   Base flow cha	nnel creatio	n   Natural channel design			
□ No		Can't tell □	De-channelization $\Box$	Fish barrie	removal   Bioengineering			
	A long section of co		A moderate length	•	An earthen channel less			
	(>250m) channel w		but channel stabilize		than 50m with good water			
CHANNELIZATION	very shallow (<15ci		beginning to functi		depth, a natural sediment			
SEVERITY:	no natural sedimer	its present in	natural stream cha	bottom, and size and				
(Circle #)	the channel.		Vegetated bars ma formed in channel.	=	shape similar to the unchannelized stream			
			Torrifed in Chairner.		reaches above and below			
					impacted area.			
	1		3		5			
NOTES:								

### TRASH AND DEBRIS

CATCHMENT					DATE:			ASSESSED BY	<b>':</b>		
SURVEY REACH I	D.			TIME	/	/ AM/PM	PHOT	O ID:			
		TIME: _	·•	AIVI/PIVI	РПОТ	טוט.					
SITE ID									GPS:		
TYPE:	MATER					SOURCE:		CATION:	LAND OWNERSHIP:		
□ Industrial	□ Plast	-	□ Pape		□ Metal	☐ Unknown		tream	☐ Public		
□ Commercial	□ Tires			truction [	☐ Medical	☐ Flooding		liparian	□ Private		
□ Residential		iances				☐ Illegal dump			□ Unknown		
	□ Auto	motive	□ Other	r:		☐ Local outfall		ILt bank	AMOUNT (# Pickup		
								Rt bank	truck loads):		
POTENTIAL REST	ORATIO	N CANE			-	-	_				
□ no				□ Remov		ion of dumping					
If yes for trash or	debris		<b>EQUIPM</b>	ENT NEED		Heavy equipme					
removal			WHO CA	N DO IT:		Volunteers $\square$ L	ocal G	ov 🗆 Hazard	lous Substance Team		
			□ Other		1						
		A smal	ll amount	of trash	A larg	ge amount of tras	sh, or	_	e amount of trash or		
				wo pickup		tems, in a small	area	debris scattered over a large			
		truck l	oads) loc	ated insid	e with	e with easy access. Trash may			area, where access is very		
<b>CLEAN-UP POTE</b>	NTIAL:	a park	with eas	y access					difficult. Or presence of drums		
(Circle)					long	period of time bເ	ıt it	or indicati	or indications of hazardous		
					could be cleaned up in a materials						
					few c	ays, possibly wit					
					small	backhoe.					
			1		·	3			1		
NOTES:											
						RFP∩R	TFD TO	CONCII	YES 🗆 NO		
						KEFOK	יבט וכ	CONTOL.	1.25 - 140		

### **INFRASTRUCTURE IMPACTS**

CATCHMENT					DATE:	ASSESSED BY	ASSESSED BY:				
SURVEY REACH	I ID:			TIME: _	:	/_ _AM/PM	PHC	OTO ID:			
SITE ID							ļ			GPS:	
TYPE:		MATE	RIAL:	LOCA	ATION:	POTEN	TIAL FIS	SH BARRIER:			
☐ Leaking sewe	er	□ Con	crete	□ Flo	oodplain	□ Yes	□ No	)			
☐ Exposed pipe			rugated meta		ream bank			□ Joint failure	<u>:</u>		
☐ Exposed man	ihole		ooth metal	-	ove stream			on/cracking			
□ Other:		□ PVC		□ Sti	ream bottom			overing broken	1		
			ier:		ner:	□ Mani		ver absent			
EVIDENCE OF	COL	OR .	□ None □ C	 Clear □ Da	ark Brown 🗆			vish   Greenis	sh 🗆	Other:	
DISCHARGE:	OD	OR	□ None □ S	ewage $\square$	Oily   Sulfid	e 🗆 Chlorii	ne 🗆 O	ther:			
	DEP	OSITS	□ None □ T	oilet Pap	er etc 🗆 Lime	☐ Surface	oils 🗆	Stains □ Othe	r:		
POTENTIAL RES	STORA	ATION CA	ANDIDATE		I repairs □P ng □ Fish ba				Dry	weather	
If yes to fish bar	rrier.	Water D	)rop:	(m)	ig 🗆 Fisii ba	iller remov	rai □ C	otilei.			
ij yes to jisii bai			f pipe undern	. ,	A moderate	ly long sect	tion of	Small see	ction	of exposed	
	erosion and could collap								pipe, stream bank near the		
		the near	future; a pipe there is no immediate threat				pipe is st	pipe is stable; the pipe is			
UTILITY IMPAC		_	cross the bed	or that the pipe will be undermined				ned across th	across the bottom of the		
SEVERITY:		-	ed above the		and break in				stream but only a small		
(Circle)		_	ction along th	_	future. The				portion of the top of the		
			eam where n	-	that the pip				pipe exposed; the pipe is exposed but is reinforced		
			e side of the p or a manhole	-	by large del	_	a large	· ·		e and it is not	
		-	cated in the co		storin even	.•					
			m channel an						causing a blockage to upstream fish movement; a		
Leaking = □ 5		is evidend	ce of stack fai	lure.						ck that is at the	
_								edge of t	the s	tream and does	
										ery far out into	
								the activ	e str	eam channel.	
			1			3				5	
NOTES:											
					ı	REPORTED	TO LOC	AL AUTHORITI	IES:	□ YES □ NO	
					•					- · · · · ·	