

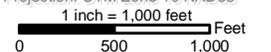
CITY OF SUMAS, WA

Shoreline Jurisdiction Vicinity Map

Sehome Planning & Development



Data Sources: Whatcom County Planning, Pictometry 2010 & the City of Sumas GIS.
 Projection: UTM Zone 10 NAD83

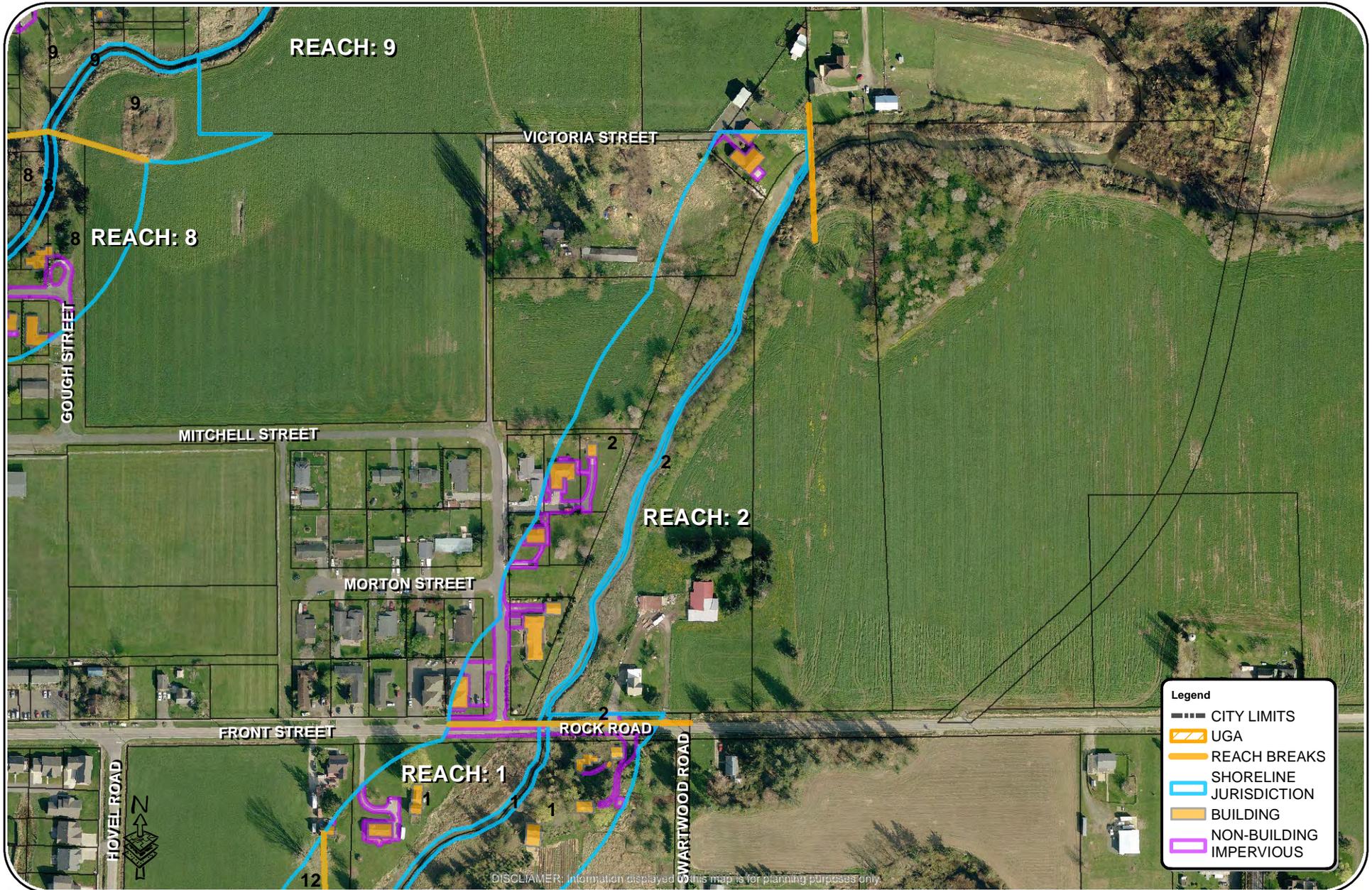


Land Use	Current Shoreline Designation	Urban. (Ref # 2)
	Current Land Use	Rural residential and Agriculture (pasture, hay), one green house and tree farm. (Ref # 3, 7)
	Zoning	Residential low density (9.6 ac), residential medium density (0.5 ac), residential high density (0.5 ac) (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Fall Chinook, cutthroat, fall chum and winter steelhead presence documented; Coho rearing; bull trout/Dolly Varden presence presumed. (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 10.7 ac. (Ref # 1)
	Aquatic vegetation	At one observation point there was no vegetation (Ref # 3); otherwise there is no data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Ten (10) – residential/mixed. (Ref # 1)
	Culverts/stormwater utilities	No data. Likely none (Ref #3).
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	One – Bone Creek. (Ref # 1, 3, 13)
	Impervious surface	Impervious 0.9 ac (8%) (Ref # 1)
	Roads/transportation	Partial residential driveway; Front Street and Rock Road at northern terminus of reach. (Ref # 3, 7)
	Soils	Briscot silt loam; Mt. Vernon fine sandy loam (Ref # 4)
	Topography	35 to 45 feet elevation. (Ref # 6)
	FEMA	100 year floodplain: Approximately half of reach; area associated with river and area near Front Street. (Ref # 1)
	Terrestrial Vegetation	Terrestrial vegetation within the reach is mixed. A large portion of the reach is pasture/agricultural land or lawns associated with residences– these areas are vegetated with native and non-native herbaceous species. Portions of the reach (maybe one-third total) adjacent to the stream also have a native mixed deciduous tree and shrub cover. Himalayan blackberry patches are present along the stream; tansy ragwort and reed canarygrass also present (all non-native and invasive). A tree farm with evergreen trees is present near the northern extent. Overall, vegetation provides little shade to the stream. (Ref # 3, 7)
Riparian Function	Aquatic substrate type	Silt, high quantity substrate fines. (Ref # 3)
	Channel confinement	Channel appears unconfined due to topography. (Ref # 3, 6, 9)
	Channel gradient	Low (0.08%). (Ref # 9)
	Channel migration zone	Unknown.
	Creosote structures	No data.
	In-water structures	None observed. (Ref # aerials)
	Fish passage blockages	None. (Ref # 13)
	LWD presence	Probably low due to agriculture in area and condition of the buffers. (Ref # 3, 7, 9)
	Riffle/pool analysis	Probably low – lack of LWD and high fine content. (Ref # 3, 9)

	DOE 303(d)	Category 2 water of concern for DO. (Ref # 10)
	Toxic sites/land fills	None listed. However, two hazardous waster generators in the vicinity (Front Street). (Ref # 8)
	Point source pollution	Scattered low intensity residential uses. Higher intensity agriculture, including livestock in reach and up stream. (Ref # 3, 7)
Historic & Cultural	Historic aerials	None available on-line to review. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	Reference near Rock Road. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Precipitation dominated (snow and rain), flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture.</p> <p>Impaired overall, but some areas present that are functioning. Majority of reach has been converted to agriculture, with few areas of native vegetation (trees and shrubs). Majority of the reach is pasture or crop.</p> <p>Terrestrial: impaired overall due to agriculture; small pockets of habitat along river are isolated.</p> <p>Aquatic: At risk due to fine sediment problem from Swift Creek drainage; also possible migration restriction at pump station in Abbotsford B.C.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, terrestrial and aquatic habitat. However, sustainability affected by private property ownership.
	Priority Actions	<ul style="list-style-type: none"> ▪ Water quality improvement ▪ Establish wider vegetated buffers on river
	Current Enhancement Projects	None known.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated corridors. Particularly riparian corridors. ▪ Enhance riparian buffer: increase width and native species diversity of native shoreline vegetation in pasture areas.

Land Use	Current Shoreline Designation	Urban. (Ref # 2)
	Current Land Use	Rural residential and AG (pasture, hay). (Ref # 3, 7)
	Zoning	Residential high density (6.7 ac), residential low density (0.1 ac) (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Fall Chinook, cutthroat, fall chum and winter steelhead presence documented; Coho rearing; bull trout/Dolly Varden presence presumed. (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 6.8 ac. (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Eight (8) – residential/garage. (Ref # 1)
	Culverts/stormwater utilities	No data. Not likely (Ref # 3,7)
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 3, 13)
	Impervious surface	Impervious 1.0 ac (15%). (Ref # 1)
	Roads/transportation	Residential access road, two residential driveways; Front Street at southern terminus of reach. (Ref # 3, 7)
	Soils	Briscot silt loam; Mt. Vernon fine sandy loam (Ref # 4)
	Topography	35 to 40 feet elevation. (Ref # 6)
	FEMA	Entire reach in 100 year floodplain. (Ref # 6)
	Terrestrial Vegetation	The majority of the reach is developed with rural residences, associated lawns, pasture, or agricultural (corn). Pasture areas are vegetated with native and non-native herbaceous species, including reed canarygrass, an invasive species. A number of native deciduous trees and shrubs are present along the northern extent, with a Himalayan blackberry understory. Vegetation provides little shading to the stream overall. (Ref # 3)
Riparian Function	Aquatic substrate type	Silt, high quantity substrate fines. (Ref # 3, 9)
	Channel confinement	Channel appears unconfined due to topography. (Ref # 3, 6, 9)
	Channel gradient	Low (0.08%). (Ref # 9)
	Channel migration zone	Unknown.
	Creosote structures	No data.
	In-water structures	No data.
	Fish passage blockages	None. (Ref # 13)
	LWD presence	Probably low, some recruitment potential in parts of reach. (Ref # 3, 7, 9)
	Riffle/pool analysis	Probably low – lack of LWD and high fine content. (Ref # 3, 9)
	DOE 303(d)	Category 5 for DO, fecal Category 4A for fecal coliform (TMDL approved by EPA). (Ref # 10)
	Toxic sites/land fills	None listed. However, two hazardous waster generators in the vicinity (Front Street). (Ref # 8)
	Point source pollution	Scattered low intensity residential uses, agricultural pasture. (Ref # 3, 7)

Historic & Cultural	Historic aerials	None available on-line to review. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Precipitation dominated (snow and rain), flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture.</p> <p>Impaired, with one large area present that is functioning (northern half of reach). Agriculture (crop) and residential development has reduced native vegetation, however, a large section of native trees and shrubs remains in north half.</p> <p>Terrestrial: impaired overall due to agriculture and residential development; small pockets of habitat along river in north half with some connectivity to upland habitat outside of shoreline jurisdiction.</p> <p>Aquatic: At risk due to fine sediment problem from Swift Creek drainage; also possible migration restriction at pump station in Abbotsford B.C.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, terrestrial and aquatic habitat. However, sustainability affected by private property ownership.
	Priority Actions	<ul style="list-style-type: none"> ▪ Enhance and preserve riparian corridor. ▪ Water quality improvement.
	Current Enhancement Projects	None known.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated corridors. ▪ Enhance riparian buffer: increase width of native shoreline vegetation.



CITY OF SUMAS, WA

Shoreline Jurisdiction

Reach 2

Sehome Planning & Development

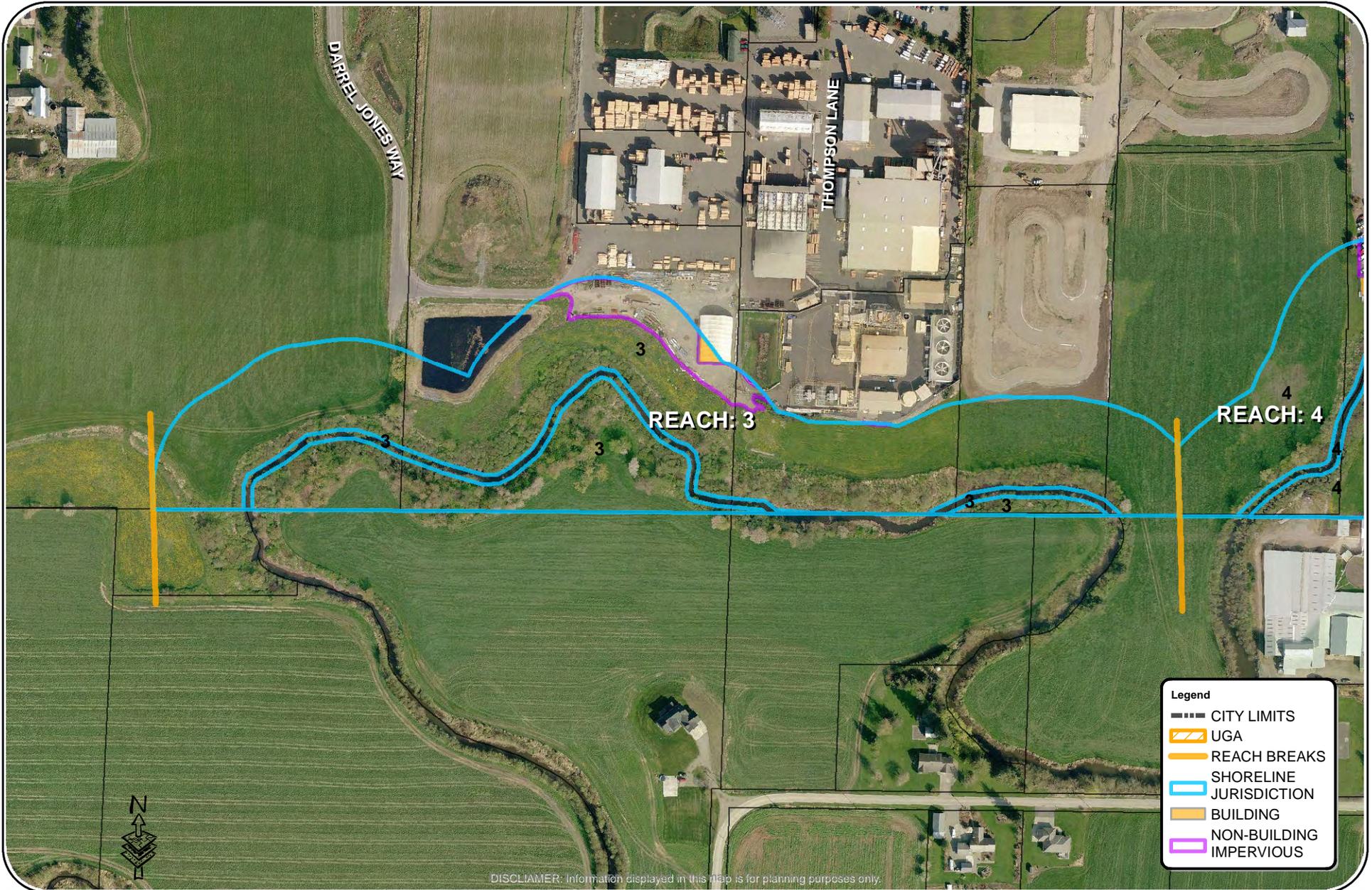


Wilson
SURVEY/ENGINEERING
Data Sources: Whatcom County Planning,
Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83

1 inch = 300 feet
0 150 300 Feet

Land Use	Current Shoreline Designation	Conservancy. Area adjacent to creek designated natural system protection area in Comp Plan. (Ref # 2)
	Current Land Use	AG (crop), industrial. (Ref # 3, 7)
	Zoning	Industrial (14.6 ac), agriculture (0.7 ac). (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 15.3 ac (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	One (1). (Ref # 1)
	Culverts/stormwater utilities	No data. Not likely. (Ref # 3, 7).
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 3, 13)
	Impervious surface	Impervious 0.9 ac (6%) (Ref # 1)
	Roads/transportation	None. (Ref # 7)
	Soils	Briscot silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	All but a few fringe buffer areas are in the 100 year floodplain. (Ref # 1)
	Terrestrial Vegetation	Approximately half of the reach is characterized by native deciduous shrubs and some trees. The remainder of the reach is pasture/agricultural land – these areas are vegetated with native and non-native herbaceous species. Native vegetation present has the potential to provide good habitat, but provides shade and overhanging vegetation over the creek. Patches of Himalayan blackberry are present throughout the reach. (Ref # 3)
Riparian Function	Aquatic substrate type	No data.
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	Low (0.07%). (Ref # 9)
	Channel migration zone	Unknown.
	Creosote structures	No data.
	In-water structures	No data.
	Fish passage blockages	None. (Ref # 13)
	LWD presence	No data. Low recruitment potential, mostly shrubs and small trees. (Ref # 3, 9)
	Riffle/pool analysis	No data.
	DOE 303(d)	Category 4A for fecal and DO (TMDL approved by EPA). (Ref # 10)
	Toxic sites/land fills	None listed. However, industrial area is located just north of reach where a confirmed toxic site is located. (Ref # 8)
	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage;

		anthropogenic nitrate concentrations in surface water (Ref # 9). Agriculture and higher intensity industrial uses and possible sources are located adjacent to the reach. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 3, 7)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture.</p> <p>Functioning, with some impairments. Vegetation moderate in majority of reach, with some areas not as dense or with fewer trees. Reach flanked by agriculture and industry. Quality of vegetation has benefited from location near property boundaries. Agriculture reduces width of vegetation in some areas.</p> <p>Terrestrial: Impaired.</p> <p>Aquatic: Functioning with impairment (water quality and temperature). Most likely functioning better for fish support than Sumas River.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	<p>Sustainable at current levels: hydrologic, shoreline vegetation, and aquatic habitat. However, sustainability affected by private property ownership.</p> <p>Terrestrial habitat (without major change in surround land use).</p>
	Priority Actions	<ul style="list-style-type: none"> ▪ Preservation of current riparian corridor. ▪ Water quality improvement.
	Current Enhancement Projects	None known. Designated as natural system protection area in Comp Plan.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Enhance riparian buffer: increase width and species diversity of native shoreline vegetation; add evergreen species.



DISCLAIMER: Information displayed in this map is for planning purposes only.

Legend

- CITY LIMITS
- ▨ UGA
- REACH BREAKS
- SHORELINE JURISDICTION
- BUILDING
- NON-BUILDING IMPERVIOUS



CITY OF SUMAS, WA

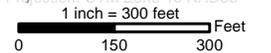
Shoreline Jurisdiction

Reach 3

Sehome Planning & Development



Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83



SHORELINE AREA: Johnson Creek from railroad (south of Front Street) to city limit immediately south.

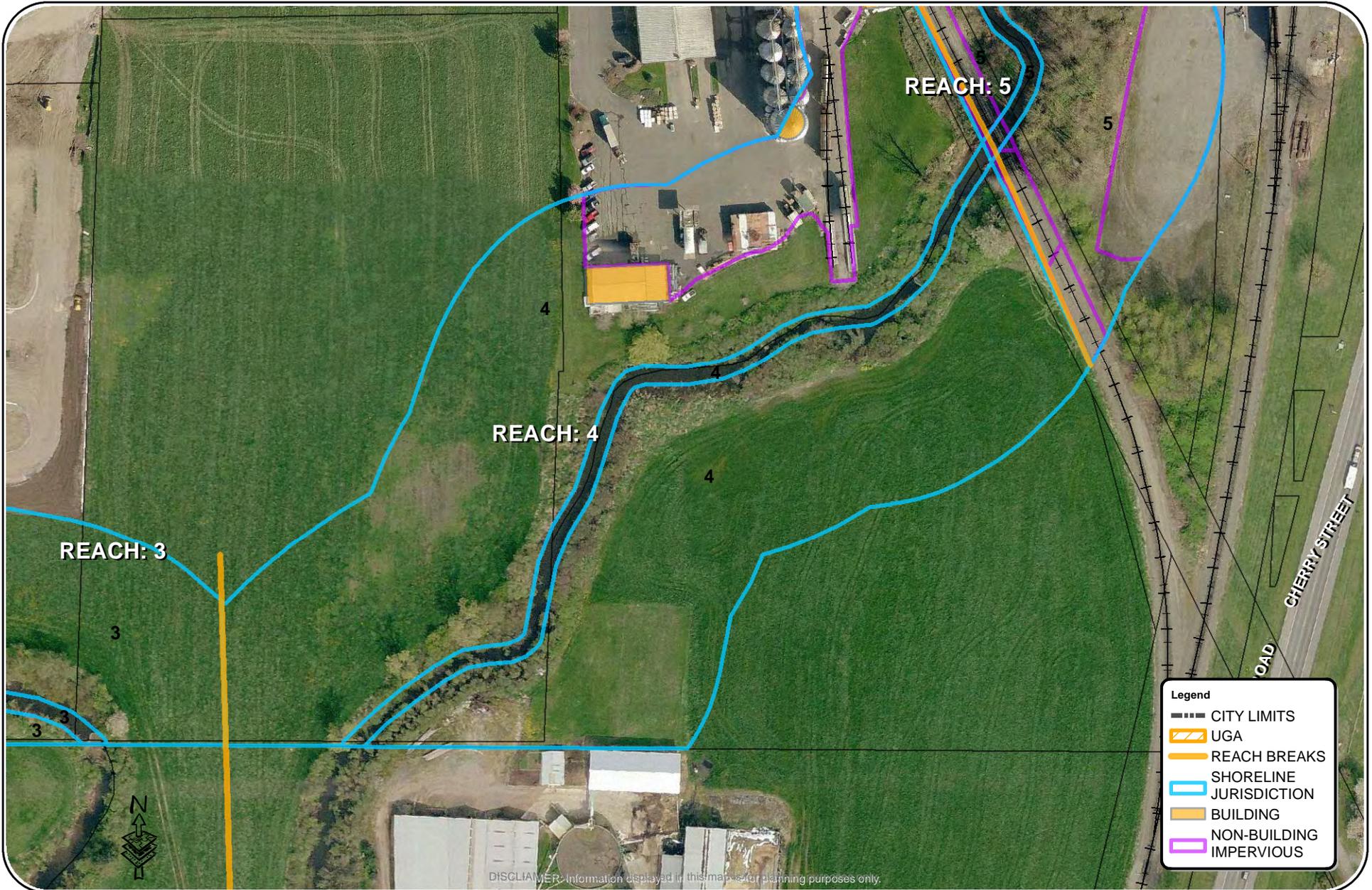
REACH NUMBER: # 4

Land Use	Current Shoreline Designation	Conservancy, except Urban adjunct to industrial use on north side of creek. Some natural system protection area in southwest portion of reach. (Ref # 2)
	Current Land Use	AG (crop, livestock), industrial. (Ref # 3, 7)
	Zoning	Industrial (3.0 ac), agriculture (6.4 ac). (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. The majority of wetland indicated north of the stream appears to be farmed (corn). (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 9.4 ac (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Two (2) – industrial. (Ref # 1, 7)
	Culverts/stormwater utilities	No data. Likely none (Ref # 3, 7)
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None (Ref # 1, 13)
	Impervious surface	Impervious 1.2 ac (13%) (Ref # 1)
	Roads/transportation	Railroad at northern terminus of reach, railspur near industrial use. (Ref # 1, 3, 7)
	Soils	Briscot silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	All but a few small buffer areas are in the 100 year floodplain. (Ref # 1)
	Terrestrial Vegetation	There is no road access to this reach; vegetation data is from aerial photographs. Approximately two-thirds of the reach is characterized by pasture/agricultural land – these areas are vegetated with native and non-native herbaceous or planted in corn. The remaining buffer areas are vegetated with deciduous shrubs, an occasional deciduous tree, and likely patches of Himalayan blackberry. Overall vegetation provides little shading. (Ref # 3)
Riparian Function	Aquatic substrate type	No data.
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	No data. (Ref # 13)
	Channel migration zone	Unknown.
	Creosote structures	No data; RR trestle?
	In-water structures	None observed. (Ref # 7)
	Fish passage blockages	None. (Ref # 13)
	LWD presence	No data. Low recruitment potential, mostly shrubs and small trees. (Ref # 3, 9)
	Riffle/pool analysis	No data.
	DOE 303(d)	Category 4A for fecal and DO (TMDL approved by EPA). (Ref # 10)

SHORELINE AREA: Johnson Creek from railroad (south of Front Street) to city limit immediately south.

REACH NUMBER: # 4

	Toxic sites/land fills	None listed. However, industrial area is located just north of reach where a confirmed toxic site is located. (Ref # 8)
	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Agriculture and higher intensity industrial uses and possible sources are located adjacent to the reach. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 3, 7)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture.</p> <p>Impaired. Vegetation mostly shrubs, likely non-native. Agriculture (crop) has impacted buffer width and vegetation. Most of reach undeveloped with impervious surfaces.</p> <p>Terrestrial: Impaired.</p> <p>Aquatic: Functioning with impairment (water quality and temperature). Very little thermal cover. Most likely functioning better for fish support than Sumas River.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	<p>Sustainable at current levels: hydrologic, shoreline vegetation, and aquatic habitat. However, sustainability affected by private property ownership.</p> <p>Terrestrial habitat (without major change in surround land use).</p>
	Priority Actions	<ul style="list-style-type: none"> ▪ Preservation of riparian corridor. ▪ Water quality improvement.
	Current Enhancement Projects	None known. South portion of reach designated as natural system protection area in Comp Plan.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Enhance riparian buffer: increase width and species diversity of native shoreline vegetation; add evergreen species. ▪ Removal of any invasive species.



Legend

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- SHORELINE JURISDICTION
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CITY OF SUMAS, WA

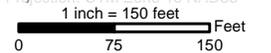
Shoreline Jurisdiction

Reach 4

Sehome Planning & Development



Wilson
SURVEY/ENGINEERING
Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83



SHORELINE AREA: Johnson Creek from railroad (west of Cherry Street) to railroad (south of Front Street).

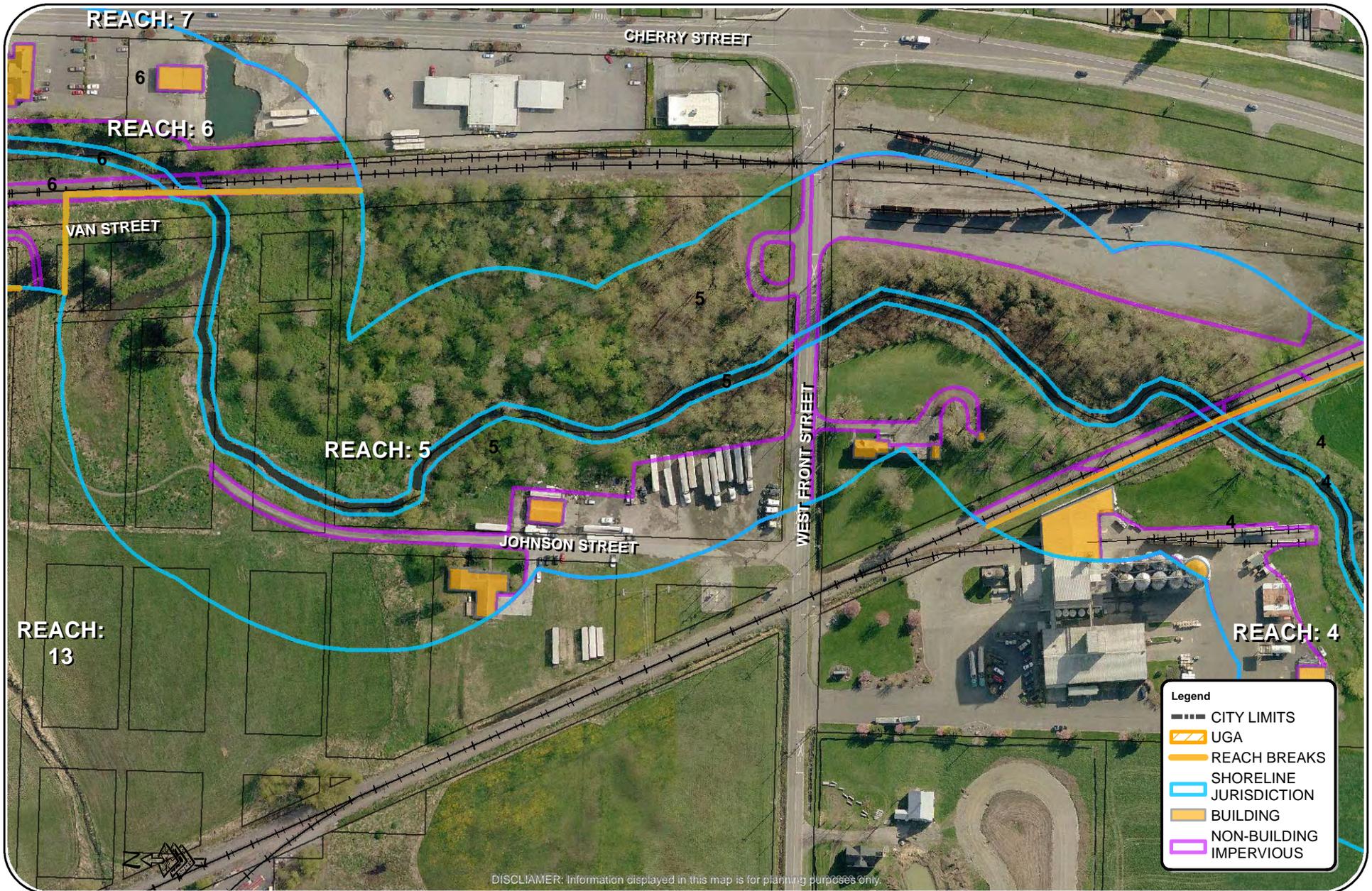
REACH NUMBER: # 5

Land Use	Current Shoreline Designation	Conservancy. Area adjacent to creek designated natural system protection area in Comp Plan. (Ref # 2)
	Current Land Use	AG, industrial, residential, railroad corridors. (Ref # 3, 7)
	Zoning	Business traffic-oriented (3.9 ac), industrial (14.7 ac). (Ref # 1, 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present. (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres in reach	Total: 18.6 ac. (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Four (4) – business. (Ref # 1)
	Culverts/stormwater utilities	No data. Likely none (Ref # 3, 7)
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 3, 13)
	Impervious surface	Impervious 4.4 ac (24%) (Ref # 1)
	Roads/transportation	Railroad at south and north end of reach, arterial bisects reach (Front Street), one access road (Johnson Street). (Ref # 3, 7)
	Soils	Briscot silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	All but three small areas of buffer are in the 100 year floodplain. (Ref # 1)
	Terrestrial Vegetation	The majority of the reach is characterized by native mixed deciduous trees and shrubs. Native vegetation has the potential to provide shading to the stream and good habitat. Smaller patches within the reach contain pasture – these areas are vegetated with native and non-native herbaceous species, or reed canarygrass, an invasive species. A patch of Himalayan blackberry is present near the northern end. A wetland mitigation site and native plantings are also located near the northern end. A trucking business and truck parking is located mid-reach on Johnson Street. (Ref # 3, 7)
Riparian Function	Aquatic substrate type	No data.
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	No data. (Ref # 13)
	Channel migration zone	Unknown.
	Creosote structures	No data; railroad trestles?
	In-water structures	None observed. (Ref # 7)
	Fish passage blockages	None. (Ref # 13)
	LWD presence	No data. Low recruitment potential, mostly shrubs and small trees. (Ref # 3, 9)
	Riffle/pool analysis	Substantial pool and backwater habitat, potentially spawnable riffles. (Ref # 9)
	DOE 303(d)	Category 4A for fecal and DO (TMDL approved by EPA) – up stream of Front Street. (Ref # 10)

SHORELINE AREA: Johnson Creek from railroad (west of Cherry Street) to railroad (south of Front Street).

REACH NUMBER: # 5

	Toxic sites/land fills	None listed. (Ref # 8)
	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Scattered low intensity residential uses, light agriculture, some light industrial. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 3, 7)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture in the upper watershed.</p> <p>Functioning, with some areas impaired. Many areas in this reach are undeveloped. Undeveloped areas are generally vegetation with native trees and shrubs. Developed areas are generally open space agriculture; some industrial and residential use.</p> <p>Terrestrial: Functioning in some areas (~50%).</p> <p>Aquatic: Functioning with impairment (water quality). Thermal cover better in this reach. Most likely functioning better for fish support than Sumas River.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, and terrestrial & aquatic habitat. However, sustainability affected by private property ownership.
	Priority Actions	<ul style="list-style-type: none"> ▪ Preservation of riparian corridor and terrestrial habitat. ▪ Water quality improvement.
	Current Enhancement Projects	A wetland mitigation project is located at the western end of the reach. Designated as natural system protection area in Comp Plan.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated corridors. Particularly riparian corridors. ▪ Enhance riparian buffer: increase width of native shoreline vegetation in pasture areas. ▪ Removal of invasive species (Himalayan blackberry and reed canarygrass). ▪ Relocate truck parking outside of shoreline jurisdictional area.



CITY OF SUMAS, WA

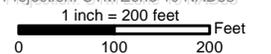
Shoreline Jurisdiction

Reach 5

Sehome Planning & Development

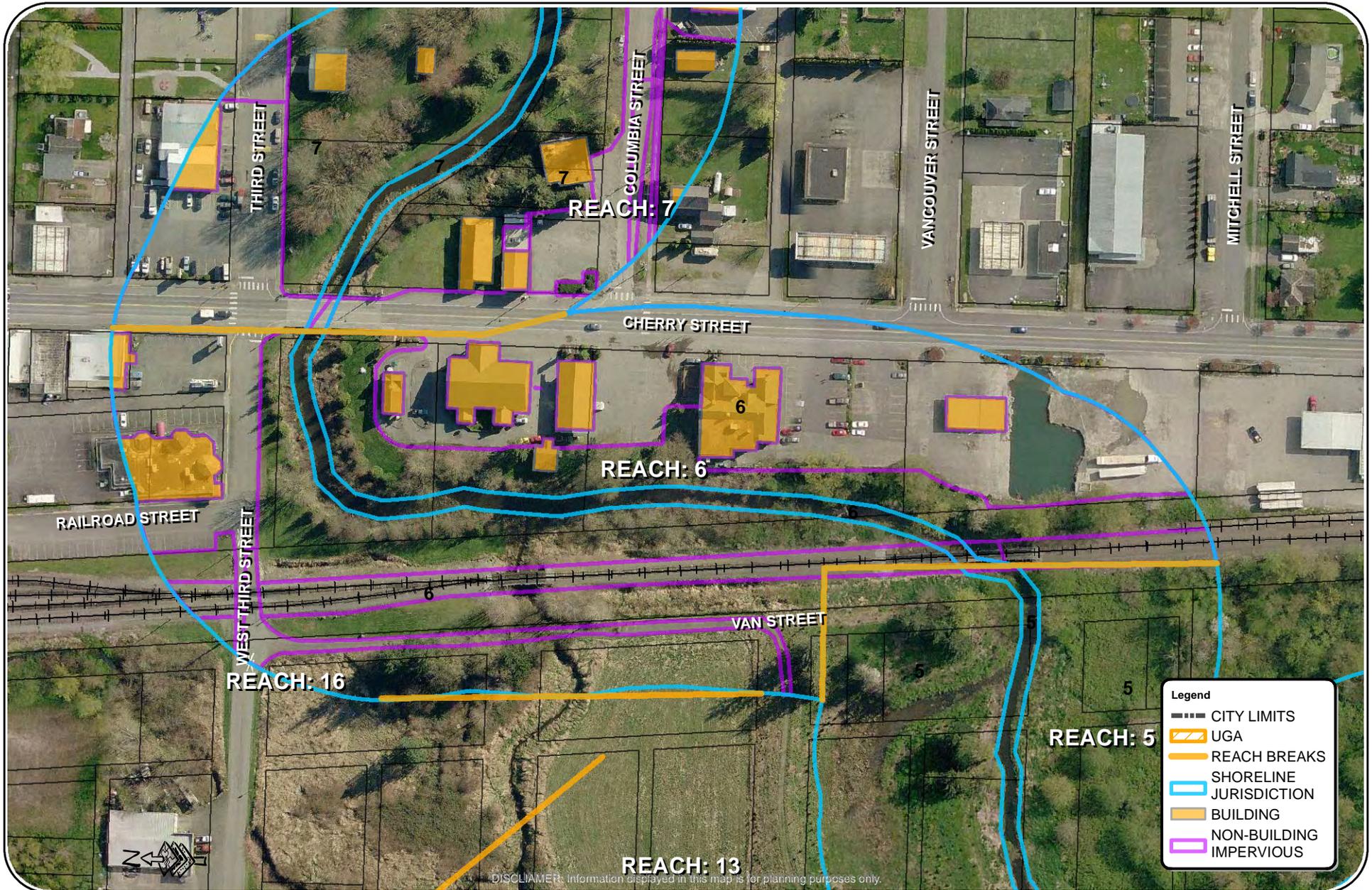


Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83



Land Use	Current Shoreline Designation	Urban (Ref # 2)
	Current Land Use	Business, railroad corridor. (Ref # 3, 7)
	Zoning	Business traffic-oriented (4.2 ac), business district general (1.1 ac), industrial (3.2 ac). (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; Fall chum (to Sumas Creek only) and winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (DEA report). (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 8.5 ac (Ref # 1)
	Aquatic vegetation	Reed canarygrass dominates the majority of the creek channel. (Ref # 3)
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Eight (8) – business. (Ref # 1)
	Culverts/stormwater utilities	No data. No culvert for the railroad, bridge crossing (Ref # 3).
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	One - Sumas Creek. (Ref # 1, 3, 13)
	Impervious surface	Impervious 4.7 ac (55%) (Ref # 1)
	Roads/transportation	Railroad runs entire length of reach, retail business parking, arterial (Third Street), major arterial (Cherry Street) at northern terminus of reach. (Ref # 3, 7)
	Soils	Briscot silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	Entire reach in the 100 year floodplain (some railroad areas excluded). (Ref # 1)
	Terrestrial Vegetation	A little less than half of the reach is characterized by native mixed trees and shrubs. Multiple invasive species observed in the understory. Much of the channel is vegetated with reed canarygrass. The majority of vegetation does not provide adequate shading over the channel. The remainder of the reach is developed (commercial, railway, roads). (Ref # 3)
Riparian Function	Aquatic substrate type	No data
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	No data. (Ref # 13)
	Channel migration zone	Unknown.
	Creosote structures	No data/ none observed (Ref # 3, 7)
	In-water structures	No data/ none observed (Ref # 3, 7) railroad bridge??
	Fish passage blockages	None. (Ref # 13)
	LWD presence	No wood observed. Low recruitment potential, mostly shrubs and small trees. (Ref # 3, 9)
	Riffle/pool analysis	Substantial pool and backwater habitat, potentially spawnable riffles. (Ref # 9)
	DOE 303(d)	None listed. (Ref # 10)
	Toxic sites/land fills	One leaking underground storage tank listed. (Ref # 8)

	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Retail business, including fuel stations, and railroad dominate uses in reach. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 3, 7)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture in the upper watershed.</p> <p>Functioning, with impairments. Native trees and shrubs located throughout the reach which provides some shading and habitat, however many areas of the understory are dominated by non-native, invasive species. Only about 50% of the buffer is vegetated.</p> <p>Terrestrial: Impaired.</p> <p>Aquatic: Functioning, with impairments (water quality, thick vegetation in channel).</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	<p>Sustainable at current levels: hydrologic, shoreline vegetation, and aquatic habitat. However, sustainability affected by private property ownership.</p> <p>Terrestrial habitat (without major change in adjacent land use).</p>
	Priority Actions	<ul style="list-style-type: none"> ▪ Preservation of riparian corridor. ▪ Water quality improvement.
	Current Enhancement Projects	None known.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated corridors. Particularly riparian corridors. ▪ Enhance riparian buffer: increase width of native shoreline vegetation, add vegetation to provide shading. ▪ Remove invasive species (Himalayan blackberry, field bind weed).



CITY OF SUMAS, WA

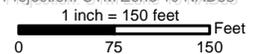
Shoreline Jurisdiction

Reach 6

Sehome Planning & Development

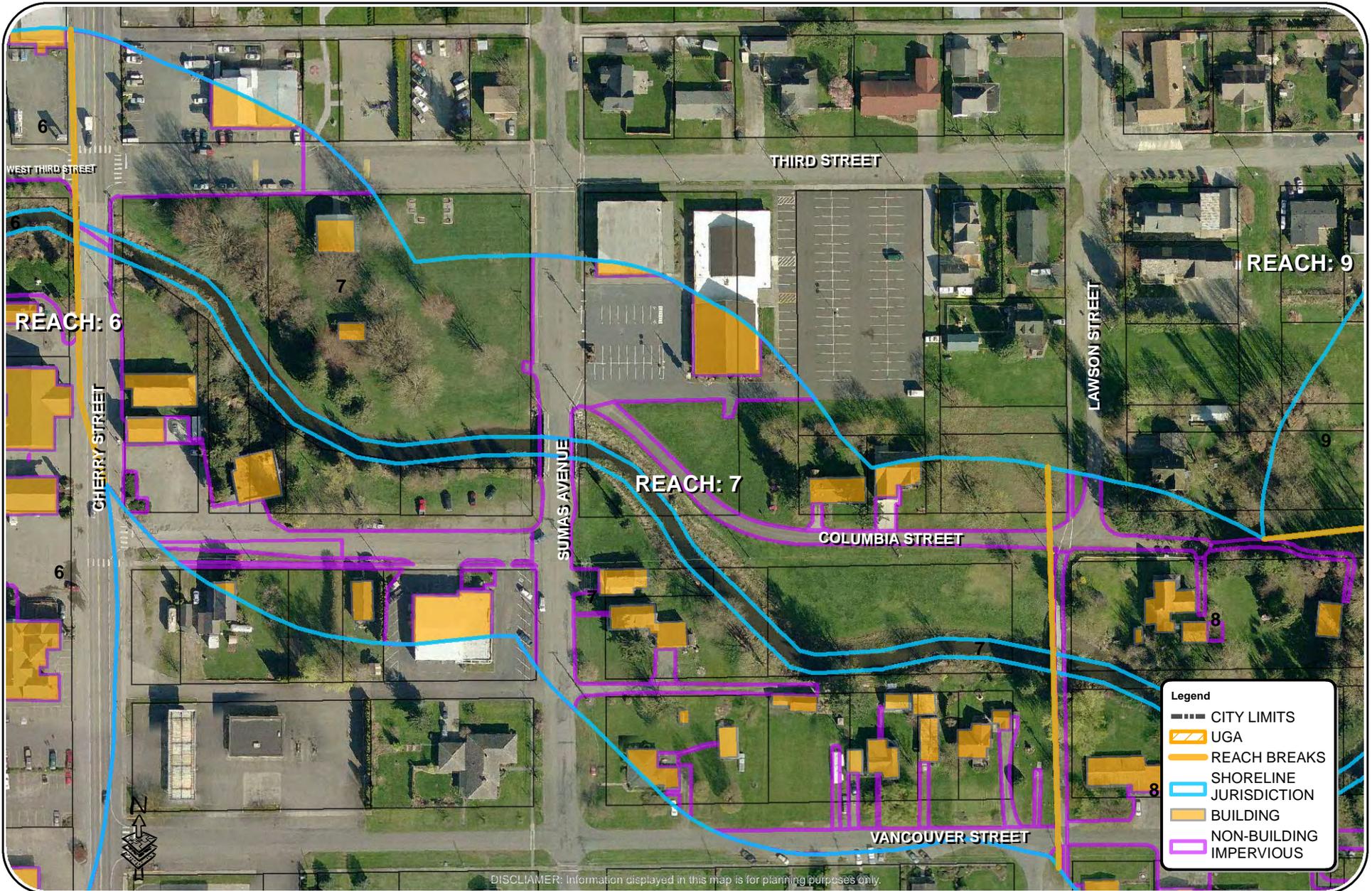


Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83



Land Use	Current Shoreline Designation	Urban (Ref # 2)
	Current Land Use	Residential, public park, undeveloped parcels, business. (Ref # 3, 7)
	Zoning	Residential high density (6.2 ac), business district general (0.8 ac), business low impact (1.7 ac), public (2.0 ac), business traffic-oriented (0.9 ac), industrial (0.04 ac), (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; Fall chum and winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 11.7 ac (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Twenty-seven (27) – mixed uses. (Ref # 1)
	Culverts/stormwater utilities	No data. Culverts under Cherry Street and Sumas Avenue (Ref # 3, 7)
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 3, 13)
	Impervious surface	Impervious 4.4 ac (38%) (Ref # 1)
	Roads/transportation	One major arterial (Cherry Street) at western terminus of reach, three arterials (Sumas Ave, Vancouver St, Columbia St). (Ref # 1)
	Soils	Briscot silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	Entire reach in the 100 year floodplain. (Ref # 1)
	Terrestrial Vegetation	The majority of the reach is vegetated with grasses and herbaceous species to the top of creek bank. Grasses are mowed, but not directly adjacent to the bank. Deciduous trees, native and non-native, are present in the park. A limited number of deciduous trees and shrubs are located south of the channel. Himalayan blackberry patches are present along the stream. Vegetation provides little to no shading. (Ref # 3)
Riparian Function	Aquatic substrate type	Silt (Ref # 3)
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	No data. (Ref # 13)
	Channel migration zone	Unknown.
	Creosote structures	No data/ non observed (Ref # 3, 7)
	In-water structures	No data/ none observed (Ref # 3, 7)
	Fish passage blockages	None. (Ref # 13)
	LWD presence	None observed. Tree cover along the shoreline is low to moderate. Recruitment potential is very low. (Ref # 3, 7, 9)
	Riffle/pool analysis	Low, habitat is homogenous. (Ref # 9)
	DOE 303(d)	Category 4A for fecal and DO (TMDL approved by EPA) – downstream of Sumas Avenue. (Ref # 10)

	Toxic sites/land fills	None listed. (Ref # 8)
	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Scattered urban residential uses, roadways. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 16)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	Sumas Methodist Church, Thomas House. (Ref # 5)
	Parks & public access	Public park at the northwestern end of reach; trail system planned. (Ref # 2, 3)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture in the upper watershed.</p> <p>Impaired; native vegetation lacking, very little diversity of species or structure, no thermal cover. Some larger trees in public park but distance from creek offers little cover.</p> <p>Terrestrial: Impaired, but potential for improvement in areas. Aquatic: Functioning, but impaired.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, and terrestrial & aquatic habitat. However, sustainability affected by private property ownership.
	Priority Actions	<ul style="list-style-type: none"> ▪ Enhance riparian buffer. ▪ Water quality improvement.
	Current Enhancement Projects	None known
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Enhance riparian buffer: increase width and species diversity of native shoreline vegetation, install plants along bank for shading. ▪ Preserve undeveloped property north side of creek (possibility of city ownership?). ▪ Remove invasive species.



CITY OF SUMAS, WA

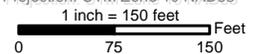
Shoreline Jurisdiction

Reach 7

Sehome Planning & Development

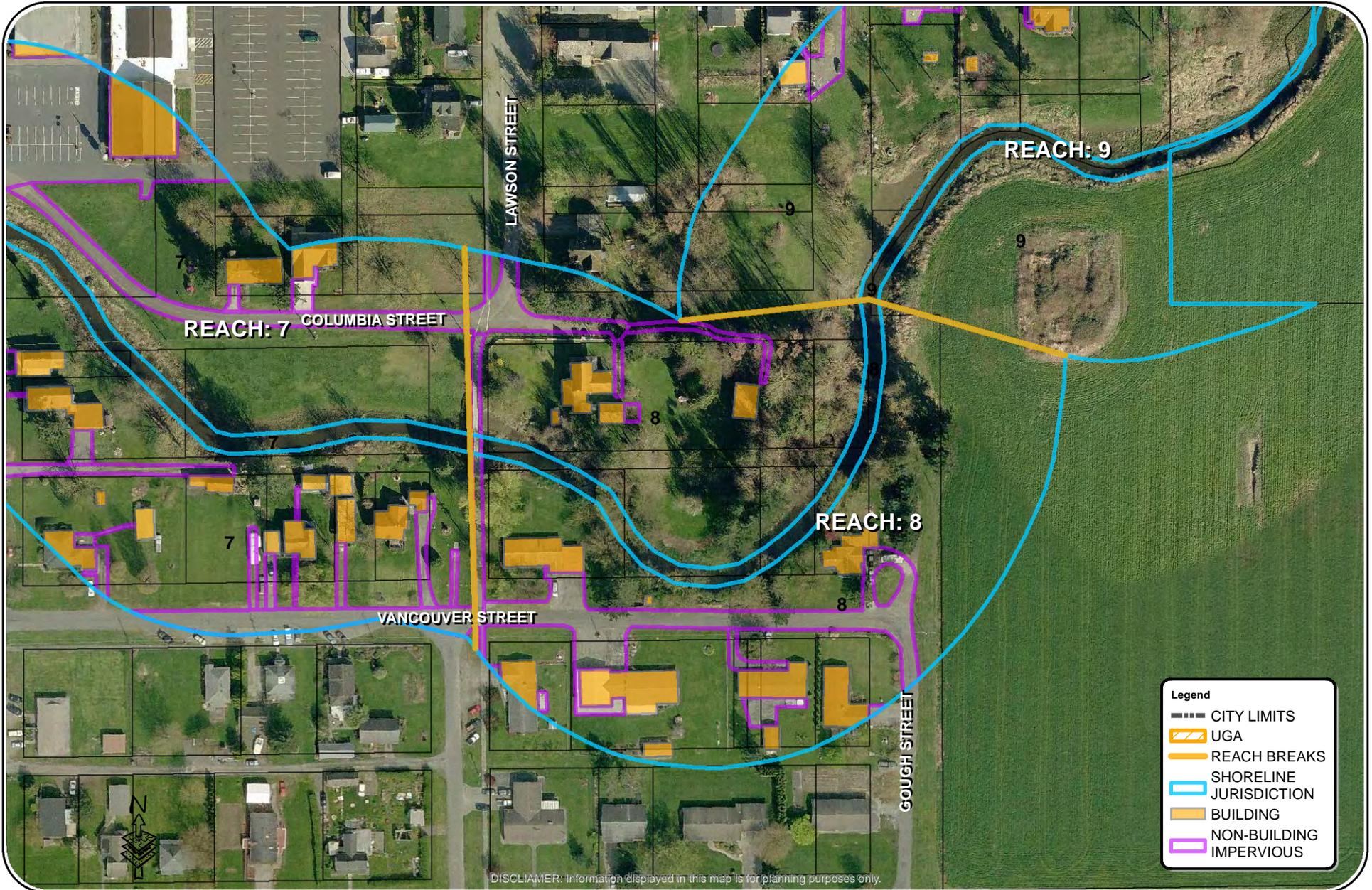


Wilson
SURVEY/ENGINEERING
Data Sources: Whatcom County Planning,
Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83



Land Use	Current Shoreline Designation	Urban (Ref # 2)
	Current Land Use	Residential. (Ref # 3, 7)
	Zoning	Residential high density (5.4 ac), agriculture (0.8 ac). (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; Fall chum and winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 6.2 ac (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Twelve (12) – residential. (Ref # 1)
	Culverts/stormwater utilities	No data; unlikely (Ref #3, 7).
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 3, 13)
	Impervious surface	Impervious 1.2 ac (19%) (Ref # 1)
	Roads/transportation	Two residential driveways; arterial access (Vancouver St). (Ref # 1, 7, 9)
	Soils	Briscot silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	Entire reach is in the 100 year floodplain, except for a very small portion of buffer. (Ref # 1)
	Terrestrial Vegetation	The majority of the reach is characterized by native mixed trees and shrubs. Small areas of lawn from adjacent residences encroach in a number of places. A small area in the northeast corner is agricultural land (corn). Native vegetation present has the potential to provide good habitat. (Ref # 3)
Riparian Function	Aquatic substrate type	No data.
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	No data. (Ref # 13)
	Channel migration zone	Unknown.
	Creosote structures	No data/ none observed (Ref # 3, 7)
	In-water structures	No data/ none observed (Ref # 3, 7)
	Fish passage blockages	None. (Ref # 13)
	LWD presence	No data, unknown. Low to moderate recruitment due to tree density is reach. (Ref # 3, 6, 9)
	Riffle/pool analysis	Low, habitat is homogenous. (Ref # 9)
	DOE 303(d)	Category 4A for fecal and DO (TMDL approved by EPA). (Ref # 10)
	Toxic sites/land fills	None listed. (Ref # 8)
	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Urban residential

		uses. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 16)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	Planned trail. (Ref # 2)
Function Analysis	Reach Function <ul style="list-style-type: none"> Hydrologic Shoreline Vegetation Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture in the upper watershed.</p> <p>Functioning, with some areas impaired. Vegetation is mostly native with good diversity and structure; lawn encroaches into some areas. Overall this reach offers better habitat potential even though located in a residential area. Eastern end of reach adjacent to agricultural area (crop) – vegetation in this area is impaired.</p> <p>Terrestrial: Functioning, with impairments (residential uses). Aquatic: Functioning, with impairments.</p>
	Limiting Factors	<ul style="list-style-type: none"> Existing land uses Water quality Zoning
	Functions <ul style="list-style-type: none"> Sustainable Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, and terrestrial & aquatic habitat. However, sustainability affected by private property ownership and potential land development.
	Priority Actions	<ul style="list-style-type: none"> Preservation of riparian corridor – vegetation well established and native. Good habitat potential. Water quality improvement.
	Current Enhancement Projects	None known.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> Preservation of terrestrial vegetation, habitat and associated corridors. Particularly riparian corridors. Enhance riparian buffer: increase width of native shoreline vegetation in lawn areas.



CITY OF SUMAS, WA

Shoreline Jurisdiction

Reach 8

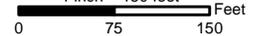
Sehome Planning & Development



Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.

Projection: UTM Zone 10 NAD83

1 inch = 150 feet



SHORELINE AREA: Johnson Creek from area south of Wilson Lane to eastern extent of Vancouver Street.

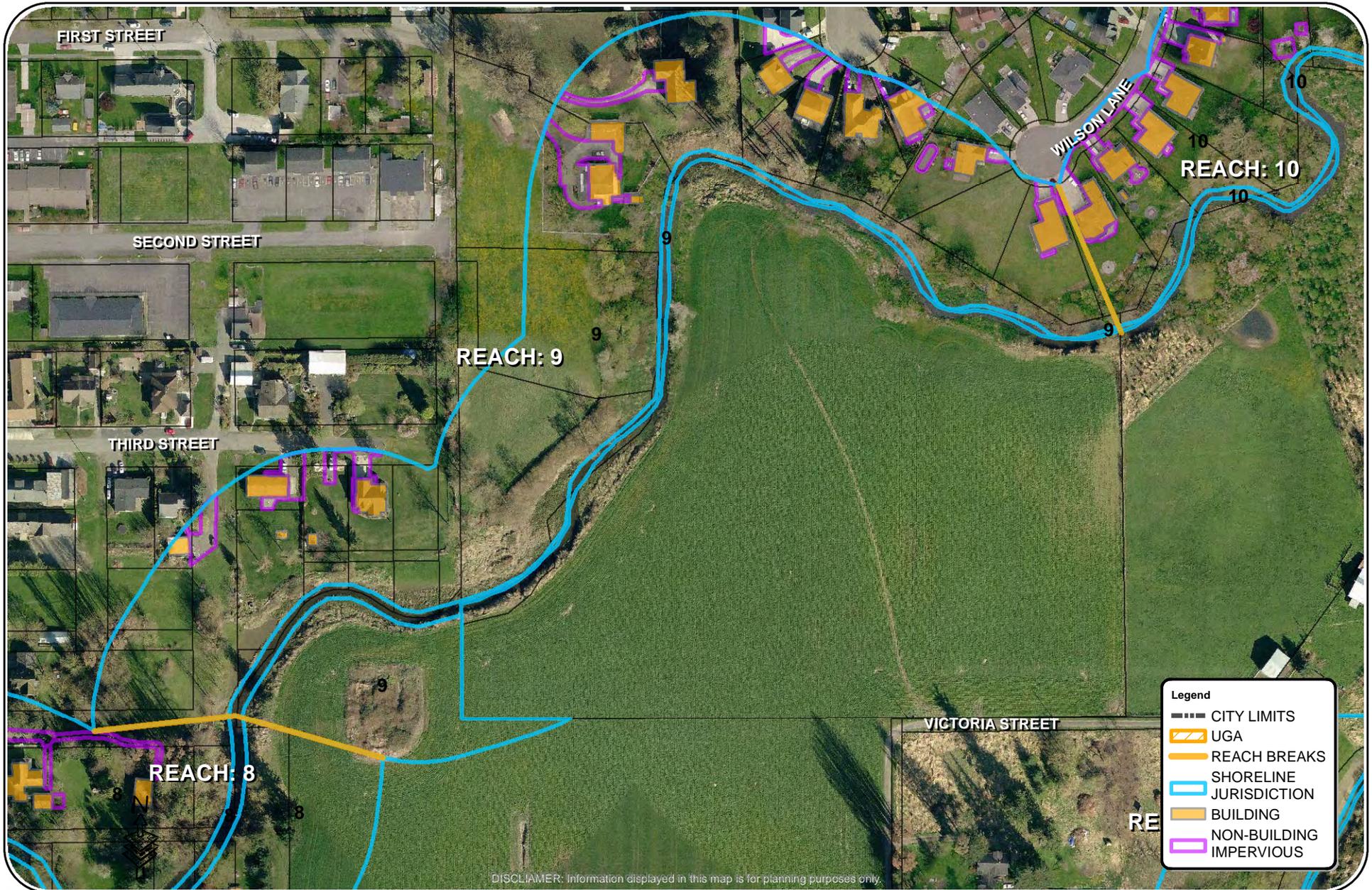
REACH NUMBER: # 9

Land Use	Current Shoreline Designation	Urban north side, conservancy south side. (Ref # 2)
	Current Land Use	Residential, light AG, undeveloped parcels. (Ref # 3, 7)
	Zoning	Residential high density (9.7 ac), agriculture (1.4 ac). (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; Fall chum and winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 11.1 ac (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Fifteen (15) – residential, some partial. (Ref # 1)
	Culverts/stormwater utilities	No data. Not likely (Ref # 3,7)
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 13)
	Impervious surface	Impervious 1.1 ac (10%) (Ref # 1)
	Roads/transportation	Two residential driveways. (Ref # 3, 7)
	Soils	Sumas silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	Entire reach is in the 100 year floodplain. (Ref # 1)
	Terrestrial Vegetation	The majority of the reach is characterized by pasture areas vegetated with native and non-native grasses and herbaceous species, and large patches of Himalayan blackberry. A number of trees, deciduous and evergreen, are located throughout the reach. A small area near the southwest reach is agriculture (crop). Vegetation present provides little shade. (Ref # 3)
	Riparian Function	Aquatic substrate type
Channel confinement		Confined within bank-full width, unconfined in basin due to topography. (Ref # topo, presumed from observation)
Channel gradient		No data. (Ref # 13)
Channel migration zone		Unknown.
Creosote structures		No data/ none observed (Ref # 3, 7)
In-water structures		No data/ none observed (Ref # 3, 7)
Fish passage blockages		None. (Ref # 13)
LWD presence		None observed. Tree cover along the shoreline is low. Recruitment potential is low. (Ref # 3, 7, 9)
Riffle/pool analysis		Low, habitat is homogenous. (Ref # 9)
DOE 303(d)		Category 4A for fecal and DO (TMDL approved by EPA). (Ref # 10)
Toxic sites/land fills		None listed. (Ref # 6, 8)

SHORELINE AREA: Johnson Creek from area south of Wilson Lane to eastern extent of Vancouver Street.

REACH NUMBER: # 9

	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Scattered residential uses, crop agriculture. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 16)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> Hydrologic Shoreline Vegetation Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture in reach and upper watershed.</p> <p>Impaired. Majority of vegetation is non-native. Very little diversity of species or structure. Habitat value low; very little cover provided to creek.</p> <p>Terrestrial: Impaired, but could be improved.</p> <p>Aquatic: Functioning, with impairments.</p>
	Limiting Factors	<ul style="list-style-type: none"> Existing land uses Water quality Zoning
	Functions <ul style="list-style-type: none"> Sustainable Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, and terrestrial & aquatic habitat. However, sustainability affected by private property ownership.
	Priority Actions	<ul style="list-style-type: none"> Preservation of riparian corridor; enhance with trees and native vegetation for habitat and thermal cover. Water quality improvement.
	Current Enhancement Projects	None known.
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> Enhance riparian buffer: increase width of native shoreline vegetation in pasture areas, added species diversity, added plants along the banks for shading. Removal of invasive species (Himalayan blackberry).



CITY OF SUMAS, WA

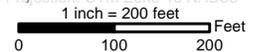
Shoreline Jurisdiction

Reach 9

Sehome Planning & Development



Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83



SHORELINE AREA: Johnson Creek from Heron Lane west 300 feet to area south of Wilson Lane.

REACH NUMBER: # 10

Land Use	Current Shoreline Designation	Urban on north side, conservancy on south side. (Ref # 2)
	Current Land Use	Residential. (Ref # 3, 7)
	Zoning	Residential high density (3.9 ac). (Ref # 2, 16)
Potential Species Present	Wildlife species	None. (Ref # 12)
	Fish species	Sockeye presence documented; Fall chum and winter steelhead presence presumed; Coho rearing. Chum, cutthroat and coho mapped as present (Ref # 13, 18)
	PHS species/habitat	Wetlands associated with Sumas River (upper basin). Emergent and scrub-shrub wetland provide wildlife habitat and water quality/quantity protection. (Ref # 12)
	TSE species	ESU for coho, fall/winter chum; RU for bull trout (Ref # 13)
	Invasive wildlife/fish species	No data.
Physical Environment	Acres of land in reach	Total: 3.9 ac (Ref # 1)
	Aquatic vegetation	No data.
	Slope	No slope data listed by DOE (Ref # 6). Site class and moderate to high liquefaction hazard listed by Whatcom County (DNR 2004). (Ref # 17)
	Buildings	Seventeen (17) – all residential. (Ref # 1)
	Culverts/stormwater utilities	No data. No likely (Ref # 3, 7)
	Geology	Glacial outwash. (Ref # 9)
	Tributary Creeks	None. (Ref # 1, 13)
	Impervious surface	Impervious 1.0 ac (26%) (Ref # 1)
	Roads/transportation	Access road (Heron Lane) at eastern terminus of reach. (Ref # 3, 7)
	Soils	Briscot silt loam, Oridia silt loam, Sumas silt loam (Ref # 4)
	Topography	Approximate elevation is 35 feet. (Ref # 6)
	FEMA	Entire reach is in the 100 year floodplain. (Ref # 1)
	Terrestrial Vegetation	The majority of the reach is characterized by native deciduous trees and shrubs. A few small areas of lawn are also present. Native vegetation present has the potential to provide good habitat. Overhanging vegetation and shading are not present along the majority of the reach. Reed canarygrass is present in patches along the channel. (Ref # 3)
Riparian Function	Aquatic substrate type	Silt.
	Channel confinement	Confined within bank-full width, unconfined in basin due to topography. (Ref # 3, 6)
	Channel gradient	None. (Ref # 13)
	Channel migration zone	Unknown.
	Creosote structures	No data/ none observed (Ref # 3, 7)
	In-water structures	No data/ none observed (Ref # 3, 7)
	Fish passage blockages	None. (Ref # 13)
	LWD presence	None observed. Tree cover along the shoreline is moderate. Recruitment potential is moderate. (Ref # 3, 7, 9)
	Riffle/pool analysis	Low, habitat is homogenous. (Ref # 9)
	DOE 303(d)	Category 4A for fecal and DO (TMDL approved by EPA). (Ref # 10)
Toxic sites/land fills	None listed. (Ref # 6, 8)	

SHORELINE AREA: Johnson Creek from Heron Lane west 300 feet to area south of Wilson Lane.

REACH NUMBER: # 10

	Point source pollution	Groundwater wells show increased levels of ethylene dibromide in drainage; anthropogenic nitrate concentrations in surface water (Ref # 9). Residential uses. Higher intensity sources are located in the upper watershed where dairy and agriculture is more prevalent. (Ref # 16)
Historic & Cultural	Historic aerials	None available on-line. Presume geomorphology has been stable for several decades.
	Archeological sites	None indicated. (Ref # 5)
	Historic sites	None indicated. (Ref # 5)
	Parks & public access	None. (Ref # 1)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Functioning with impairments. Rainfall dominated; flashy winter and early spring peaks, low summer, variable spring and fall flows. Impairment in basin due to loss of wetland area, draining, filling, ditching and removal of vegetation for agriculture in the upper watershed.</p> <p>Functioning in areas, impaired in other. Some native tree and shrub habitat along shoreline; open areas with blackberry and reed canarygrass. Residential lawn encroaches in areas. Follow agricultural practice has allowed tree and shrubs to re-vegetate shoreline and buffer – although not all species are native. Potential for restoration.</p> <p>Terrestrial: Functioning, with impairments. Aquatic: Functioning with impairments.</p>
	Limiting Factors	<ul style="list-style-type: none"> ▪ Existing land uses ▪ Water quality ▪ Zoning
	Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable 	Sustainable at current levels: hydrologic, shoreline vegetation, and terrestrial & aquatic habitat. However, sustainability affected by private property ownership.
	Priority Actions	<ul style="list-style-type: none"> ▪ Preservation of riparian corridor; buffer enhancement plantings to improve habitat and structure. ▪ Water quality improvement.
	Current Enhancement Projects	None known
	Preservation/Enhancement Opportunities	<ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated corridors. Particularly riparian corridors. ▪ Enhance riparian buffer: increase width and species diversity of native shoreline vegetation, add plants along the banks to provide shading.



CITY OF SUMAS, WA

Shoreline Jurisdiction

Reach 10

Sehome Planning & Development



Data Sources: Whatcom County Planning, Pictometry 2008, & the City of Sumas GIS.
Projection: UTM Zone 10 NAD83

