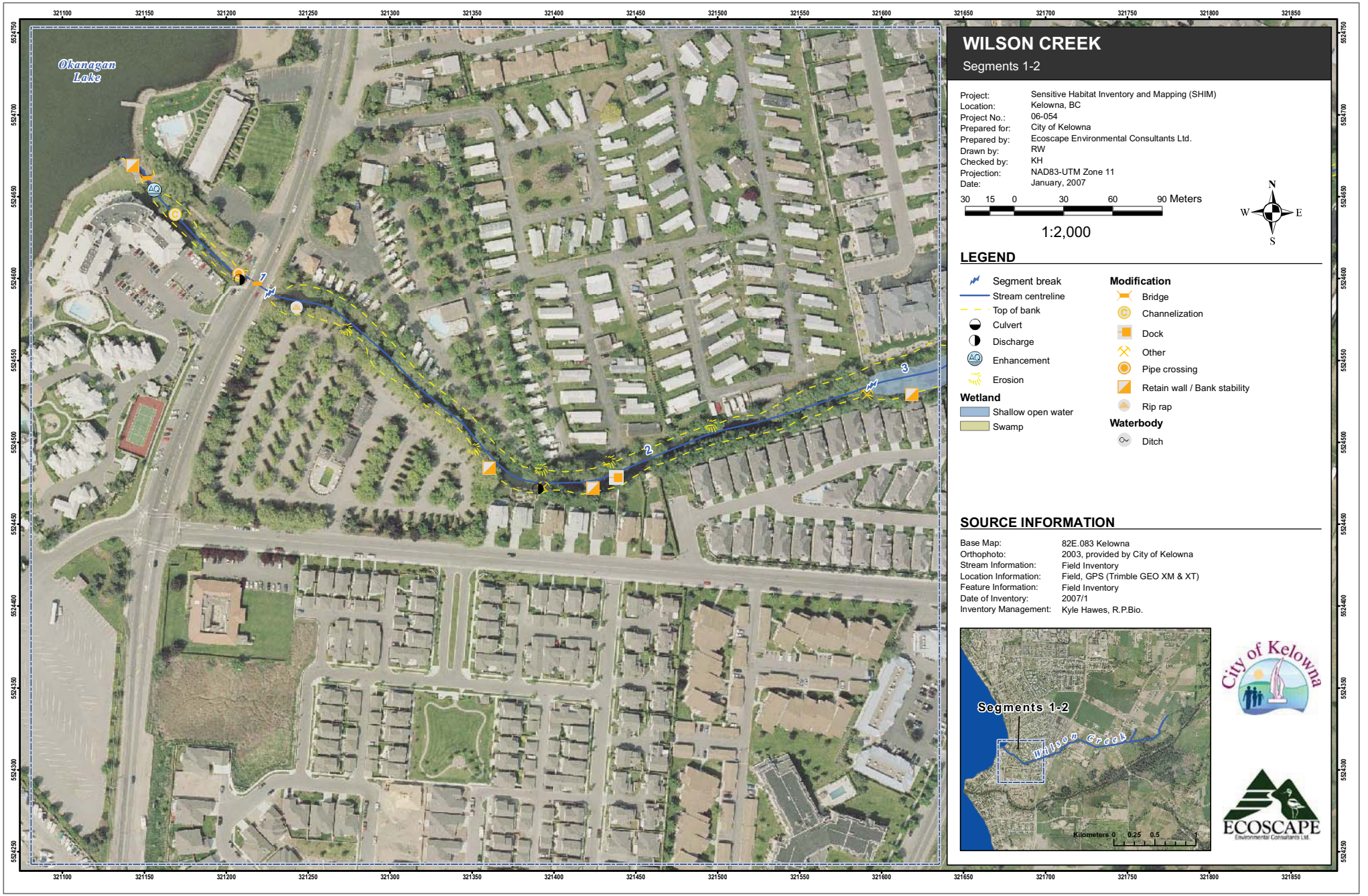


WILSON CREEK

Segments 1-2

Project:	Sensitive Habitat Inventory and Mapping (SHIM)
Location:	Kelowna, BC
Project No.:	06-054
Prepared for:	City of Kelowna
Prepared by:	Ecoscape Environmental Consultants Ltd.
Drawn by:	RW
Checked by:	KH
Projection:	NAD83-UTM Zone 11
Date:	January, 2007

30 15 0 30 60 90 Meters

1:2,000

N W E S

LEGEND

- Segment break
- Stream centreline
- Top of bank
- Culvert
- Discharge
- Enhancement
- Erosion

Wetland

- Shallow open water
- Swamp

Modification

- Bridge
- Channelization
- Dock
- Other
- Pipe crossing
- Retain wall / Bank stability
- Rip rap

Waterbody

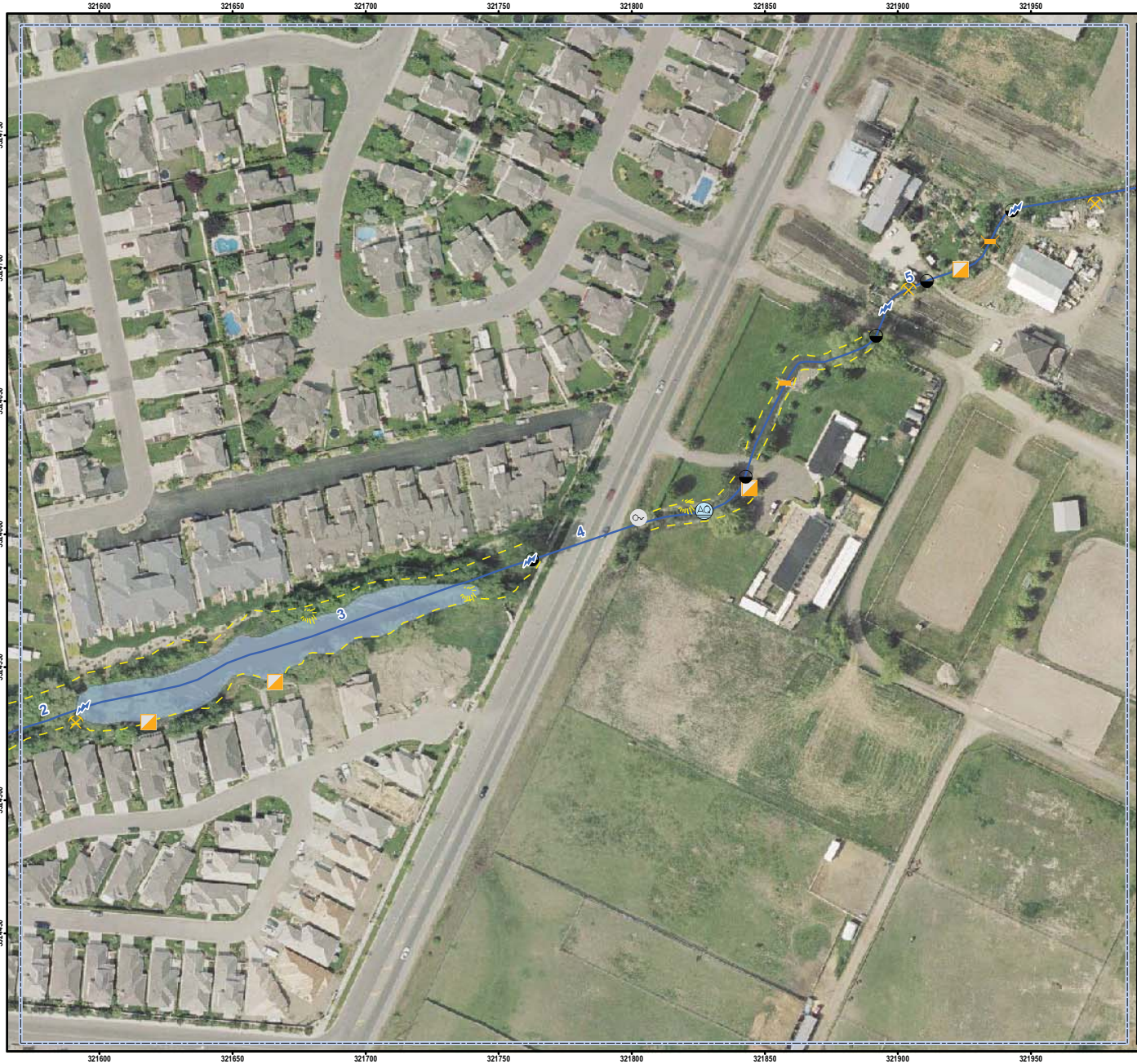
- Ditch

SOURCE INFORMATION

Base Map:	82E.083 Kelowna
Orthophoto:	2003, provided by City of Kelowna
Stream Information:	Field Inventory
Location Information:	Field, GPS (Trimble GEO XM & XT)
Feature Information:	Field Inventory
Date of Inventory:	2007/1
Inventory Management:	Kyle Hawes, R.P.Bio.

City of Kelowna

ECOSCAPE Environmental Consultants Ltd.



WILSON CREEK

Segments 3-5

Project:	Sensitive Habitat Inventory and Mapping (SHIM)
Location:	Kelowna, BC
Project No.:	06-054
Prepared for:	City of Kelowna
Prepared by:	Ecoscape Environmental Consultants Ltd.
Drawn by:	RW
Checked by:	KH
Projection:	NAD83-UTM Zone 11
Date:	January, 2007

25 12.5 0 25 50 75 Meters

1:1,500

N W E S

LEGEND

- Segment break
- Stream centreline
- Top of bank
- Culvert
- Discharge
- Enhancement
- Erosion

Wetland

- Shallow open water
- Swamp

Modification

- Bridge
- Channelization
- Dock
- Other
- Pipe crossing
- Retain wall / Bank stability
- Rip rap

Waterbody

- Ditch

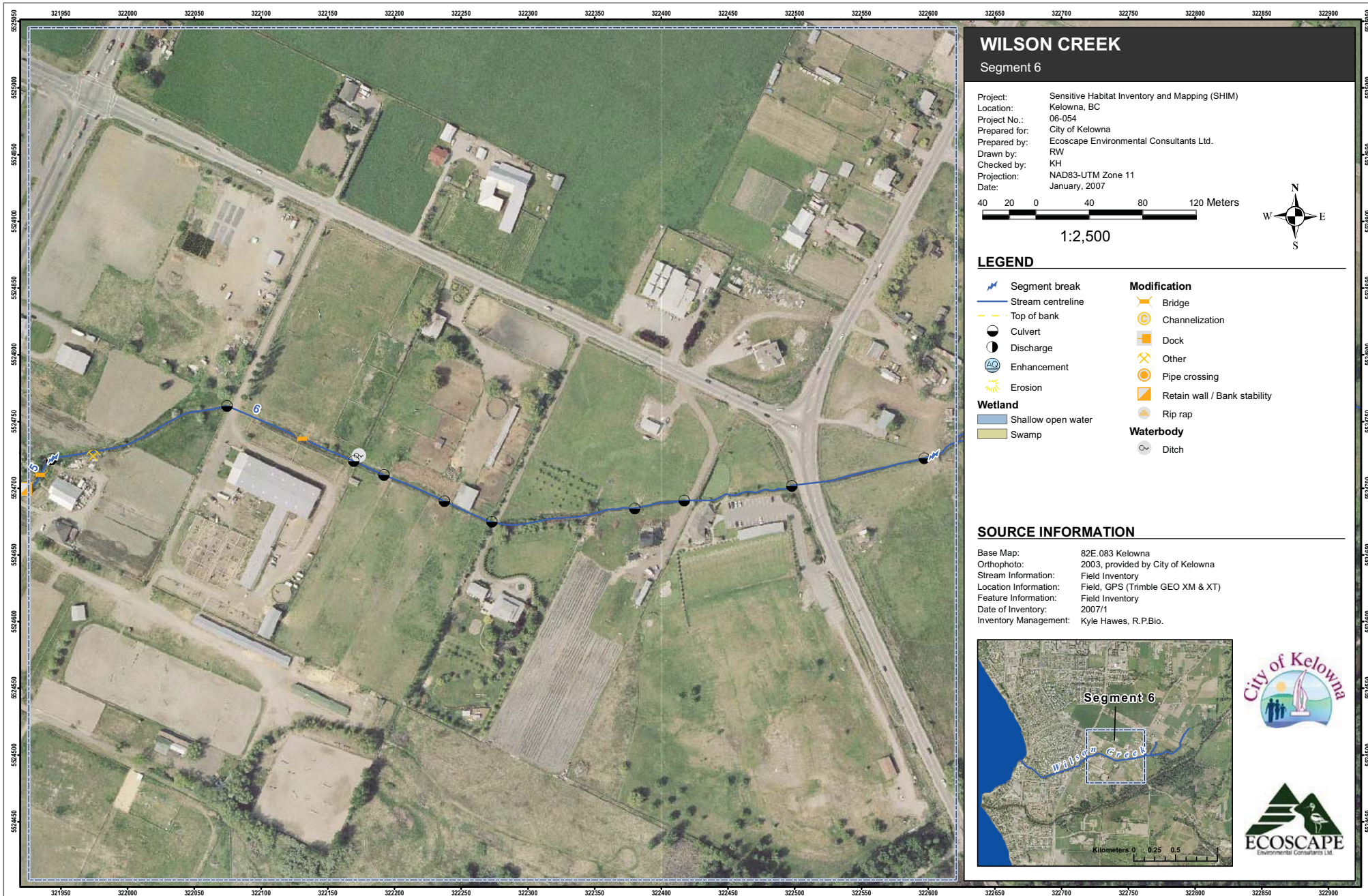
SOURCE INFORMATION

Base Map:	82E.083 Kelowna
Orthophoto:	2003, provided by City of Kelowna
Stream Information:	Field Inventory
Location Information:	Field, GPS (Trimble GEO XM & XT)
Feature Information:	Field Inventory
Date of Inventory:	2007/1
Inventory Management:	Kyle Hawes, R.P.Bio.



City of Kelowna

ECOSCAPE
Environmental Consultants Ltd.



WILSON CREEK

Segment 6

Project:	Sensitive Habitat Inventory and Mapping (SHIM)
Location:	Kelowna, BC
Project No.:	06-054
Prepared for:	City of Kelowna
Prepared by:	Ecoscape Environmental Consultants Ltd.
Drawn by:	RW
Checked by:	KH
Projection:	NAD83-UTM Zone 11
Date:	January, 2007

40 20 0 40 80 120 Meters

1:2,500

N
W E
S

LEGEND

- Segment break
- Stream centreline
- Top of bank
- Culvert
- Discharge
- Enhancement
- Erosion

Wetland

- Shallow open water
- Swamp

Modification

- Bridge
- Channelization
- Dock
- Other
- Pipe crossing
- Retain wall / Bank stability
- Rip rap

Waterbody

- Ditch

SOURCE INFORMATION

Base Map:	82E.083 Kelowna
Orthophoto:	2003, provided by City of Kelowna
Stream Information:	Field Inventory
Location Information:	Field, GPS (Trimble GEO XM & XT)
Feature Information:	Field Inventory
Date of Inventory:	2007/1
Inventory Management:	Kyle Hawes, R.P.Bio.

City of Kelowna

ECOSCAPE
Environmental Consultants Ltd.



WILSON CREEK

Segments 7-9

Project:	Sensitive Habitat Inventory and Mapping (SHIM)
Location:	Kelowna, BC
Project No.:	06-054
Prepared for:	City of Kelowna
Prepared by:	Ecoscape Environmental Consultants Ltd.
Drawn by:	RW
Checked by:	KH
Projection:	NAD83-UTM Zone 11
Date:	January, 2007

40 20 0 40 80 120 Meters

1:2,500

N W E S

LEGEND

- Segment break
- Stream centreline
- Top of bank
- Culvert
- Discharge
- Enhancement
- Erosion

Wetland

- Shallow open water
- Swamp

Modification

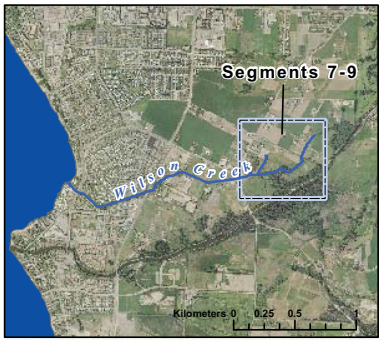
- Bridge
- Channelization
- Dock
- Other
- Pipe crossing
- Retain wall / Bank stability
- Rip rap

Waterbody

- Ditch

SOURCE INFORMATION

Base Map:	82E.083 Kelowna
Orthophoto:	2003, provided by City of Kelowna
Stream Information:	Field Inventory
Location Information:	Field, GPS (Trimble GEO XM & XT)
Feature Information:	Field Inventory
Date of Inventory:	2007/1
Inventory Management:	Kyle Hawes, R.P.Bio.



City of Kelowna

ECOSCAPE
Environmental Consultants Ltd.

Wilson Creek
Segment(s): 1 - 2

Segment	Primary	Secondary	Length (m)	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Comment Class
1.0	Modified		124.238	Run	0.5	21-40%	Unknown	Two weirs in segment with beaver influence.
2.0	Modified	Wetland	215.285	Slough	0.0	21-40%	Unknown	Shallow open water.

	Substrates (%) [a]						Channel (m)				
Segment	O	F	G	C	B	R	Wetted Width	Bankfull Width	Wetted Depth	Bankfull Depth	Comment Substrates/Channel
1.0	5	70	4	20	1	0	2.00	5.50	0.25	0.50	Fines over coarse substrate - coarse substrates over 75% embedded to completely embedded in fines. Partially within high water level of Okanagan Lake.
2.0	75	25	0	0	0	0	1.40	2.00	0.20	0.35	Organic muck/leaf litter/ and fine sediments.

a. Substrate codes: O=organics; F=silt/sand; G=gravel; C=cobble; B=boulder; R=bedrock

	Cover (%) [b]								
Segment	Total Cover	B	DP	IV	LWD	OV	SWD	UC	Comment Cover
1.0	10	5	10	55	10	10	10	0	Cattail and bulrush in channel
2.0	5	0	0	80	0	20	0	10	

b. Cover codes: B=boulder; DP=deep pool; IV=instream vegetation; LWD=large woody debris; OV=overstream vegetation; SWD=small woody debris; UC=undercut bank

	Left Bank Riparian							
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
1.0	Herbs/grasses	Urban_Residential	tall shrubs 2-10m	<5%	No	No	High	Manteo Resort to top of bank.
2.0	Herbs/grasses	Agriculture		<5%	No	No	High	

	Right Bank Riparian							
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
1.0	Broadleaf forest	Urban_Residential	tall shrubs 2-10m	5-33%	No	No	High	Linear park.
2.0	Herbs/grasses	Agriculture		<5%	No	No	High	

Segment	Comment - Flora	Comment - Flora
1.0	Weeping willow; reed canary grass; cattail; bulrush.	Mallard; beaver
2.0	Cattail; hawthorn; cottonwood; willow; red-osier dogwood; rose	

	Level of Impact [c]		Enhancement Opportunity	
Segment	Rating	Comment	Rating	Comment
1.0	Both_banks_mod		Low	
2.0	Both_banks_high	Stream liberated from tile drains and ditches/very shallow groundwater with Mission Creek influence.	Moderate	Riparian restoration.

c. Impact rating: 6=nil; 5 = 1-bank low; 4 = 1-bank moderate; 3 = 1-bank high; 2 = both banks low; 1 = both banks moderate; 0 = both banks high


Segment 1


Segment 2

Wilson Creek
Segment(s): 3 - 5

Segment	Primary	Secondary	Length (m)	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Comment Class
3.0	Modified	Wetland	431.709	Slough	0.0	1-20%	Unknown	Shallow open water with associated graminoid and tall rush marsh and large woody debris.
4.0	Modified		693.724	Slough	0.3	0	Unknown	Ponds and cattail marshes - intermittent riffles.
5.0	Channelized		64.541	Slough	0.3	0	Unknown	Intensive landscaping/channelization along both banks.

	Substrates (%) [a]						Channel (m)				
Segment	O	F	G	C	B	R	Wetted Width	Bankfull Width	Wetted Depth	Bankfull Depth	Comment Substrates/Channel
3.0	95	5	0	0	0	0	8.00	9.50	0.20	0.35	Detritus organic muck and fines in shallow areas of erosion.
4.0	95	5	0	0	0	0	2.70	3.30	0.20	0.35	
5.0	50	35	5	10	0	0	1.90	2.70	0.20	0.35	

a. Substrate codes: O=organics; F=silt/sand; G=gravel; C=cobble; B=boulder; R=bedrock

	Cover (%) [b]								
Segment	Total Cover	B	DP	IV	LWD	OV	SWD	UC	Comment Cover
3.0	20	0	25	10	40	10	15	0	
4.0	5	0	0	80	0	20	0	10	Dense instream vegetation (cattail and iris) in majority of segment.
5.0	5	30	30	0	0	25	0	10	

b. Cover codes: B=boulder; DP=deep pool; IV=instream vegetation; LWD=large woody debris; OV=overstream vegetation; SWD=small woody debris; UC=undercut bank

	Left Bank Riparian							
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
3.0	Natural wetland	Disturbed	mature forest	67-100%	>5	<5	High	
4.0	Herbs/grasses	Agriculture		<5%	No	No	High	
5.0	Herbs/grasses	Urban_Residential	tall shrubs 2-10m	5-33%	No	No	Medium	

	Right Bank Riparian							
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
3.0	Natural wetland	Disturbed	mature forest	67-100%	>5	<5	High	
4.0	Herbs/grasses	Agriculture		<5%	No	No	High	
5.0	Herbs/grasses	Urban_Residential	tall shrubs 2-10m	5-33%	No	No	Medium	

Segment	Comment - Flora	Comment - Flora
3.0	Cottonwood; Pacific willow; red-osier dogwood; reed canary grass; cattail; rose; Douglas maple.	
4.0	Yellow iris; cattail; willow; reed canary grass.	
5.0	Reed canary grass; various horticultural species; Oregon grape.	

	Level of Impact [c]		Enhancement Opportunity	
Segment	Rating	Comment	Rating	Comment
3.0	1_bank_low		Low	Preserve
4.0	Both_banks_high	Ditched through fields/farms.	High	Riparian restoration.
5.0	Both_banks_high		High	Instream and riparian restoration.

c. Impact rating: 6=nil; 5 = 1-bank low; 4 = 1-bank moderate; 3 = 1-bank high; 2 = both banks low; 1 = both banks moderate; 0 = both banks high







Wilson Creek
Segment(s): 6

Segment	Primary	Secondary	Length (m)	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Comment Class
6.0	Ditch		179.897	Slough	0.20		Unknown	Livestock access

	Substrates (%) [a]						Channel (m)				
Segment	O	F	G	C	B	R	Wetted Width	Bankfull Width	Wetted Depth	Bankfull Depth	Comment Substrates/Channel
6.0	90	10	0	0	0	0	2.60	3.60	0.10	0.25	Dense instream vegetation (cattail)

a. Substrate codes: O=organics; F=silt/sand; G=gravel; C=cobble; B=boulder; R=bedrock

	Cover (%) [b]								
Segment	Total Cover	B	DP	IV	LWD	OV	SWD	UC	Comment Cover
6.0	8	0	0	100	0	0	0	0	

b. Cover codes: B=boulder; DP=deep pool; IV=instream vegetation; LWD=large woody debris; OV=overstream vegetation; SWD=small woody debris; UC=undercut bank

	Left Bank Riparian							
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
6.0	Herbs/grasses	Urban_Residential	tall shrubs 2-10m	<5%	No	No	Medium	

	Right Bank Riparian							
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
6.0	Herbs/grasses	Urban_Residential	tall shrubs 2-10m	<5%	No	No	Medium	

Segment	Comment - Flora	Comment - Flora
6.0	Cattail; Chinese sumac; birch; graminoids.	

	Level of Impact [c]		Enhancement Opportunity	
Segment	Rating	Comment	Rating	Comment
6.0	Both_banks_high	Manicured lawn	High	Riparian restoration.

c. Impact rating: 6=nil; 5 = 1-bank low; 4 = 1-bank moderate; 3 = 1-bank high; 2 = both banks low; 1 = both banks moderate; 0 = both banks high



Wilson Creek
Segment(s): 7 - 9

Segment	Primary	Secondary	Length (m)	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Comment Class
7.0	Modified	Wetland	177.678	Slough	0.2	0	Unknown	Disturbed cattail marsh
8.0	Natural	Wetland	419.386	Slough	0.2	41-70%	Unknown	Cottonwood - Pacific willow - red-osier dogwood riparian association/swamp
9.0	Ditch		323.728	Slough	0.2	0	Unknown	Stream liberated from tile drains and ditches/very shallow groundwater with Mission Creek influence.

	Substrates (%) [a]						Channel (m)				
Segment	O	F	G	C	B	R	Wetted Width	Bankfull Width	Wetted Depth	Bankfull Depth	Comment Substrates/Channel
7.0	100	0	0	0	0	0	10.00	11.00	1.00	1.50	Partly restored/enhanced wetland complex.
8.0	90	10	0	0	0	0	8.00	9.00	0.70	1.50	
9.0	90	10	0	0	0	0	10.00	12.00	0.20	0.35	

a. Substrate codes: O=organics; F=silt/sand; G=gravel; C=cobble; B=boulder; R=bedrock

	Cover (%) [b]								
Segment	Total Cover	B	DP	IV	LWD	OV	SWD	UC	Comment Cover
7.0	15	0	65	10	15	5	0	5	12 LWD pieces/ 4 span logs
8.0	50	1	80	9	10	0	0	0	11 LWD pieces/7 span logs
9.0	35	0	0	100	0	0	0	10	Dense instream vegetation (cattail and iris) in majority of segment.

b. Cover codes: B=boulder; DP=deep pool; IV=instream vegetation; LWD=large woody debris; OV=overstream vegetation; SWD=small woody debris; UC=undercut bank

Left Bank Riparian								
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
7.0	Broadleaf forest	Urban_Residential	mature forest	34-66%	No	No	Medium	Residential development.
8.0	Broadleaf forest	Urban_Residential	tall shrubs 2-10m	34-66%	No	No	Medium	Playa del Sol and single family res. back yards front on creek.
9.0	Herbs/grasses	Agriculture		<5%	No	No	High	Livestock access

Right Bank Riparian								
Segment	Class	Qualifier	Stage	Shrub cover	Snags	Veteran Trees	Bank stability	Comment
7.0	Broadleaf forest	Urban_Residential	mature forest	67-100%	No	No	Medium	Residential development.
8.0	Broadleaf forest	Urban_Residential	young forest	5-33%	No	No	Low	Trailer park/campground.
9.0	Herbs/grasses	Agriculture		<5%	No	No	High	

Segment	Comment - Flora	Comment - Flora
7.0	Willow; cottonwood; water birch; red-osier dogwood; Oregon grape; reed canary grass; cattail	Mallard; Wood Duck; Green-wing Teal; Great Blue Heron
8.0	Willow; Cottonwood; elm; rose; red-osier dogwood; graminoids; burdock.	Mallard; Wood Duck; Green-wing Teal
9.0	Cattail; pacific willow; graminoids	

	Level of Impact [c]		Enhancement Opportunity	
Segment	Rating	Comment	Rating	Comment
7.0	Both_banks_low	Naturalizing enhanced wetland area.	Low	Emulate general design with restoration of segment two except provide greater setback/buffer.
8.0	Both_banks_mod		High	Establish setbacks on right bank with new development and riparian/wetland restoration.
9.0	Both_banks_low	not ditched but agricultural impacts on both banks	Moderate	Riparian restoration. - See Segment 8

c. Impact rating: 6=nil; 5 = 1-bank low; 4 = 1-bank moderate; 3 = 1-bank high; 2 = both banks low; 1 = both banks moderate; 0 = both banks high





