

Assessment of Waters/Wetland Ecosystem Conditions & Functions

City of Mount Vernon, Washington

Prepared For:

Planning Commission, City of Mount Vernon

Prepared By:

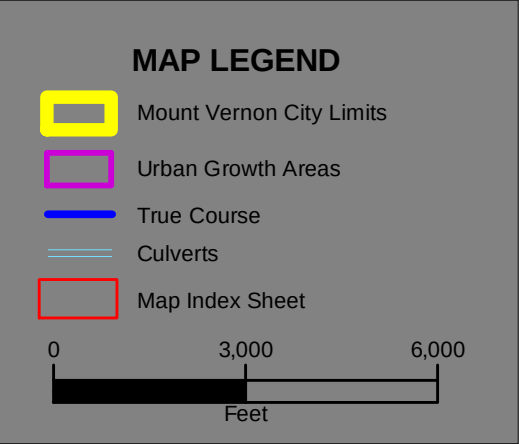
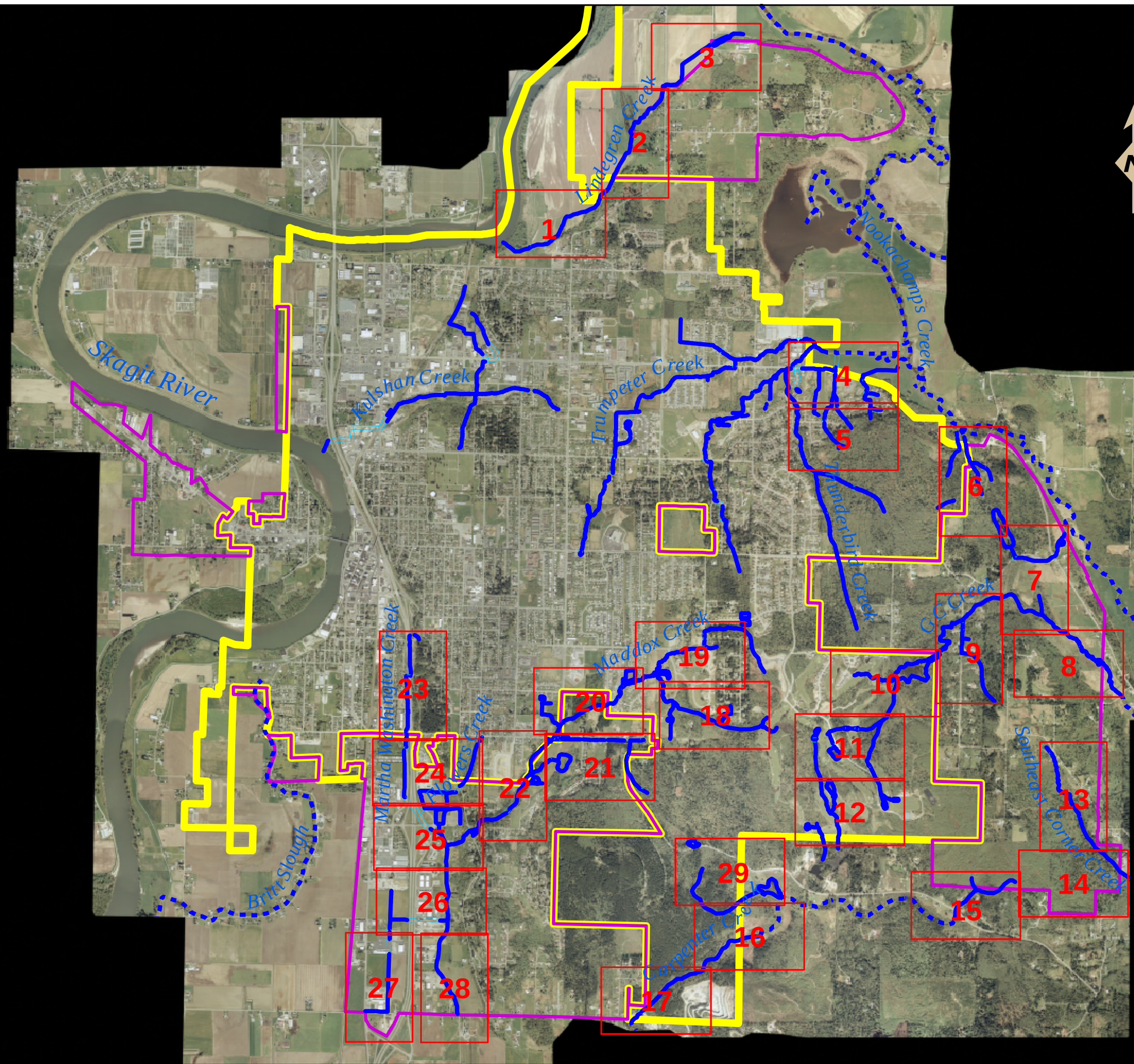
Lyndon C. Lee, Ph.D., PWS

Ecosystem Science & Restoration Services

Entrix, Inc.

Seattle, Washington

January 16, 2007

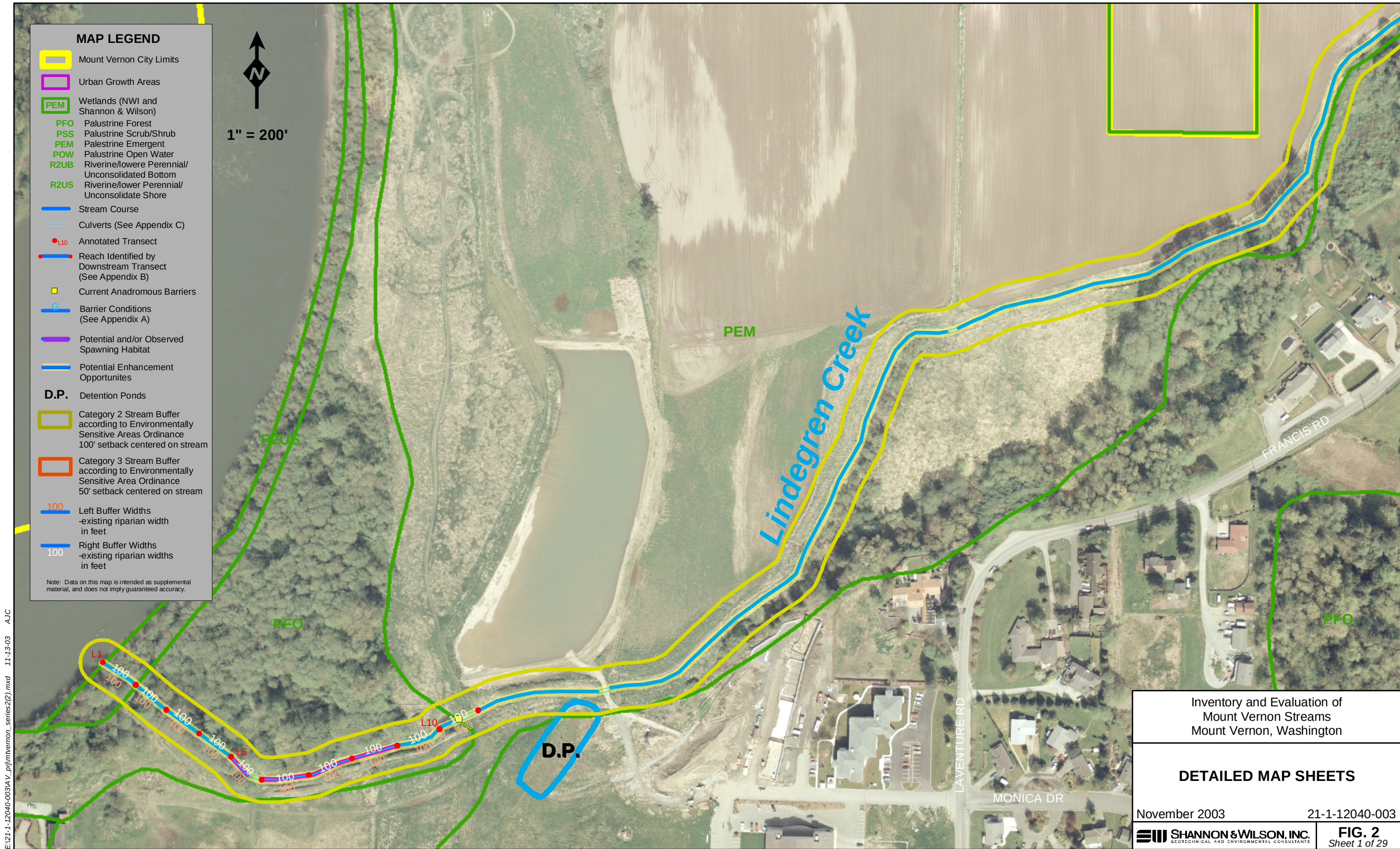


Inventory and Evaluation of Mount Vernon Streams Mount Vernon, Washington	
INDEX, MAP LEGEND AND STREAM LOCATIONS	
November 2003	21-1-12040-003
SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS	FIG. 1

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number1

I. Major Drainage		Decision	Comments/Rationale
A. Carpenter			
B. Kulshan			
C. Maddox			
D. Nookachamps			
E. Trumpeter			
F. West Mt. Vernon			
G. Skagit River Tributaries		x	
II. Waters/Wetland Type			
A. Depression			
B. Riverine		x	
C. Slope		x	
III. Hydrology Functions and Indicators			
A. Energy Dissipation		degraded	waters wetlands cleared straightened; roughness reduced
B. Long/Short Term Water Storage		degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled
C. Longitudinal Connectivity		degraded	ditching/ straightening of creek
D. Rate and Timing of Inputs		degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
E. Subsurface Water Inputs		degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
F. Surface Water Inputs		degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
G. Water Withdrawals/ Additions		degraded	ditching draining for agricultural production
IV. Biogeochemistry Functions and Indicators			
A. Elemental Cycling		degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
B. Organic Matter Inputs/Outputs		degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
C. Particulate Retention		degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
D. Water Contact Area		degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
E. Water Residence Time		degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
V. Plant Community Functions and Indicators			
A. Characteristic Detrital Community		degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
B. Native Plant Community		degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
VI. Faunal Support/Habitat Functions and Indicators			
A. Patch Contiguity		degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
B. Patch Size		degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
C. Proximity to Development/Human Intrusion		degraded	agricultural production, vehicular traffic, residences
VII. General Comments			
· Outside UGA			
· No existing natural riparian buffer			
· Capability of supporting fish			
· Benefit much more from managed rehabilitation and weed control than passive buffers			



Inventory and Evaluation of
Mount Vernon Streams
Mount Vernon, Washington

DETAILED MAP SHEETS

November 200321-1-12040-003

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 1 of 29

E:\21-1-12040-003\A_V_pj\mvernon_series2(2).mxd 11-13-03 AJC

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number2

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	degraded	waters wetlands cleared straightened; roughness reduced
B. Long/Short Term Water Storage	degraded	creeks ditched and decoupled from floodplain; slope/depressional wetlands in agricultural fields leveled
C. Longitudinal Connectivity	degraded for	ditching/ straightening of creek
D. Rate and Timing of Inputs	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
E. Subsurface Water Inputs	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
F. Surface Water Inputs	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
G. Water Withdrawals/ Additions	degraded	ditching draining for agricultural production
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
B. Organic Matter Inputs/Outputs	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
C. Particulate Retention	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
D. Water Contact Area	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
E. Water Residence Time	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
B. Native Plant Community	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
B. Patch Size	degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
C. Proximity to Development/Human Intrusion	degraded	agricultural production, vehicular traffic, residences
VII. General Comments		
Managed system		
Limited development		
Little natural buffer to protect existing system		
Restoration and enhancement opportunity provide roughage, shade and habitat which does not presently exist		

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number3

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	degraded	waters wetlands cleared, straightened; roughness reduced
B. Long/Short Term Water Storage	degraded	creeks ditched and decoupled from floodplain; slope/depressional wetlands in agricultural fields leveled
C. Longitudinal Connectivity	degraded for	ditching/ straightening of creek
D. Rate and Timing of Inputs	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
E. Subsurface Water Inputs	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
F. Surface Water Inputs	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
G. Water Withdrawals/ Additions	degraded	ditching draining for agricultural production
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
B. Organic Matter Inputs/Outputs	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
C. Particulate Retention	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
D. Water Contact Area	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
E. Water Residence Time	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
B. Native Plant Community	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
B. Patch Size	degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops
C. Proximity to Development/Human Intrusion	degraded	agricultural production, vehicular traffic, residences
VII. General Comments		
Managed system		
Limited development		
Little natural buffer to protect existing system		
Restoration and enhancement opportunity provide roughage, shade and habitat which does not presently exist		

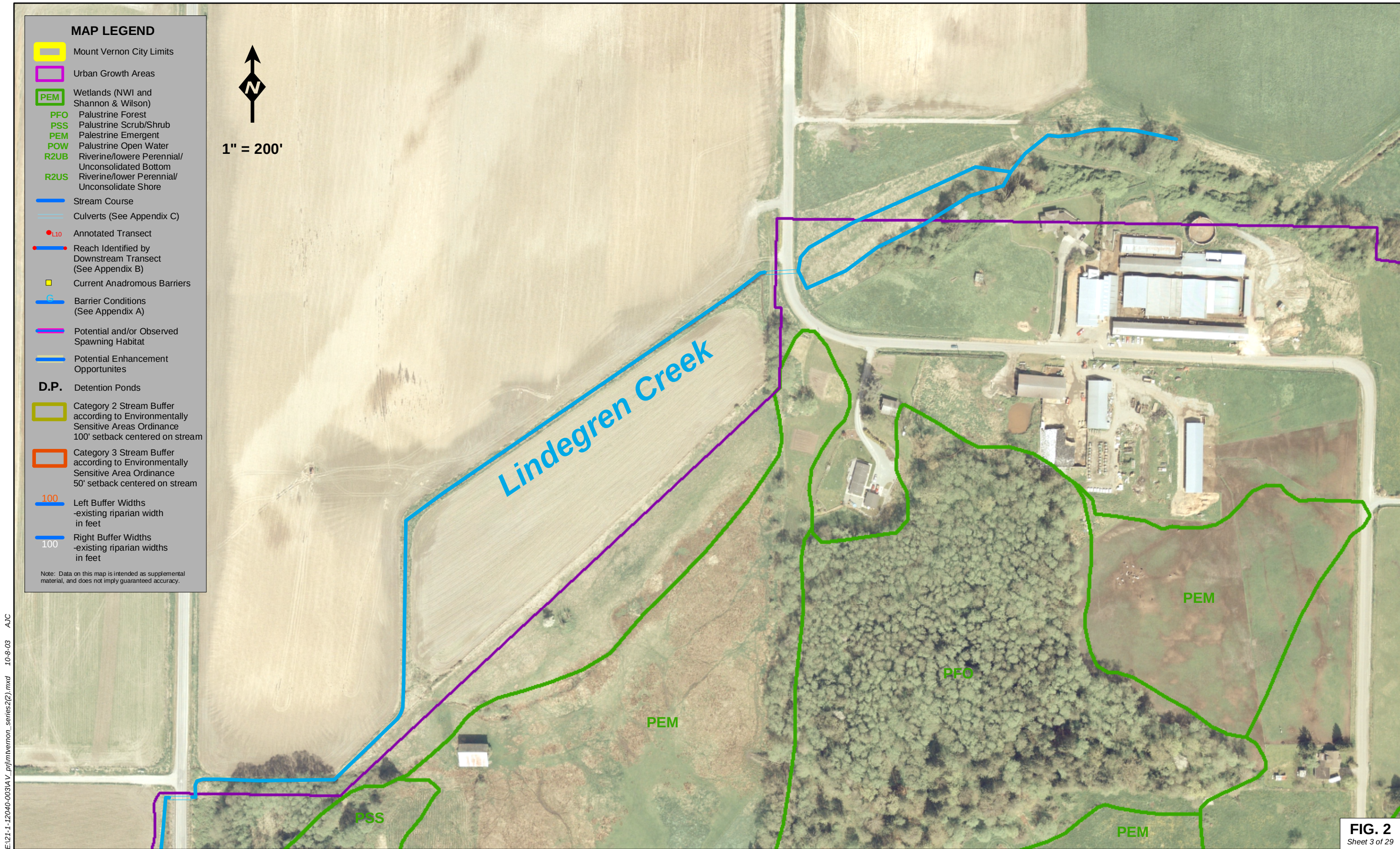
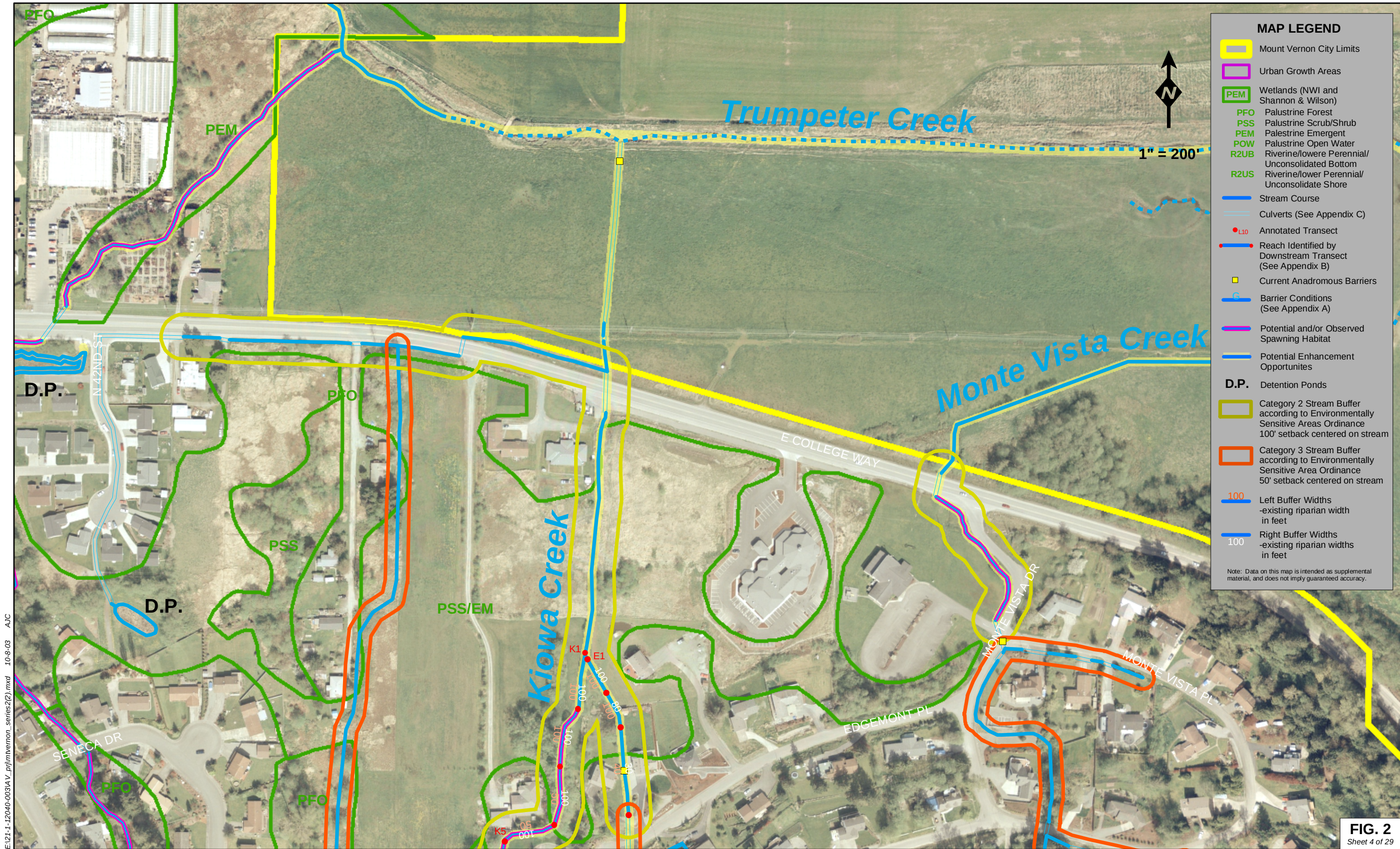


FIG. 2
Sheet 3 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number4

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps		
E. Trumpeter	x	
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type	x	
A. Depression	x	
B. Riverine	x	
C. Slope		
III. Hydrology Functions and Indicators	degraded	waters wetlands cleared straightened and slopes and depressions filled for suburban development; roughness reduced
A. Energy Dissipation	degraded	creeks ditched and decoupled from floodplain; creeks, slope/depressional wetlands in agricultural fields leveled or filled for suburban development
B. Long/Short Term Water Storage	degraded	f ditching/ straightening of creeks for suburban development
C. Longitudinal Connectivity	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production for suburban development; increased impervious surface in suburban development
D. Rate and Timing of Inputs	impaired	channel straightening reduced roughness clearing of vegetation leveling for agricultural production for suburban development; increased impervious surface in suburban development
E. Subsurface Water Inputs	impaired	channel straightening reduced roughness clearing of vegetation leveling for agricultural production for suburban development; increased impervious surface in suburban development
F. Surface Water Inputs	impaired	ditching draining for agricultural production and suburban development
G. Water Withdrawals/ Additions		
IV. Biogeochemistry Functions and Indicators	impaired	channel straightening reduced roughness clearing of vegetation leveling for agricultural production and suburban development; increased impervious surface in suburban development
A. Elemental Cycling	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops and suburban ornamentals
B. Organic Matter Inputs/Outputs	degraded	native vegetation clear; increased impervious surface; many sources of sediment
C. Particulate Retention	diminished	channel straightening reduced roughness clearing of vegetation leveling for agricultural production for suburban development; increased impervious surface in suburban development
D. Water Contact Area	degraded	channel straightening reduced roughness clearing of vegetation leveling for agricultural production for suburban development; increased impervious surface in suburban development
E. Water Residence Time		
V. Plant Community Functions and Indicators	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops and suburban ornamentals
A. Characteristic Detrital Community	degraded	native vegetation clear; dominance by invasive weeds and seasonal agricultural crops and suburban ornamentals
B. Native Plant Community		
VI. Faunal Support/Habitat Functions and Indicators	degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled or filled for suburban development; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops and suburban ornamentals
A. Patch Contiguity	degraded	creeks ditched and decoupled from floodplain; slope wetlands in agricultural fields leveled or filled for suburban development; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and seasonal agricultural crops and suburban ornamentals
B. Patch Size	yes- close	dense residential development
C. Proximity to Development/Human Intrusion		
VII. General Comments		
Managed system		
Limited development		
Little natural buffer to protect existing system		
Restoration and enhancement opportunity provide roughage, shade and habitat which does not presently exist		
Kiowa Creek (tributary to Trumpeter Creek)		
Managed system		
Significant residential development – stream in church yard		
Stream abuts roads and homes		
Very little natural protection		
Restoration and enhancement opportunities provide roughage, shade and habitat in preferred patches where it does not presently exist		



MAP LEGEND

- Mount Vernon City Limits
- Urban Growth Areas
- PEM Wetlands (NWI and Shannon & Wilson)
 - PFO Palustrine Forest
 - PSS Palustrine Scrub/Shrub
 - PEM Palestrine Emergent
 - POW Palustrine Open Water
 - R2UB Riverine/lower Perennial/Unconsolidated Bottom
 - R2US Riverine/lower Perennial/Unconsolidate Shore
- Stream Course
- Culverts (See Appendix C)
- L10 Annotated Transect
- Reach Identified by Downstream Transect (See Appendix B)
- Current Anadromous Barriers
- Barrier Conditions (See Appendix A)
- Potential and/or Observed Spawning Habitat
- Potential Enhancement Opportunities
- D.P. Detention Ponds
- Category 2 Stream Buffer according to Environmentally Sensitive Areas Ordinance 100' setback centered on stream
- Category 3 Stream Buffer according to Environmentally Sensitive Area Ordinance 50' setback centered on stream
- 100 Left Buffer Widths -existing riparian width in feet
- 100 Right Buffer Widths -existing riparian widths in feet

Note: Data on this map is intended as supplemental material, and does not imply guaranteed accuracy.

FIG. 2
Sheet 4 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number5

I. Major Drainage		Decision	Comments/Rationale
A. Carpenter			
B. Kulshan			
C. Maddox			
D. Nookachamps			
E. Trumpeter		x	
F. West Mt. Vernon			
G. Skagit River Tributaries			
II. Waters/Wetland Type			
A. Depression		x	
B. Riverine		x	
C. Slope		x	
III. Hydrology Functions and Indicators			
A. Energy Dissipation		degraded	waters wetlands cleared straightened and slopes and depressions filled for suburban development; roughness reduced
B. Long/Short Term Water Storage		degraded	creeks ditched and decoupled from floodplain; creeks, slope/depressional wetlands filled for suburban development
C. Longitudinal Connectivity		degraded	f ditching/ straightening of creeks for suburban development
D. Rate and Timing of Inputs		degraded	channel straightening reduced roughness clearing of vegetation filling for suburban development; increased impervious surface in suburban development
E. Subsurface Water Inputs		impaired	channel straightening reduced roughness clearing of vegetation filling for suburban development; increased impervious surface in suburban development
F. Surface Water Inputs		impaired	channel straightening reduced roughness clearing of vegetation filling for suburban development; increased impervious surface in suburban development
G. Water Withdrawals/ Additions		impaired	ditching draining for suburban development; untreated stormwater inputs
IV. Biogeochemistry Functions and Indicators			
A. Elemental Cycling		impaired	channel straightening reduced roughness clearing of vegetation; filling for suburban development; increased impervious surface in suburban development; untreated stormwater input
B. Organic Matter Inputs/Outputs		degraded	native vegetation clear; dominance by invasive weeds and suburban ornamentals
C. Particulate Retention		degraded	native vegetation clear; increased impervious surface; many sources of sediment
D. Water Contact Area		diminished	channel straightening reduced roughness clearing of vegetation filling for suburban development; increased impervious surface in suburban development
E. Water Residence Time		degraded	channel straightening reduced roughness clearing of vegetation filling for suburban development; increased impervious surface in suburban development
V. Plant Community Functions and Indicators			
A. Characteristic Detrital Community		degraded	native vegetation clear; dominance by invasive weeds and suburban ornamentals
B. Native Plant Community		degraded	native vegetation clear; dominance by invasive weeds and suburban ornamentals
VI. Faunal Support/Habitat Functions and Indicators			
A. Patch Contiguity		degraded	creeks ditched and decoupled from floodplain; slope wetlands filled for suburban development; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and suburban ornamentals
B. Patch Size		degraded	creeks ditched and decoupled from floodplain; slope wetlands filled for suburban development; ditching/straightening of creek; native vegetation clear; dominance by invasive weeds and suburban ornamentals
C. Proximity to Development/Human Intrusion		yes- close	dense residential development
VII. General Comments			
Edgemont and Kiowa Creeks (Tributaries to Trumpeter Creek)			
Managed system			
Significant residential development – stream in church yard			
Stream abuts roads and homes			
Very little natural protection			
Restoration and enhancement opportunities provide roughage, shade and habitat in preferred patches where it does not presently exist			
The upper reaches of the streams have an intact natural system and steep gradient, steep slopes and other topographical features which limit development and provide significant protection to existing streams			



Photo: Headward-most extent of a tributary to Trumpeter Creek.

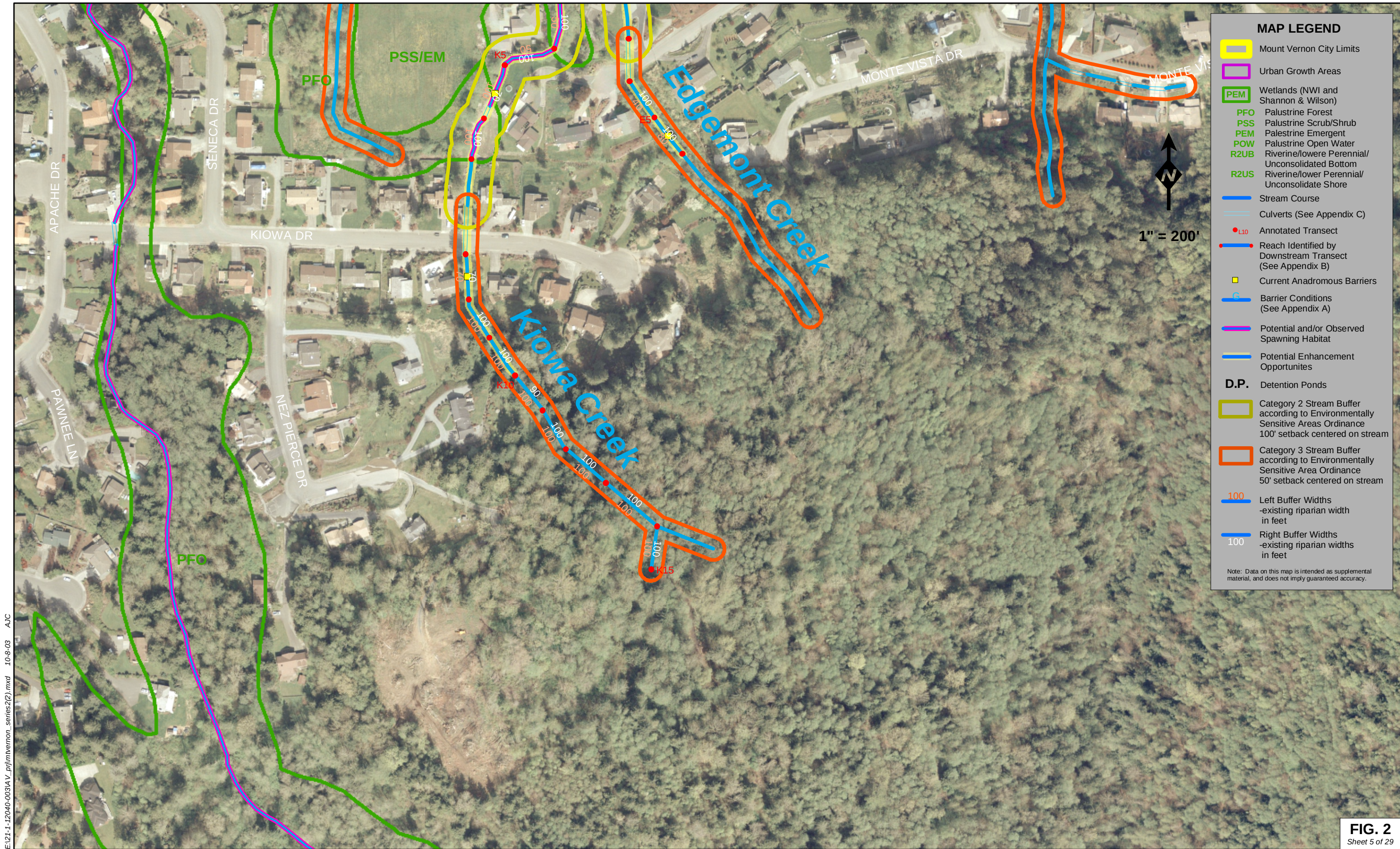
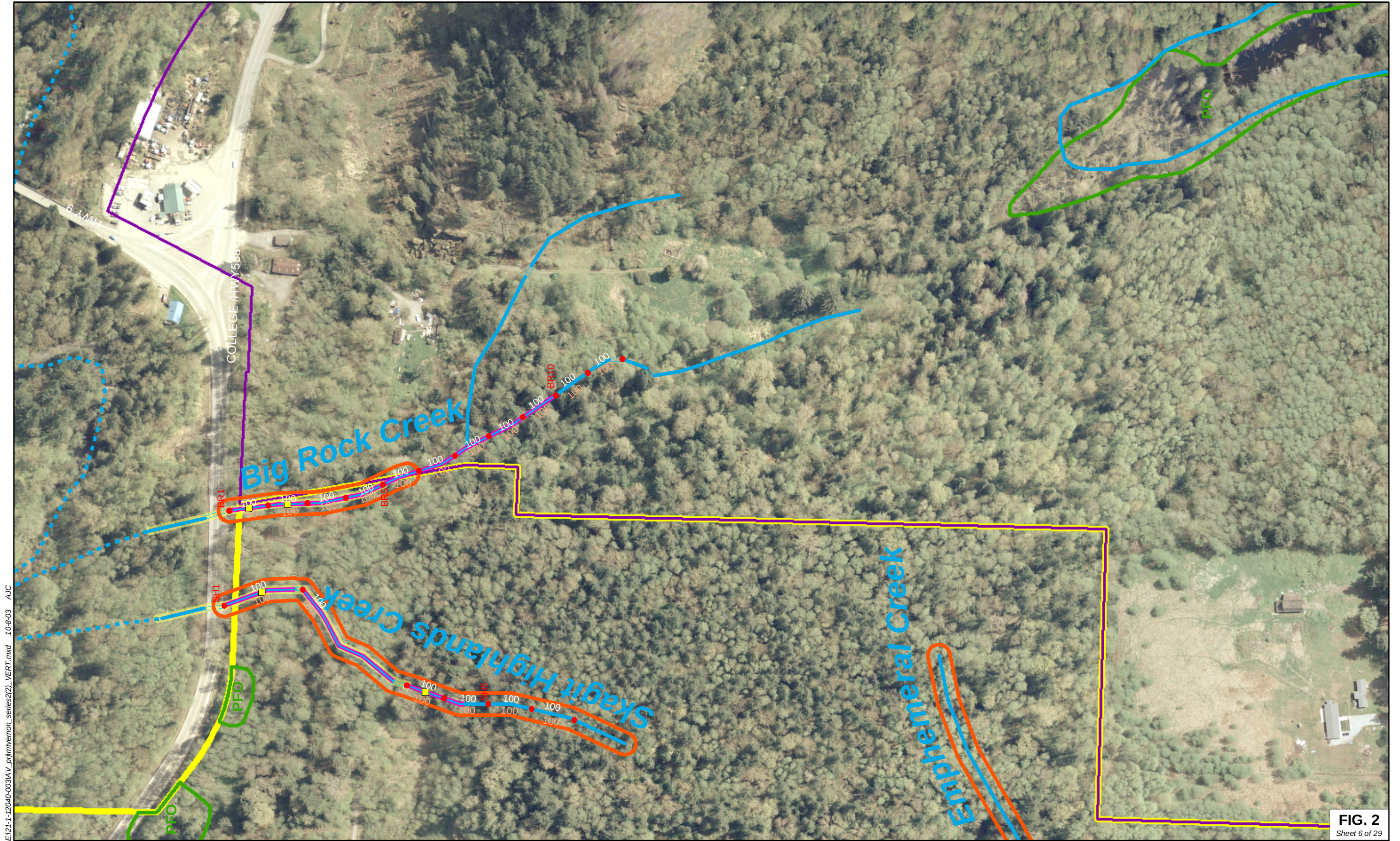


FIG. 2
Sheet 5 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number6

I. Major Drainage		Decision	Comments/Rationale
A. Carpenter			
B. Kulshan			Skagit Highlands Creek
C. Maddox			Big Rock Creek
D. Nookachamps			Ephemeral Creek
E. Trumpeter			
F. West Mt. Vernon			
G. Skagit River Tributaries			
II. Waters/Wetland Type			
A. Depression		x	
B. Riverine		x	
C. Slope		x	
III. Hydrology Functions and Indicators			
A. Energy Dissipation		intact	
B. Long/Short Term Water Storage		intact	
C. Longitudinal Connectivity		relatively intact	
D. Rate and Timing of Inputs		relatively intact	
E. Subsurface Water Inputs		intact	
F. Surface Water Inputs		intact	
G. Water Withdrawls/ Additions		relatively intact	some impervious surface
IV. Biogeochemistry Functions and Indicators			
A. Elemental Cycling		intact	some stormwater
B. Organic Matter Inputs/Outputs		intact	
C. Particulate Retention		intact	some sediment sources
D. Water Contact Area		relatively intact	
E. Water Residence Time		relatively intact	some impervious surface
V. Plant Community Functions and Indicators			
A. Characteristic Detrital Community		relatively intact	
B. Native Plant Community		relatively intact	third growth native forest
VI. Faunal Support/Habitat Functions and Indicators			
A. Patch Contiguity		relatively intact	some fragmentation
B. Patch Size		relatively intact	some fragmentation
C. Proximity to Development/Human Intrusion		limited	some development
VII. General Comments			
The streams have an intact natural system and steep gradient, steep slopes and other topographical features which limit development and provide significant protection to existing streams			



E:\21-1-12040-003\AV_prj\mivernon_series2(2)_VERT.mxd 10-8-03 AJC

FIG. 2
Sheet 6 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number7

I. Major Drainage		Decision	Comments/Rationale
A. Carpenter			
B. Kulshan			
C. Maddox			
D. Nookachamps		x	Lower Division Creek, Lower Golf Course Creek
E. Trumpeter			
F. West Mt. Vernon			
G. Skagit River Tributaries			
II. Waters/Wetland Type			
A. Depression		x	
B. Riverine		x	
C. Slope		x	
III. Hydrology Functions and Indicators			
A. Energy Dissipation		degraded	waters wetlands cleared straightened; roughness reduced
B. Long/Short Term Water Storage		degraded	creeks ditched and decoupled from floodplain; slope/depressional wetlands in clearings leveled and filled
C. Longitudinal Connectivity		degraded	interruptions by rights of way
D. Rate and Timing of Inputs		degraded	veg clearing; stormwater inputs from rights of way
E. Subsurface Water Inputs		degraded	interruptions by rights of way and clearing
F. Surface Water Inputs		degraded	interruptions by rights of way and clearing
G. Water Withdrawals/ Additions		degraded	withdrawls via ditching and draining; stormwater inputs from clearings and rights of way
IV. Biogeochemistry Functions and Indicators			
A. Elemental Cycling		degraded	significant sediment inputs to waters/wetlands from clearing and rights of way
B. Organic Matter Inputs/Outputs		degraded	native vegetation cleared
C. Particulate Retention		degraded	significant sediment inputs to waters/wetlands from clearing and rights of way
D. Water Contact Area		degraded	ditching and draining; clearing; rights of way
E. Water Residence Time		degraded	ditching and draining; clearing; rights of way
V. Plant Community Functions and Indicators			
A. Characteristic Detrital Community		degraded	native vegetation cleared
B. Native Plant Community		degraded	native vegetation cleared
VI. Faunal Support/Habitat Functions and Indicators			
A. Patch Contiguity		degraded	clearing
B. Patch Size		degraded	clearing
C. Proximity to Development/Human Intrusion		degraded	roads and rights of way; fragmentation
VII. General Comments			
			Wetlands headwaters provide significant stream protection and large patch
			Development around wetlands has little, if any, native cover
			Natural buffer system provides little, if any, protection
			Significant opportunity for restoration and enhancement

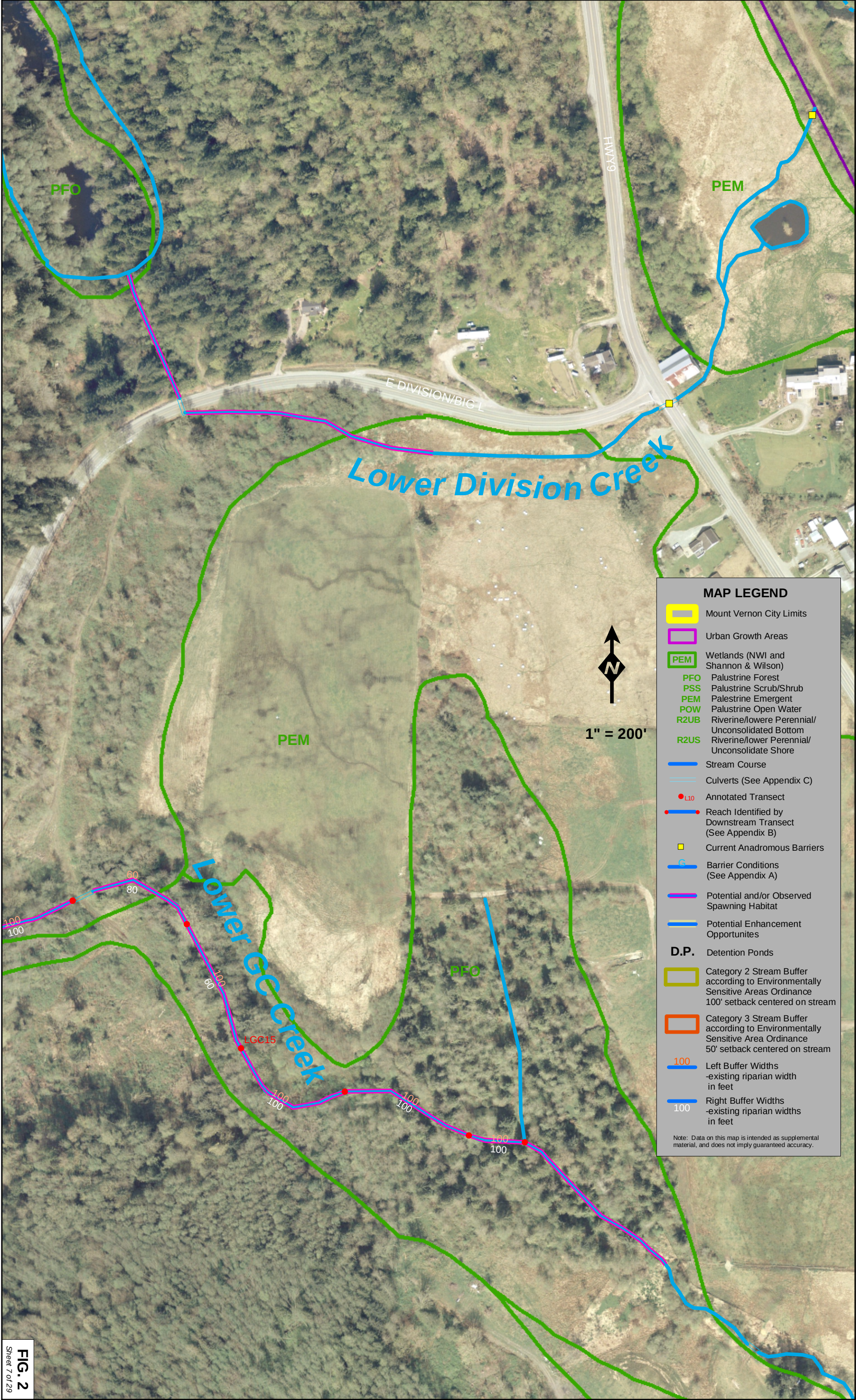


FIG. 2
Sheet 7 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number8

I. Major Drainage		Decision	Comments/Rationale
A. Carpenter			
B. Kulshan			
C. Maddox			
D. Nookachamps		x	
E. Trumpeter			
F. West Mt. Vernon			
G. Skagit River Tributaries			
II. Waters/Wetland Type			
A. Depression		x	
B. Riverine		x	
C. Slope		x	
III. Hydrology Functions and Indicators			
A. Energy Dissipation		degraded	ditching and channelization, straightening; filling of slopes and depressions
B. Long/Short Term Water Storage		degraded	ditching and channelization, straightening; filling of slopes and depressions; decoupling of stream from its floodplain
C. Longitudinal Connectivity		degraded	interruption via ditching and draining
D. Rate and Timing of Inputs		degraded	ditching, draining, and minor road crossings
E. Subsurface Water Inputs		degraded	interruption via ditching and draining and minor road crossings
F. Surface Water Inputs		degraded	interruption via ditching and draining and minor road crossings
G. Water Withdrawals/ Additions		degraded	withdrawls via ditching and draining, filling of slopes and depresssions; consolidated drainage to excavated depressions
IV. Biogeochemistry Functions and Indicators			
A. Elemental Cycling		degraded	veg clearing; stormwater inputs, sediment from clearing
B. Organic Matter Inputs/Outputs		degraded	veg clearing; dominance by invasive weeds
C. Particulate Retention		degraded	sediment from cleared areas and minor road crossings
D. Water Contact Area		degraded	reductions via consolidated drainage, ditching/channelization, and filling of slopes and depressions
E. Water Residence Time		degraded	reductions via consolidated drainage, ditching/channelization, and filling of slopes and depressions
V. Plant Community Functions and Indicators			
A. Characteristic Detrital Community		degraded	clearing, native veg dominance by invasive weeds
B. Native Plant Community		degraded	clearing, native veg dominance by invasive weeds
VI. Faunal Support/Habitat Functions and Indicators			
A. Patch Contiguity		degraded	significant fragmentation via veg clearing, ditching, draining
B. Patch Size		degraded	significant fragmentation via veg clearing, ditching, draining
C. Proximity to Development/Human Intrusion		degraded	some development
VII. General Comments			
Managed system			
Major wetland system (farmed wetland?)			
limited natural cover			
Little benefit from natural buffer system			
Significant opportunity for wetland restoration with development and restoration and enhancement			



FIG. 2
Sheet 8 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number9

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps	x	Lower Golf Course Creek
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	somewhat degraded	clearing, rights of way, etc.
B. Long/Short Term Water Storage	somewhat degraded	clearing, rights of way, etc.
C. Longitudinal Connectivity	somewhat degraded	clearing, rights of way, etc.
D. Rate and Timing of Inputs	somewhat degraded	clearing, rights of way, etc.
E. Subsurface Water Inputs	somewhat degraded	clearing, rights of way, etc.
F. Surface Water Inputs	somewhat degraded	clearing, rights of way, etc.
G. Water Withdrawals/ Additions	somewhat degraded	some stormwater inputs from clearing and rights of way
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	somewhat degraded	sediment inputs from clearing and rights of way
B. Organic Matter Inputs/Outputs	generally intact	
C. Particulate Retention	somewhat degraded	sediment inputs from clearing and rights of way
D. Water Contact Area	relatively intact	some clearing and filling
E. Water Residence Time	relatively intact	some clearing and filling
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	generally intact	some ornamental and weedy inputs
B. Native Plant Community	generally intact	some clearing, weeds and ornamental patches
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	degraded	bisected by right of way, fragmented by clearing
B. Patch Size	degraded	bisected by right of way, fragmented by clearing
C. Proximity to Development/Human Intrusion	degraded	close proximity to development
VII. General Comments		
Natural setting, steep area, limited development potential		
Managed system along rights of way		
Little natural cover		
Little benefit with passive buffer system		
Need flexibility to move with urban improvements		
Opportunity for restoration and landscape-scale enhancement tied to development		
Protected by wetland system		
Some natural areas		
Higher cost of develop outside wetland area		
Fish protected by wet system		
Habitat buffers may be replaced in the system to support wildlife on a sustainable basis		

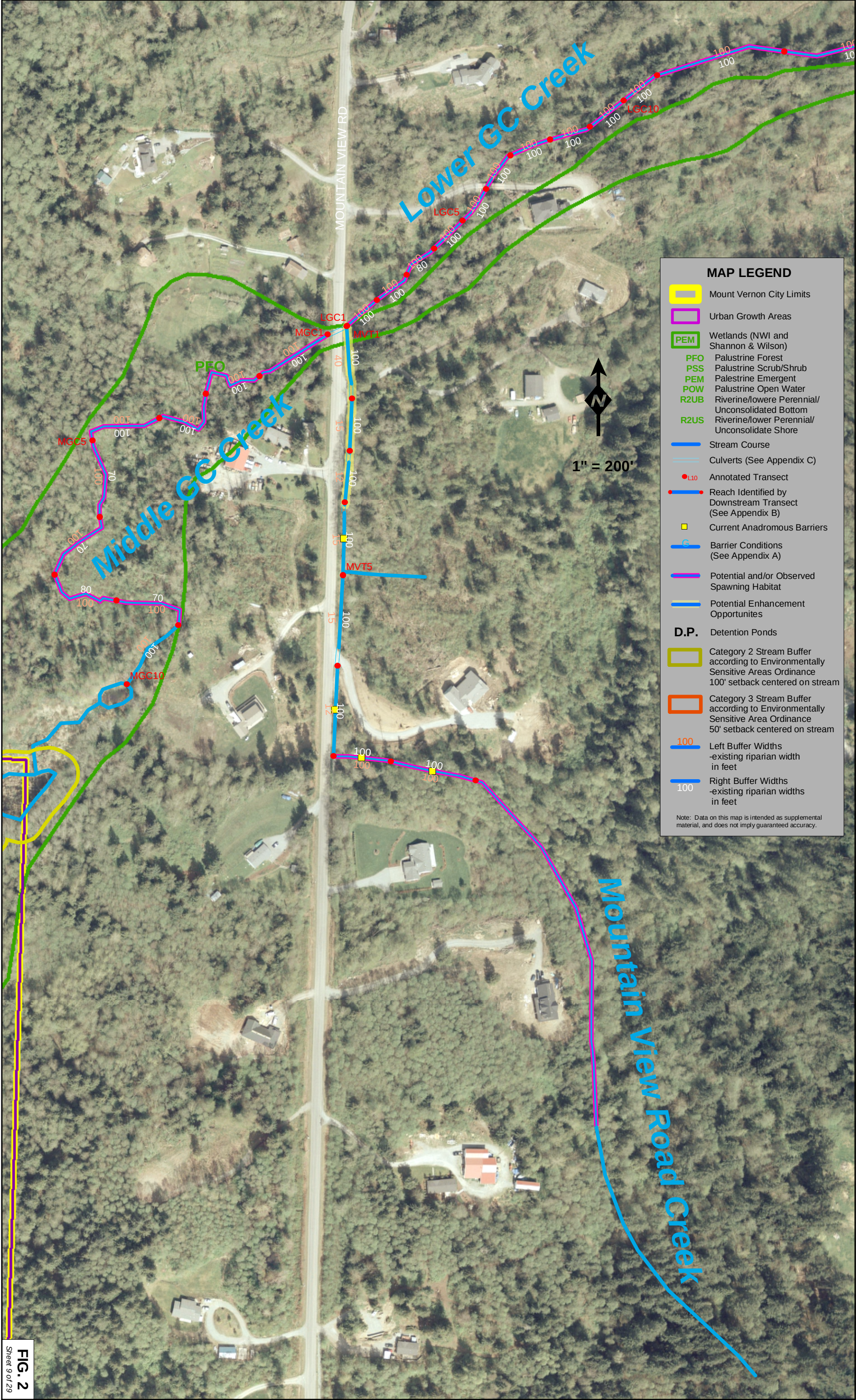


FIG. 2
Sheet 9 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number10

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps	x	Upper Golf Course Creek
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	degraded	significant clearing for golf course tees, fairways, and greens
B. Long/Short Term Water Storage	degraded	significant clearing for golf course tees, fairways, and greens
C. Longitudinal Connectivity	degraded	significant clearing for golf course tees, fairways, and greens
D. Rate and Timing of Inputs	degraded	accelerated by clearing for golf course
E. Subsurface Water Inputs	degraded	significant clearing for golf course tees, fairways, and greens
F. Surface Water Inputs	degraded	significant clearing for golf course tees, fairways, and greens
G. Water Withdrawals/ Additions	degraded	additions because of significant clearing for golf course
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	degraded	nutrient inputs from golf course landscape
B. Organic Matter Inputs/Outputs	degraded	maintenance of golf course landscape
C. Particulate Retention	somewhat degraded	increased kinetic energy of flood flows from golf course landscape
D. Water Contact Area	degraded	reductions via golf course drainage systems
E. Water Residence Time	degraded	reductions via golf course drainage systems
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	degraded	labile organic carbon inputs from golf course landscape predominate
B. Native Plant Community	degraded	golf course landscape
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	highly degraded	fragmentation
B. Patch Size	highly degraded	fragmentation
C. Proximity to Development/Human Intrusion	moderately degraded	golf course use
VII. General Comments		
Combination natural and managed system		
Much of the stream protected by wetland areas		
Golf course area has little cover		
Little opportunity for on-site enhancement		
Water quality and geochemistry opportunity with limited bank restoration		
Limited development as golf course already platted, not likely to redevelop		



Photo: Fairways - Upper Golf Course Creek.

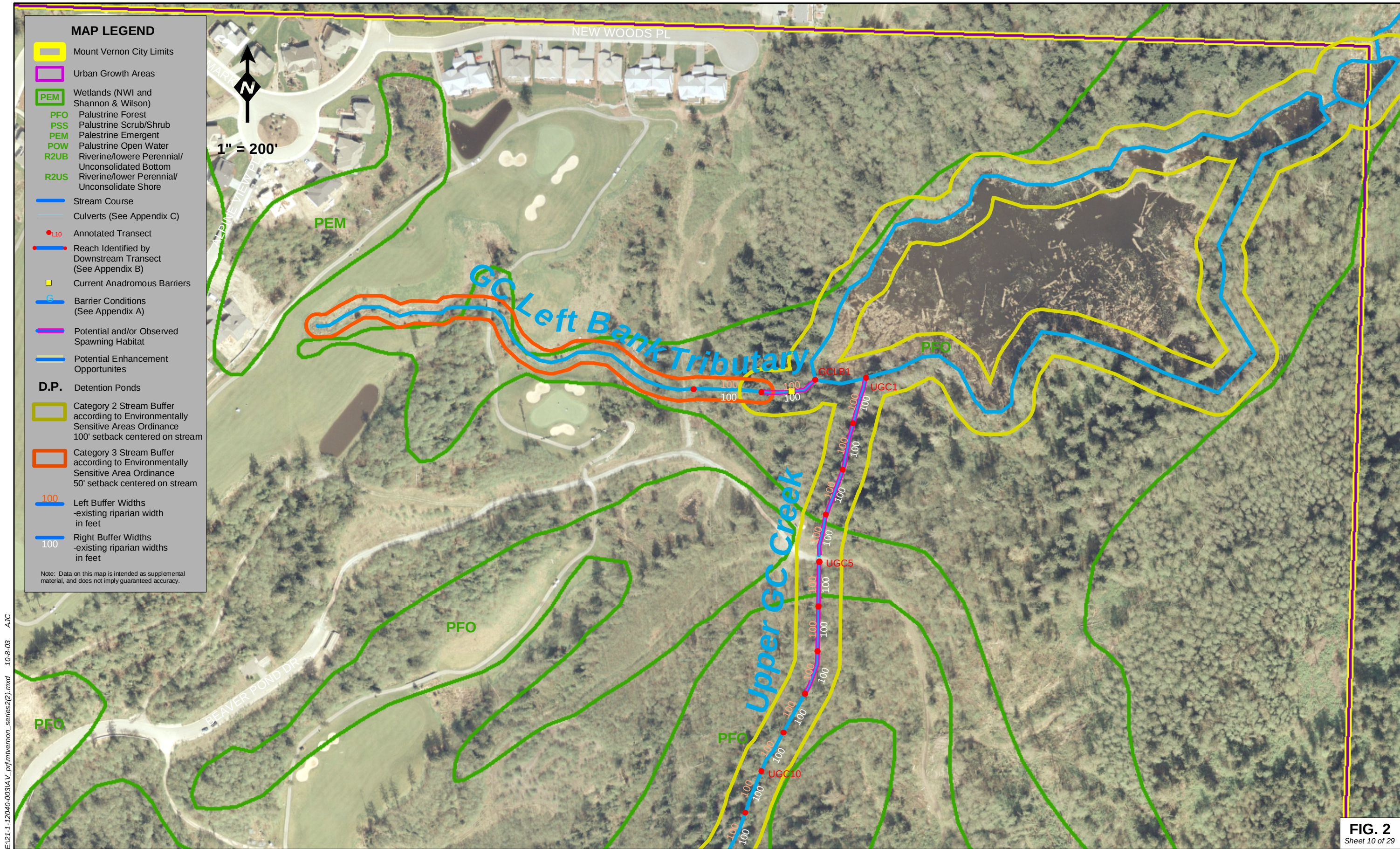


FIG. 2
Sheet 10 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number11

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps	x	Upper Golf Course Creek, Carpenter-Eaglemont Creek
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	degraded	significant clearing for golf course tees, fairways, and greens
B. Long/Short Term Water Storage	degraded	significant clearing for golf course tees, fairways, and greens
C. Longitudinal Connectivity	degraded	significant clearing for golf course tees, fairways, and greens
D. Rate and Timing of Inputs	degraded	accelerated by clearing for golf course
E. Subsurface Water Inputs	degraded	significant clearing for golf course tees, fairways, and greens
F. Surface Water Inputs	degraded	significant clearing for golf course tees, fairways, and greens
G. Water Withdrawals/ Additions	degraded	additions because of significant clearing for golf course
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	degraded	nutrient inputs from golf course landscape
B. Organic Matter Inputs/Outputs	degraded	maintenance of golf course landscape
C. Particulate Retention	somewhat degraded	increased kinetic energy of flood flows from golf course landscape
D. Water Contact Area	degraded	reductions via golf course drainage systems
E. Water Residence Time	degraded	reductions via golf course drainage systems
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	degraded	labile organic carbon inputs from golf course landscape predominate
B. Native Plant Community	degraded	golf course landscape
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	highly degraded	fragmentation
B. Patch Size	highly degraded	fragmentation
C. Proximity to Development/Human Intrusion	moderately degraded	golf course use
VII. General Comments		
Carpenter-Eaglemont Creek		
Natural setting		
Little development		
Significant wetland protection for streams		
Upper Golf Course Creek		
Combination natural and managed system		
Much of the stream protected by wetland areas		
Golf course area has little cover		
Little opportunity for on-site enhancement		
Water quality and geochemistry opportunity with limited bank restoration		
Limited development as golf course already platted, not likely to redevelop		

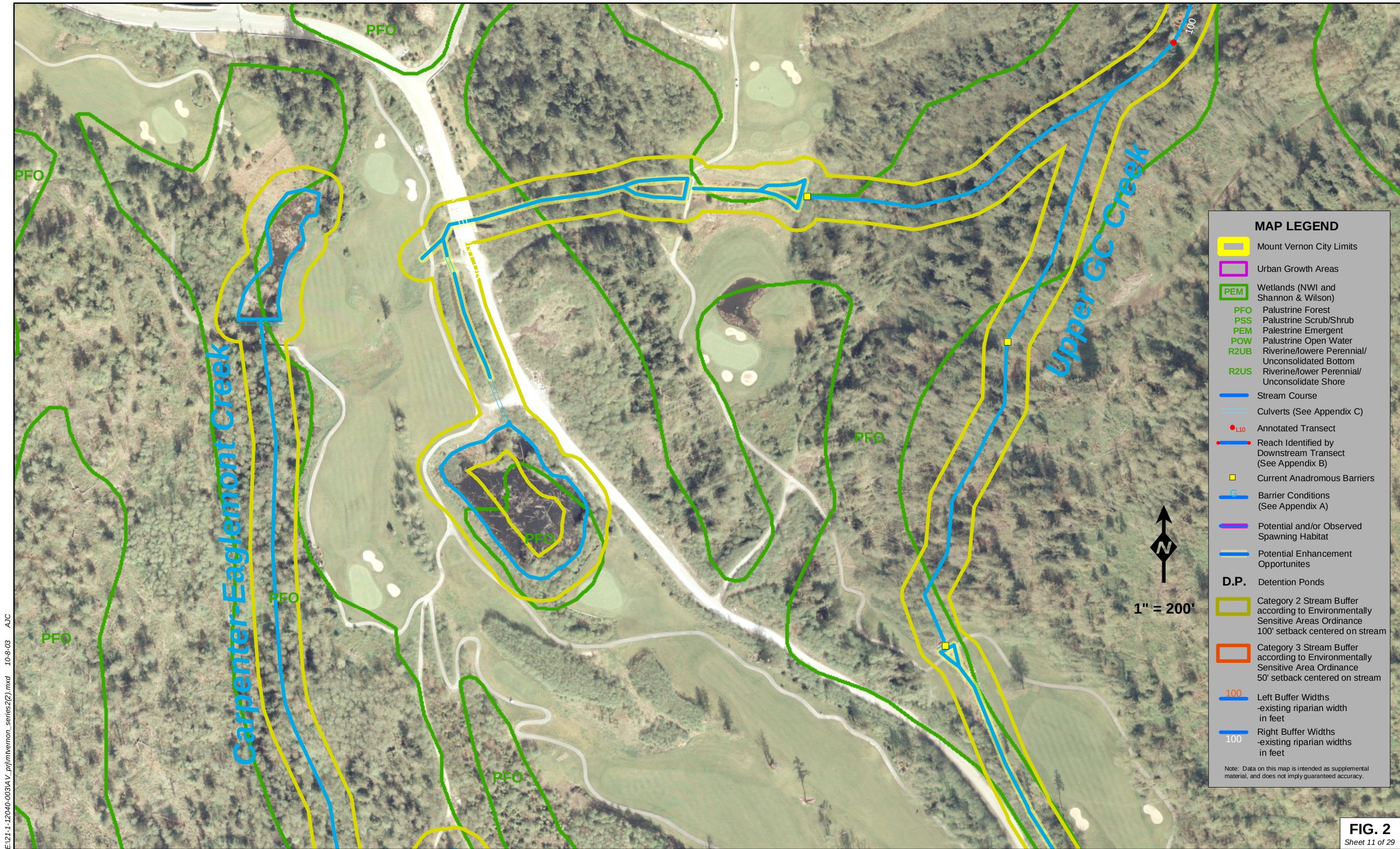


FIG. 2
Sheet 11 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number12

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps	x	Upper Golf Course Creek, Carpenter-Eaglemont Creek
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	degraded	significant clearing for golf course tees, fairways, and greens
B. Long/Short Term Water Storage	degraded	significant clearing for golf course tees, fairways, and greens
C. Longitudinal Connectivity	degraded	significant clearing for golf course tees, fairways, and greens
D. Rate and Timing of Inputs	degraded	accelerated by clearing for golf course
E. Subsurface Water Inputs	degraded	significant clearing for golf course tees, fairways, and greens
F. Surface Water Inputs	degraded	significant clearing for golf course tees, fairways, and greens
G. Water Withdrawals/ Additions	degraded	additions because of significant clearing for golf course
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	degraded	nutrient inputs from golf course landscape
B. Organic Matter Inputs/Outputs	degraded	maintenance of golf course landscape
C. Particulate Retention	somewhat degraded	increased kinetic energy of flood flows from golf course landscape
D. Water Contact Area	degraded	reductions via golf course drainage systems
E. Water Residence Time	degraded	reductions via golf course drainage systems
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	degraded	labile organic carbon inputs from golf course landscape predominate
B. Native Plant Community	degraded	golf course landscape
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	highly degraded	fragmentation
B. Patch Size	highly degraded	fragmentation
C. Proximity to Development/Human Intrusion	moderately degraded	golf course use
VII. General Comments		
Upper Golf Course Creek		
Combination natural and managed system		
Much of the stream protected by wetland areas		
Golf course area has little cover		
Little opportunity for on-site enhancement		
Water quality and geochemistry opportunity with limited bank restoration		
Limited development as golf course already platted, not likely to redevelop		
Carpenter-Eaglemont Creek		
Combination natural and managed system		
Much of the stream protected by wetland areas		
Golf course area has little cover		
Little opportunity for on-site enhancement		
Water quality and geochemistry opportunity with limited bank restoration		
Limited development as golf course already platted, not likely to redevelop		

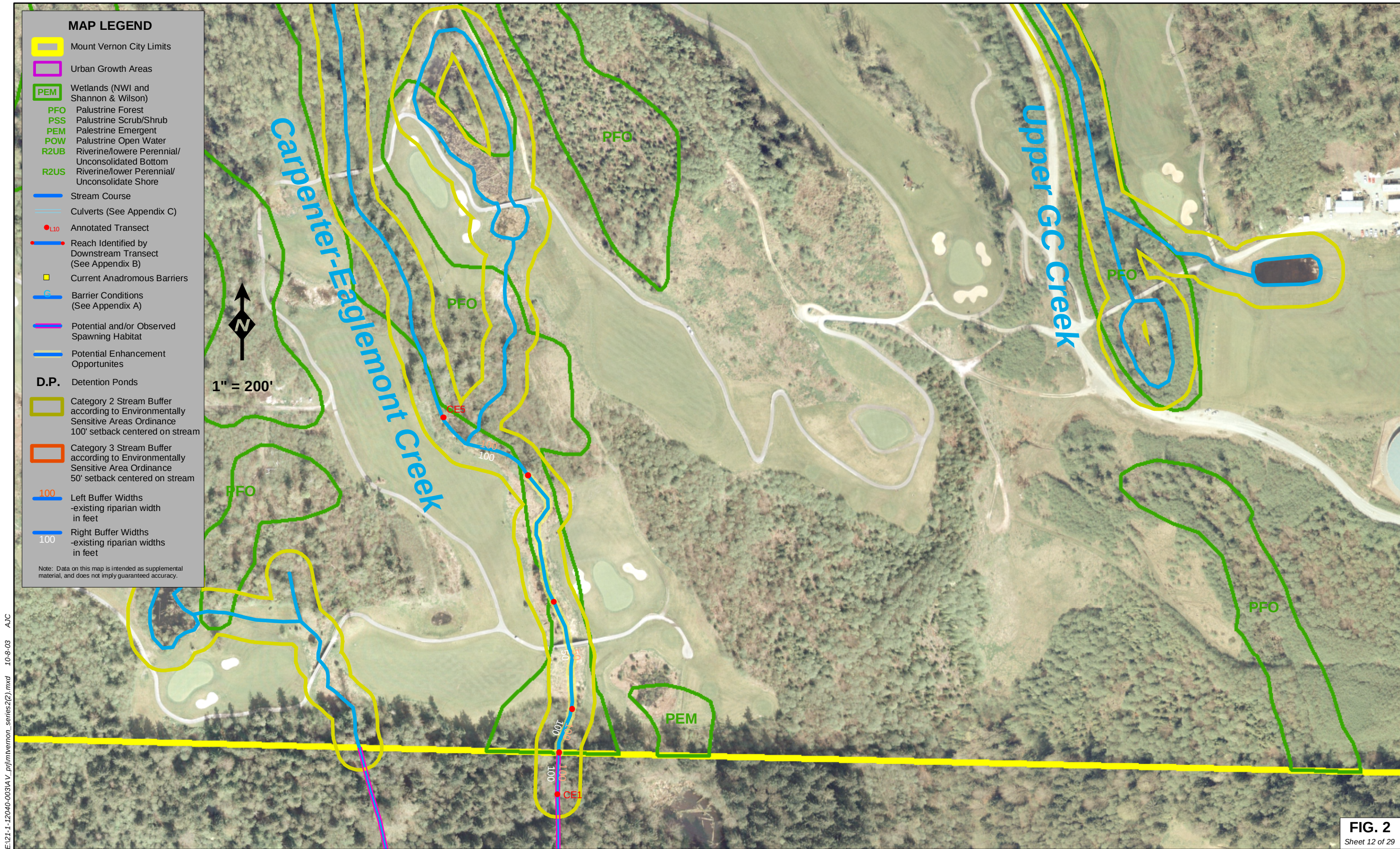


FIG. 2
Sheet 12 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number13

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps	x	Southeast Corner Creek
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	generally intact	some clearing
B. Long/Short Term Water Storage	generally intact	some clearing
C. Longitudinal Connectivity	generally intact	some clearing
D. Rate and Timing of Inputs	generally intact	some clearing
E. Subsurface Water Inputs	generally intact	some clearing
F. Surface Water Inputs	generally intact	some clearing
G. Water Withdrawls/ Additions	generally intact	some clearing
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	generally intact	some clearing and sediment input from rights of way
B. Organic Matter Inputs/Outputs	generally intact	some clearing
C. Particulate Retention	generally intact	some clearing and sediment input from rights of way
D. Water Contact Area	generally intact	some clearing
E. Water Residence Time	generally intact	some clearing
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	generally intact	some clearing and dominance by weeds/ornamentals
B. Native Plant Community	generally intact	some clearing and dominance by weeds/ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	degraded	via clearing and rights of way
B. Patch Size	degraded	via clearing and rights of way
C. Proximity to Development/Human Intrusion	somewhat degraded	some development
VII. General Comments		
Natural stream		
Predominantly natural setting		
Limited development pressure due to wetland areas		

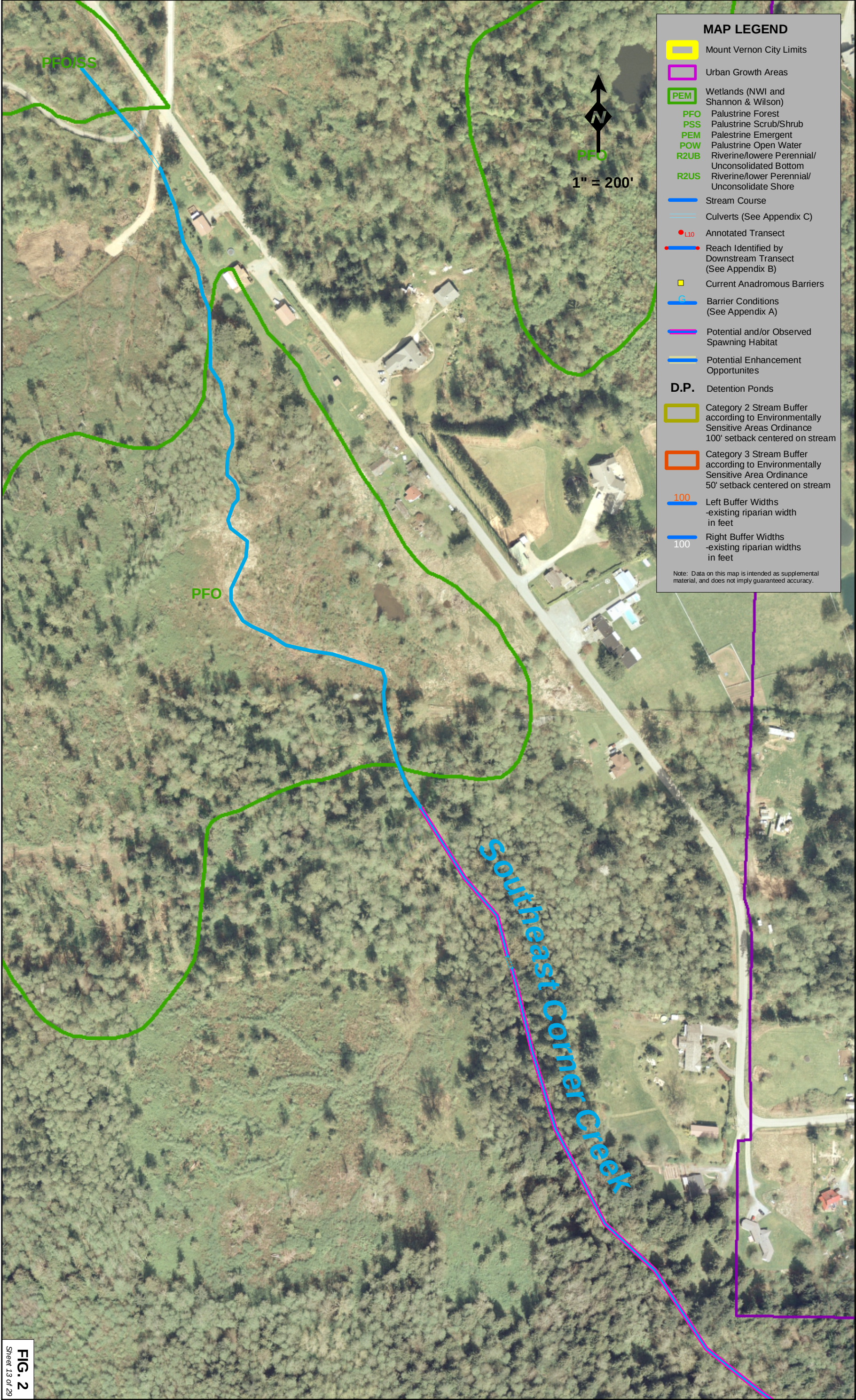


FIG. 2

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number14

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps	x	Southeast corner Creek
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	generally intact	
B. Long/Short Term Water Storage	generally intact	
C. Longitudinal Connectivity	generally intact	
D. Rate and Timing of Inputs	generally intact	
E. Subsurface Water Inputs	generally intact	
F. Surface Water Inputs	generally intact	
G. Water Withdrawls/ Additions	generally intact	
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	generally intact	
B. Organic Matter Inputs/Outputs	generally intact	
C. Particulate Retention	generally intact	
D. Water Contact Area	generally intact	
E. Water Residence Time	generally intact	
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	generally intact	
B. Native Plant Community	generally intact	
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	generally intact	
B. Patch Size	generally intact	
C. Proximity to Development/Human Intrusion	somewhat degraded	trails/vehicular access
VII. General Comments		
Outside UGA		



FIG. 2
Sheet 14 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number15

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter	x	
B. Kulshan		
C. Maddox		
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	generally intact	some clearing for development
B. Long/Short Term Water Storage	generally intact	some impervious surface proximate to development
C. Longitudinal Connectivity	generally intact	some interruption via clearing for development
D. Rate and Timing of Inputs	generally intact	clearing for development and rights of way
E. Subsurface Water Inputs	generally intact	clearing for development and rights of way
F. Surface Water Inputs	generally intact	clearing for development and rights of way
G. Water Withdrawls/ Additions	generally intact	some stormwater runoff inputs from development and rights of way
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	generally intact	some sediment/nutrient inputs from development and rights of way
B. Organic Matter Inputs/Outputs	generally intact	some degradation from clearing for development and rights of way, dominance by weeds
C. Particulate Retention	generally intact	some sediment inputs from development and rights of way
D. Water Contact Area	generally intact	some degradation from clearing for development and rights of way, dominance by weeds
E. Water Residence Time	generally intact	some degradation from clearing for development and rights of way, dominance by weeds
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	generally intact	somewhat degraded from clearing of native veg for development and rights of way, dominance of weeds in clearings, rights of way
B. Native Plant Community	generally intact	somewhat degraded from clearing of native veg for development and rights of way, dominance of weeds in clearings, rights of way
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	somewhat degraded	via clearing for development, rights of way and adjacent clearcutting
B. Patch Size	somewhat degraded	via clearing for development, rights of way and adjacent clearcutting
C. Proximity to Development/Human Intrusion	degraded	immediate proximity to development, rights of way
VII. General Comments		
Headwaters outside UGA		
Stream hemmed in by development		
Opportunity for restoration and enhancement of stream to protect water quality with habitat issues addressed in system patch, rather than linear edge fronting two homes—difficult to assure long-term success		
(Passive buffers of questionable effectiveness immediately surrounded by development activity)		



FIG. 2
Sheet 15 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number16

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter	x	
B. Kulshan		
C. Maddox		
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	generally intact	some clearing for development
B. Long/Short Term Water Storage	generally intact	some impervious surface proximate to development
C. Longitudinal Connectivity	generally intact	some interruption via clearing for development
D. Rate and Timing of Inputs	generally intact	clearing for development and rights of way
E. Subsurface Water Inputs	generally intact	clearing for development and rights of way
F. Surface Water Inputs	generally intact	clearing for development and rights of way
G. Water Withdrawals/ Additions	generally intact	some stormwater runoff inputs from development and rights of way
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	generally intact	some sediment/nutrient inputs from development and rights of way
B. Organic Matter Inputs/Outputs	generally intact	some degradation from clearing for development and rights of way, dominance by weeds
C. Particulate Retention	generally intact	some sediment inputs from development and rights of way
D. Water Contact Area	generally intact	some degradation from clearing for development and rights of way, dominance by weeds
E. Water Residence Time	generally intact	some degradation from clearing for development and rights of way, dominance by weeds
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	generally intact	somewhat degraded from clearing of native veg for development and rights of way, dominance of weeds in clearings, rights of way
B. Native Plant Community	generally intact	somewhat degraded from clearing of native veg for development and rights of way, dominance of weeds in clearings, rights of way
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	somewhat degraded	via clearing for development, rights of way and adjacent clearcutting
B. Patch Size	somewhat degraded	via clearing for development, rights of way and adjacent clearcutting
C. Proximity to Development/Human Intrusion	degraded	immediate proximity to development, rights of way
VII. General Comments		
Little mountain tributary		
Natural system riparian area intact—100+ feet		
Character east of City limits		
Character west of City limits		

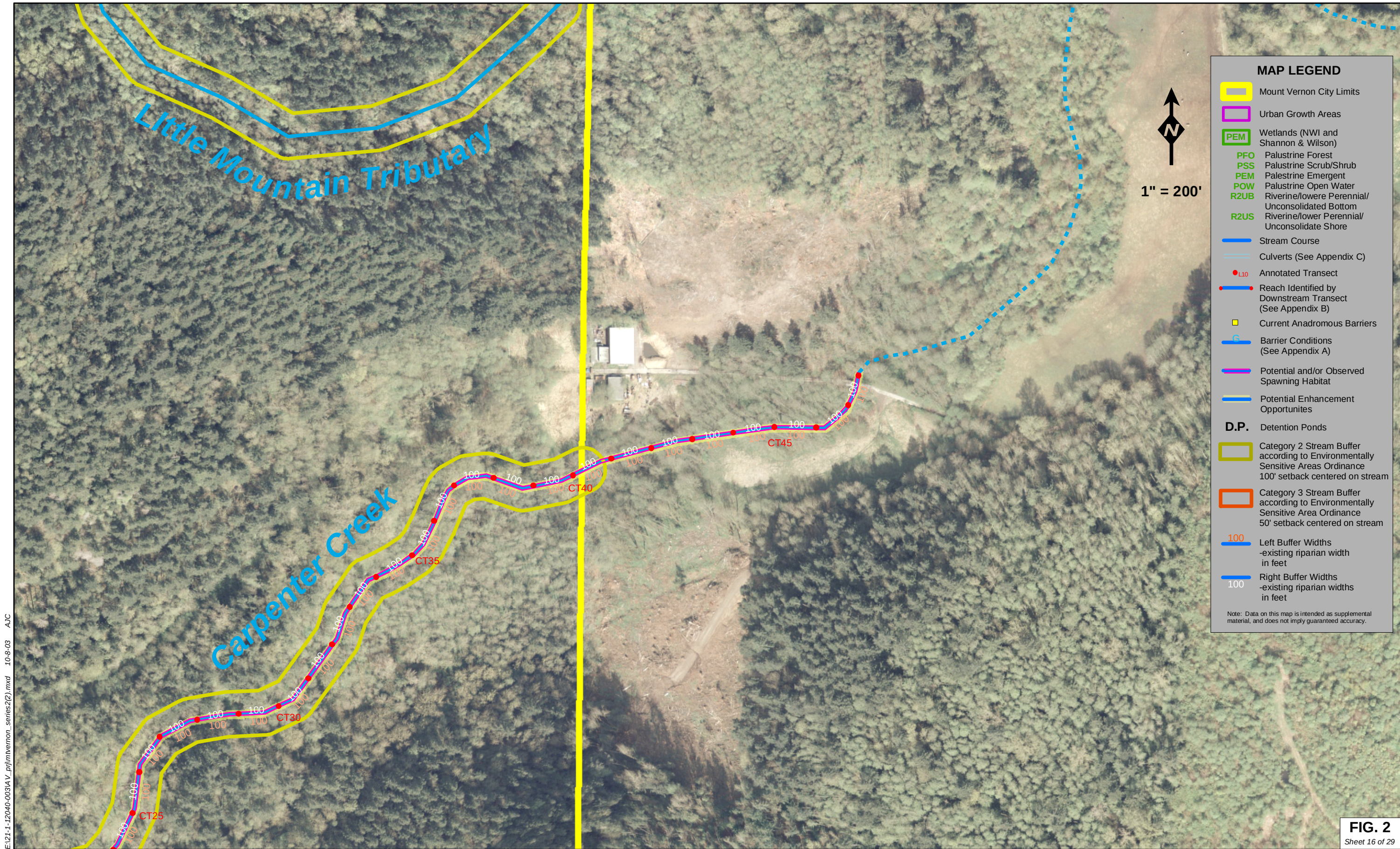


FIG. 2
Sheet 16 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number17

I. Major Drainage		Decision	Comments/Rationale
A. Carpenter		x	
B. Kulshan			
C. Maddox			
D. Nookachamps			
E. Trumpeter			
F. West Mt. Vernon			
G. Skagit River Tributaries			
II. Waters/Wetland Type			
A. Depression		x	
B. Riverine		x	
C. Slope		x	
III. Hydrology Functions and Indicators			
A. Energy Dissipation		generally intact	
B. Long/Short Term Water Storage		generally intact	
C. Longitudinal Connectivity		generally intact	
D. Rate and Timing of Inputs		generally intact	
E. Subsurface Water Inputs		generally intact	
F. Surface Water Inputs		generally intact	
G. Water Withdrawls/ Additions		generally intact	
IV. Biogeochemistry Functions and Indicators			
A. Elemental Cycling		generally intact	
B. Organic Matter Inputs/Outputs		generally intact	
C. Particulate Retention		generally intact	
D. Water Contact Area		generally intact	
E. Water Residence Time		generally intact	
V. Plant Community Functions and Indicators			
A. Characteristic Detrital Community		generally intact	
B. Native Plant Community		generally intact	
VI. Faunal Support/Habitat Functions and Indicators			
A. Patch Contiguity		generally intact	
B. Patch Size		generally intact	
C. Proximity to Development/Human Intrusion	slightly degraded		proximity to residences and mining
VII. General Comments			
Natural system, intact buffer except for crossing			
Area very steep, limiting development			
The default system is recommended			

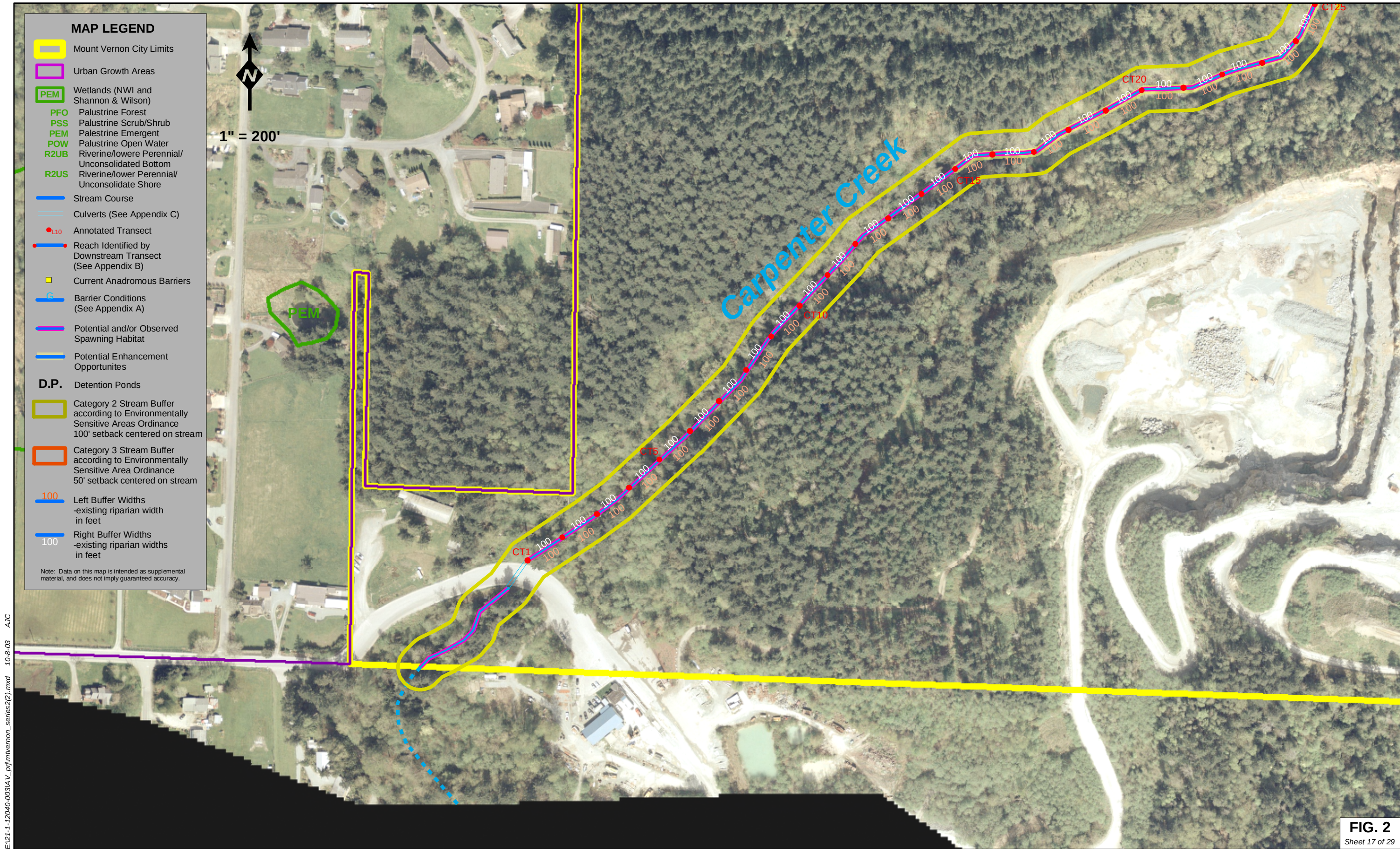


FIG. 2
Sheet 17 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number18

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	somewhat degraded	via some unrestricted stormwater inputs from adjacent subdivisions
B. Long/Short Term Water Storage	somewhat degraded	via some unrestricted stormwater inputs from adjacent subdivisions; adjacent clearing
C. Longitudinal Connectivity	moderately degraded	crossing of creek by rights of way
D. Rate and Timing of Inputs	moderately degraded	via some unrestricted stormwater inputs from adjacent subdivisions; veg clearing
E. Subsurface Water Inputs	somewhat degraded	via some unrestricted stormwater inputs from adjacent subdivisions; adjacent clearing
F. Surface Water Inputs	somewhat degraded	via some unrestricted stormwater inputs from adjacent subdivisions; adjacent clearing
G. Water Withdrawals/ Additions	somewhat degraded	stormwater inputs from adjacent subdivisions and clearing
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	somewhat degraded	stormwater inputs from adjacent subdivisions and clearing
B. Organic Matter Inputs/Outputs	somewhat degraded	clearing of native plant communities, dominance of weeds and ornamentals in clearing
C. Particulate Retention	somewhat degraded	sediment inputs from adjacent subdivisions and clearing
D. Water Contact Area	somewhat degraded	via throughfills spanning riparian wetlands
E. Water Residence Time	somewhat degraded	via stormwater inputs from adjacent subdivisions and clearings
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	somewhat degraded	clearing of native plant communities, dominance of weeds and ornamentals in clearing
B. Native Plant Community	somewhat degraded	clearing of native plant communities, dominance of weeds and ornamentals in clearing
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	degraded	via clearing for adjacent subdivisions and clearings
B. Patch Size	degraded	via clearing for adjacent subdivisions and clearings
C. Proximity to Development/Human Intrusion	degraded	immediate proximity to subdivisions and moderate traffic
VII. General Comments		

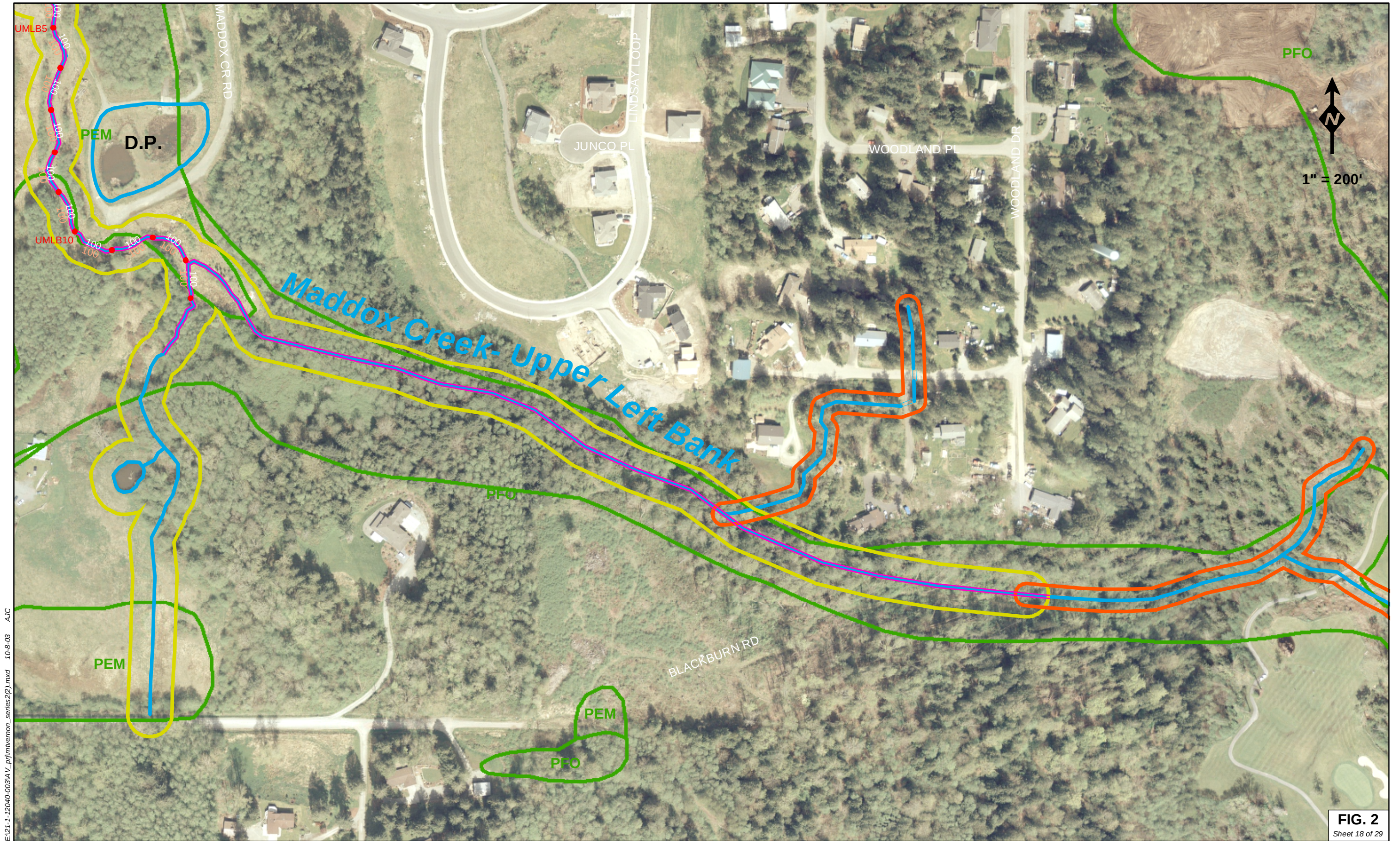


FIG. 2
Sheet 18 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number19

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawls/ Additions	degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Urban area		
Small portion open		
Most managed and channeled		
Very little habitat		
Development on both sides (edge disturbed, very poor habitat , impossible to police)		
Managed system channeled		
No riparian area or buffers to protect		
Needs weed control		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		

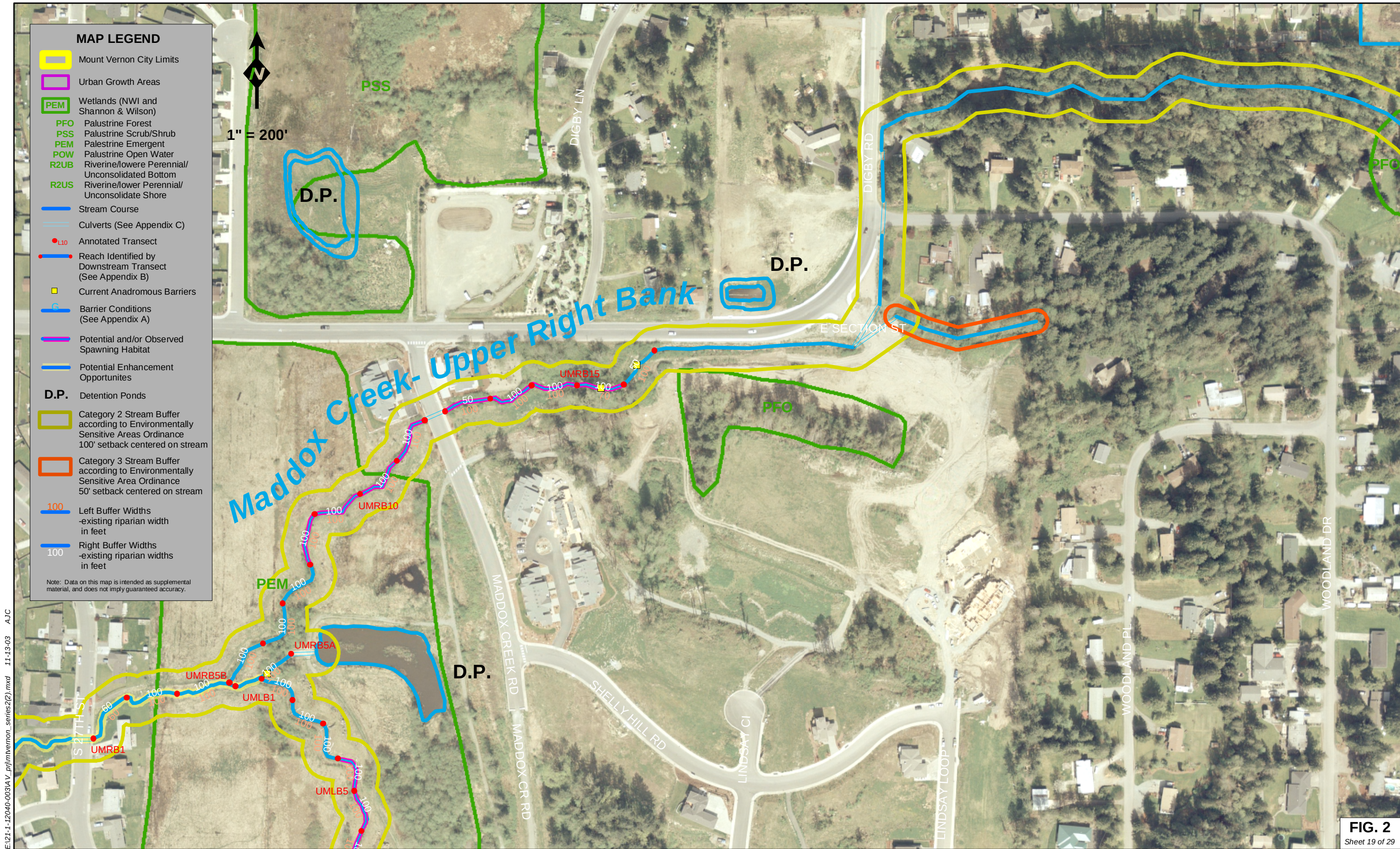
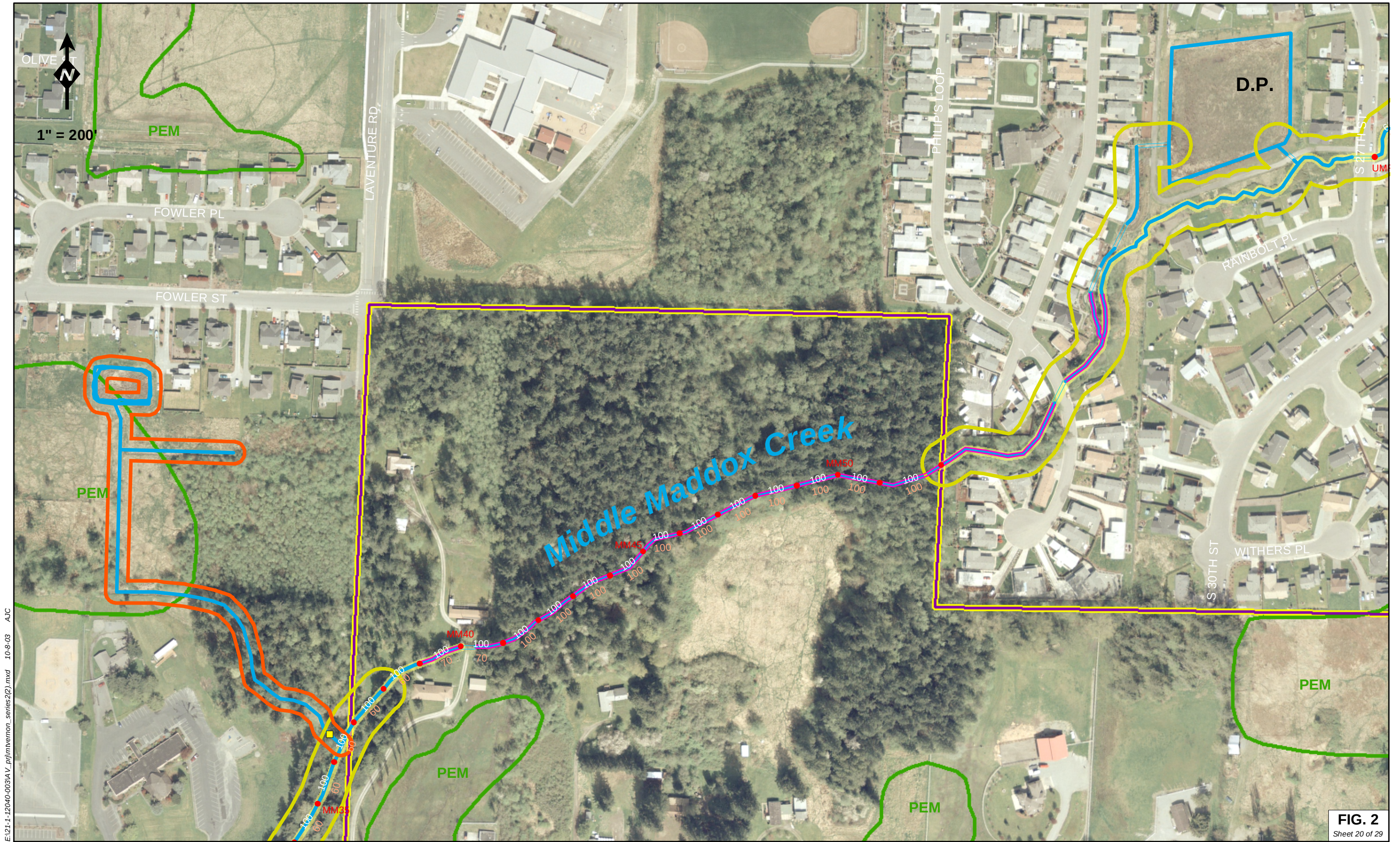


FIG. 2
Sheet 19 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number20

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawls/ Additions	degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Open portion with some cover, but most managed system in channel with little existing cover		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		



Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number21

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawals/ Additions	degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Stream headwaters		
Open system in hilly areas		
Balance of system managed system in ditches		
Very little cover		
Significant opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		



FIG. 2
Sheet 21 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number22

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawls/ Additions	degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Open channel within predominantly forested wetland providing natural buffer in excess of default standard		
Significantly developed with little or no existing wetland buffer		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		

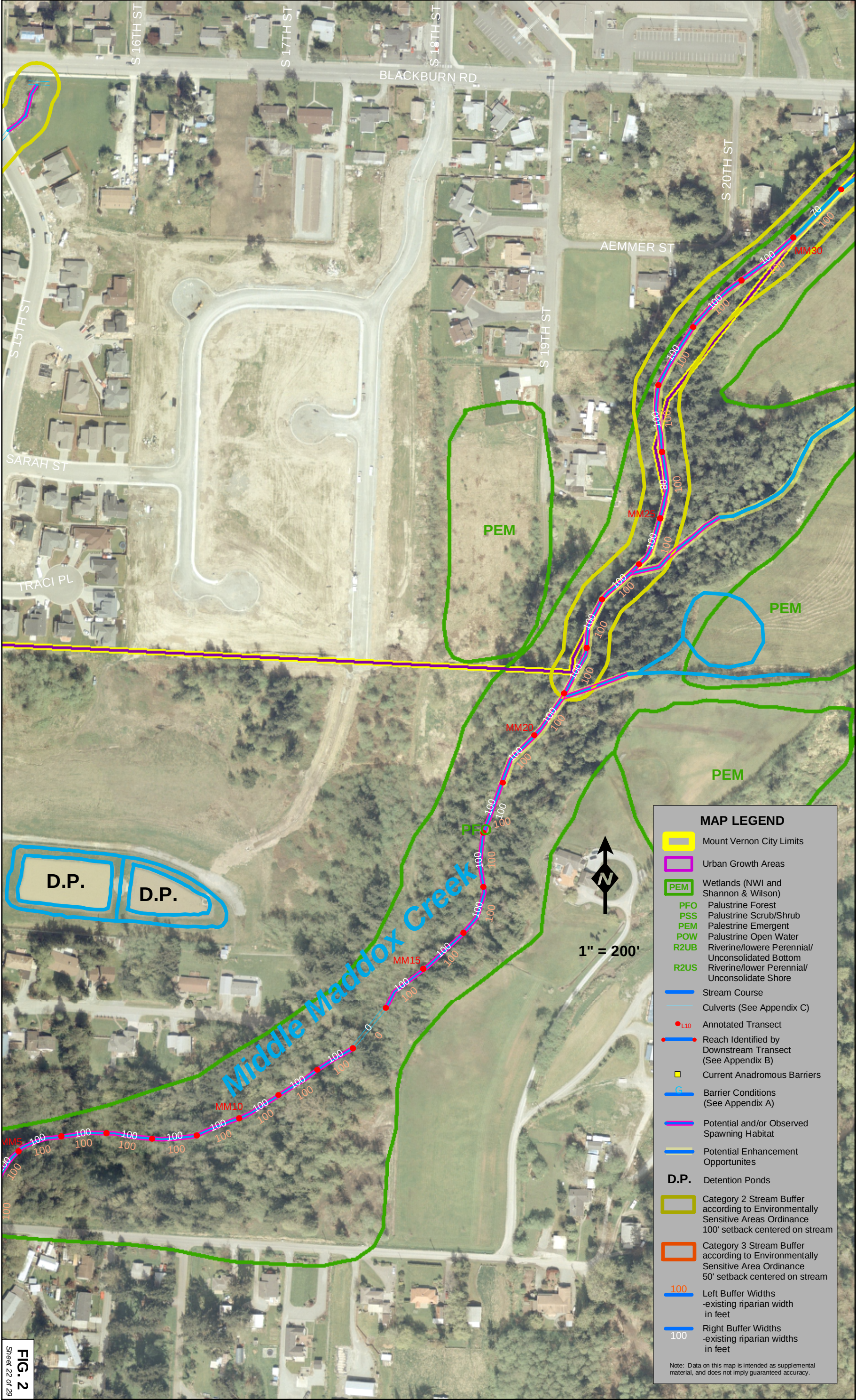
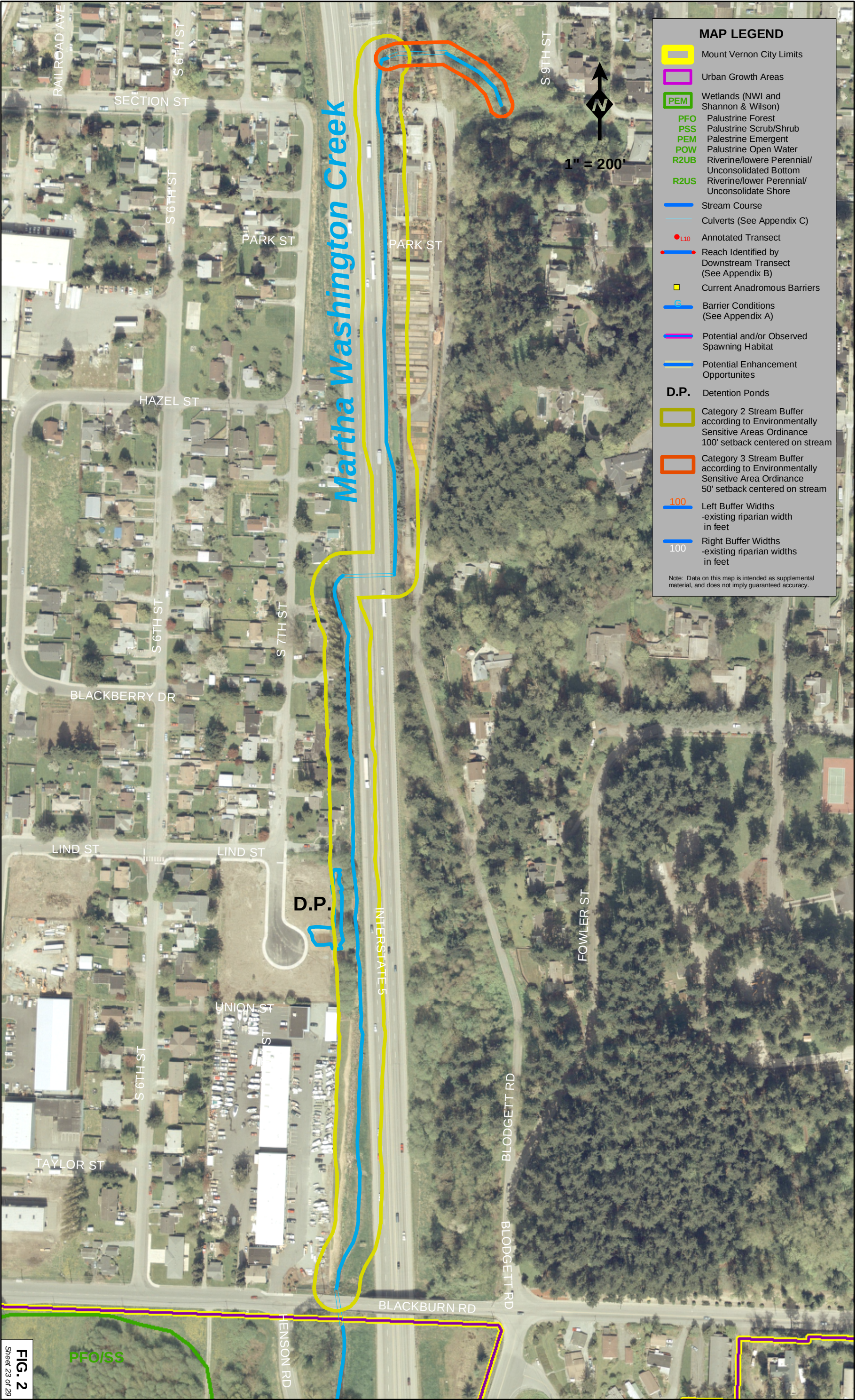


FIG. 2
Sheet 22 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number23

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	Lower Maddox Creek, Martha Washington Creek
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawls/ Additions	significantly degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Typical urban channel with little, if any, riparian buffer		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		



Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number24

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	Lower Maddox Creek, Martha Washington Creek
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawals/ Additions	significantly degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Typical urban channel with little, if any, riparian buffer		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		



Photo: Forested waters/wetlands Martha Washington Creek.

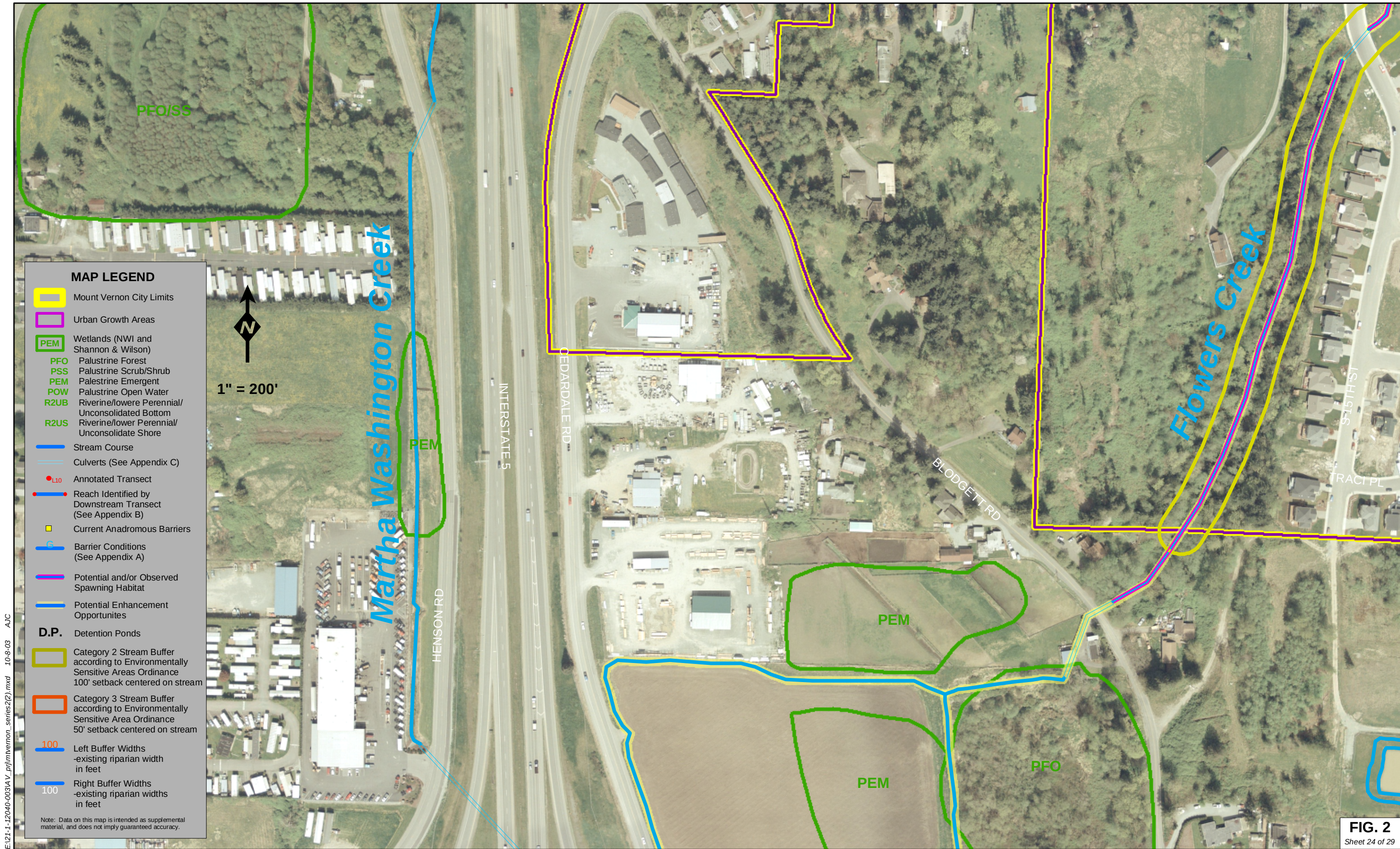


FIG. 2
Sheet 24 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number25

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	Lower Maddox Creek, Martha Washington Creek
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
F. Surface Water Inputs	significantly degraded	impervious surface, development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
G. Water Withdrawals/ Additions	significantly degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense development
VII. General Comments		
Typical urban channel with little, if any, riparian buffer		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		



Photo: Red-tailed hawk hunting, Martha Washington Creek.

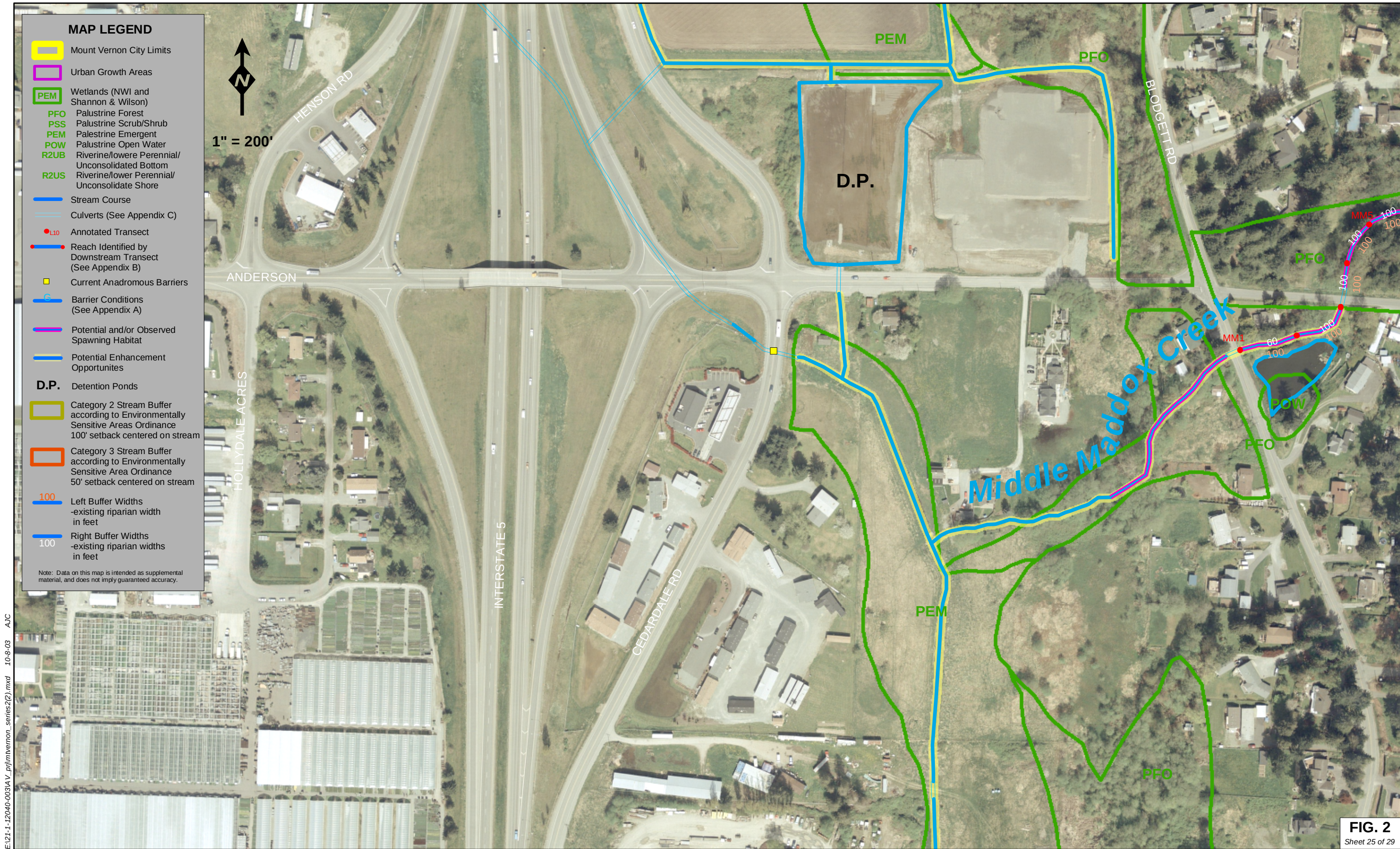


FIG. 2
Sheet 25 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number26

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	Lower Maddox Creek
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain, rights of way
F. Surface Water Inputs	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain, rights of way
G. Water Withdrawals/ Additions	significantly degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense suburban and commercial development
VII. General Comments		
Typical urban channel with little, if any, riparian buffer		
Opportunity for restoration, enhancement and creation of habitat benefiting the area, which does not presently exist		

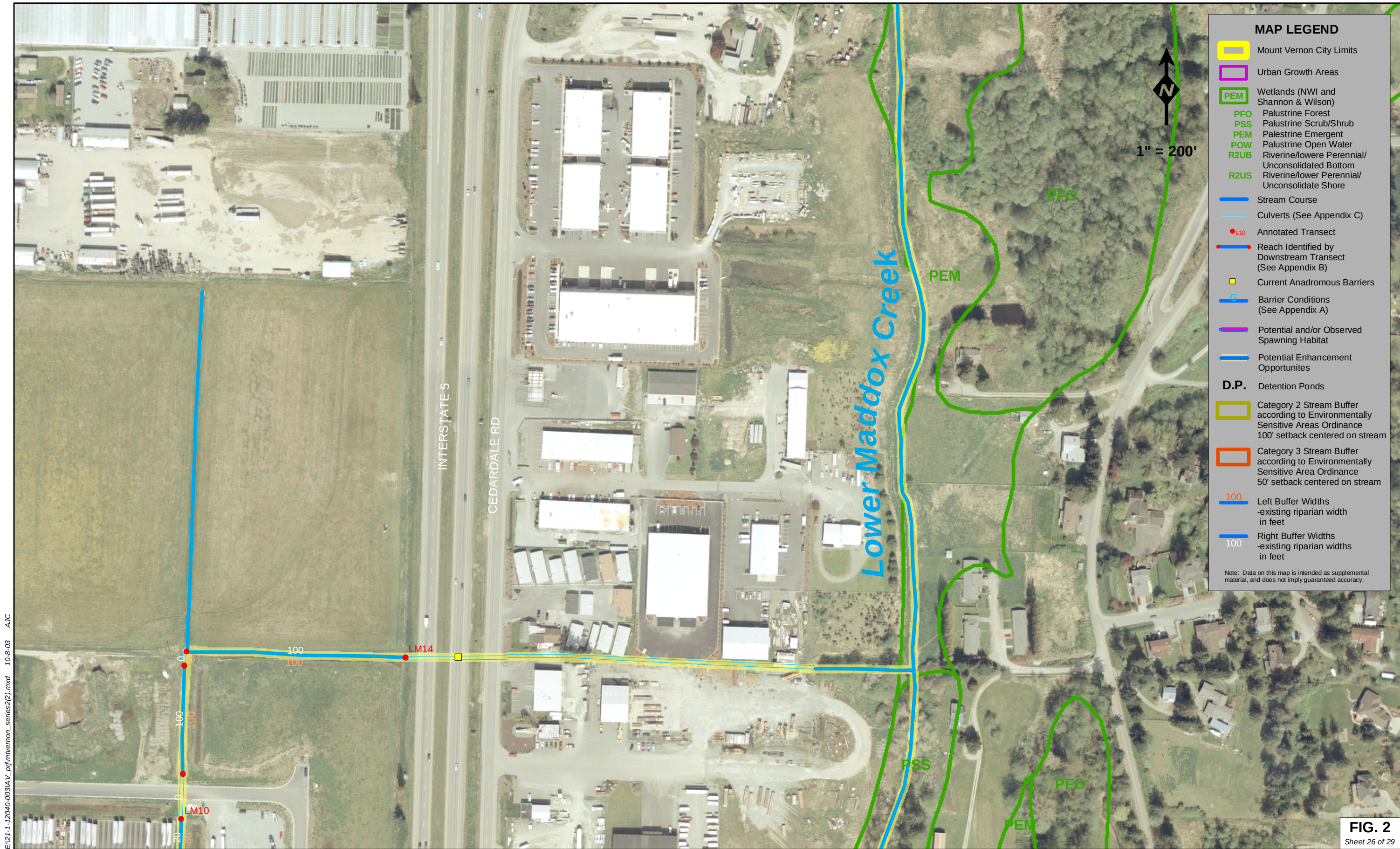


FIG. 2
Sheet 26 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number27

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	Lower Maddox Creek
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain, rights of way
F. Surface Water Inputs	significantly degraded	impervious surface, commercial and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain, rights of way
G. Water Withdrawals/ Additions	significantly degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense suburban and commercial development
VII. General Comments		

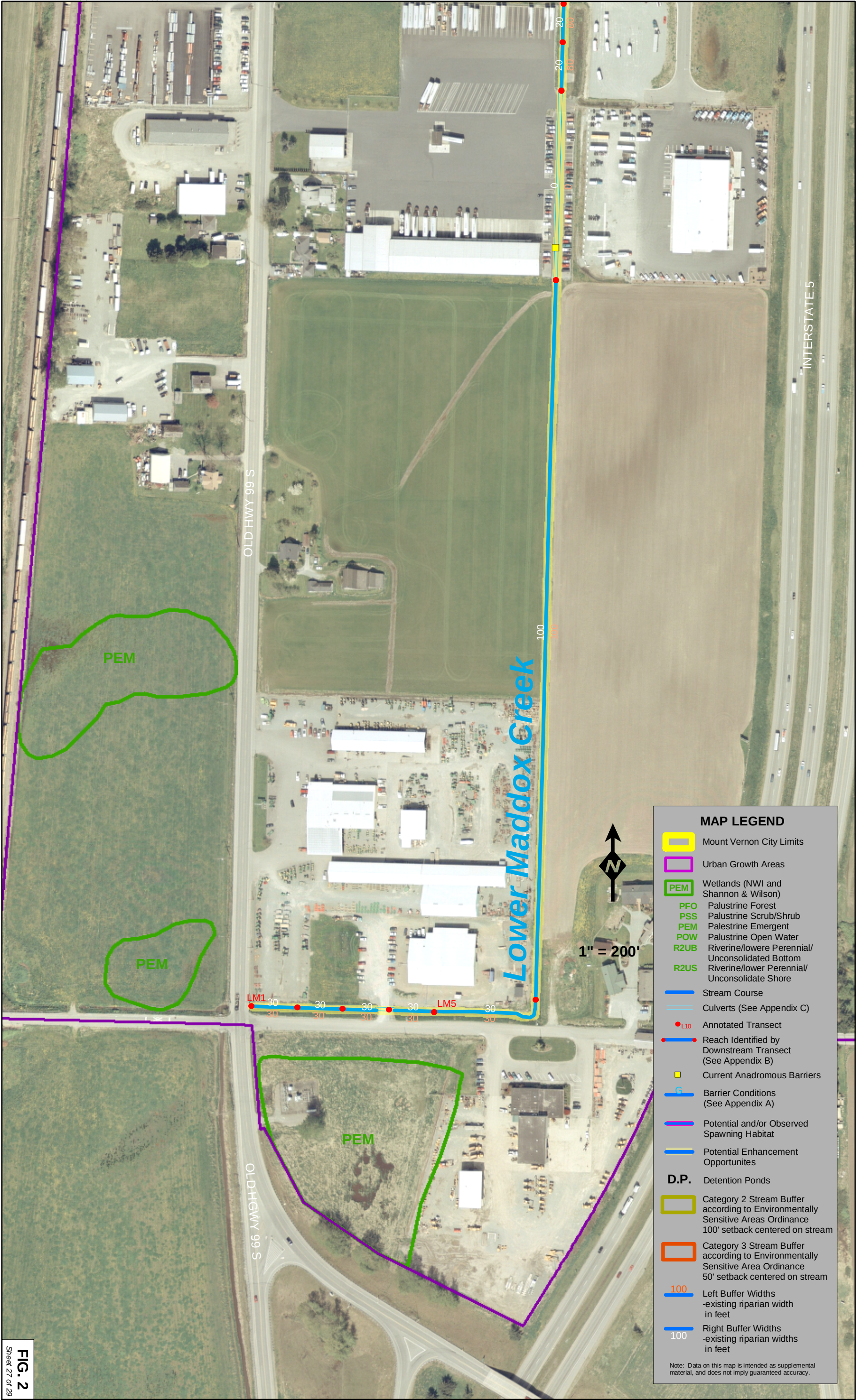


FIG. 2
Sheet 27 of 29

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number28

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox	x	Lower Maddox Creek
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries	x	
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	significantly degraded	impervious surface, commercial, agricultural, and suburban development, forest clearing, ditching and draining, channelization
B. Long/Short Term Water Storage	significantly degraded	impervious surface, commercial, agricultural, and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
C. Longitudinal Connectivity	significantly degraded	spanning of channel system, rights of way; impervious surface, development, forest clearing, ditching and draining
D. Rate and Timing of Inputs	significantly degraded	impervious surface, commercial, agricultural, and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain
E. Subsurface Water Inputs	significantly degraded	impervious surface, commercial,agricultural, and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain, rights of way
F. Surface Water Inputs	significantly degraded	impervious surface, commercial, agricultural, and suburban development, forest clearing, ditching and draining, channelization; decoupling of channel system from floodplain, rights of way
G. Water Withdrawls/ Additions	significantly degraded	withdrawls via ditching and draining/consolidation of flows; additions via stormwater inputs
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	significantly degraded	stormwater inputs, sediment sources from clearing/development, conversion of native forest to ornamental landscape and weeds
B. Organic Matter Inputs/Outputs	significantly degraded	conversion of native forest to ornamental landscape and weeds
C. Particulate Retention	significantly degraded	sediment inputs via clearing and development and rights of way
D. Water Contact Area	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
E. Water Residence Time	significantly degraded	ditching, draining, decoupling of channels from floodplains; filling of slopes and depressions; consolidated drainage
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	significantly degraded	clearing of natives, weeds, ornamentals
B. Native Plant Community	significantly degraded	clearing of natives, weeds, ornamentals
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	significantly degraded	clearing, development, rights of way, weeds, ornamentals
B. Patch Size	significantly degraded	clearing, development, rights of way, weeds, ornamentals
C. Proximity to Development/Human Intrusion	significantly degraded	dense suburban and commercial development
VII. General Comments		

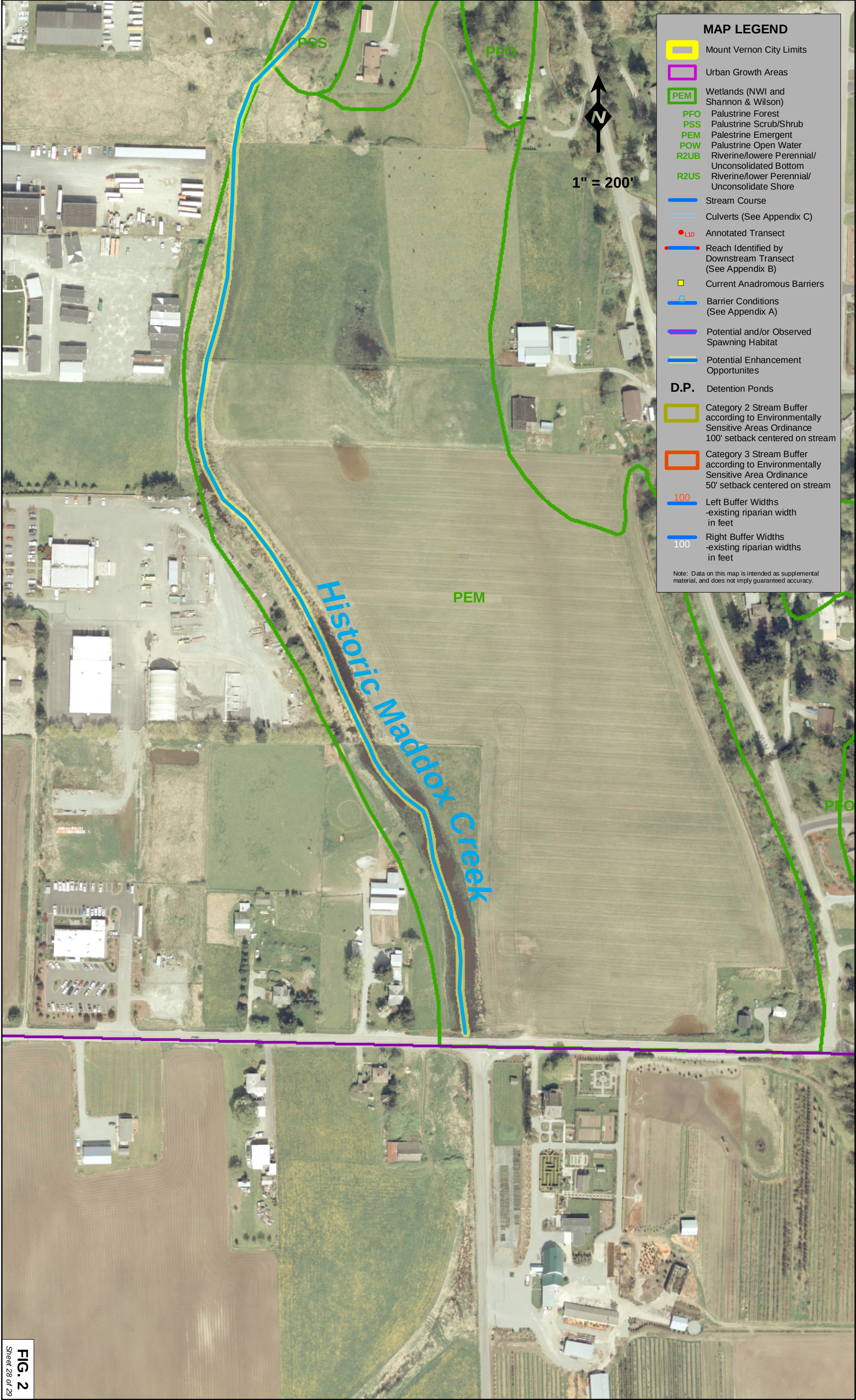


FIG. 2

Assessment of Waters/Wetland Ecosystem Conditions & Functions - City of Mount Vernon, Washington

Plate Number29

I. Major Drainage	Decision	Comments/Rationale
A. Carpenter		
B. Kulshan		
C. Maddox		
D. Nookachamps		
E. Trumpeter		
F. West Mt. Vernon		
G. Skagit River Tributaries		
II. Waters/Wetland Type		
A. Depression	x	
B. Riverine	x	
C. Slope	x	
III. Hydrology Functions and Indicators		
A. Energy Dissipation	relatively intact	
B. Long/Short Term Water Storage	relatively intact	
C. Longitudinal Connectivity	relatively intact	
D. Rate and Timing of Inputs	relatively intact	
E. Subsurface Water Inputs	relatively intact	
F. Surface Water Inputs	relatively intact	
G. Water Withdrawals/ Additions	relatively intact	
IV. Biogeochemistry Functions and Indicators		
A. Elemental Cycling	relatively intact	
B. Organic Matter Inputs/Outputs	relatively intact	
C. Particulate Retention	relatively intact	
D. Water Contact Area	relatively intact	
E. Water Residence Time	relatively intact	
V. Plant Community Functions and Indicators		
A. Characteristic Detrital Community	relatively intact	
B. Native Plant Community	relatively intact	
VI. Faunal Support/Habitat Functions and Indicators		
A. Patch Contiguity	relatively intact	
B. Patch Size	relatively intact	
C. Proximity to Development/Human Intrusion	somewhat degraded	some development
VII. General Comments		



MAP LEGEND

- Mount Vernon City Limits
- Urban Growth Areas
- PEM Wetlands (NWI and Shannon & Wilson)
 - PFO Palustrine Forest
 - PSS Palustrine Scrub/Shrub
 - PEM Palustrine Emergent
 - POW Palustrine Open Water
 - R2UB Riverine/lower Perennial/Unconsolidated Bottom
 - R2US Riverine/lower Perennial/Unconsolidate Shore
- Stream Course
- Culverts (See Appendix C)
- L10 Annotated Transect
- Reach Identified by Downstream Transect (See Appendix B)
- Current Anadromous Barriers
- Barrier Conditions (See Appendix A)
- Potential and/or Observed Spawning Habitat
- Potential Enhancement Opportunities
- D.P.** Detention Ponds
- Category 2 Stream Buffer according to Environmentally Sensitive Areas Ordinance 100' setback centered on stream
- Category 3 Stream Buffer according to Environmentally Sensitive Area Ordinance 50' setback centered on stream
- 100 Left Buffer Widths -existing riparian width in feet
- 100 Right Buffer Widths -existing riparian widths in feet

Note: Data on this map is intended as supplemental material, and does not imply guaranteed accuracy.

FIG. 2
Sheet 29 of 29