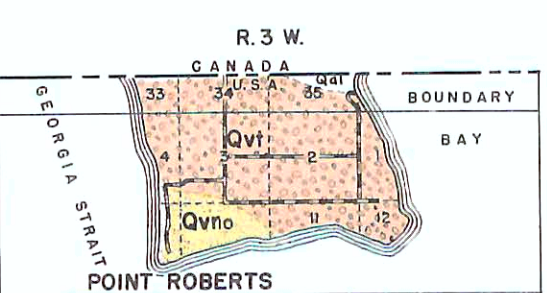
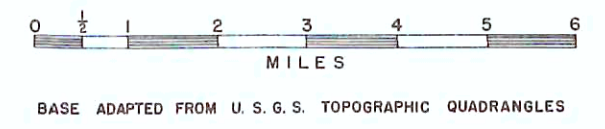


EXPLANATION

- | | | |
|----------------|---|-------------------------|
| Qal | Alluvium (Clay, silt, peat, sand and gravel); coarse-grained members yield moderately large quantities of ground water. Water generally contains iron. | Recent |
| (Swampy areas) | Swampy areas. | |
| Qls | Recent landslides (Areas of slumped masses of Tertiary bedrock) | |
| Qvr | Recessional outwash of Vashon glaciation (Sand, clay, silt and gravel); deposited by outwash streams from the retreating ice of the latest glaciation. In places mantled by Recent alluvium. Coarse-grained members yield moderately large quantities of ground water. Water in many places contains iron. | QUATERNARY |
| Qvt | Till of Vashon glaciation (Grey, blue, hard, micaceous mixture of clay, silt, sand, and gravel that is principally a ground-marine deposit from 1 to 50 feet in thickness. Essentially impervious, but in most places soil zone at surface yields small quantities of perched ground water.) | |
| Qva | Advance outwash of Vashon glaciation and pre-Vashon(?) Pleistocene deposits, undifferentiated (silt, sand, and gravel deposits laid down in front of advancing Vashon ice. Includes older(?) fossil-bearing clay. Coarse-grained members yield moderately large quantities of ground water where below level of regional water table.) | |
| Qvolc | Mt. Baker volcanics (Andesitic lava flows, flow breccias, with interflow layers of ash, pumice, and undifferentiated volcanic ejecta. Includes late Pleistocene volcanics of Mt. Baker area.) | Pleistocene |
| Tvolc | Tertiary volcanics (Hammegan Pass-Ruth Mtn area, mostly ash beds, also isolated outcrops in upper Wets Creek-Hammegan Ridge area.) | |
| Td | Tertiary dunite (Twin Sisters Mtn. basic igneous intrusive, some serpentinization.) | TERTIARY |
| Tgr | Tertiary granite (Acidic igneous intrusive, upper Ruth Creek-N. Fk. Nooksack River valleys) | |
| Tc | Tertiary sedimentary rocks (Series of sandstones, shales, conglomerates, and coal, up to 10,000+ feet in thickness. Deposited as continental sediments in most places mantled by cover of glacial material. Yields saline or mineralized ground water. Small yields of potable water obtained where salinity has been flushed out by ground water circulation from Chukoum formation, includes late Cretaceous through early Eocene sedimentary rocks.) | Eocene to early Miocene |
| pT | pre-Tertiary undifferentiated metamorphic rocks (Shales, argillites, slates, phyllites, schists, gneisses, limestones, cherts, altered andesites, gneisses, greenocherts, amphibolites.) | |

LEGEND

- Principle Highways and Roads
- Watershed Boundary
- International Boundary
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- Town with Population of 10,001-50,000
- Town with Population of 1001-5000
- Town with Population of 251-1000
- Town with Population of 1-250

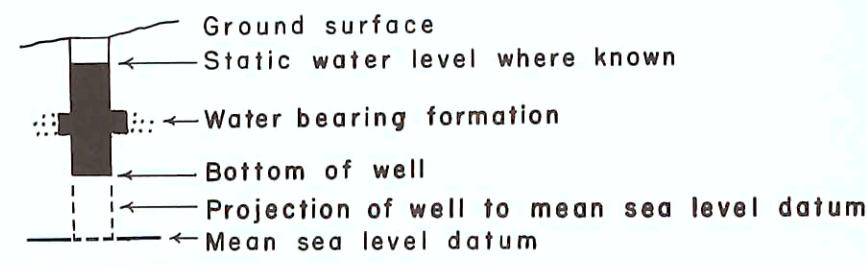


GEOLOGIC MAP OF NOOKSACK RIVER BASIN AND CERTAIN ADJACENT STREAMS

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

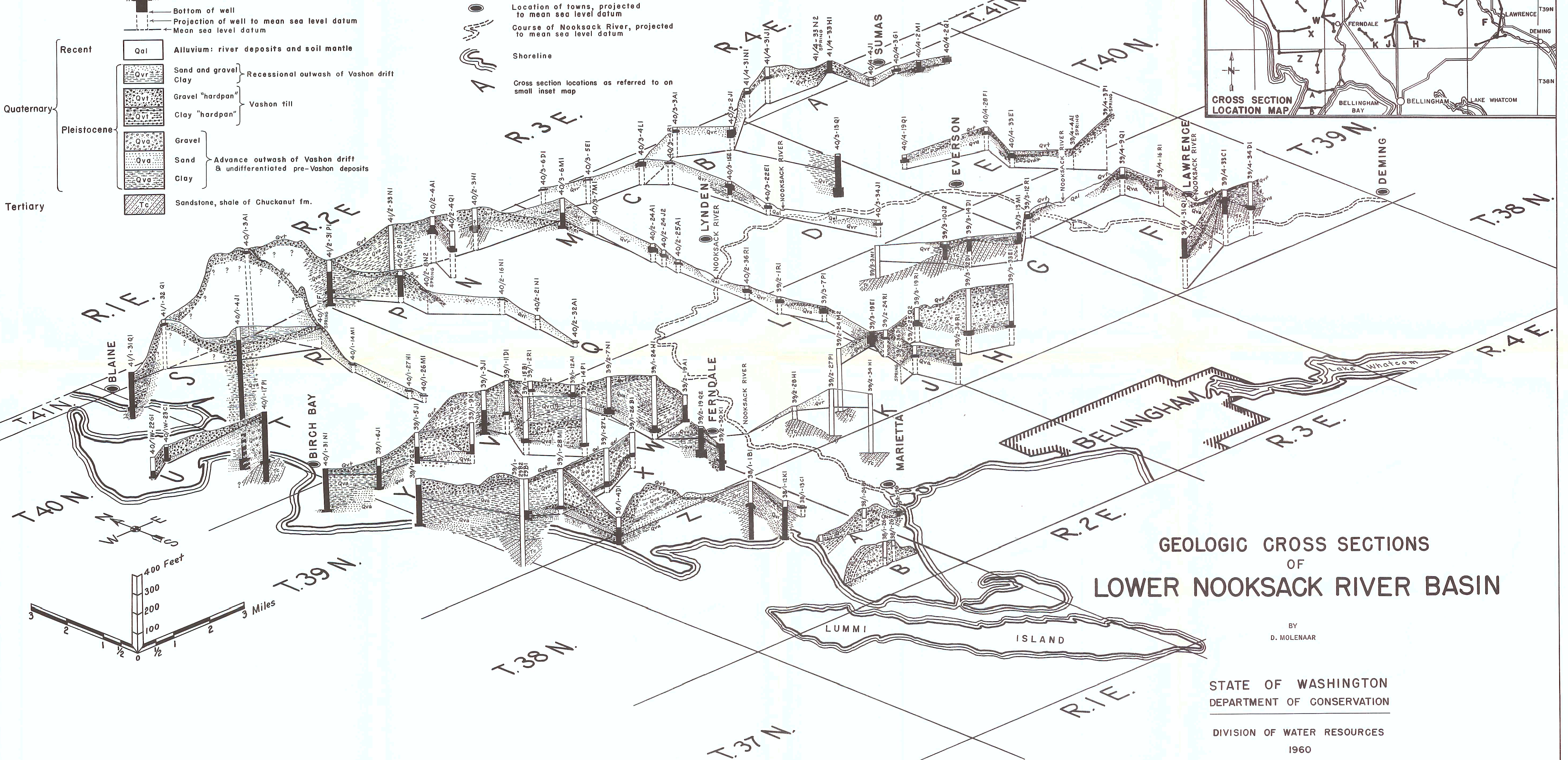
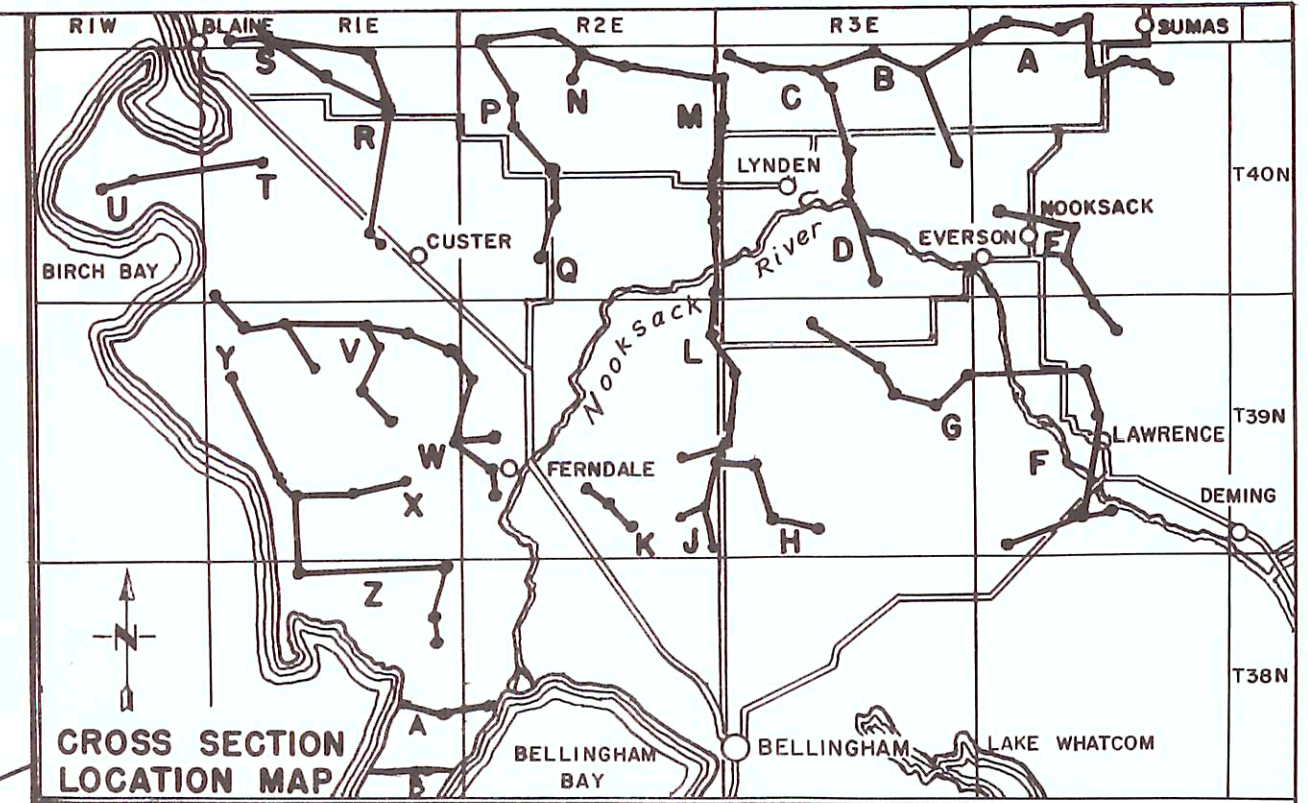
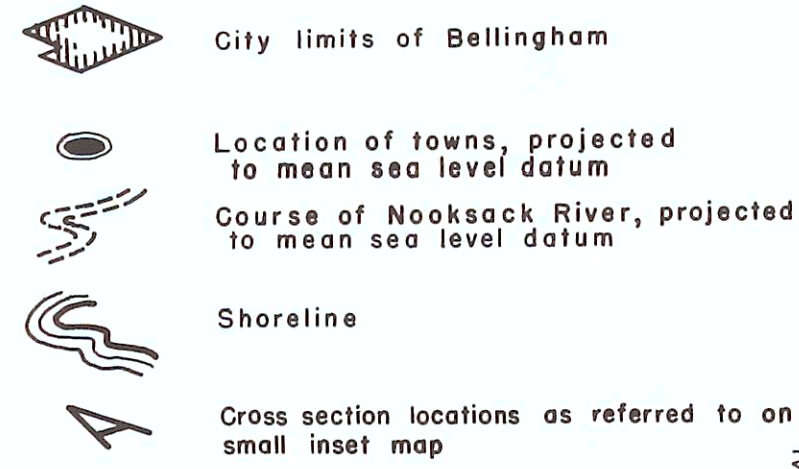
JUNE, 1960

EXPLANATION



Recent	Qal	Alluvium: river deposits and soil mantle
Quaternary	Qvr	Recessional outwash of Vashon drift Vashon till
	Qvl	
	Qv1	
Pleistocene	Qvo	Advance outwash of Vashon drift & undifferentiated pre-Vashon deposits
	Qva	
	Qva	
Tertiary	Tc	Sandstone, shale of Chuckanut fm.

LEGEND

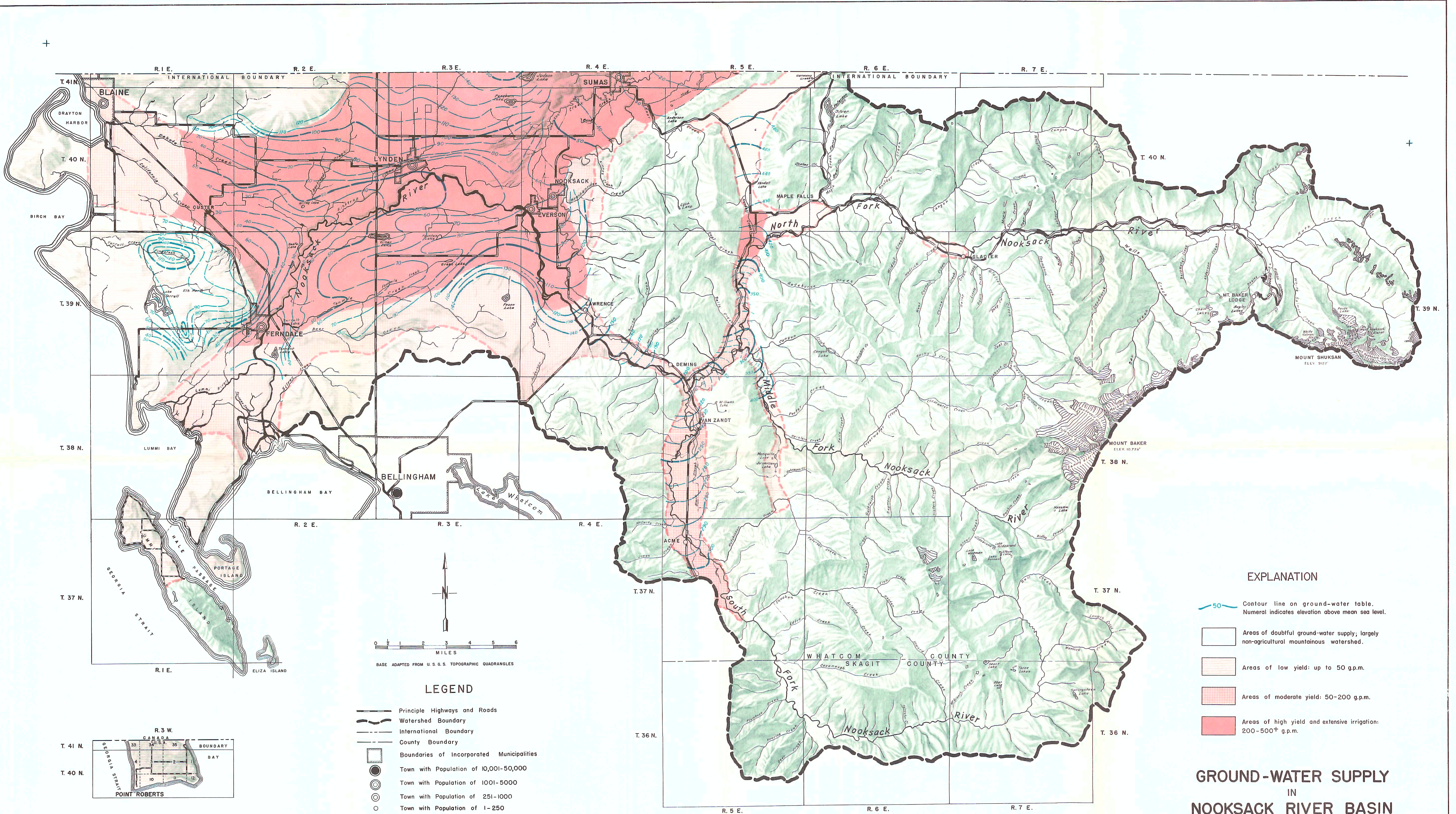


**GEOLOGIC CROSS SECTIONS
OF
LOWER NOOKSACK RIVER BASIN**

BY
D. MOLENAAR

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION

DIVISION OF WATER RESOURCES
1960

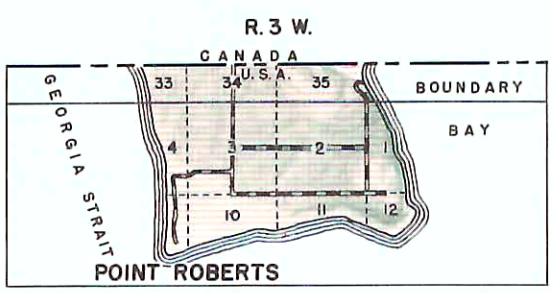
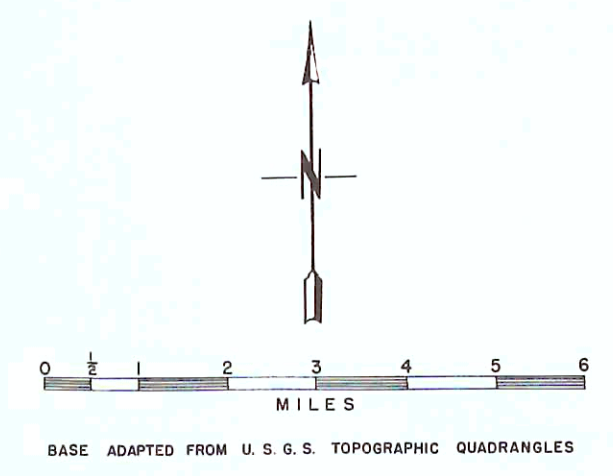


EXPLANATION

- Contour line on ground-water table. Numerals indicate elevation above mean sea level.
- Areas of doubtful ground-water supply; largely non-agricultural mountainous watershed.
- Areas of low yield: up to 50 g.p.m.
- Areas of moderate yield: 50-200 g.p.m.
- Areas of high yield and extensive irrigation: 200-500+ g.p.m.

LEGEND

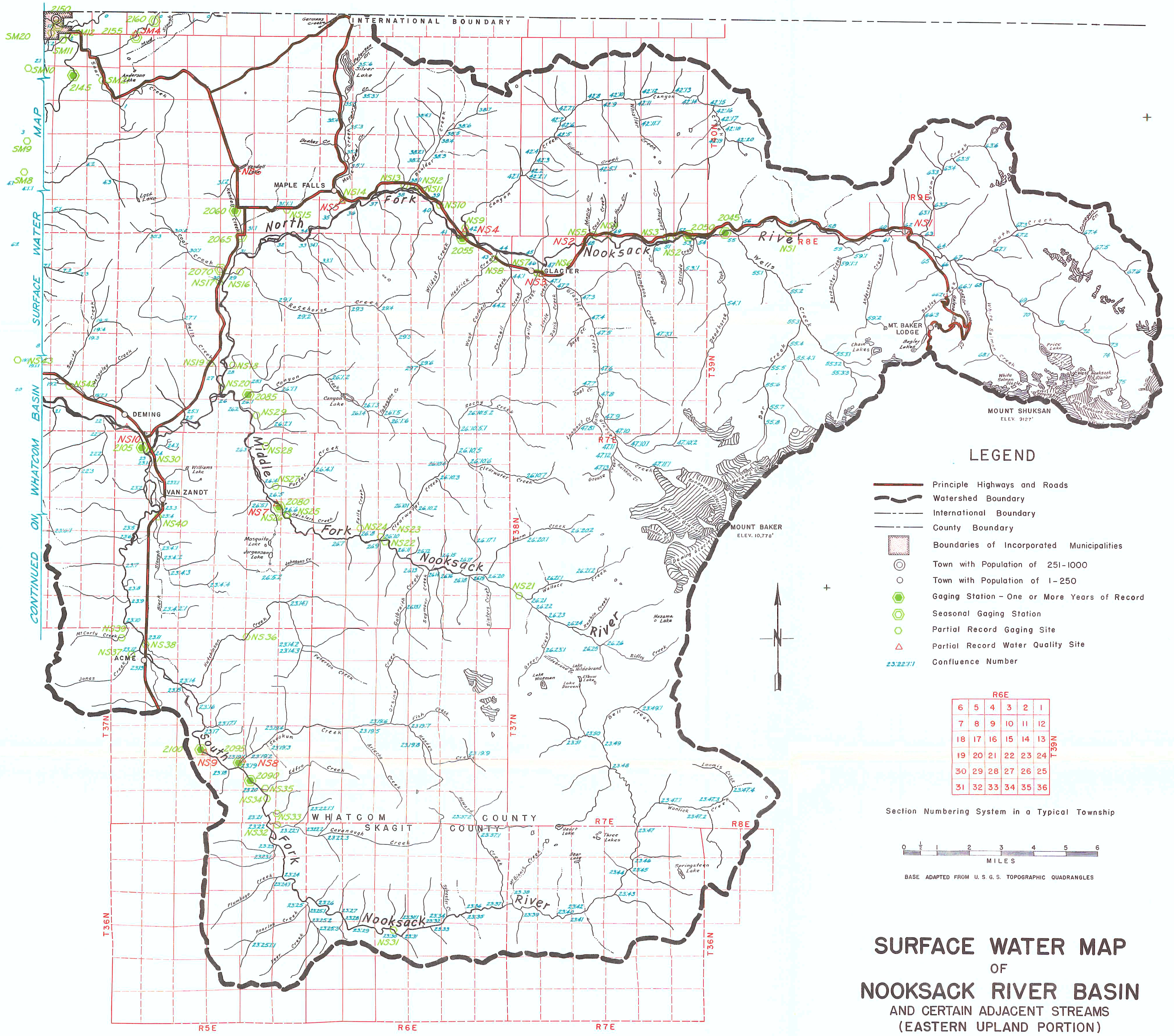
- Principle Highways and Roads
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- Boundaries of Incorporated Municipalities
- Town with Population of 10,001-50,000
- Town with Population of 1001-5000
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- Town with Population of 1-250



**GROUND-WATER SUPPLY
IN
NOOKSACK RIVER BASIN
AND CERTAIN ADJACENT STREAMS**

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

JUNE, 1960



LEGEND

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- Gaging Station - One or More Years of Record
- Seasonal Gaging Station
- Partial Record Gaging Site
- Partial Record Water Quality Site
- Confluence Number

R6E					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
T36N					

Section Numbering System in a Typical Township

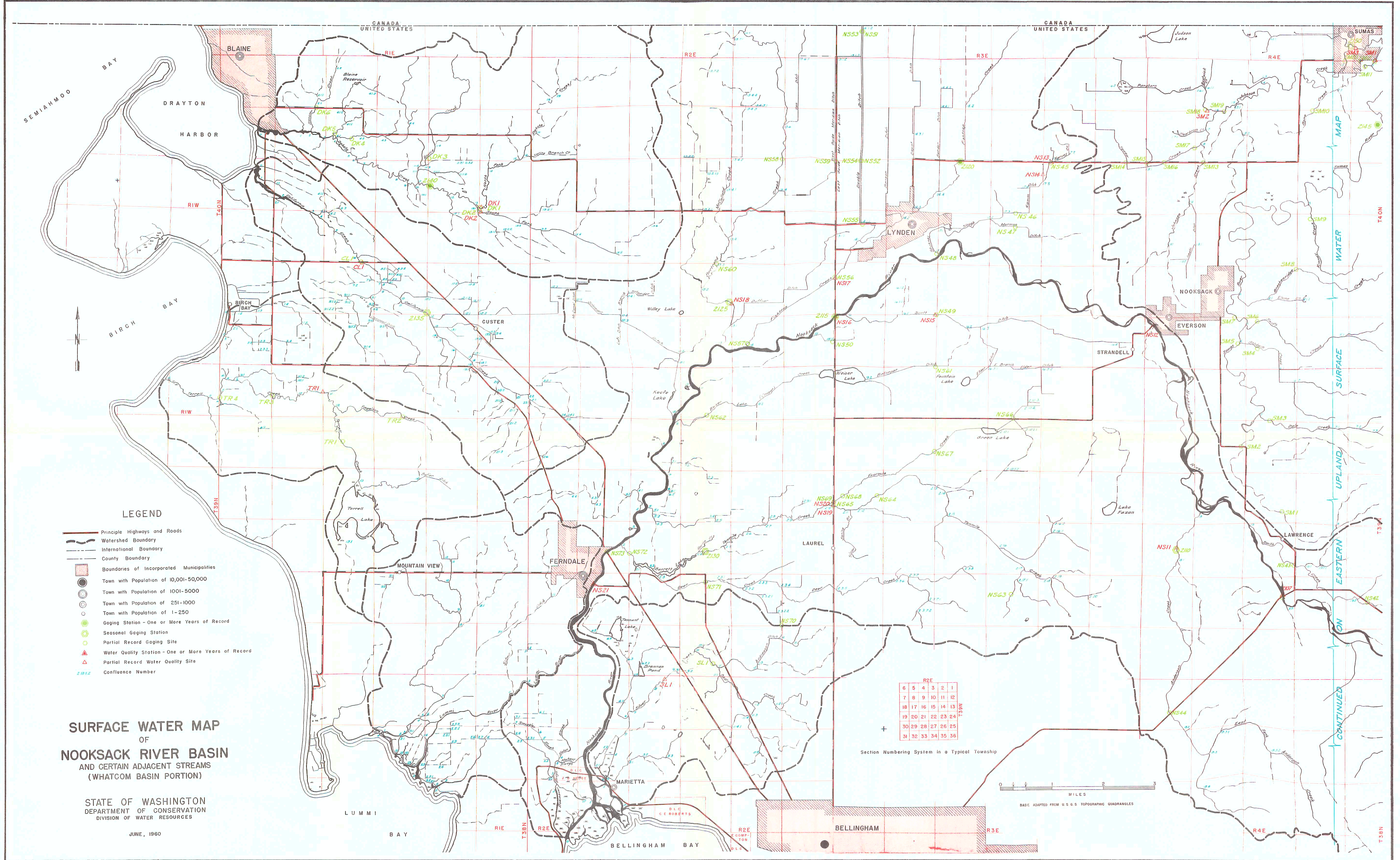


BASE ADAPTED FROM U. S. G. S. TOPOGRAPHIC QUADRANGLES

**SURFACE WATER MAP
OF
NOOKSACK RIVER BASIN
AND CERTAIN ADJACENT STREAMS
(EASTERN UPLAND PORTION)**

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

JUNE, 1960



LEGEND

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- Seasonal Gaging Station
- Partial Record Gaging Site
- Water Quality Station - One or More Years of Record
- Partial Record Water Quality Site
- Confluence Number

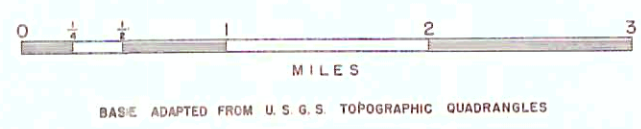
**SURFACE WATER MAP
OF
NOOKSACK RIVER BASIN
AND CERTAIN ADJACENT STREAMS
(WHATCOM BASIN PORTION)**

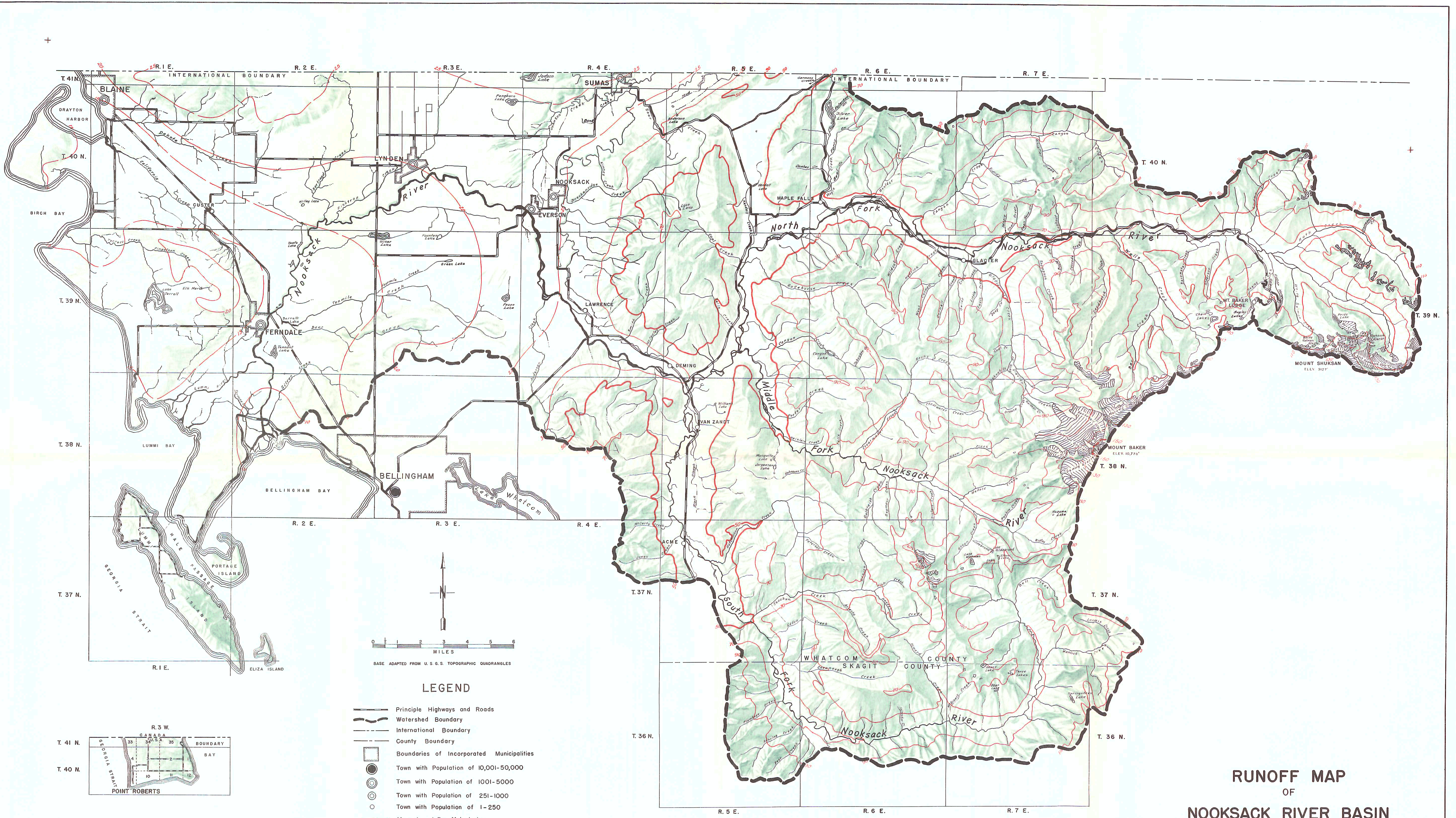
STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
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JUNE, 1960

R2E					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Section Numbering System in a Typical Township





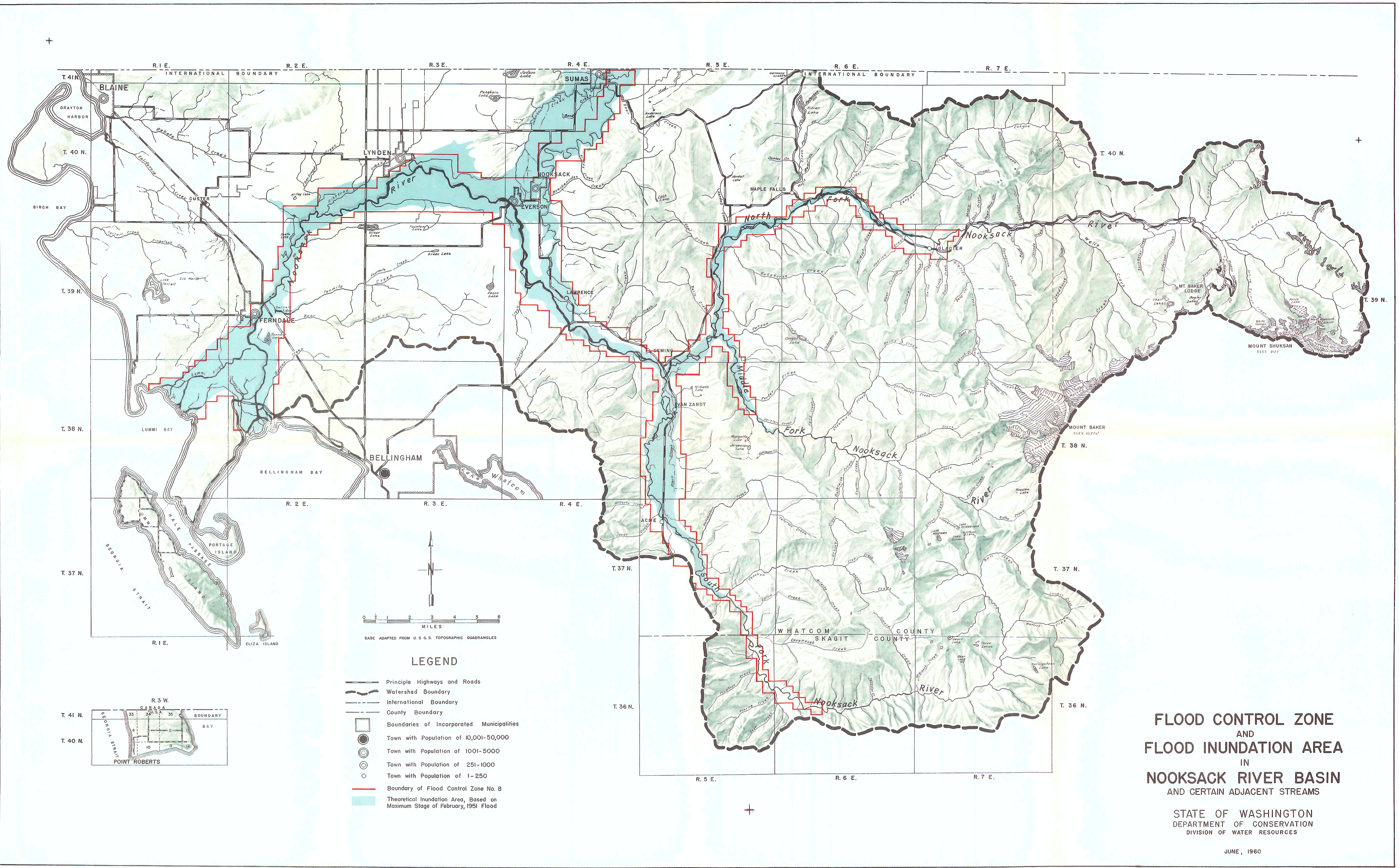
LEGEND

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- Mean Annual Runoff in inches

**RUNOFF MAP
OF
NOOKSACK RIVER BASIN
AND CERTAIN ADJACENT STREAMS**

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

JUNE, 1960



**FLOOD CONTROL ZONE
AND
FLOOD INUNDATION AREA
IN
NOOKSACK RIVER BASIN
AND CERTAIN ADJACENT STREAMS**

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

JUNE, 1960



LEGEND

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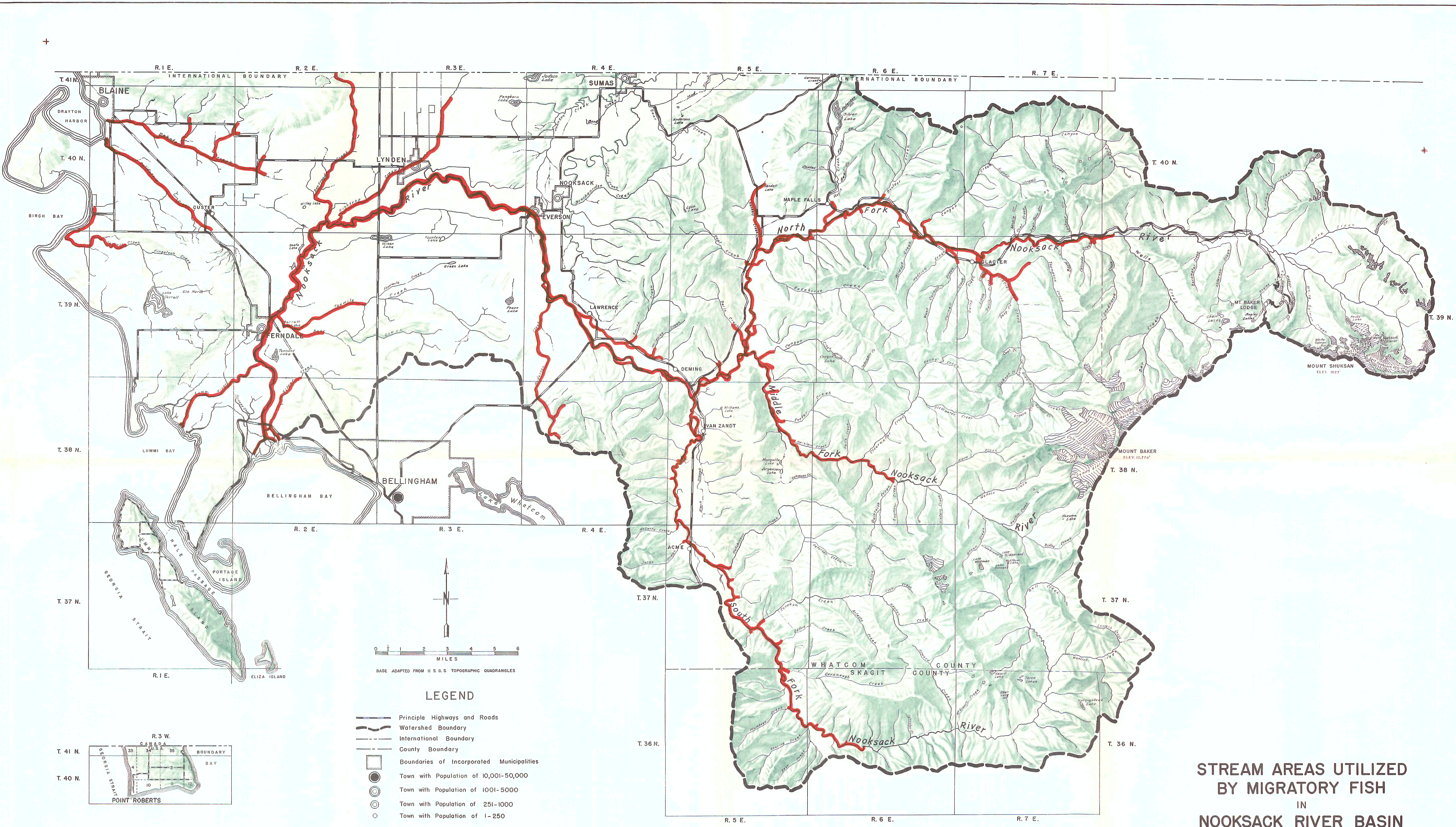
STATUS OF RESERVOIRS

	Existing	Under Construction	Potential
Storage Dam		None	
Diversions Structure			
Inundated Area		None	

WATER DEVELOPMENT PROJECTS
NOOKSACK RIVER BASIN
 AND CERTAIN ADJACENT STREAMS

STATE OF WASHINGTON
 DEPARTMENT OF CONSERVATION
 DIVISION OF WATER RESOURCES

JUNE, 1960



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**STREAM AREAS UTILIZED
BY MIGRATORY FISH
IN
NOOKSACK RIVER BASIN
AND CERTAIN ADJACENT STREAMS**

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

JUNE, 1960