



See also Sheet W 1.0.



Reference: GIS parcel and wetland data from City of Kirkland, 2015.
 Surveyed stream and wetland data provided by Blueline Group, 2016.
 Aerial image 2012 from Earth Explorer, downloaded 2016.



TALASAEA
CONSULTANTS, INC.

Resource & Environmental Planning

15020 Bear Creek Road Northeast
 Woodinville, Washington 98077
 Bus (425)861-7550 - Fax (425)861-7549

FIGURE 7

WETLAND AND STREAM MAP
 ORCAS MOON PROJECT
 KIRKLAND, WASHINGTON

DESIGN	DRAWN DRT	PROJECT 518B
--------	--------------	-----------------

SCALE 1 in : 100 ft

DATE 30 MAR 2017

REVISED

439

7

Appendix A

City of Kirkland Wetland Rating Forms
(Plate 26)

wetland A

Chapter 1. Plate 26

WETLAND FIELD DATA FORM

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)



Type 2

WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington; **NO**
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils; **NO**
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water; **NO**
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or **NO**
- e. The wetland contains state or federally listed threatened or endangered plant species. **NO**

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from	Acres	Point Value	Points
--------------------------------------	-------	-------------	--------

choices

>20.00	=	6
10-19.99	=	5
5-9.99	=	4
1-4.99	=	3
0.1-0.99	=	2
<0.1	=	1

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	= 1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	= 3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	X 3	= 5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	X 4	= 7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	X 5	= 10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value	Class	# of Species	Point Value
Aquatic Bed	1-2 = 1		Scrub- Shrub	1-2 = 1	
	3 = 2			3-4 = 2	
	>3 = 3			>4 = 3	

NONE

Emergent	1-2	=	1
	3-4	=	2
	>4	=	3

Forested	1-2	=	1
	3-4	=	2
	>4	=	3

4. Structural diversity.

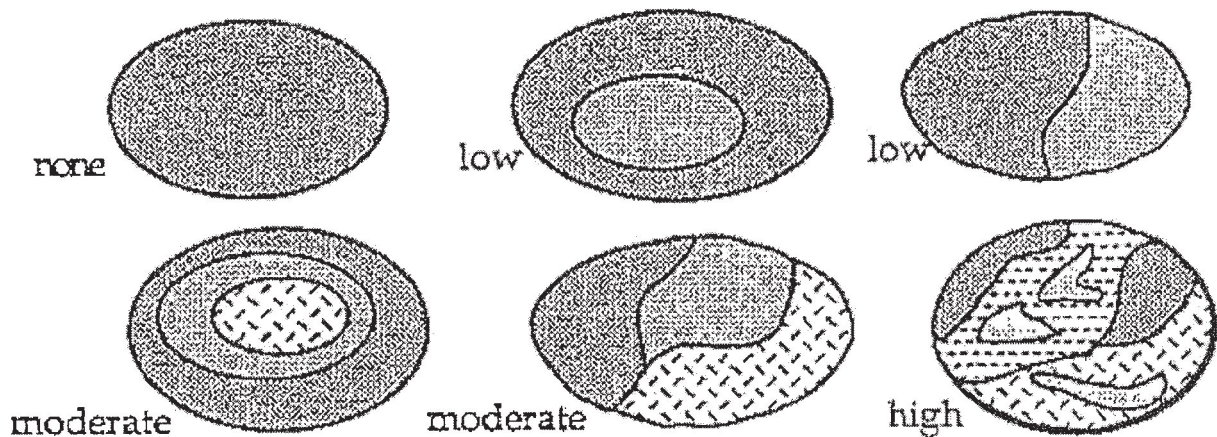
If the wetland has a forested class, add 1 point for each of the following attributes present:

Trees >50' tall	=	1
Trees 20' to 49' tall	=	1
shrubs	=	1
Herbaceous ground cover	=	1

5. Interspection between wetland classes.

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

3	=	High
2	=	Moderate
1	=	Low
0	=	None



6. Habitat features

Add points associated with each habitat feature listed:	= 3
Is there evidence of current use by beavers?	= 2
Is a heron rookery located within 300'?	= 1
Are raptor nest(s) located within 300'?	= 1
Are there at least 2 standing dead trees (snags) per acre?	<div style="border: 1px solid black; padding: 2px;">= 1</div>
Are there any other perches (wires, poles, or posts)?	<div style="border: 1px solid black; padding: 2px;">= 1</div>
Are there at least 3 downed logs per acre?	<div style="border: 1px solid black; padding: 2px;">= 1</div>

7. Connection to streams

Is the wetland connected at any time of the year via surface water? (score one answer only)

Is the wetland connected at any time of the year via surface water?

To a perennial stream or a seasonal stream with fish = 5

To a seasonal stream without fish

= 3

Is not connected to any stream = 0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	100 % X 4 =	400	X 2 =	800
Add buffer total				

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3 800

300-599 = 2

100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

10. Scoring

Add the scores to get a total: 26

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

No = Type 3

Chapter 1. Plate 26 WETLAND FIELD DATA FORM

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)

Type 3



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington; NO
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils; NO
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water; NO
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or NO
- e. The wetland contains state or federally listed threatened or endangered plant species. NO

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from	Acres	Point Value	Points
--------------------------------------	-------	-------------	--------

choices

>20.00	=	6
10-19.99	=	5
5-9.99	=	4
1-4.99	=	3
0.1-0.99	=	2
<0.1	=	1

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	= 1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	= 3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	= 5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	= 7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	X 5	= 10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value
Aquatic Bed	1-2	= 1
	3	= 2
	>3	= 3

none

Class	# of Species	Point Value
Scrub- Shrub	1-2	= 1
	3-4	= 2
	>4	= 3

none

Emergent	1-2	=	1
	3-4	=	2
	>4	=	3

Forested	1-2	=	1
	3-4	=	2
	>4	=	3

4. Structural diversity.

none

If the wetland has a forested class, add 1 point for each of the following attributes present:

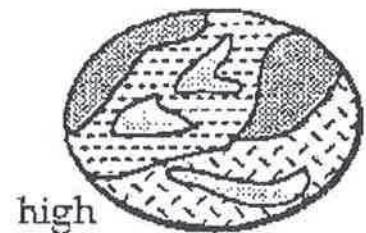
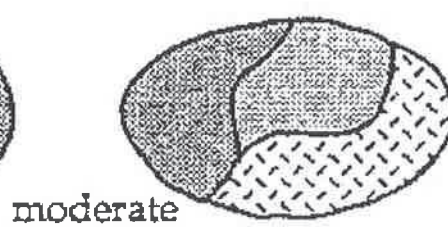
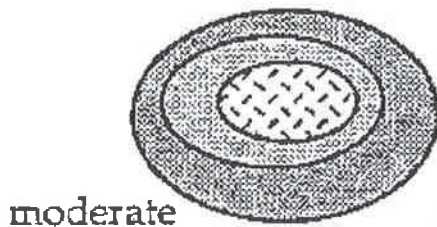
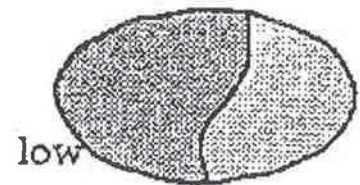
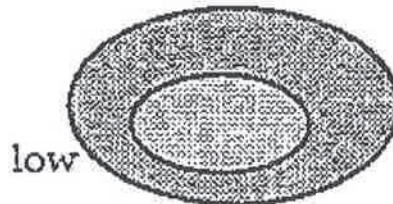
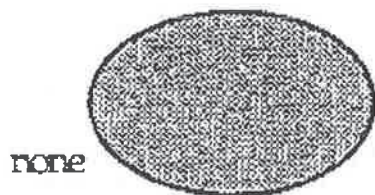
Trees >50' tall	=	1
Trees 20' to 49' tall	=	1
shrubs	=	1
Herbaceous ground cover	=	1

none

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

3	=	High
2	=	Moderate
1	=	Low
0	=	None



6. Habitat features

Add points associated with each habitat feature listed:	= 3
Is there evidence of current use by beavers?	= 2
Is a heron rookery located within 300'?	= 1
Are raptor nest(s) located within 300'?	= 1
Are there at least 2 standing dead trees (snags) per acre?	= 1
Are there any other perches (wires, poles, or posts)?	= 1
Are there at least 3 downed logs per acre?	= 1

7. Connection to streams

Is the wetland connected at any time of the year via surface water? (score one answer only)

Is the wetland connected at any time of the year via surface water?

To a perennial stream or a seasonal stream with fish = 5

To a seasonal stream without fish = 3

Is not connected to any stream = 0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	100 % X 4 =	400	X 3	= 1200
Add buffer total				

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

$900-1200 = 4$ 1200

600-899 = 3

300-599 = 2

100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

10. Scoring

Add the scores to get a total: 17

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

No = Type 3

wetland C

Chapter 1. Plate 26 WETLAND FIELD DATA FORM

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)

type 2



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington; **NO**
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils; **NO**
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water; **NO**
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or **NO**
- e. The wetland contains state or federally listed threatened or endangered plant species. **NO**

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from	Acres	Point Value	Points
--------------------------------------	-------	-------------	--------

choices

>20.00 = 6

10- = 5

19.99

5-9.99 = 4

1-4.99 = 3

0.1-0.99 = 2

<0.1 = 1

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	= 1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	= 3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	X 3	= 5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	= 7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	X 5	= 10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value	Class	# of Species	Point Value
Aquatic Bed	1-2 = 1		Scrub- Shrub	1-2 = 1	
	3 = 2			3-4 = 2	
	>3 = 3			>4 = 3	

none

Emergent	1-2	=	1
	3-4	=	2
	>4	=	3

Forested	1-2	=	1
	3-4	=	2
	>4	=	3

4. Structural diversity.

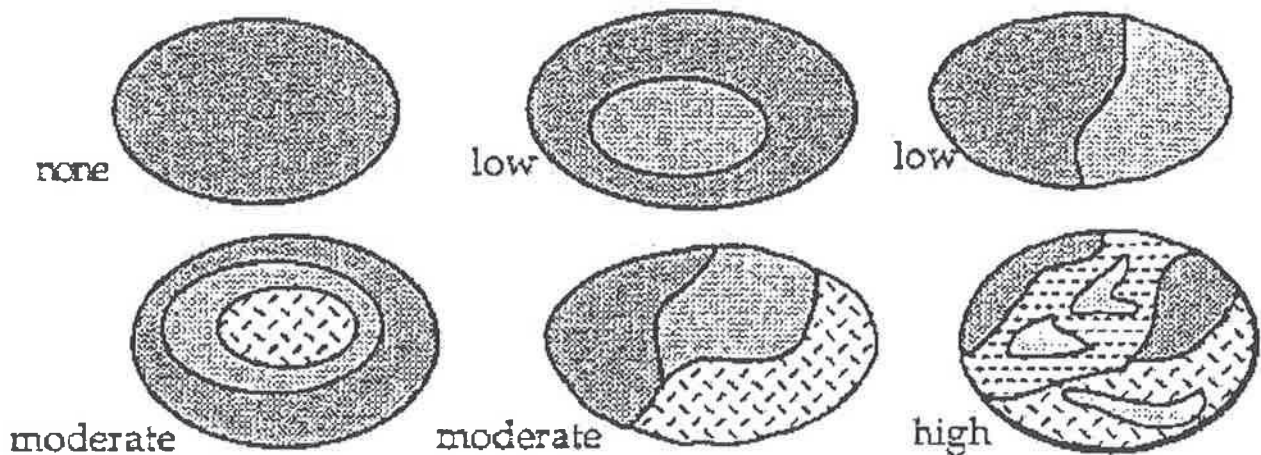
If the wetland has a forested class, add 1 point for each of the following attributes present:

Trees >50' tall	=	1
Trees 20' to 49' tall	=	1
shrubs	=	1
Herbaceous ground cover	=	1

5. Interspection between wetland classes.

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

3	=	High
2	=	Moderate
1	=	Low
0	=	None



6. Habitat features

Add points associated with each habitat feature listed:	= 3
Is there evidence of current use by beavers?	= 2
Is a heron rookery located within 300'?	= 1
Are raptor nest(s) located within 300'?	= 1
Are there at least 2 standing dead trees (snags) per acre?	= 1
Are there any other perches (wires, poles, or posts)?	= 1
Are there at least 3 downed logs per acre?	= 1

7. Connection to streams

Is the wetland connected at any time of the year via surface water? (score one answer only)

Is the wetland connected at any time of the year via surface water?

To a perennial stream or a seasonal stream with fish = 5

To a seasonal stream without fish = 3

Is not connected to any stream = 0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	100 % X 4 =	400 X 2	=	800
Add buffer total				

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3 800

300-599 = 2

100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area?

= 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area?

= 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?

= 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land?

= 0

10. Scoring

Add the scores to get a total: 25

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

75' primary Basin Buffer

No = Type 3

Chapter 1. Plate 26 WETLAND FIELD DATA FORM

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington; *No*
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils; *No*
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water; *No*
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or *No*
- e. The wetland contains state or federally listed threatened or endangered plant species. *No*

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from choices

Acres

Point Value

Points

$$>20.00 = 6$$

$$10-19.99 = 5$$

$$5-9.99 = 4$$

$$1-4.99 = 3$$

$$0.1-0.99 = 2$$

$$<0.1 = 1$$

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	Points
Open Water: if the area of open water is $>1/3$ acre or $>10\%$ of the total wetland area	1	= 1
Aquatic Beds: if the area of aquatic beds is $>10\%$ of the open water area or $>1/2$ acre	2	= 3
Emergent: if the area of emergent class is $>1/2$ acre or $>10\%$ of the total wetland area	3	= 5
Scrub-Shrub: if the area of scrub-shrub class is $>1/2$ acre or $>10\%$ of the total wetland area	4	= 7
Forested: if the area of forested class is $>1/2$ acre or $>10\%$ of the total wetland area	5	= 10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value	Class	# of Species	Point Value
Aquatic Bed	1-2	= 1	Scrub- Shrub	1-2	= 1
	3	= 2		3-4	= 2
	>3	= 3		>4	= 3
	NONE			NONE	

Emergent	1-2	= 1
	3-4	= 2
	>4	= 3

Forested	1-2	= 1
	3-4	= 2
	>4	= 3

4. Structural diversity.

If the wetland has a forested class, add 1 point for each of the following attributes present:

Trees >50' tall	= 1
Trees 20' to 49' tall	= 1
shrubs	= 1
Herbaceous ground cover	= 1

NONE

5. Interspection between wetland classes.

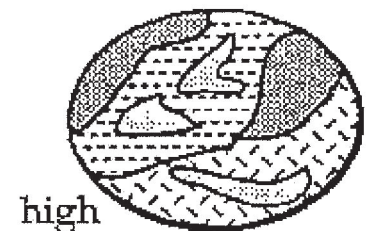
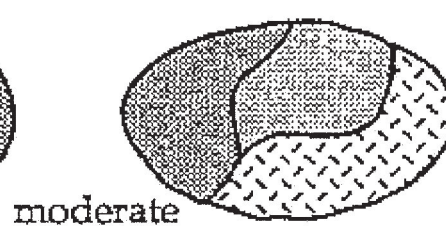
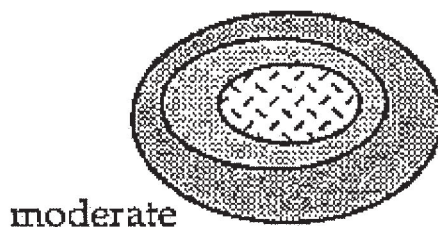
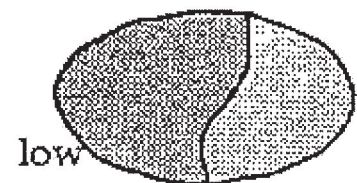
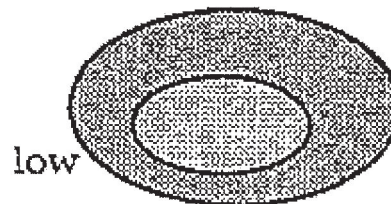
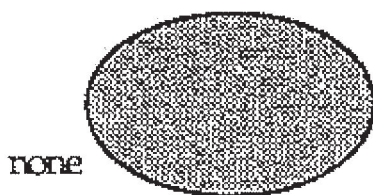
Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

3 = High

2 = Moderate

1 = Low

0 = None



6. Habitat features

Add points associated with each habitat feature listed: = 3

Is there evidence of current use by beavers? = 2

Is a heron rookery located within 300'? = 1

Are raptor nest(s) located within 300'? = 1

NONE

Are there at least 2 standing dead trees (snags) per acre?2 = 1

Are there any other perches (wires, poles, or posts)? = 1

Are there at least 3 downed logs per acre? = 1

7. Connection to streams

Is the wetland connected at any time of the year via surface water? (score one answer only)

Is the wetland connected at any time of the year via surface water?

To a perennial stream or a seasonal stream with fish = 5

To a seasonal stream without fish = 3

Is not connected to any stream = 0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	56 %	X 0 = 0	=	
Lawn, grazed pasture, vineyards or annual crops	%	X 1 =	=	
Ungrazed grassland or orchards	%	X 2 =	=	
Open water or native grasslands	%	X 3 =	=	
Forest or shrub	50 %	X 4 = 200	X 3 = 600	
Add buffer total				

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

10. Scoring

Add the scores to get a total: 13

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

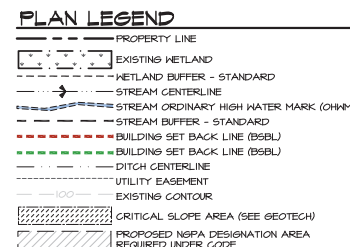
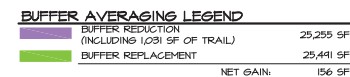
No = Type 3

APPENDIX B

CRITICAL AREAS MITIGATION PLAN SHEETS

Sheet W1.0. Existing Conditions Plan

Sheet W1.1. Proposed Site Plan, Impacts & Mitigation Overview Plan



NOT FOR CONSTRUCTION
THESE PLANS HAVE BEEN
SUBMITTED TO THE APPROPRIATE
AGENCIES FOR REVIEW AND
APPROVAL. UNTIL APPROVED,
THESE PLANS ARE:
SUBJECT TO REVISION



Know what's **below**.
Call before you dig

NOTES

1. SURVEY PROVIDED BY AXIS SURVEY AND MAPPING, 15241 NE 90TH ST REDMOND, WA 98052, (425) 823-5700
2. SITE PLAN PROVIDED BY THE BLUE LINE GROUP 25 CENTRAL HWY KIRKLAND, WA 98033, (425) 216-4051.
3. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN JUNE, 2017.

APPENDIX C

POTENTIAL BUFFER ENHANCEMENT PLAN

Mitigation Design Elements

Enhancement of the additional buffer area will be accomplished by grubbing out non-native plant species, replanting with native species, installation of large woody debris for habitat improvement, providing temporary sources of water for the newly installed plants, fertilizing, mulching, and protecting the reduced and added buffer areas with critical area fences and signage. These elements are described in detail below.

Large Woody Debris

To increase wildlife habitat and values of the enhanced wetland buffer, downed logs and stumps shall be placed. The structure provided by these natural elements is beneficial for a variety of naturally occurring wildlife, and having the habitat presence tends to increase the value and resiliency of the buffer in general.

Plantings

Plant species were chosen for a variety of qualities, including: adaptation to specific water regimes, value to wildlife, value as a physical or visual barrier, pattern of growth (structural diversity), and aesthetic values.

Native species were chosen to increase both the structural and species diversity of the mitigation areas, thereby increasing the value of the area to wildlife for food and cover. Plant materials will consist of a combination of one- and two-gallon container trees, shrubs, and groundcovers. A Plant Schedule with the proposed plant species including size and spacing will be provided.

Temporary Irrigation System

The Client shall water plants immediately upon planting, then provide manual watering or a temporary irrigation system to prevent plant mortality and ensure proper plant establishment. Plants shall receive a minimum of approximately 1-inch of water every week (0.5 inches every 3 days) during the dry season, generally June 15th to October 15th for the first two years after planting. Watering amounts may need to be increased during prolonged periods of hot, dry weather.

Fertilizer

The Client shall fertilize all trees and shrubs with a slow-released general-purpose granular fertilizer or slow-release tablets at manufacturer's specified rate at the time of planting.

Mulch

A full 3 inches of medium bark mulch (after settling) shall be around all installed plants and on any disturbed open soil areas. Mulch shall be derived from fir, pine, or hemlock species, and shall not contain trash, rocks, or other debris that may be detrimental to plant growth.

Fence and Signage

A 2-board critical areas fence shall be installed at the final critical areas boundary, following site preparation, planting, and mulching. On the fence, signs shall be provided per the requirements of the City of Kirkland. Location and details of the fence and signage will be provided.

Goals, Objectives, and Performance Standards

This section of the critical areas report addresses the mitigation goals (including requirements of the City of Kirkland and how they are planned to be met), as well as the related objectives and performance standards to which the project is expected to meet. These are described in detail below.

Mitigation Goals

The goal of the mitigation plan is to enhance the functions and services provided by the areas proposed for buffer addition. This will be accomplished through removal of garbage and construction-related debris, removal of non-native invasive plant species, replanting with a variety of native trees and shrubs, and installation of habitat features such as large woody debris, bird nesting boxes, and bat boxes. The total area of buffer addition will be no less than 25,491 sf, which will offset the proposed buffer reduction of no greater than 25,255 sf.

Mitigation Objectives and Performance Standards

Success of the proposed buffer enhancement plan will be evaluated through the following objectives and performance standards. Mitigation monitoring will be performed by a qualified biologist.

Objective A: Create structural and plant species diversity in the added buffer area.

Performance Standard A1: At least five (5) species of desirable native woody plants will be present in the added buffer area during the monitoring period. Percent survival of planted woody material must be 100 percent at the end of Year 1 (per contractor warranty), and at least 80 percent for each subsequent year of the monitoring period.

Objective B: Create additional habitat within the added buffer area.

Performance Standard B1: Large woody debris, consisting of softwood logs, stumps, and root wads, shall be placed within the added buffer area. A minimum of nine (9) pieces of large woody debris will be placed.

Performance Standard B2: Bird nesting boxes and bat boxes shall be installed within the added buffer area. No fewer than two bird nesting boxes and two bat boxes shall be installed. The presence of these boxes shall be verified during each monitoring event.

Objective C: Limit the amount of non-native and invasive species in the added buffer area.

Performance Standard C1: After construction and for the entirety of the monitoring period, non-native, invasive species shall be maintained at levels below 20 percent cover throughout the added buffer area. Non-native, invasive species include, but are not limited to, Scot's broom, Himalayan and evergreen blackberry, hedge bindweed, exotic knotweeds, and creeping nightshade.

Construction Sequencing

The following provided the general sequencing of activities anticipated to be necessary to complete this mitigation project. Some of these activities may be conducted concurrently as the project progresses.

1. Conduct a site meeting between the Contractor, Talasaea Consultants, and the Owner's Representative to review the project plans, staging and stockpile areas, and material disposal areas.
2. Survey clearing limits and install silt fencing and any other erosion and sedimentation control BMPs per the civil plans.
3. Install large woody debris.
4. Complete site cleanup (removal of construction related debris, trash, etc.)
5. Install plant material as indicated on the Planting Plan.
6. Install critical areas fencing and signage.

A wetland ecologist or landscape architect will regularly supervise the planting plan implementation to ensure that the objectives and specifications are met. Any significant modifications to the design that may occur as a result of unforeseen circumstances will be approved by the Owner, the City, and Talasaea Consultants, prior to their implementation.

Post-Construction Approval

Talasaea Consultants shall notify the City of Kirkland in writing when the mitigation planting is completed for a final site inspection and subsequent final approval. Once final approval is obtained in writing from the City, the monitoring period will begin.

Post-Construction Assessment

Once City approval of the mitigation is received, a qualified wetland ecologist from Talasaea Consultants shall conduct a post-construction assessment of the mitigation site. The purpose of this assessment will be to establish baseline conditions at Year 0 of the required monitoring period. A Baseline Assessment report, including "As-built" drawings, will be submitted to the City of Kirkland. The as-built plan set will identify and describe any changes in planting or other features of the mitigation in relation to the original approved plan.

Mitigation Monitoring plan

Monitoring Schedule

Pursuant to KZC90.55(4) – Compensatory Mitigation, monitoring of the mitigation areas will be conducted for a minimum of five years for the City according to the schedule presented in

Table 1. For purposes of this report, it was assumed that construction of the mitigation site would be completed in the late part of the winter of 2017-2018. Monitoring will be performed by a qualified biologist from Talasaea Consultants, Inc.

Table 1. Projected Schedule for Performance Monitoring

Year	Date	Maintenance Review	Performance Monitoring	Report Due to Agencies
1	Spring 2018	X	Baseline Assessment	X
	Fall 2018	X	X	X
2	Spring 2019	X		
	Fall 2019	X	X	X
3	Spring 2020	X		
	Fall 2020	X	X	X
4	Spring 2021	X		
	Fall 2021	X	X	X
5	Spring 2022	X		
	Fall 2022	X	X	X*

*Obtain final approval from the City of Kirkland (presumes performance criteria are met).

Monitoring Reports

The reports will include: 1) Project Overview, 2) Requirements, 3) Summary Data, 4) Maps and Plans, and 5) Conclusions. If the performance criteria are met, monitoring for the City will cease at the end of year five, unless objectives are met at an earlier date and the City accepts the mitigation project as successfully completed.

Monitoring Methods

Vegetation monitoring methods may include counts; photo-points; random sampling; sampling plots, quadrats, or transects; stem density; visual inspection; and/or other methods deemed appropriate by the permitting agencies. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent survival, volunteer plant species, and invasive weed cover.

Permanent vegetation sampling plots, quadrats, and/or transects will be established at selected locations to adequately sample and represent all of the plant communities within the mitigation project areas. The number, exact size, and location of transects, sampling plots, and quadrats will be determined at the time of the baseline assessment.

The established vegetation sampling locations will be monitored and compared to the baseline data during each performance monitoring event to aid in determining the success of plant establishment. Percent survival of woody vegetation will be evaluated in a 10-foot-wide strip along each established transect. The species and location of all woody vegetation within this area will be recorded at the time of the baseline assessment, and will be evaluated during each monitoring event to determine percent survival.

Photo Documentation

Locations will be established within the mitigation area from which panoramic photographs will be taken throughout the monitoring period. These photographs will document general appearance and relative changes within the plant community. Review of the photos over time will provide a semi-quantitative representation of success of the planting plan. Vegetation sampling plot and photo-point locations will be shown on a map and submitted with the baseline assessment report and yearly performance monitoring reports.

Maintenance and Contingency

Regular maintenance reviews will be performed according to schedule presented in

Table 1 to address any conditions that could jeopardize the success of the mitigation project. Following maintenance reviews by the biologist or ecologist, required maintenance on the site will be implemented within ten (10) business days of submission of a maintenance memo to the maintenance contractor and permittee.

Established performance standards for the project will be compared to the yearly monitoring results to judge the success of the mitigation. If, during the course of the monitoring period, there appears to be a significant problem with achieving the performance standards, the permittee shall work with the City of Kirkland to develop a Contingency Plan in order to get the project back into compliance with the performance standards. Contingency plans can include, but are not limited to, the following actions: additional plant installation, erosion control, modifications to hydrology, and plant substitutions of type, size, quantity, and/or location. If required, a Contingency Plan shall be submitted to the City of Kirkland by December 31st of any year when deficiencies are discovered.

The following list includes examples of maintenance (M) and contingency (C) actions that may be implemented during the course of the monitoring period. This list is not intended to be exhaustive, and other actions may be implemented as deemed necessary.

- During year one, replace all dead woody plant material (M).
- Water all plantings at a rate of 1" of water every week between June 15 – October 15 during the first two years after installation, and for the first two years after any replacement plantings (C & M).
- Replace dead plants with the same species or a substitute species that meets the goals and objectives of the mitigation plan, subject to Talasaea and City approval (C).
- Re-plant area after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.) (C).
- After consulting with City staff, minor excavations, if deemed to be more beneficial to the existing conditions than currently exists, will be made to correct surface drainage patterns (C).
- Remove/control weedy or exotic invasive plants (e.g., Scot's broom, reed canarygrass, Himalayan blackberry, Japanese knotweed, etc.) by manual or chemical means approved by permitting agencies. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful, and would require prior agency approval. All non-native vegetation must be removed and disposed of off-site. (C & M).
- Weed all trees and shrubs to the drip line and provide 3-inch deep mulch rings 24 inches in diameter for shrubs and 36 inches in diameter for trees (M).
- Remove trash and other debris from the mitigation areas twice a year (M).
- Selectively prune woody plants at the direction of Talasaea Consultants to meet the mitigation plan's goal and objectives (e.g., thinning and removal of dead or

diseased portions of trees/shrubs) (M).

Financial Guarantees

The mitigation work is required to have a performance surety bond issued by a qualified financial firm, per KZC 90.145. A bond quantity worksheet will be prepared using the King County template. The value of the bond to be paid by the project proponent is 125% of the project cost.

