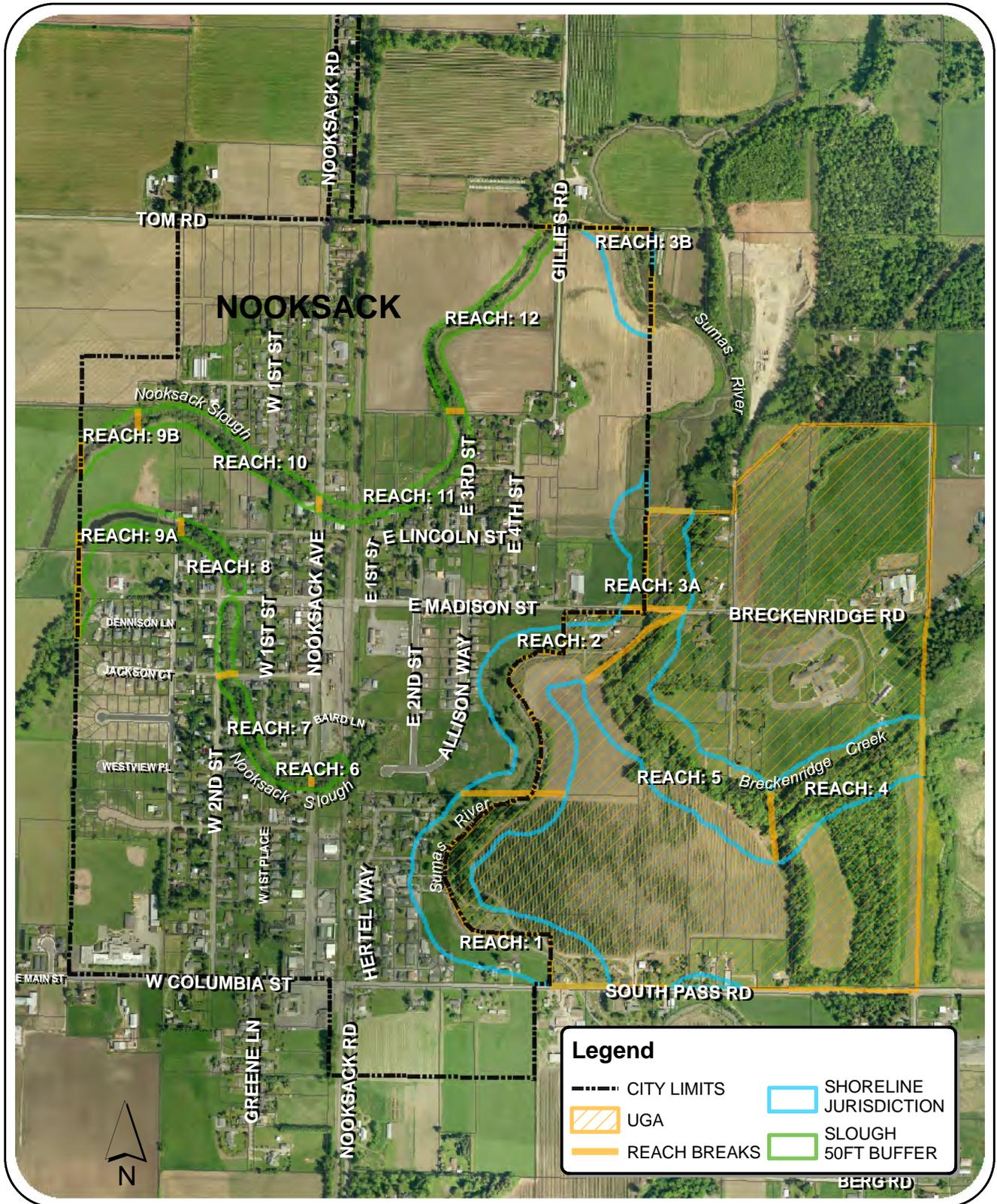


CITY OF NOOKSACK, WA

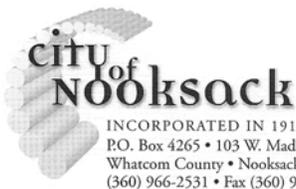


Disclaimer: These maps are for planning purposes only. Property lines are approximate.

1 inch = 1,000 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, & Whatcom County
Planning/Assessor's

Sehome Planning & Development



Shoreline Jurisdiction Vicinity Map

SHORELINE AREA: Sumas River, South Pass Road north to southern end of Allison Way subdivision.

REACH NUMBER: # 1

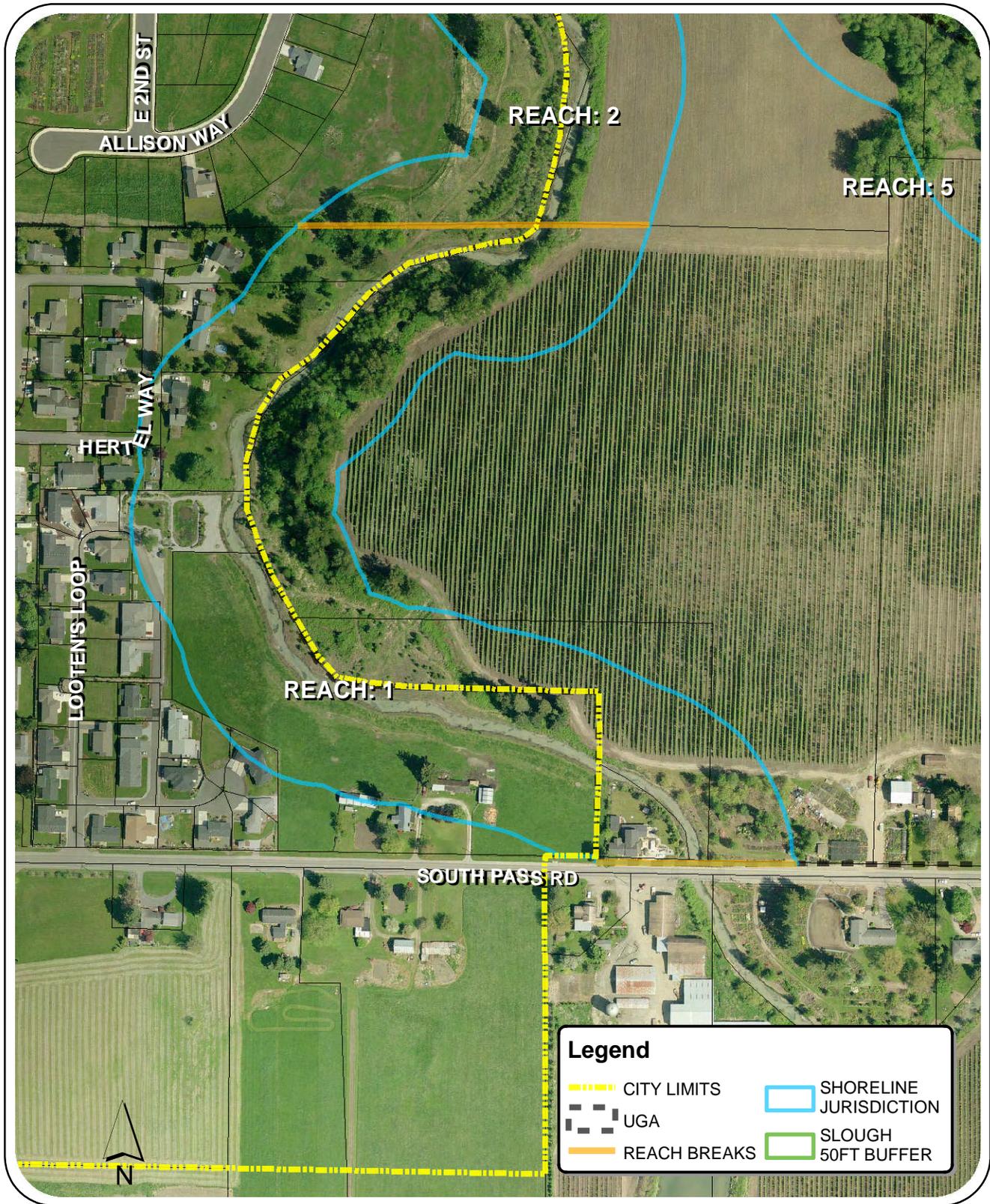
| | | |
|---------------------------|--------------------------------|--|
| Land Use | Current Shoreline Designation | UGA east of river: Whatcom County: Rural. (Ref # 16) West of river: City: Urban. (Ref # 1) |
| | Current Land Use | Agriculture (active and fallow), rural residential, commercial (nursery) at SE end. (Ref # 3, 7) |
| | Zoning | UGA east of river: Agriculture. Future City: residential cluster (11.2), recreation along shoreline. In City: AG (6.1 ac) and residential (4.7 ac). (Ref # 2) |
| Potential Species Present | Wildlife species | Swan, raptor, waterfowl. (Ref # 2) |
| | Fish species | Anadromous fish presence. (Ref # 2) Fall Chinook presence presumed; Coho documented rearing; and winter steelhead presence documented. (Ref # 13) Fall chum and resident cutthroat. (Ref #12). |
| | PHS species/habitat | Priority fish presence. Priority wetlands. (Ref # 12) NWI wetlands associated with Sumas River. (Ref # 2) |
| | TSE species | ESU for coho, fall/winter chum, bull trout. (Ref # 13) |
| | Invasive wildlife/fish species | No data. |
| Physical Environment | Acres of land in reach | Total: 10.8 ac in city; 11.2 ac in UGA.(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 | Nine (9) – residential/mixed. (Ref # 1) |
| | Culverts/stormwater utilities | Culvert under South Pass Road at southern end of reach. (Ref # 7) |
| | Geology | Glacial outwash terrace with alluvium, undifferentiated outwash and till. (Ref #9) |
| | Tributary Creeks | None observed. (Ref # 1, 3, 13) |
| | Impervious surface | Impervious 1.0 ac (9%) (Ref # 1) |
| | Roads/transportation | Part of one residential driveway; small sections of Looten's Loop and Hertel Way. (Ref # 7) |
| | Soils | Mt Vernon fine sandy loam; Oridia silt loam. (Ref # 4) |
| | Topography | 80 to 85 feet elevation. (Ref # 6) |
| | FEMA | 100 year floodplain extends throughout most of the reach (Ref # 6). Floodway and Floodplain areas along entire reach. (Ref # 2) |
| | Terrestrial Vegetation | Approximately one-third of the reach is characterized by mixed native trees. Few shrubs are present. The remainder of the reach is primarily fallow pasture/agricultural land – these areas are vegetated with native and non-native grasses and herbaceous species. Active agriculture (raspberries) on east side. Patches of invasive species (blackberry) present along the stream. Vegetation provides little to no cover to the stream. (Ref # 3) |
| Riparian Function | Aquatic substrate type | Silt. (Ref # 3) |
| | Channel confinement | Channel appears unconfined due to topography. (Ref # 3, 6) |
| | Channel gradient | No data. (Ref # 13) Presumed low due to topography. |
| | Channel migration zone | Unknown. |
| | Creosote structures | None observed/ no data. (Ref # 3, 7) |
| | In-water structures | None observed/ no data. (Ref # 3, 7) |
| | Fish passage blockages | None. (Ref # 13) |
| | LWD presence | None observed/ no data. Tree cover along the shoreline is low moderate. Recruitment potential is low. (Ref # 3, 7) |

SHORELINE AREA: Sumas River, South Pass Road north to southern end of Allison Way subdivision.

REACH NUMBER: # 1

| | | |
|---------------------|---|---|
| | Riffle/pool analysis | No data. |
| | Associated wetlands | NWI wetlands associated with Sumas River. (Ref # 2) |
| | DOE 303(d) | None. (Ref # 10) |
| | Toxic sites/land fills | None listed. (Ref # 8) |
| | Point source pollution | Asbestos contamination from Swift Creek landslide. (Ref #15) Non-Point source: low intensity from residential uses and agriculture (cattle, raspberry farming). (Ref # 3, 7) |
| Historic & Cultural | Historic aerials | No significant changes observed between 1976 and 2006 other than increased residential density. (Ref # 14) |
| | Archeological & Historic sites | None indicated. (Ref # 5) |
| | Parks & public access | None indicated (Ref # 2). Small neighborhood park, gravel walking trail and stream overlook, landscaped areas observed. (Ref # 3) |
| Function Analysis | Reach Function <ul style="list-style-type: none"> Hydrologic Shoreline Vegetation Habitat | <p>Functioning with some impairment. Precipitation dominated (snow & 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, and ditching.</p> <p>Impaired overall, but some areas present that are functioning. Majority of reach is undeveloped, but lacks native vegetation (trees and shrubs). Majority of the reach is pasture.</p> <p>Terrestrial: Functioning in areas dominated by native vegetation, impaired in others due to development, loss of habitat, and non-native or invasive vegetation.</p> <p>Aquatic: Impaired due to fine sediment and asbestos contamination; lacks vegetation cover which results in higher water temperature.</p> |
| | Limiting Factors | <ul style="list-style-type: none"> Asbestos contamination Water quality Existing land use/ Zoning |
| | Functions <ul style="list-style-type: none"> Sustainable Not Sustainable | <p>Sustainable at current levels: Hydrologic, shoreline vegetation, terrestrial (in areas) and aquatic habitat.</p> <p>Terrestrial habitat impaired due to adjacent land uses and may not be sustainable or improved without a change in use.</p> |
| | Priority Actions | <ul style="list-style-type: none"> Preservation of existing riparian vegetation. 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; add evergreen species, other species for diversity; add vegetation along stream banks to provide shading. Remove invasive species (Himalayan blackberry). |

CITY OF NOOKSACK, WA



Disclaimer: These maps are for planning purposes only. Property lines are approximate.

Shoreline Jurisdiction Reach 1

1 inch = 300 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, Whatcom County
Planning/Assessor's, & 2008 Pictometry

Sehome Planning & Development

Wilson
SURVEY/ENGINEERING

city of
Nooksack

INCORPORATED IN 1912
P.O. Box 4265 • 103 W. Madison Street
Whatcom County • Nooksack, Washington 98276
(360) 966-2531 • Fax (360) 966-2505 • www.cityofnooksack.com

SHORELINE AREA: Sumas River, southern end of Allison Way subdivision to E Madison Street.

REACH NUMBER: # 2

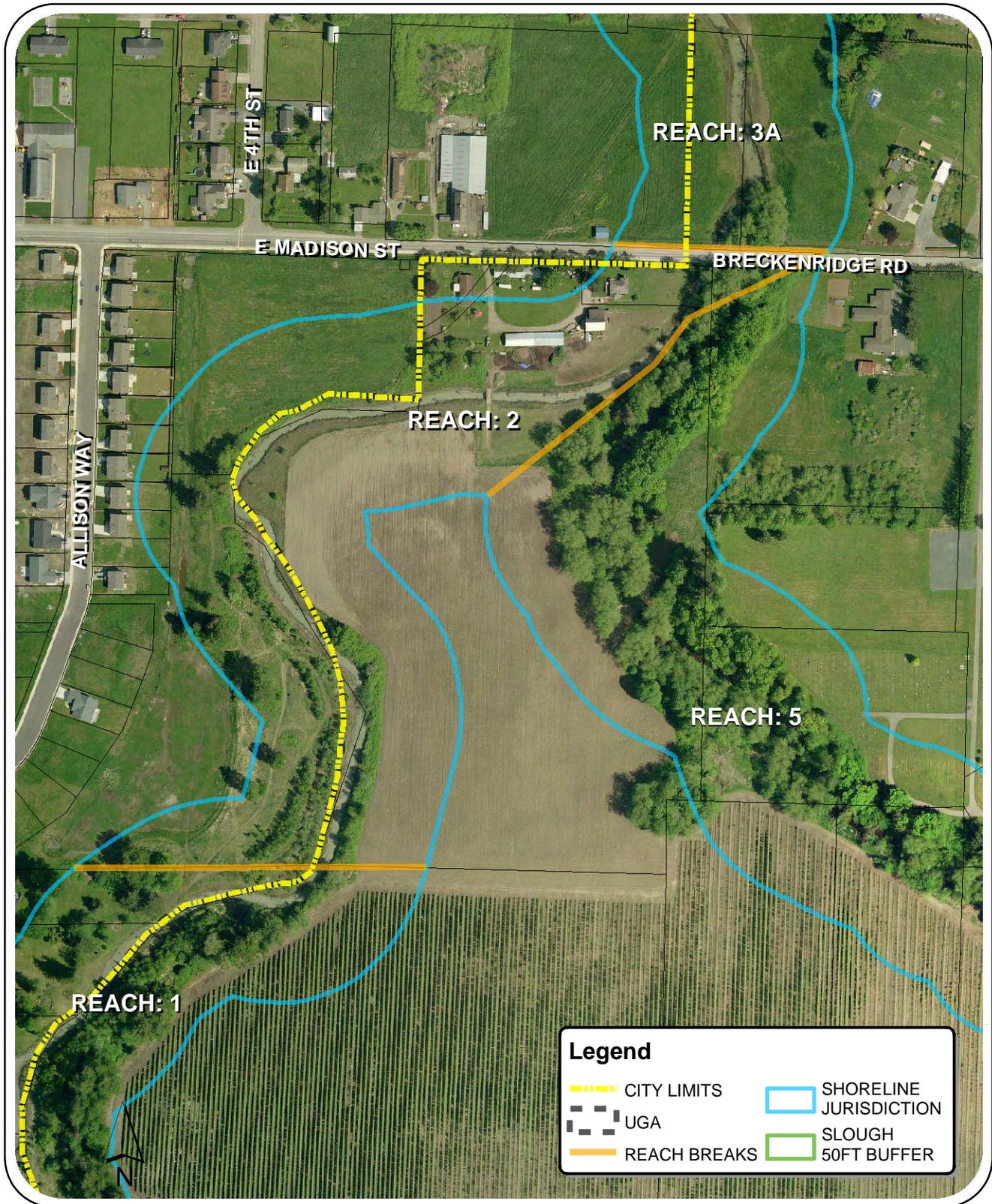
| | | |
|---------------------------|--------------------------------|--|
| Land Use | Current Shoreline Designation | UGA east of river: Whatcom County: Rural. (Ref # 16) City: Urban. (Ref # 1) |
| | Current Land Use | Agriculture (raspberries), some urban residential density. A berm is present along a portion of the west side of the stream. (Ref # 3, 7) |
| | Zoning | UGA east of river: Agriculture. Future City: residential (3.2 ac), residential cluster (7.2 ac), recreation along shoreline. City: residential (7.6 ac). (Ref # 2) |
| Potential Species Present | Wildlife species | Raptor, waterfowl. (Ref # 2) |
| | Fish species | Anadromous fish presence. (Ref # 2) Fall Chinook presence presumed; fall chum presence documented below Breckenridge Creek; Coho documented rearing; and winter steelhead presence documented. (Ref # 13) Resident cutthroat. (Ref # 12) |
| | PHS species/habitat | Priority fish presence. (Ref # 12) NWI wetlands associated with Sumas River. (Ref # 2) |
| | TSE species | ESU for coho, fall/winter chum, bull trout. (Ref # 13) |
| | Invasive wildlife/fish species | No data. |
| Physical Environment | Acres of land in reach | Total: 7.6 ac in city; 10.4 ac in UGA. (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) – agricultural/residence, one bridge. (Ref # 1) |
| | Culverts/stormwater utilities | Culvert under E Madison Street. Bridge or possibly culvert where farm access road crosses the river near the northern extent. (Ref # 7) |
| | Geology | Glacial outwash terrace with alluvium, undifferentiated outwash and till. (Ref # 9) |
| | Tributary Creeks | None observed. (Ref # 1, 3, 13) |
| | Impervious surface | Impervious 0.3 ac (4%) (Ref # 1) |
| | Roads/transportation | Part of one residential driveway and one farm access road at northern terminus of reach. (Ref # 7) |
| | Soils | Mt Vernon fine sandy loam. (Ref # 4) |
| | Topography | 80 to 90 feet elevation. (Ref # 6) |
| | FEMA | 100 year floodplain extends throughout most of the reach (Ref # 6). Floodway and floodplain areas along entire reach. (Ref # 2) |
| | Terrestrial Vegetation | Eastern side of stream is dominated by agriculture (raspberries). Western side of stream is mainly fallow pasture/agricultural land mixed with patches of native mixed trees and large patches of Himalayan blackberry. Pasture areas are vegetated with native and non-native grasses and herbaceous species. Vegetation provides little to no cover to the stream. (Ref # 3) |
| Riparian Function | Aquatic substrate type | No data. |
| | Channel confinement | Channel appears unconfined due to topography. (Ref # 3, 6) |
| | Channel gradient | No data. (Ref # 13) Presumed low due to topography. |
| | Channel migration zone | Unknown. |
| | Creosote structures | None observed/ no data. (Ref # 3, 7) |
| | In-water structures | None observed/ no data. (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) |

SHORELINE AREA: Sumas River, southern end of Allison Way subdivision to E Madison Street.

REACH NUMBER: # 2

| | | |
|---------------------|---|---|
| | Riffle/pool analysis | No data. |
| | Associated wetlands | NWI wetlands associated with Sumas River. (Ref # 2) |
| | DOE 303(d) | None. (Ref # 10) |
| | Toxic sites/land fills | None listed. (Ref # 8) |
| | Point source pollution | Asbestos contamination from Swift Creek landslide. (Ref #15) Non-Point source: low intensity from residential uses and agriculture. (Ref # 3, 7) |
| Historic & Cultural | Historic aerials | No significant changes observed between 1976 and 20006 other than increased residential density. (Ref # 14) |
| | Archeological & historic sites | None indicated. (Ref # 5) |
| | Parks & public access | None (Ref # 2, 3) |
| Function Analysis | Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat | <p>Functioning with some impairment. 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, and ditching.</p> <p>Impaired. Majority of reach is undeveloped, and lacks native vegetation (trees and shrubs). Majority of the reach is pasture, agriculture or dominated by invasive species.</p> <p>Terrestrial: Impaired due to loss of habitat, non-native or invasive vegetation, and a lesser extent development.</p> <p>Aquatic: Impaired due to fine sediment and asbestos contamination; lacks vegetation cover which results in higher water temperature.</p> |
| | Limiting Factors | <ul style="list-style-type: none"> ▪ Asbestos contamination ▪ Water quality ▪ Existing land use/ Zoning |
| | Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable | <p>Sustainable at current levels: Hydrologic, shoreline vegetation, terrestrial and aquatic habitat.</p> <p>Terrestrial habitat impaired due to adjacent land uses and may not be sustainable or improved without a change in use.</p> |
| | Priority Actions | <ul style="list-style-type: none"> ▪ Water quality improvement. |
| | Current Enhancement Projects | None known |
| | Preservation/Enhancement Opportunities | <ul style="list-style-type: none"> ▪ Enhance riparian buffer: increase percent cover of native shoreline vegetation in pasture areas; add evergreen species, other species for diversity; add vegetation along stream banks to provide shading. ▪ Remove invasive species (Himalayan blackberry). |

CITY OF NOOKSACK, WA



*Disclaimer: These maps are for planning purposes only.
Property lines are approximate.*

1 inch = 300 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, Whatcom County
Planning/Assessor's, & 2008 Pictometry

Sehome Planning & Development

Wilson
SURVEY/ENGINEERING

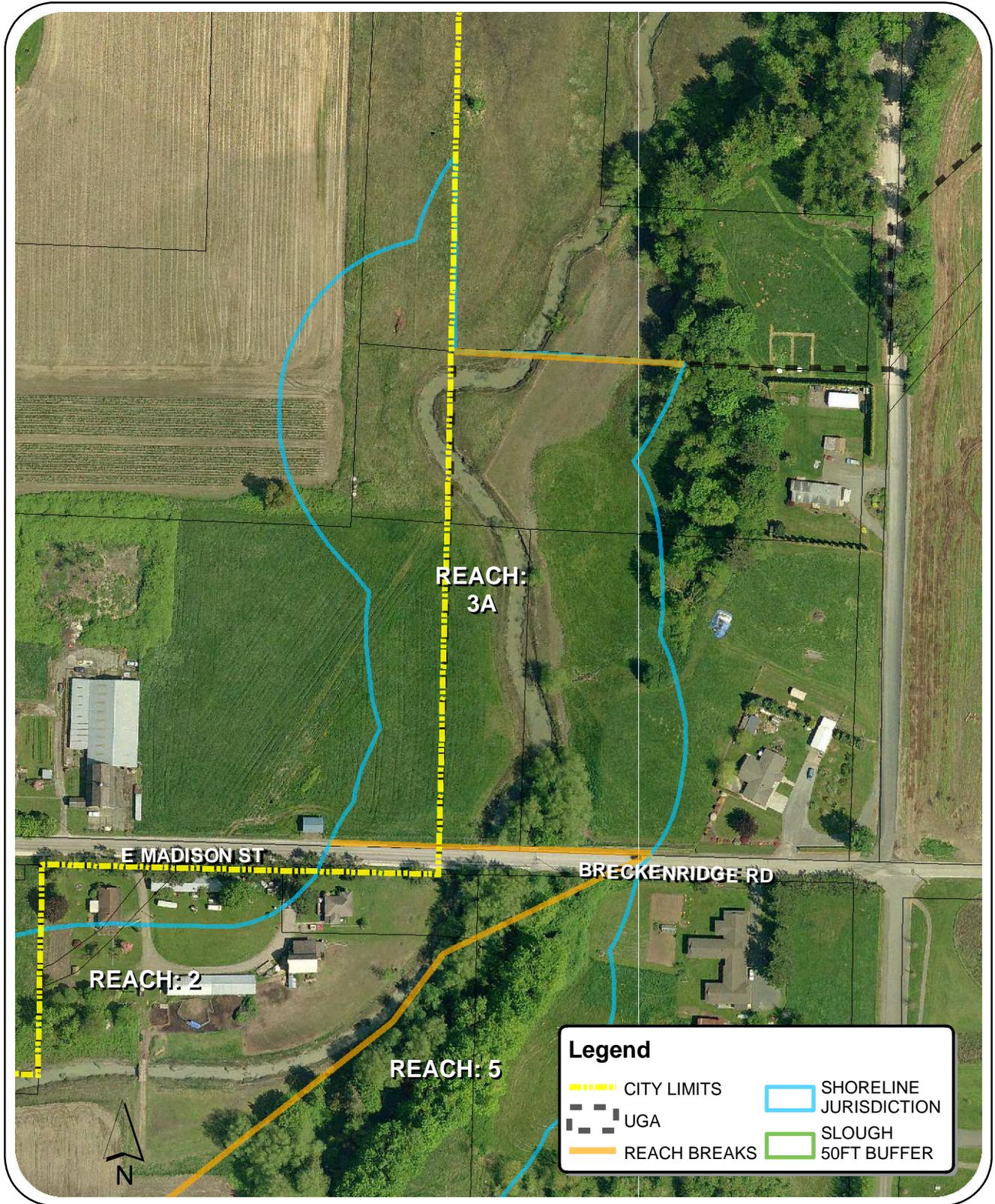
city of NOOKSACK
INCORPORATED IN 1912
P.O. Box 4265 • 103 W. Madison Street
Whatcom County • Nooksack, Washington 98276
(360) 966-2531 • Fax (360) 966-2505 • www.cityofnooksack.com

Shoreline Jurisdiction Reach 2

| | | |
|---------------------------|--------------------------------|--|
| Land Use | Current Shoreline Designation | City: Conservancy. (Ref # 1) |
| | Current Land Use | 3A- fallow agriculture (pasture). 3B- Agriculture (corn). (Ref # 3, 7) |
| | Zoning | Future City (3A): agriculture (1.0 ac), residential (3.8 ac) City: agriculture (8.2 ac). (Ref # 2) |
| Potential Species Present | Wildlife species | Raptor, waterfowl. (Ref # 2) |
| | Fish species | Anadromous fish presence. (Ref # 2) Fall Chinook presence presumed; fall chum presence documented below Breckenridge Creek; Coho documented rearing; and winter steelhead presence documented. (Ref # 13). Resident cutthroat. (Ref # 12) |
| | PHS species/habitat | Priority fish presence (Ref # 12). Priority wetlands (Ref # 12). NWI wetlands associated with Sumas River. (Ref # 2) |
| | TSE species | ESU for coho, fall/winter chum, bull trout. (Ref # 13) |
| | Invasive wildlife/fish species | No data. |
| Physical Environment | Acres of land in reach | Total: 8.2 ac in city; 4.8 ac in UGA. (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 | None. (Ref # 1) |
| | Culverts/stormwater utilities | None observed. Access road at northern end of 3B crossed river with flat bridge. (Ref # 3, 7) |
| | Geology | Glacial outwash terrace with alluvium, undifferentiated outwash and till. (Ref # 9) |
| | Tributary Creeks | None observed. (Ref # 1, 3, 13) |
| | Impervious surface | Impervious zero acres. (Ref # 1) |
| | Roads/transportation | Private access road at northern end of 3B. (Ref # 3, 7) |
| | Soils | Mt Vernon fine sandy loam; riverwash. (Ref # 4) |
| | Topography | 75 to 85 feet elevation. (Ref # 6) |
| | FEMA | 100 year floodplain extends throughout most of the reach. (Ref # 6) Floodway and floodplain areas along entire reach. (Ref # 2) |
| | Terrestrial Vegetation | 3A: dominated by fallow pasture grasses. A limited number of native shrubs (willow) at southern end. 3B: approximately half is fallow pasture with limited number of deciduous native trees and shrubs, and half is planted in crops. Pasture areas are vegetated with native and non-native herbaceous species. Vegetation provides little to no cover to the stream. (Ref # 3) |
| Riparian Function | Aquatic substrate type | Silt. (Ref # 3) |
| | Channel confinement | No data. |
| | Channel gradient | No data. (Ref # 13) Presumed low due to topography. |
| | Channel migration zone | Unknown. |
| | Creosote structures | None observed/ no data. (Ref # 3, 7) |
| | In-water structures | None observed/ no data. (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) |
| | Riffle/pool analysis | No data. |
| | Associated wetlands | NWI wetlands associated with Sumas River (Ref # 2). PEM farmed wetlands observed in 3B that appear to drain and/or connect to the river; shoreline jurisdiction should be extended to include adjacent wetlands. (Ref # 3) |

| | | |
|---------------------|---|--|
| | DOE 303(d) | None. (Ref # 10) |
| | Toxic sites/land fills | None listed. (Ref # 8) |
| | Point source pollution | Asbestos contamination from Swift Creek landslide. (Ref #15) Non-Point source: low intensity from agriculture (farming and pasture). (Ref # 3, 7) |
| Historic & Cultural | Historic aerials | No significant changes observed between 1976 and 2006 other than increased residential density. (Ref # 14) |
| | Archeological & historic sites | None indicated. (Ref # 5) |
| | Parks & public access | None. (Ref # 2, 3) |
| Function Analysis | Reach Function <ul style="list-style-type: none"> Hydrologic Shoreline Vegetation Habitat | <p>Functioning with some impairment. 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, and ditching.</p> <p>Impaired. Majority of reach is undeveloped, but lacks native vegetation (trees and shrubs). Majority of the reach is generally pasture or agriculture.</p> <p>Terrestrial: Impaired in others due to loss of habitat, and dominance of non-native or invasive vegetation.</p> <p>Aquatic: Impaired due to fine sediment and asbestos contamination; lacks vegetation cover which results in higher water temperature.</p> |
| | Limiting Factors | <ul style="list-style-type: none"> Asbestos contamination Water quality Existing land use/ Zoning |
| | Functions <ul style="list-style-type: none"> Sustainable Not Sustainable | <p>Sustainable at current levels: Hydrologic, shoreline vegetation, terrestrial and aquatic habitat.</p> <p>Terrestrial habitat impaired due to adjacent land uses and may not be sustainable or improved without a change in use.</p> |
| | Priority Actions | <ul style="list-style-type: none"> Restoration of wetlands associated with Sumas River in 3B. Water quality improvement. |
| | Current Enhancement Projects | None known |
| | Preservation/Enhancement Opportunities | <ul style="list-style-type: none"> Restoration of wetlands associated with Sumas River in reach 3B (farmed wetlands). Enhance riparian buffer: increase width of native shoreline vegetation in pasture areas; add evergreen species, other species for diversity; add vegetation along stream banks to provide shading. Remove invasive species (Himalayan blackberry). |

CITY OF NOOKSACK, WA



Legend

- CITY LIMITS
- UGA
- REACH BREAKS
- SHORELINE JURISDICTION
- SLOUGH 50FT BUFFER

Disclaimer: These maps are for planning purposes only. Property lines are approximate.

1 inch = 200 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, Whatcom County
Planning/Assessor's, & 2008 Pictometry

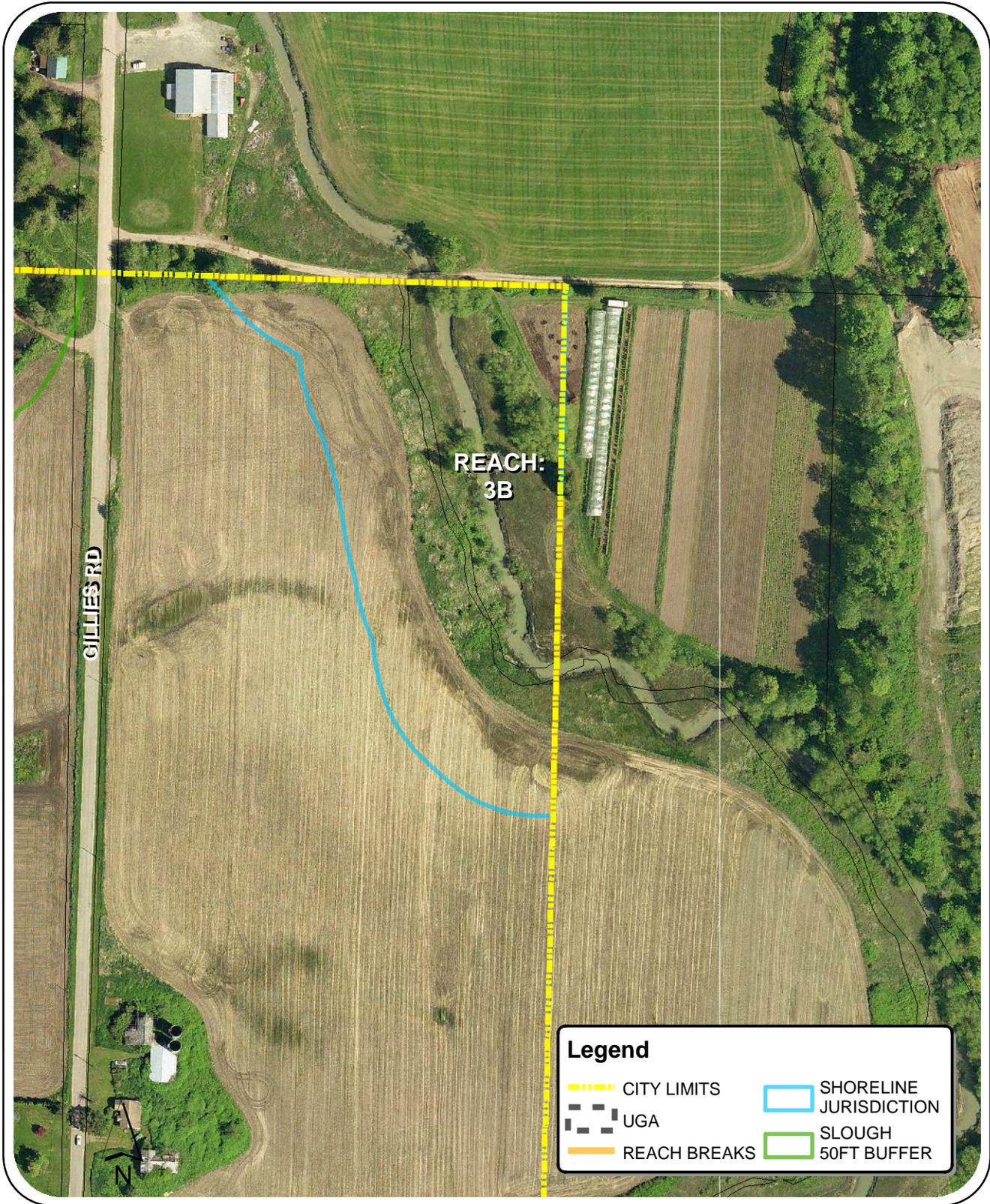
Sehome Planning & Development

Wilson
SURVEY/ENGINEERING

city of NOOKSACK
INCORPORATED IN 1912
P.O. Box 4265 • 103 W. Madison Street
Whatcom County • Nooksack, Washington 98276
(360) 966-2531 • Fax (360) 966-2505 • www.cityofnooksack.com

Shoreline Jurisdiction Reach 3A

CITY OF NOOKSACK, WA



*Disclaimer: These maps are for planning purposes only.
Property lines are approximate.*

1 inch = 200 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, Whatcom County
Planning/Assessor's, & 2008 Pictometry

Sehome Planning & Development

Wilson
SURVEY/ENGINEERING

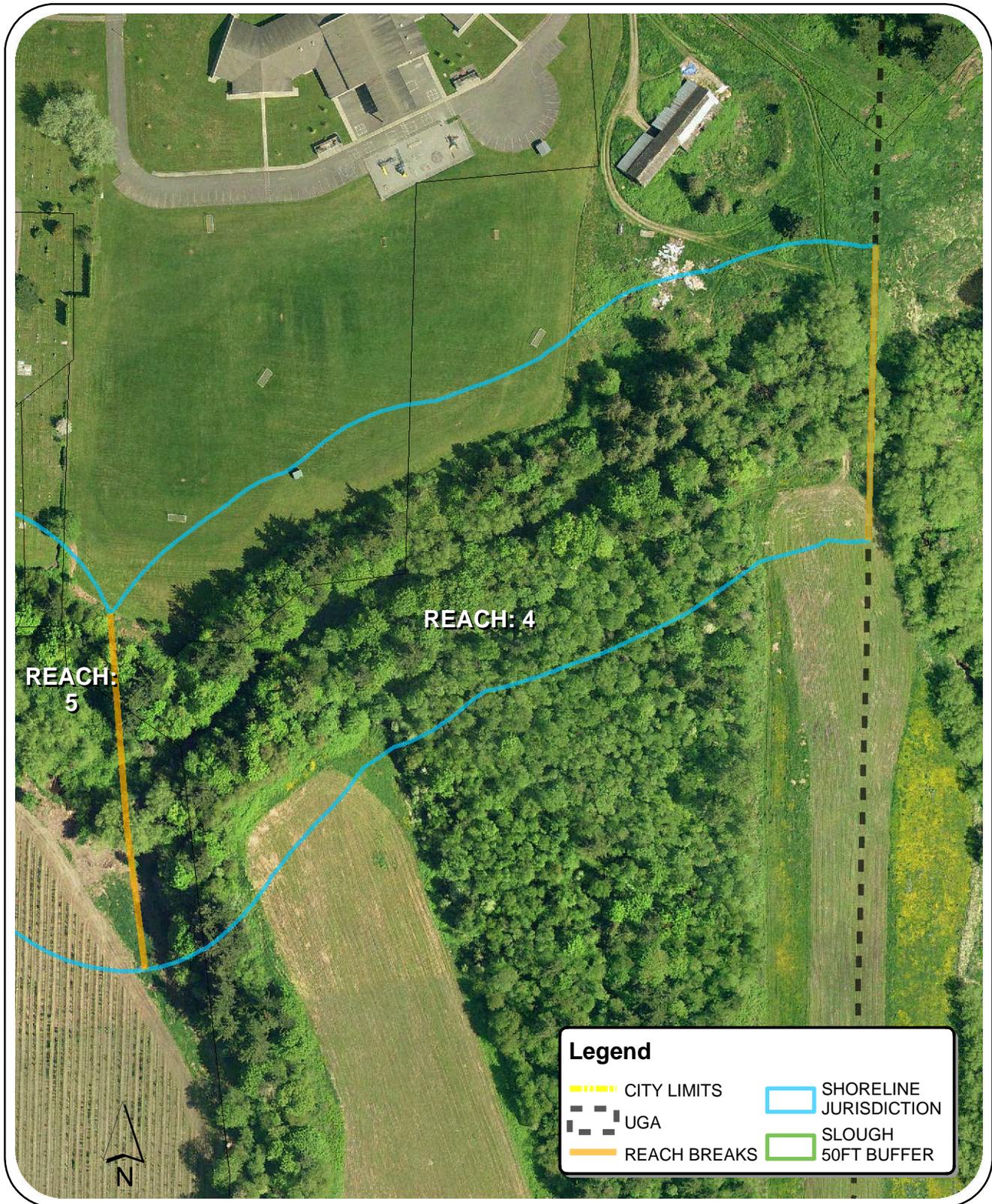
city of NOOKSACK
INCORPORATED IN 1912
P.O. Box 4265 • 103 W. Madison Street
Whatcom County • Nooksack, Washington 98276
(360) 966-2531 • Fax (360) 966-2505 • www.cityofnooksack.com

Shoreline Jurisdiction Reach 3B

| | | |
|---------------------------|--------------------------------|--|
| Land Use | Current Shoreline Designation | UGA: Whatcom County: Rural. (Ref # 16) City: Conservancy. (Ref # 1) |
| | Current Land Use | Undeveloped, light agriculture (pasture) and agriculture to south. Public school to the north. (Ref # 3, 7) |
| | Zoning | Entire reach is in the UGA: Agriculture. Future city: light industrial (5.4 ac), public (5.9 ac), residential cluster (0.4 ac), recreation along shoreline. (Ref # 2) |
| Potential Species Present | Wildlife species | Raptor, waterfowl. (Ref # 2). |
| | Fish species | Fish rearing habitat (Ref # 2). Fall Chinook presence presumed; fall chum presence documented; Coho documented rearing; and winter steelhead presence resumed (Ref # 13) Resident Cutthroat. (# 12) Resident cutthroat. (Ref # 12) |
| | PHS species/habitat | Priority fish presence (Ref # 12). NWI wetlands associated with Sumas River. (Ref # 2) |
| | TSE species | ESU for coho, fall/winter chum, bull trout. (Ref # 13) |
| | Invasive wildlife/fish species | No data. |
| Physical Environment | Acres of land in reach | Total: 11.6 ac in the UGA. (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 | None. (Ref # 1) |
| | Culverts/stormwater utilities | None observed. (Ref # 3, 7) |
| | Geology | Glacial outwash terrace with alluvium, undifferentiated outwash and till. (Ref # 9) |
| | Tributary Creeks | None observed. (Ref # 1, 3, 13) |
| | Impervious surface | Impervious zero acres. (Ref # 1) |
| | Roads/transportation | None. (Ref # 3, 7) |
| | Soils | Everett complex; Kickerville silt loam; Puget silt loam. (Ref # 4) |
| | Topography | 85 to 100 feet elevation. (Ref # 6) |
| | FEMA | 100 year floodplain extends throughout most of the reach (Ref # 6). Floodplain areas along entire reach. (Ref # 2) |
| | Terrestrial Vegetation | The majority of the reach is characterized by undeveloped native mixed trees and shrubs. A fringe on the northern side is mowed pasture grass/ school ball field, or Himalayan blackberry mixed with pasture grasses. Two small areas on the southern side are farmed/ in agriculture. Native vegetation present provides shading over the stream and has the potential to provide good habitat. (Ref # 3) |
| Riparian Function | Aquatic substrate type | No data. |
| | Channel confinement | No data. |
| | Channel gradient | No data. (Ref # 13) |
| | Channel migration zone | Unknown. |
| | Creosote structures | None observed/ no data. (Ref # 3, 7) |
| | In-water structures | None known/ no data. (Ref # 3, 7) |
| | Fish passage blockages | None. (Ref # 13) |
| | LWD presence | Unknown/ no data. Tree cover along the shoreline is moderate to high. Recruitment potential is moderate. (Ref # 3) |
| | Riffle/pool analysis | No data. |
| | Associated wetlands | NWI wetlands associated with Sumas River. (Ref # 2) |
| | DOE 303(d) | None. (Ref # 10) |

| | | |
|---------------------|---|--|
| | Toxic sites/land fills | None listed. (Ref # 8) |
| | Point source pollution | No point source known. Non-Point source: small areas of low intensity from adjacent school (ball fields) and agriculture. (Ref # 3, 7) |
| Historic & Cultural | Historic aerials | No significant changes observed between 1976 and 2006 other than increased residential density. (Ref # 14) |
| | Archeological & historic sites | None indicated. (Ref # 5) |
| | Parks & public access | None. (Ref # 2, 3) |
| Function Analysis | Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat | <p>Functioning with some impairment. 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, and ditching.</p> <p>Functioning overall. Majority of reach is undeveloped and contains native vegetation (trees and shrubs). Edges of the reach are lawn or agriculture.</p> <p>Terrestrial: Functioning in areas dominated by native vegetation, impaired along the edge of the reach due to loss of habitat and non-native or invasive vegetation.</p> <p>Aquatic: functioning.</p> |
| | Limiting Factors | <ul style="list-style-type: none"> ▪ Water quality ▪ Existing land use/ Zoning |
| | Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable | Sustainable at current levels: Hydrologic, shoreline vegetation, terrestrial and aquatic habitat. |
| | Priority Actions | <ul style="list-style-type: none"> ▪ Preservation of existing riparian vegetation. ▪ Water quality improvement. |
| | Current Enhancement Projects | None known |
| | Preservation/Enhancement Opportunities | <ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated riparian corridor. ▪ Enhance riparian buffer: increase width of native shoreline vegetation in pasture or agriculture areas to full extent of shoreline jurisdiction. ▪ Remove invasive species (Himalayan blackberry). |

CITY OF NOOKSACK, WA



*Disclaimer: These maps are for planning purposes only.
Property lines are approximate.*

1 inch = 200 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, Whatcom County
Planning/Assessor's, & 2008 Pictometry

Sehome Planning & Development
Wilson
SURVEY/ENGINEERING

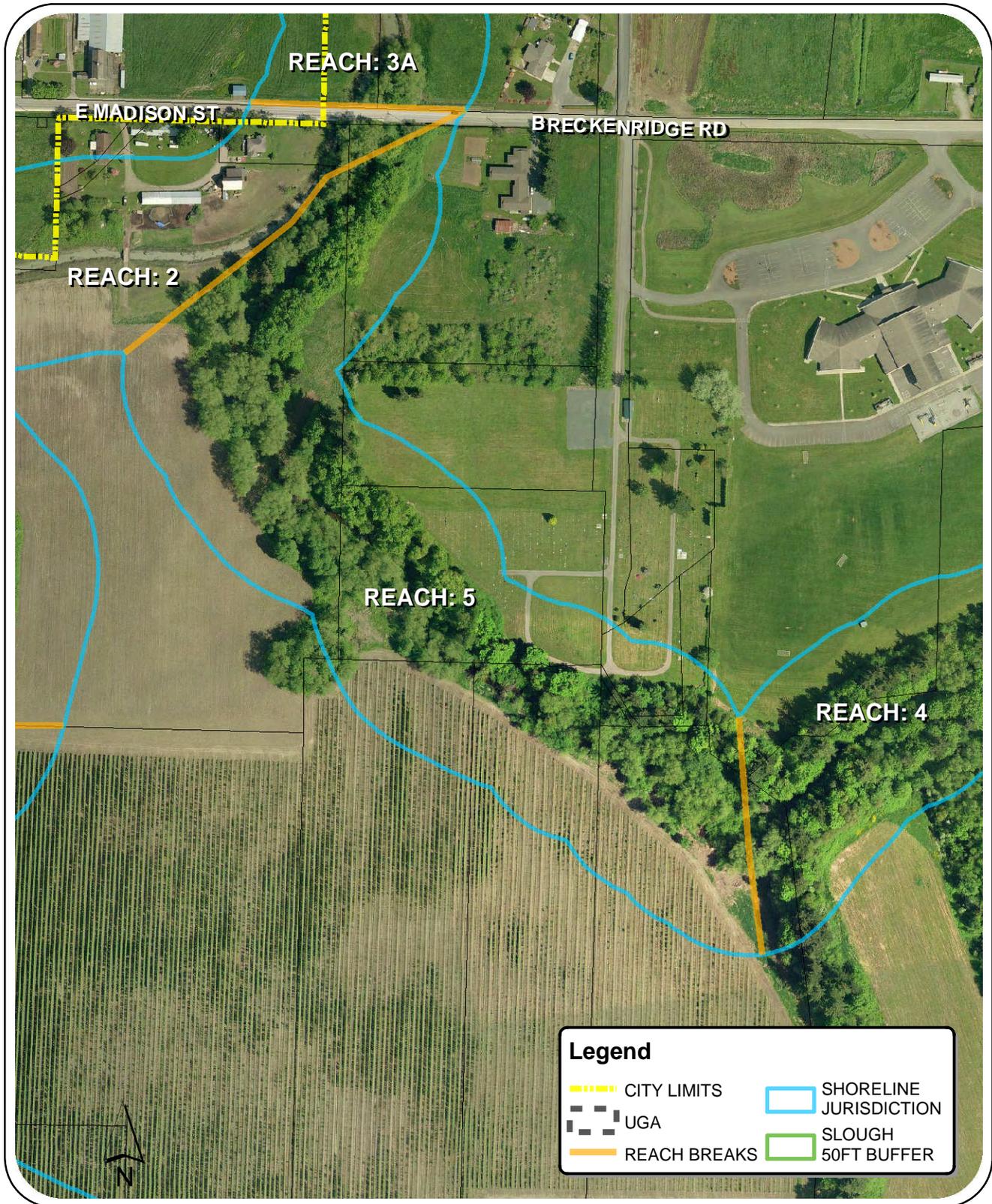
city of NOOKSACK
INCORPORATED IN 1912
P.O. Box 4265 • 103 W. Madison Street
Whatcom County • Nooksack, Washington 98276
(360) 966-2531 • Fax (360) 966-2505 • www.cityofnooksack.com

Shoreline Jurisdiction
Reach 4

| | | |
|---------------------------|--------------------------------|---|
| Land Use | Current Shoreline Designation | UGA: Whatcom County: Rural. (Ref # 16) City: Conservancy. (Ref # 1) |
| | Current Land Use | Light to moderate agriculture (raspberries) to south. Cemetery and some areas undeveloped to the north. (Ref # 3, 7) |
| | Zoning | Entire reach is in the UGA: Agriculture. Future city: public (5.6 ac), residential (4.0 ac), residential cluster (9.5 ac), recreation along shoreline. (Ref # 2) |
| Potential Species Present | Wildlife species | Raptor, waterfowl. (Ref #2A) Riparian zone. (Ref # 17) |
| | Fish species | Fish rearing habitat (Ref # 2). Fall Chinook presence presumed; fall chum presence documented; Coho documented rearing; and winter steelhead presence presumed. (Ref # 13) Resident cutthroat.(Ref # 12) |
| | PHS species/habitat | Priority fish presence. (Ref # 12) NWI wetlands associated with Sumas River. (Ref # 2) |
| | TSE species | ESU for coho, fall/winter chum, bull trout. (Ref # 13) |
| | Invasive wildlife/fish species | No data. |
| Physical Environment | Acres of land in reach | Total: 19.1 in the UGA. (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 | None. (Ref # 1) |
| | Culverts/stormwater utilities | None observed. (Ref # 3, 7) |
| | Geology | Glacial outwash terrace with alluvium, undifferentiated outwash and till. (Ref # 9) |
| | Tributary Creeks | None observed. (Ref # 1, 3, 13) |
| | Impervious surface | Impervious 0.15 ac (1%) (Ref # 1) |
| | Roads/transportation | Farm access road south of river; cemetery access roads north of river. (Ref # 3, 7) |
| | Soils | Kickerville silt loam; Oridia silt loam; Mt Vernon fine sandy loam. (Ref # 4) |
| | Topography | 85 to 100 feet elevation. (Ref # 6) |
| | FEMA | 100 year floodplain extends throughout most of the reach (Ref # 6). Floodplain areas along entire reach. (Ref # 2) |
| | Terrestrial Vegetation | Approximately half of the reach on either side of the stream is characterized by undeveloped native deciduous trees and shrubs. Native vegetation present has the potential to provide good habitat. Himalayan blackberry dominant in portions of the understory. The remainder of the reach is pasture/agricultural land. To the north these areas are vegetated with native and non-native herbaceous species; this area is mainly within the cemetery and always mowed. To the south the remaining areas are planted in raspberries. (Ref # 3) |
| Riparian Function | Aquatic substrate type | No data. |
| | Channel confinement | No data. |
| | Channel gradient | No data. (Ref # 13) |
| | Channel migration zone | Unknown. |
| | Creosote structures | None observed/ no data. (Ref # 3, 7) |
| | In-water structures | None observed/ no data. (Ref # 3, 7) |
| | Fish passage blockages | None. (Ref # 13) |
| | LWD presence | Unknown. Tree cover along the shoreline is moderate to high. Recruitment potential is moderate to high. (Ref # 3) |
| | Riffle/pool analysis | No data. |

| | | |
|---------------------|--|--|
| | Associated wetlands | NWI wetlands associated with Sumas River. (Ref # 2) |
| | DOE 303(d) | None. (Ref # 10) |
| | Toxic sites/land fills | None listed. (Ref # 8) |
| | Point source pollution | No point source known. Non-Point source: low intensity agriculture (raspberry farming) to the south. (Ref # 3, 7) |
| Historic & Cultural | Historic aerials | No significant changes observed between 1976 and 2006 other than increased residential density. (Ref # 14) |
| | Archeological & historic sites | None indicated. (Ref # 5) |
| | Parks & public access | None. (Ref # 2, 3) |
| Function Analysis | Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat | <p>Functioning with some impairment. 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, and ditching.</p> <p>Functioning with some impairment. Approximately half of the reach contains native vegetation (trees and shrubs) and is functioning. The other half is lawn (cemetery) or agriculture and is impaired.</p> <p>Terrestrial: Functioning in areas dominated by native vegetation, impaired in others due to loss of habitat, and non-native or invasive vegetation.</p> <p>Aquatic: Functioning.</p> |
| | Limiting Factors | <ul style="list-style-type: none"> ▪ Water quality ▪ Existing land use/ Zoning |
| | Functions <ul style="list-style-type: none"> • Sustainable • Not Sustainable | <p>At current levels: Hydrologic, shoreline vegetation, terrestrial and aquatic habitat.</p> <p>Terrestrial habitat impaired due to adjacent land uses and may not be sustainable or improved without a change in use.</p> |
| | Priority Actions | <ul style="list-style-type: none"> ▪ Preservation of existing riparian vegetation. ▪ Water quality improvement. |
| | Current Enhancement Projects | None known |
| | Preservation/Enhancement Opportunities | <ul style="list-style-type: none"> ▪ Preservation of terrestrial vegetation, habitat and associated riparian corridor. ▪ Enhance riparian buffer: increase width of native shoreline vegetation in pasture and agriculture areas. ▪ Remove invasive species (Himalayan blackberry). |

CITY OF NOOKSACK, WA



*Disclaimer: These maps are for planning purposes only.
Property lines are approximate.*

Shoreline Jurisdiction Reach 5

1 inch = 300 feet

PROJECTION:
State Plane Washington North NAD 83
DATA SOURCES:
City of Nooksack, Whatcom County
Planning/Assessor's, & 2008 Pictometry

Sehome Planning & Development

Wilson
SURVEY/ENGINEERING

city of
Nooksack

INCORPORATED IN 1912
P.O. Box 4265 • 103 W. Madison Street
Whatcom County • Nooksack, Washington 98276
(360) 966-2531 • Fax (360) 966-2505 • www.cityofnooksack.com