

WATER WELL REPORT
STATE OF WASHINGTON

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy

Application No. 717 Permit No. _____

(1) OWNER: Name Harbor Water Company Address 7825-46th Ave. NE, Gig Harbor, WA 98345

(2) LOCATION OF WELL: County Pierce Section NW 1/4 NW 24, 20 N. 14th St.
Bearing and distance from section or subdivision corner Adrona Point Estates

(3) PROPOSED USE: Domestic Industrial Municipal
Irrigation Test Well Other

(4) TYPE OF WORK: Owner's number of well (if more than one) _____
New well Method: Dug Bored
Deepened Cable Driven
Reconditioned Rotary Jetted

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 332 ft. Depth of completed well 332 ft.

(6) CONSTRUCTION DETAILS:
Casing installed 6 ft. Dia. from _____ ft. to _____ ft.
Screens: Yes No
Manufacturer's Name Johnson
Type Stainless Steel Model No. _____
Diam. 10 Slot size 20 from _____ ft. to _____ ft.
Diam. _____ Slot size 10 from _____ ft. to _____ ft.

Gravel packed: Yes No Size of gravel: _____ ft. to _____ ft.
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes No To what depth _____ ft.
Material used in seal _____
Did any strata contain unusable water? Yes No
Type of water _____ Depth of strata _____
Method of sealing strata _____

(7) PUMP: Manufacturer's Name Barkley
Type Submersible HP 3

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 58 ft. below top of well Date 8-7-05
Artesian pressure _____ lb. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes No If yes, by whom? _____
Yield _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken to rise when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 8-7-05
Water temp. _____ °F. at _____ ft. drawdown after _____ hrs.
Artesian flow _____ cfm. Date _____
Temperature of water _____ Was a chemical analysis made? Yes No

(10) WELL LOG:
Formation: Describes by color, character, size of material and structure, and show thickness in feet and the kind and nature of the material to each stratum penetrated with at least one entry for each change of formation.

MATERIAL	FROM	TO
Brown hardpan w/ some clay binder	0	76
Blue clay hardpan mix	76	98
Brown mix of sand & clay some seepage	98	112
Grey silt sand	112	121
Dark blue clay hardpan	121	150
Silt & seepage	150	150
Hard blue clay	160	164 1/2
Coarse gravel	164 1/2	165 1/2
Clay conglom. mix	165 1/2	167
Change to silt	167	248
Mix of blue clay-rocks-wood and sand	248	264
Fine, but clean sand & water clay	264	265
Clay	265	320
Medium sand waterbearing	320	322
Coarser some gravel & heavy	322	327
Coarse gravel	327	328 1/2
Back to medium sand	328 1/2	332
Blue clay w/ gravel mix	332	332

Work started 7-21 1905 Completed 8-7 1905

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Harbor Pump & Drilling Co., Inc.
(Person, firm, or corporation) (Type or print)
Address 7825-46th Ave. NE, Gig Harbor, WA 98345

(Signed) [Signature] bl Cumbio
Date 8-7-05

License No. 231-01-84-05 Date 6-1-04 1904

W.P. No. 1116-08 (Rev. 4-71) (USE ADDITIONAL SHEETS IF NECESSARY)

Water Right Tracking System
 Department of Ecology
 WR Document List Sorted By TRS Report

File #	Cert #	First Primary	Stat	Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	TRS	QO/Q	Src's	1stSrc
Reported By: JVAN461																
Report Date: 3/9/2004																
G2-29955		Miller Land & Timber	A	NewApp	10/10/2000	DM	161	GPM			15	PIERCE	20.0N 01.0W 12		2	WELL
G2-164126CL		RUNIONS MARK F	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-152541CL		CURL HENRY R	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-135930CL		COLE LEWIS M	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-127630CL		LONGBRANCH CEMETERY ASSOC	A	Claim L		IR		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-125204CL		GILBERT GEORGE	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-113676CL		DALTON ROBERT A	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-091928CL		HUMPHREYS HUGH D	A	Claim S		IR,DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
74748CL		LONGBRANCH COMM CHURCH	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-054677CL		KUZMICK WALTER	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-049067CL		MANLEY JOHN	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-028765CL		HILL NETTIE L.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-024931CL		KRAUSE ALBERT	A	Claim L		ST,DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-013873CL		KAELIN JOHN V.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-012993CL		EILERS FRANK	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-004000CL		COLWELL JOHN L.	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-004209CL		DOBSON C. R.	A	Claim L		IR,DG		CFS			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-004534CL		MC ALLISTER JOSEPH H.	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-003403CL		MELDNER CARL F.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
G2-003630CL		JOHNSON ROBERT G.	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 13		1	WELL
S2-219899CWRIS		KUZMICK WALTER	A	Cert	3/5/1974	IR	0.1	CFS	10	5	15	PIERCE	20.0N 01.0W 13	NE/NW	1	UNNAMED POND
RE-187914CWRIS		KAELIN J V / J F	A	Cert	11/27/1964	IR		CFS	4	2	15	PIERCE	20.0N 01.0W 13	SE/NE	1	UNNAMED SPRING
G2-27651	10523	HENDRICKSON LARRY	A	Cert	10/30/1989	DM	30	GPM	4.5		15	PIERCE	20.0N 01.0W 13	SE/SE	1	WELL
S2-300994CL		DALTON ROBERT	A	Claim		ST,IR		CFS			15	PIERCE	20.0N 01.0W 13		1	UNNAMED CREEK
S2-164956CL		BALKENENDE GENEVIEVE	A	Claim S		ST,IR		CFS			15	PIERCE	20.0N 01.0W 14		1	STREAM & SPRINGS
G2-164957CL		BALKENENDE G	A	Claim S		ST,IR		GPM			15	PIERCE	20.0N 01.0W 14		1	WELLS
S2-164110CL		SUMMERS CHARLES B	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 14		1	STREAM
S2-164111CL		SUMMERS CHARLES B	A	Claim L		IR,DG		CFS			15	PIERCE	20.0N 01.0W 14		1	POND
S2-161004CL		RIPLEY FRED O	A	Claim L		ST,IR		CFS			15	PIERCE	20.0N 01.0W 14		1	POND
G2-158813CL		JOPP LAWRENCE E	A	Claim S		ST,IR		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
G2-139821CL		VON KAENEL ADOLF	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
G2-134708CL		WYATT WILLIAM F	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
S2-132069CL		TENNISON GARY H	A	Claim L		ST,IR		CFS			15	PIERCE	20.0N 01.0W 14		1	POND
G2-093795CL		BROWN ALEX K	A	Claim L		ST,IR		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
G2-063366CL		LONGBRANCH IMPROVEMENT CL	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
G2-041379CL		RIPLEY FRED O.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
G2-036673CL		HECKART MELVIN R.	A	Claim S		ST,DG		GPM			15	PIERCE	20.0N 01.0W 14		1	WELL
S2-291486CWRIS	10229	Longbranch Improvement Club	A	Cert	3/16/1967	FR,DM	0.02	CFS	1		15	PIERCE	20.0N 01.0W 14	NE/SE	1	UNNAMED STREAM

Water Right Tracking System
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WR Document List Sorted By TRS Report

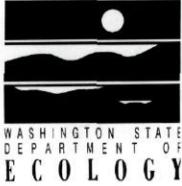
File #	Cert #	First Primary	Stat	Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	TRS	QD/Q	Src's	1stSrc
S2-12661CWRRS	06222	STEVENS A T	A	Cert	11/18/1953	IR,DS	0.11	CFS		10	15	PIERCE	20.0N 01.0W 14	SE/SE	1	UNNAMED STREAM
S2-03454CWRRS	00740	ANDERSON A	A	Cert	7/17/1931	IR,DS	0.2	CFS		10	15	PIERCE	20.0N 01.0W 14	SW/SE	1	UNNAMED STREAM
G2-160647CL		LE BEAU JACK R	A	Claim S		IR,DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
S2-139022CL		HALL AUSTIN R	A	Claim L		DG		CFS			15	PIERCE	20.0N 01.0W 23		1	SPRING
G2-080225CL		EASTERWOOD JACK L.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
G2-064428CL		SODERQUIST HELEN	A	Claim L		ST,DG		GPM			15	PIERCE	20.0N 01.0W 23		1	WELL
G2-061588CL		WILSON JAMES R.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	WELL
G2-058696CL		GORDON ROBERT H.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
G2-056204CL		EOFF JAMES C.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	A WELL
G2-050416CL		HESSLAESSER EVLA	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
G2-035251CL		COBURN D. B.	A	Claim S		ST,DG		GPM			15	PIERCE	20.0N 01.0W 23		1	WELL
G2-016948CL	20380CL	SCHULTZ JOHN H.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
G2-016948CL		SMITH HARRY T.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
G2-015542CL		ROBINSON SHAYER O. L.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 23		1	
S2-21496CWRRS	10975	GORDON R H	A	Cert	8/26/1968	ST,IR	0.04	CFS	5.5	3	15	PIERCE	20.0N 01.0W 23	NE/SW	1	UNNAMED SPRING
S2-16517CWRRS	08165	FERRELL E K	A	Cert	2/6/1961	DS	0.01	CFS			15	PIERCE	20.0N 01.0W 23	SE/NE	1	UNNAMED SPRING
S2-12658CWRRS	06701	RISTVET C M	A	Cert	11/16/1953	IR,DS	0.26	CFS	50	25	15	PIERCE	20.0N 01.0W 23	N2/NE	1	UNNAMED SPRING
S2-10361CWRRS	07047	OTTO W G	A	Cert	5/24/1951	IR,DS	0.05	CFS	10	5	15	PIERCE	20.0N 01.0W 23	NE/NE	1	UNNAMED SPRING
G2-09909CWRRS	07102	COBURN D B	A	Cert	11/29/1968	IR	50	GPM	24	15	15	PIERCE	20.0N 01.0W 23		1	WELL
G2-09607CWRRS	06732	GORDON R H	A	Cert	8/26/1968	DS	5	GPM	1		15	PIERCE	20.0N 01.0W 23	NE/SW	1	WELL
G2-29809		Washington Water Service	A	NewApp	10/14/1998	DM	20	GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-160532CL		KELLY ROBERT	A	Claim S		IR,DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-137268CL		OLIN A C	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-135525CL		WILLARD DON G	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-129542CL		DAHL WALTER C JR	A	Claim S		IR,DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-128252CL		MC CALLY WILLIAM E	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-115233CL		SEATTLE FST NATL BK	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-109077CL		PRICE ANITA L	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-109078CL		PRICE ANITA L	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-077297CL	80221CL	THOMPSON WM L.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-073239CL		THOMPSON WILLIAM J.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-073239CL		FRANKLIN MARGARET K.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	A WELL
G2-073268CL		FRANKLIN MARGARET K.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	A WELL
G2-071915CL		CARR RANDOLPH J.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-072068CL		PILSON RUTH V.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	A WELL
G2-072069CL		PILSON RUTH V.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	A WELL
G2-060153CL		TRACY THOMAS F.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-055450CL		HUFF PEARL E.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-052331CL		VANANTWERP ROY A.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-052425CL		WATKINSON NORMAN	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	INFILT GALLERIES
G2-045519CL		GORDON C. CONRAD	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	

This data may not be complete or accurate. Validity of water rights documented by statements of claims can only be determined in Superior Court. Ecology cannot guarantee the validity of the water rights documented by Permits and Certificates

Water Right Tracking System
 Department of Ecology
 WR Document List Sorted By TRS Report

File #	Cert #	First Primary	Stat	Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	TRS	QQ/Q	Src's	1stSrc
G2-043588CL		FROLING MABEL H.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-042572CL		LIND DON E.	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-041632CL		KELLY ROBERT	A	Claim S		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-032471CL		CLAPP C. CYRUS	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-032335CL		NORDQUIST LUCY F.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	WELL
G2-028723CL		CAFFEY WILLIAM T.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-026331CL		ARLEDGE SHERMAN W.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-026558CL		BARKEMEYER A. H.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-021062CL		SCHARF ARVILLA M.	A	Claim L		IR,DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-020071CL		KELLEY BRUCE	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-020072CL		KELLEY BRUCE	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-020094CL		PETERSON HUGO A.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-017958CL		KELLY STUART W.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-016348CL		KOONS ELIZABETH A.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-013588CL		DORFNER JOSEPH W.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-012436CL		PENFIELD JAMES K.	A	Claim L		DG		GPM			15	PIERCE	20.0N 01.0W 24		1	
G2-22847CWRRIS		Washington Water Service	A	Cert	6/26/1974	DM	40	GPM	8.4		15	PIERCE	20.0N 01.0W 24	NW/NW	1	WELL
SELECTION CRITERIA																
Region	Southwest															
TRS	20N 1W 13,20N 1W 14,20N 1W 23,20N 1W 24															
Status	Active															

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DEPARTMENT OF ECOLOGY
MEMORANDUM

March 16, 2004

TO: Jill Walsh

FROM: Tammy Hall, L.H.G. *TH*

SUBJECT: Hydrogeology pertaining Application No. G2-29809

On October 14, 1998, Mike Ireland on behalf of Washington Water's Madrona Point Water System applied for a permit to appropriate public ground water from a well at a rate of 20 gallons per minute (gpm) for multiple domestic supply. The project site is located in Pierce County on the Key Peninsula within the Kitsap Water Resource Inventory Area, (WRIA) 15.

The Madrona Point Water System is located near the small community of Longbranch, Washington on the southeastern side of the Key Peninsula, Pierce County. Madrona Point (WFI 50075) is one of the smaller Group A water systems owned by Washington Water with 30 active plus 11 committed connections.

The Madrona Point Water System was originally constructed in the early 1960's. The lots in the development have been historically used as vacation lots until recent years. Currently approximately half of the 30 active connections are used as residences. The remaining connections provide water to summer cabins or recreational vehicles during the summer months.

General Area Hydrogeology

The following information was compiled from the following resource materials:

- Garling and Molenaar, 1965, *Water Resources and Geology of the Kitsap Peninsula and Certain Adjacent Islands*, USGS Water Supply Bulletin No. 18.
- Drost, 1982, *Water Resources of the Gig Harbor Peninsula and Adjacent Areas, Washington*, USGS Open File Report 81-1021.
- Sweet-Edwards/ EMCON, Inc., 1992, *Gig Harbor Peninsula Ground Water Management Plan, Task 5 Hydrogeologic Evaluation Report*, prepared for the Tacoma-Pierce County Health Department.

The Gig Harbor Peninsula lies within the southern half of the Puget Sound lowland between the central Cascade Range to the east and the southern Olympic Mountains to the west. The Puget lowland is part of a large glacial drift plain formed by multiple glaciations that occurred in the region. A complex

sequence of unconsolidated and partially consolidated sediments beneath the area was created by a series of glacial advances and recessions. Deposits were also left by streams and lakes during these same periods of time. The thickness of the glacial and interglacial deposits in the area is not known. The deepest wells in the area have been drilled in excess of 1,000 feet below ground surface (bgs).

The unconsolidated glacial and interglacial deposits are up to 2 million years old. The most recent glaciation in the region ended approximately 13,500 years ago and is known as the Vashon State of the Fraser Glaciation. Vashon glacial deposits are characterized by a sequence of recessional outwash, lodgement till and other ice contact deposits, and advance outwash deposits. The upland areas of the Gig Harbor Peninsula are mantled with glacial till. Glacial outwash and recent alluvium cover the valleys. Localized areas of recessional outwash overlies till at a few locations.

The typical glacial sequence consists of the following types of deposits, which are listed youngest (closest to the surface) to oldest (deepest):

- Recessional outwash deposits. Recessional outwash was deposited by meltwater streams flowing from the glacier as it receded. As a result, these deposits are generally poorly sorted sand and gravel, which often may include cobbles and boulder-sized materials. Recessional outwash generally becomes finer grained upward within the unit. Recessional outwash deposits exhibit moderate to high permeabilities. Recessional outwash deposits typically serve as aquifers.
- Glacial Till. These deposits are typically poorly sorted and predominately consist of silty sand and gravel, but may also contain boulders. Till was deposited directly by the glacier as a result of grinding and compaction and behave as confining units that impede groundwater flow. Drillers' logs refer to tills as hardpan.
- Advance outwash deposits. Advance outwash was deposited by the advancing glacier by streams and is similar in characteristics to recessional outwash. These deposits typically consist of well graded sand and gravel and generally become finer grained with depth. Although the deposits are permeable, some portions are often dense and compacted as a result of the over riding glacial ice. Advance outwash deposits can typically serve as aquifers.

The alternating glacial and non-glacial periods of deposition created numerous aquifers and aquitards. Several aquifers and aquitards have been identified on the Key Peninsula. The principal aquifers include locally occurring perched water zones, the Upper Aquifer, the Sea Level Aquifer; and at least two deep aquifer systems below the Sea Level Aquifer. One principal aquitard commonly separates the Upper Aquifer from the Sea Level Aquifer (EMCON 1992).

Perched groundwater occurs primarily in localized areas where impervious layers prevent or retard the downward percolation of groundwater. Perched water zones commonly occur in pockets of permeable material within the till. Wells sited in perched zones are relatively shallow and characterized by water levels significantly above those in the Upper Aquifer. Water withdrawal from wells sited in perched zones is limited to single domestic supply due to the low production capacities of the wells.

The Upper Aquifer is composed of a poorly sorted gravel, sand, silt, and clay. The Upper Aquifer is encountered between 0 and 250 feet above mean sea level (msl) and is generally 50 feet thick, although it can be up to 200 feet in localized areas (EMCON 1992).

Separating the Upper Aquifer from the Sea Level Aquifer is a unit of low permeability that retards groundwater flow between the two aquifer units. The unit is generally fine-grained and has been identified as the Kitsap Formation (Garling and Molenaar 1965) (Drost 1982). It can be up to 200 feet in thickness but may be completely absent in some areas and is encountered from 200 above msl to 100 feet below msl (EMCON 1992).

The Sea Level Aquifer is composed of sand and gravel and is a major source of groundwater in the Gig Harbor Peninsula. The Sea Level Aquifer can be as thick as 250 feet and is encountered between 150 feet above msl to 150 feet below msl (EMCON, 1992). These deposits are also called Salmon Springs glacial drift (Drost 1982).

Below the Sea Level Aquifer is an alternating sequence of deposits that generally behave as aquifers and aquitards depending on their physical characteristics. All the unconsolidated materials below the Salmon Springs drift is referred to as Pre-Salmon Springs deposits. The upper portions are clay and silt in most locations. Sand and gravel generally underlie the clay and there are inclusions of till and peat. These materials extend downward to bedrock for a total thickness of greater than 1,000 feet. Only the uppermost 100-200 feet are well known. The top of the unit is generally below sea level (Drost 1982).

In the Key Peninsula area, all aquifers are recharged almost exclusively from precipitation. Hydraulic connections between these aquifers and other mainland aquifers are limited by topography. Groundwater from the Upper and Sea Level Aquifers discharges to deeper aquifers, surface streams and lakes, and marine water.

Hydrologic analysis

The Madrona Point water system well is 6-inches in diameter and was drilled in 1965. The approximate elevation at the well head is 100 feet above mean sea level (msl). The well site is situated on a small peninsula within Filucy Bay, situated approximately 500 feet east and 650 feet west of marine water. A well report for the well indicates drilling through layers of hardpan, blue clay, brown sand and clay, and silt before intercepting a thin layer of coarse gravel from 164 to 167 feet below ground surface (bgs). From 167 to 248 feet bgs the well report indicates drilling through a thick sequence of silt. The lithology changes to a mix of blue clay from 248 to 264 feet bgs, then changes to a water-bearing fine sand from 264 to 268 feet bgs. From 268 to 320 feet bgs, a thick layer of clay is intercepted until at 320 feet bgs sand and gravel are encountered to the completed depth of the well, which is 332 feet bgs (232 feet below msl). The well had a static water level of 88 feet bgs measured after drilling. The well is drawing water from a deep aquifer in the Pre-Salmon Springs deposits.

A pump test conducted on the Madrona Point water system well on June 20, 2000 indicated that the well could easily provide more instantaneous volume than what has been currently permitted. The pump test was conducted at a constant rate of 47 gpm and the pumping water level drawdown was 51 feet from a static water level 87.5 feet bgs. Using a straight line ratio to estimate a pumping water level at 94 gpm, the theoretical drawdown in the well would be 102 feet to a pumping water level of 190 feet bgs. This theoretical drawdown can be compared to the total depth of the well which is 332 feet.

Seawater Intrusion

Information regarding seawater intrusion in coastal wells in Pierce County indicate that chloride levels are relatively low, generally ranging from 1 to 6 milligrams per liter (mg/l); however several wells near

Devil's Head, Taylor Bay and Filucy Bay Filucy Bay show evidence of saltwater intrusion (Dion and Sumioka, *Seawater Intrusion into Coastal Aquifers in Washington*, 1978, USGS and Department of Ecology, 1984, USGS Water-Supply Bulletin 56). The wells sampled in this study that showed elevated chloride concentrations were completed in the Sea Level Aquifer.

The current MCL for chloride, according Federal standards, is 250 mg/L based on aesthetics (taste). Chloride concentrations of 100 mg/L or less are not considered harmful for human consumption, and are difficult to taste. Chloride has a salty taste at chloride concentrations over 250 mg/L when in the form of sodium chloride. The easiest way to reduce the likelihood of seawater intrusion in areas at potential risk is to keep pumping rates low so a pronounced cone of depression that draws up salt water does not develop.

Analytical data collected from the Madrona Point well in 1997 indicated chloride levels of 2 mg/L. Because the Madrona Point well is completed in a confined aquifer below sea level, it is considered to be at low risk for seawater intrusion. For those wells that are completed below sea level such as the Madrona Point well, pumping could increase the risk of seawater intrusion to themselves and other neighboring wells. Pumping could also have a small effect on wells within a broader radius of the site, slightly increasing the risk of seawater intrusion. While there have been no previous reports of elevated chloride levels in the immediate vicinity, I recommend regular water quality testing to ensure that levels do not increase.

Affects to Surface Water

The Madrona Point water system well is completed in an aquifer approximately 200 feet below msl. This well intercepts water that would otherwise discharge to the waters of Puget Sound. As such, groundwater captured by the Madrona Point well is not expected to affect flow in surface waters in the Kitsap watershed.



Tammy L. Hall
Licensed Hydrogeologist



TAMMY L. HALL

Affidavit of Publication

STATE OF WASHINGTON, } S.S.
COUNTY OF PIERCE

RECEIVED
DEPT. OF ECOLOGY/SWRD

'02 DEC 20 A10:37

Donna Gebo being first duly sworn, an oath deposes and says that he/she is the bookkeeper of *THE PENINSULA GATEWAY*, a weekly newspaper. That said newspaper is a legal newspaper and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a weekly newspaper in Gig Harbor, Pierce County, Washington, and it is now and during all of said time was printed in an office maintained at the aforementioned place of publication of said newspaper.

That the annexed is a true copy of a
State of Washington Department of Ecology Notice of Application to Appropriate Public Waters Take Notice:

as it was published in regular issues (and not in supplement form) of said newspaper once each week for a period of **Two (2)** consecutive weeks, commencing on the **4th** day of **December, 2002**, and ending on the **11th** day of **December, 2002**, both dates inclusive, and that such newspaper was regularly distributed to its subscribers during all of said period.

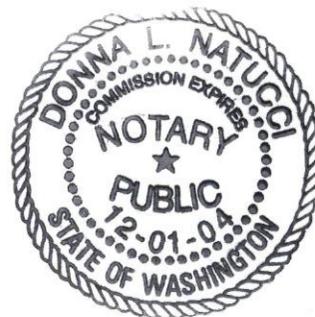
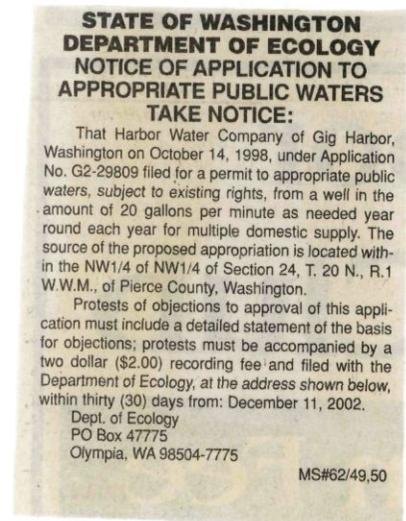
That the amount of the fee charged for the foregoing publication in the sum of **\$37.10** which amount has been paid in full, or billed, at the legal rate according to RCW,65,16.090

Donna Gebo

Subscribed to and sworn before me this
11th day of December, 2002

Donna L. Natucci
Notary Public in and for the State of Washington.

Residing at Gig Harbor





WASHINGTON WATER SERVICE COMPANY
14519 PEACOCK HILL AVENUE NW • GIG HARBOR, WA 98332 • (253) 851-4060

HARBOR DISTRICT

December 19, 2002

RECEIVED
DEPT. OF ECOLOGY, SWRO

'02 DEC 20 10:37

Jill Walsh
Washington State Department of Ecology
Water Resource Section
South West Regional Office
P.O. Box 47775
Olympia, WA 98504-47775

RE: Applications G2-29811 (Longbranch Highlands) & G2-29809 (Madrona Point)

Dear Jill:

Attached are the Affidavit of Publication for the above referenced applications.

Hope you have a great Christmas and New Year!

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael P. Ireland".

Michael P. Ireland
President



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

December 20, 2002

Harbor Water Company
PO Box 336
Gig Harbor WA 98335-0336

Dear Sir or Madame:

RE: Water Right Application No. G2-29809

On **October 21, 2002**, we sent you a notice for publication.

To date, we have not received the original Affidavit of Publication for your application. If you have not yet published the notice in a newspaper of general circulation in the area of your application, please do so as soon as possible. After publication, the publishing newspaper should provide you with a notarized original Affidavit of Publication, which should be forwarded to our office. If you published the notice but have not mailed the Affidavit of Publication to this office; please do so as soon as possible.

Please remember to send the original Affidavit of Publication, not a photocopy.

If we do not hear from you within thirty (30) days from the date of this letter, we will assume you are no longer interested in your application and will reject it.

If you have any questions or concerns about the public notice process, please contact Sheri Carroll at (360) 407-0240 or myself at (360) 407-0270.

Sincerely,

Teresa Hanson
Water Resources Program

TH:th (affreminder1.doc)



Madrona Point



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

October 21, 2002

Harbor Water Company
PO Box 336
Gig Harbor WA 98335-0336

Dear Sir or Madame:

Re: Water Right Application No. G2-29809

We have received your application for appropriation of water and it has been assigned the number referenced above. If you contact us in the future regarding this application, it will help us serve you more quickly if you refer to this application number.

Please complete the following two steps:

1. Enclosed is a notice of your application, which must be published once a week for two consecutive weeks in a newspaper published in **Pierce County**. The newspaper should have general circulation in the locality where the water is to be diverted and used, and must be qualified as a legal newspaper. Publishing the notice in a remote part of the county, when not necessary, may be cause for you to be required to republish the notice in a designated newspaper. The enclosed newspaper list may help you select an appropriate newspaper for the area.

Publication should start within 30 days from the date of this letter.

To assure accuracy, it is your responsibility to check the notice carefully before having it published. If you find an error, please contact this office for correction and/or resolution. If we later find an error in your public notice, you will be required to re-publish an amended notice at your expense.

2. After publication, the publishing newspaper should provide you with a notarized original Affidavit of Publication, which should be forwarded to our office as soon as possible. Please do not send a photocopy of the affidavit.

Community water systems are required to be approved by either the local health department or the Department of Health depending upon system size. If you have not already done so, we suggest that you contact either your local health department or Department of Health, NW Drinking Water Operations, 20435 72nd Avenue S, Ste 200, Mailstop K17-12, Kent, Washington 98032.

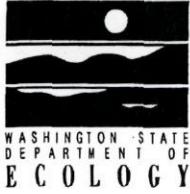
If you have any questions or concerns about any of this information, please call (360) 407-0240. Thank you for your attention to this matter.

Sincerely,

Sheri Carroll
Water Resources Program

SC:th (affidavit of publication.doc)





STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

NOTICE OF APPLICATION TO APPROPRIATE PUBLIC WATERS

TAKE NOTICE:

That Harbor Water Company of Gig Harbor, Washington on October 14, 1998, under Application No. G2-29809 filed for a permit to appropriate public waters, subject to existing rights, from a well in the amount of 20 gallons per minute as needed year round each year for multiple domestic supply. The source of the proposed appropriation is located within the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 24, T. 20 N., R. 1 W.W.M., of Pierce County, Washington.

Protests of objections to approval of this application must include a detailed statement of the basis for objections; protests must be accompanied by a two dollar (\$2.00) recording fee and filed with the Department of Ecology, at the address shown below, within thirty (30) days from: _____ (Last date of publication to be entered above by publisher)

NOTICE MUST BE PUBLISHED ONCE A WEEK FOR TWO CONSECUTIVE WEEKS

Department of Ecology, SWRO
PO Box 47775
Olympia, Washington 98504-7775

ECY 040-1-1
Rev 2/79

Notice



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

December 4, 1998

Harbor Water Company
Madrona Point
PO Box 336
Gig Harbor WA 98335-0336

Re: Water Right Application No. G2-29809

This letter is to acknowledge that the Washington State Department of Ecology received your water right application. We have assigned your application the number indicated above. Please include this number in future correspondence regarding your application with the Department of Ecology.

When we begin actively evaluating applications in your area, we will prepare a public notice and send it to you with publication instructions. It will be sometime before we are able to begin working in your area. In the meantime, please notify Ecology of changes such as address, property ownership, or variations in your proposed water use plans.

The availability of water in Washington state is a serious problem. Much of the water in our state has already been appropriated. The competition for water has escalated with our state's increasing population, conflicting water policy issues, and grave declines in salmon and other fish populations. A new watershed management law brings us a step closer to addressing some of these issues. It sets into motion a locally based process to address water quantity, quality, and habitat issues. Watershed management will help meet challenges for getting water to people, industries, farms, and fish.

In some areas of the state, we are continuing to evaluate applications within watersheds where we have previously gathered information and completed watershed assessments. We are also continuing to process water right permit or change applications that are intended to address public health and safety emergencies, the natural environment, or are for nonconsumptive withdrawals. All other applications are grouped by watershed and processed according to the date of submittal, and when we have enough information and staff resources to make decisions.

If you would like further information on your application, please contact the Southwest Regional Office at (360) 407-0240.

Sincerely,

J. Mike Harris

J. Mike Harris
Water Resources Supervisor
Southwest Regional Office

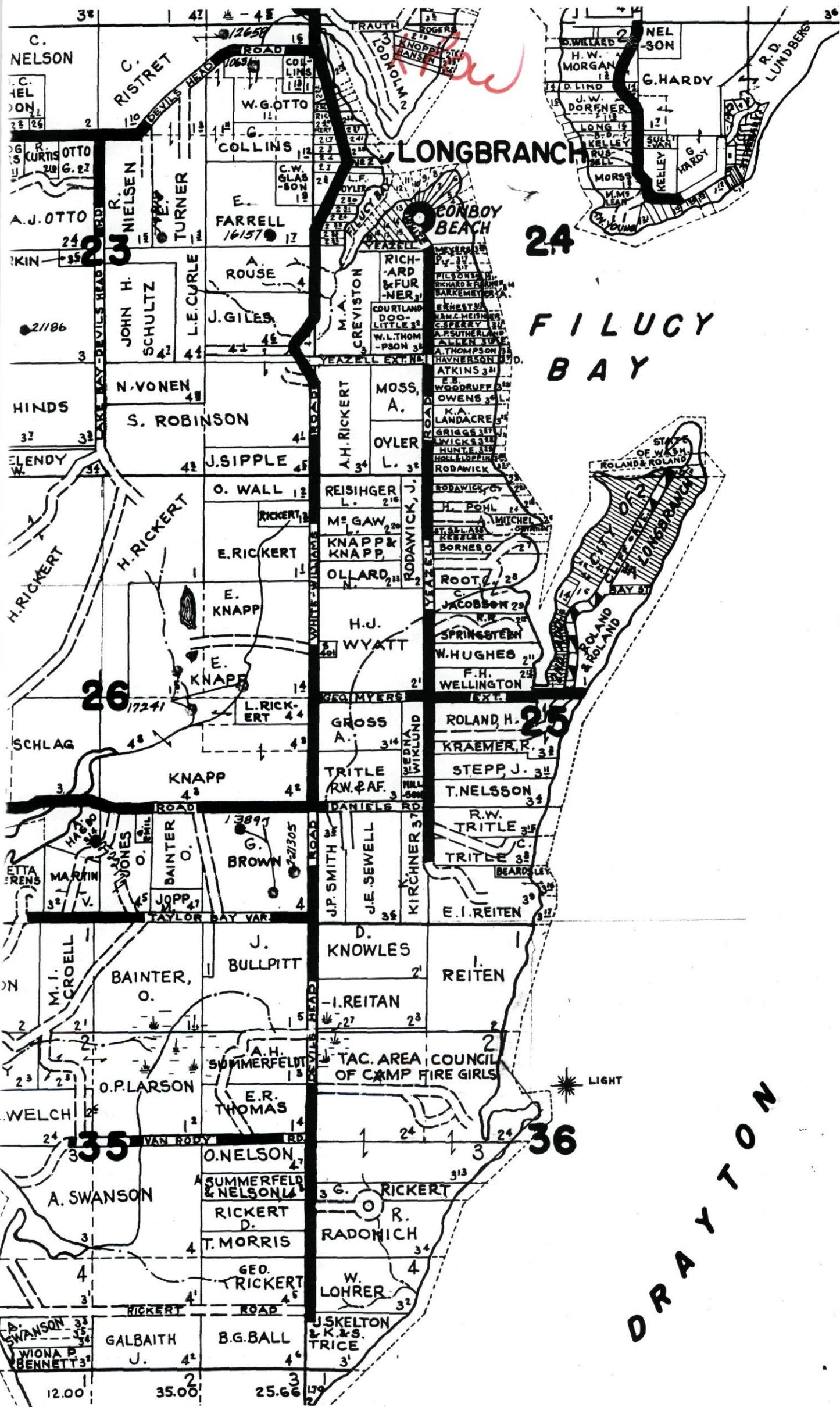
JMH:th



SHIP 20 N., RANGE 1 W. W.M.

SOUTHEAST QUARTER

PIERCE COUNTY, WASHINGTON



15

STATE PAVED
IMPROVED
DIRT ROAD
INFERRIOR
RAILROAD
TRAILS
INTERMEDIATE
SCHOOLS
ELEC. POWER
IRRIGATION
RANCHO
NATL FOREST



HARBOR WATER CO., INC.

P. O. BOX 336
GIG HARBOR, WA 98335
(253) 851-4060 (360) 876-6938

RECEIVED

'98 OCT 14 AM 11:32

October 7, 1998

DEPARTMENT OF ECOLOGY
S.W. REGIONAL OFFICE

Dept of Ecology
7272 Cleanwater Ln
Olympia, WA 98504

Dear Sirs:

RE: Water Rights in addition to permit G2-22847

Harbor Water is requesting an additional 20 gpm and 20 acre feet per year for the existing well.
No other point of diversion will be added.

Thank you



Michael P. Ireland
President

