LAKE WHATCOM WATER & SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA, 98229

(360) 734-9224
Fax 738-8250

MEMORANDUM

Date: June 2, 2022

RE: Virtual Meeting Attendance

For the foreseeable future, Lake Whatcom Water & Sewer District's Board of Commissioners will be attending regular meetings by phone/video conference. Per Governor Inslee's Proclamation No. 20-28.3, the District will provide access to interested public via phone/internet utilizing the GoToMeeting platform.

Attending a Meeting

If you would like to attend the June 8, 2022 regular board meeting, access details can be found below. In this evolving climate, we are committed to doing everything possible to provide opportunity for public comment as well as promote health and safety. As such, **the District requests that if possible, public submit comments in written form by noon the day before a scheduled meeting** for inclusion in the meeting discussion. This is *not a requirement* for making a public comment, but is helpful to the staff and commissioners for planning purposes.

June 08, 2022 Regular Board Meeting
Wed, June 08, 2022 6:30 PM – 8:30 PM (PST)

Join the meeting from your computer, tablet or smartphone.
https://meet.goto.com/740594949

You can also dial in using your phone.
United States: +1 (408) 650-3123

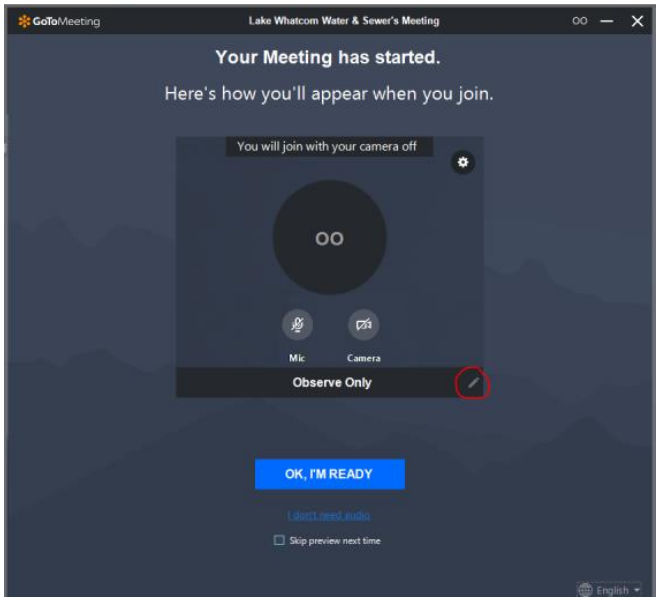
Access Code: 740-594-949

New to GoToMeeting? Get the app now and be ready when the meeting starts:
https://meet.goto.com/install

Attending as an Observer only

If you wish to observe a meeting, but do not plan to speak or appear on video during the meeting, you may attend anonymously.

When you click the link to log in to the meeting, a black box will appear like the one pictured below. Click the pencil icon (circled) and change your name to "Observe Only." Also make sure that your microphone and camera icon are grey and not green. You will be muted by the meeting administrator and will not be included in the roll call.



We appreciate your understanding and patience during these uncertain times.
If you have any questions, please contact Administrative Assistant
Rachael Hope at rachael.hope@lwwsd.org or 360-734-9224.

LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR MEETING OF THE BOARD OF COMMISSIONERS

AGENDA

June 8, 2022

6:30 p.m. – Regular Session

1. CALL TO ORDER

2. ROLL CALL

3. CONFIRMATION OF COMPLIANCE WITH REMOTE MEETING ATTENDANCE PROTOCOLS

4. PUBLIC COMMENT OPPORTUNITY
   At this time, members of the public may address the Board of Commissioners. Please state your name prior to making comments.

5. ADDITIONS, DELETIONS, OR CHANGES TO THE AGENDA

6. CONSENT AGENDA

7. SPECIFIC ITEMS OF BUSINESS
   A. Eagleridge Booster Conversion Project Discussion

8. OTHER BUSINESS

9. STAFF REPORTS
   A. General Manager

10. PUBLIC COMMENT OPPORTUNITY

11. ADJOURNMENT

AGENDA BILL Item 6		**Consent Agenda**		
DATE SUBMITTED:	June 02, 2022	MEETING DATE:	June 08, 2022	
TO: BOARD OF COMMISSIONERS		FROM: Rachael Hope		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. See below		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

****TO BE UPDATED 06.08.2022****

BACKGROUND / EXPLANATION OF IMPACT

- Minutes for the May 11, 2022 Regular Board Meeting
- Minutes for the May 25, 2022 Regular Board Meeting
- Minutes for the May 26, 2022 Special Board Meeting
- Payroll for Pay Period #11 (5/14/2022 through 05/27/2022) totaling $47,931.41
- Payroll Benefits for Pay Period #11 totaling $53,748.86
- Accounts Payable Vouchers total to be added

FISCAL IMPACT

Fiscal impact is as indicated in the payroll/benefits/accounts payable quantities defined above. All costs are within the Board-approved 2022 Budget.

RECOMMENDED BOARD ACTION

Staff recommends the Board approve the Consent Agenda.

PROPOSED MOTION

A recommended motion is:

"I move to approve the Consent Agenda as presented."

LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR SESSION OF THE BOARD OF COMMISSIONERS

Minutes

May 11, 2022

Board President Laura Abele called the Regular Session to order at 6:30 p.m.

Attendees:

Commissioner Laura Abele
Commissioner Todd Citron
Commissioner John Carter
Commissioner Bruce Ford
Commissioner Leslie McRoberts
District Legal Counsel Bob Carmichael
General Manager Justin Clary
District Engineer/Assistant GM Bill Hunter
Finance Manager Jenny Signs
Operations Manager Brent Winters
Recording Secretary Rachael Hope

Also in attendance were the following members of the public:

- Jon Humphrey
- Mike Belisle
- Skakti Rebekah
- Steven Kersey
- Kevin Bardosh
- Danica Thiessen
- D.I. Feldberg
- Martin Driscoll
- Jana Feldberg
- Gerri Ray
- Elizabeth Ruff
- Eric Prestbo
- Ken Loveless
- Laura Rink
- John Neeter
- Nicole Staron

All attendees participated remotely by phone or video conferencing.

Roll Call

General Manager Justin Clary performed a roll call to identify those in attendance, and then verbally confirmed that the meeting was noticed in accordance with Resolution No. 859 allowing remote meeting attendance, as well as in compliance with current statutory requirements. It was confirmed that all participants were able to be heard and hear each other clearly.

Public Comment

Commissioner Abele opened the public comment period, explaining that commenters would be given 3 minutes each to comment. Comment was received from each member of the public in attendance regarding the District's lease with Dish Wireless for the construction of a cell tower on District property at 1010 Lakeview Street.

Additions & Changes to Agenda

Clary requested the addition of Item 8A, Update on Puget Sound Nutrient General Permit, under Other Business. The Board agreed.

Clary requested the addition of Item 11: Executive Session related to legal matters following the second public comment opportunity. The Board agreed.

Consent Agenda

Action Taken

McRoberts moved, Ford seconded, approval of:

- **Payroll for Pay Period #09 (04/16/2022 through 04/29/2022) totaling $49,005.01**
- **Payroll Benefits for Pay Period #09 totaling $52,747.63**
- **Minutes from the 4/27/22 Regular Board Meeting**
- **Accounts Payable Vouchers totaling $173,198.29**

Motion passed.

City of Bellingham Resource Recovery Project Discussion

Clary recalled that the City of Bellingham owns and operates the Post Point Wastewater Treatment Plant, which receives and treats the District's wastewater through an interlocal agreement between the City and District. The solids handling process equipment (including incinerators) at the facility are reaching the end of their useful lives and require replacement. Based upon the City's policy for climate action and community feedback on various replacement options, a digestion process with energy recovery has been identified as the preferred solution. Since the last presentation to the Board in April 2021, the City and its consultant have been proceeding with design, permitting, and cost estimating associated with this project (referred to as the Resource Recovery Project).

Based upon the community's concern with the potential for PFAS in the compostable end product of the proposed digestion process, the City has held significant discussion pertaining to the current Resource Recovery Project, and if any additional processes should be considered to address PFAS. With the potential for any additional processes to increase project costs significantly relative to the already historically costly project, the City provided an update to the Board on the project during the Board's April 27 meeting.

Discussion followed, including the topics of liability, housing affordability, climate action goals, and operational costs related to the District's portion of this project.

Other Business: Update on Puget Sound Nutrient General Permit

Clary introduced this topic, explaining that the Puget Sound Nutrient General Permit was adopted by the Washington Department of Ecology with a measured approach. Concerns have been raised by stakeholders, and District Legal Council Bob Carmichael highlighted some of the ongoing litigation and appeals. Discussion followed.

General Manager's Report

Clary updated the Board on several topics, including a recent meeting with the Whatcom County Health Department regarding community messaging around sewage releases, upcoming Department of Health routine sanitary survey of the Agate Heights Water Treatment Plant, District work with the Whatcom Conservation District to identify considerations around wildfire resilience at District facilities, and the Whatcom Water Alliance rebate program.

Clary also recognized District Construction Engineer Kristin Hemenway for her dedication during issues that arose during the Lake Whatcom Boulevard Cure in Place Piping Improvement Project. Hemenway was on site with the contractor far past normal business hours representing the District with dedication and commitment.

Public Comment

Comment was received from District customers Mike Belisle, Kevin Bardosh, Eric Prestbo, and Jana Fedlberg regarding the District's lease with Dish Wireless for the construction of a cell tower on District property at 1010 Lakeview Street.

Executive Session Per RCW 42.30.110(1)(i)(iii): Legal Risks/Potential Litigation – 30 Minutes

Abele recessed the Regular Session to Executive Session at 8:20 p.m. It was estimated that the Executive Session would take 30 minutes. The purpose of the Executive Session was to discuss matters related to litigation or legal risks of a proposed action or current practice that the agency has identified when public discussion of the litigation or legal risks is likely to result in an adverse legal or financial consequence to the agency.

Abele recessed the Executive Session and reconvened the Regular Session at 8:51 p.m. No action was taken.

Abele re-recessed the Regular Session to Executive Session for continuation of the same discussion at 8:51 p.m., estimating the discussion would last an additional 30 minutes.

Abele recessed the Executive Session and reconvened the Regular Session at 9:09 p.m. No action was taken.

With no further business, Abele adjourned the Regular Session 9:09 p.m.

_____

Board President, Laura Abele

Attest: _____

Recording Secretary, Rachael Hope

Minutes approved by motion at ☐ Regular ☐ Special Board Meeting on _____

Date Minutes Approved

LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR SESSION OF THE BOARD OF COMMISSIONERS

Minutes

May 25, 2022

Board President Laura Abele called the Regular Session to order at 8:00 a.m.

Attendees:	Commissioner Laura Abele	General Manager Justin Clary
	Commissioner Todd Citron	District Engineer/Assistant GM Bill Hunter
	Commissioner John Carter	Finance Manager Jenny Signs
	Commissioner Leslie McRoberts	Operations Manager Brent Winters
	Recording Secretary Rachael Hope	District Legal Counsel Bob Carmichael

Excused Absence: Commissioner Bruce Ford

Also in attendance were:

- Rich Munson, District Employee
- Kevin Cook, District Employee
- Brian Smith, Wilson Engineering
- Curt Shoenfelder, Wilson Engineering
- Kevin Bardosh, public
- Joe O'Keefe, public
- Eric Prestbo, public
- One observation only attendee

All attendees participated remotely by phone or video conferencing.

Roll Call

General Manager Justin Clary performed a roll call to identify those in attendance, and then verbally confirmed that the meeting was noticed in accordance with Resolution No. 859 allowing remote meeting attendance, as well as in compliance with current statutory requirements. It was confirmed that all participants were able to be heard and hear each other clearly.

Public Comment

Commissioner Abele opened the public comment period, limiting individual comments to 2 minutes. She also informed the public that the Board does not respond during public comment periods, and all items commented on are on the docket for future meeting agendas.

General Manager Justin Clary and District Legal Council Bob Carmichael shared a brief update on the status of the District's potential lease with Dish Wireless.

Public comment was received from District constituents Kevin Bardosh and Eric Prestbo regarding the Dish Wireless cell tower lease, and from District constituent Joe O'Keefe regarding the Division 7 Reservoir Replacement project.

Additions & Changes to Agenda

Clary stated that staff reports may be limited depending on length of time used for business items in order to allow for executive session at the end of the meeting.

Consent Agenda

Action Taken

Carter moved, Citron seconded, approval of:

- **Payroll for Pay Period #10 (04/30/2022 through 05/13/2022) totaling $46,735.34**
- **Payroll Benefits for Pay Period #10 totaling $53,294.44**
- **Accounts Payable Vouchers totaling $99,918.04**

Motion passed.

Division 7 Reservoir Seismic Upgrade and ShakeAlert Implementation Project Briefing #1

Hunter explained that following a 2016 Reservoir Seismic Vulnerability Assessment of all five of the District's welded steel reservoirs completed by BHC Consultants, the Division 7 Reservoir was identified as the highest priority for retrofit or replacement. In 2017, a system-wide reservoir capacity analysis found that the Division 7 Reservoir is oversized. Wilson Engineering LLC prepared a technical memoranda dated February 8, 2018 that analyzed options to perform seismic retrofits to the existing reservoir, or replace it with one or two new smaller reservoirs. The analysis concluded two new smaller reservoirs provided a significant advantage over retrofitting the existing reservoir.

In 2021, the District was notified of the receipt of a Hazard Mitigation Grant for the project with cost sharing as follows: FEMA 75%, Washington State Emergency Management Division (WA-EMD) 12.5%, and Lake Whatcom Water and Sewer District 12.5%. The FEMA grant funding is split into two phases: Phase 1 – Design/Permitting; and Phase 2 – Construction. Phase 1 is in progress with the goal to complete in 2022.

Curt Schoenfelder of Wilson Engineering gave a presentation, including project background, system operation, and proposed changes, project timeline, and construction costs. This briefing also included information on predesign and tank sizing efforts completed to date. Discussion followed.

City of Bellingham Resource Recovery Project Discussion

Clary recalled that City of Bellingham owns and operates the Post Point Wastewater Treatment Plant, which receives and treats the District's wastewater through an interlocal agreement between the City and District. The solids handling process equipment (including incinerators) at the facility are reaching the end of their useful lives and require replacement. Based upon the City's policy for climate action and community feedback on various replacement options, a digestion process with energy recovery has been identified as the preferred solution. Since the last presentation to the Board in April 2021, the City and its consultant have been proceeding with design, permitting, and cost estimating associated with this project (referred to as the Resource Recovery Project).

Based upon the community's concern with the potential for PFAS in the compostable end product of the proposed digestion process, the City has held significant discussion pertaining to the current Resource Recovery Project, and if any additional processes should be considered to address PFAS. With the potential for any additional processes to increase project costs significantly relative to the already historically costly project,

the City provided an update to the Board on the project during the Board's April 27 meeting and the Board subsequently discussed the District's position on the project during its May 11 meeting. During the May 11 meeting, the Board directed staff to draft a letter to the City of Bellingham for the Board's consideration during its May 25 meeting. This letter was presented for Board approval.

Action Taken

Citron moved, McRoberts seconded, to authorize the issuance of the letter the City of Bellingham providing District comment pertaining to the City's proposed Post Point Resource Recovery Project as presented. Motion passed.

Public Comment

Public comment was received from District constituent Joe O'Keefe regarding the Division 7 Reservoir Replacement project.

Executive Session Per RCW 42.30.110(1)(i)(iii): Legal Risks/Potential Litigation – 30 Minutes

Abele recessed the Regular Session to Executive Session at 9:31 a.m. It was estimated that the Executive Session would take 30 minutes. The purpose of the Executive Session was to discuss matters related to litigation or legal risks of a proposed action or current practice that the agency has identified when public discussion of the litigation or legal risks is likely to result in an adverse legal or financial consequence to the agency.

Commissioner Abele was excused from the meeting at 10:00 a.m. due to prior commitments, and Commissioner Citron stepped in as chair.

Citron recessed the Executive Session and reconvened the Regular Session at 10:12 a.m. No action was taken.

Citron re-recessed the Regular Session to Executive Session for continuation of the same discussion at 10:12 a.m., estimating the discussion would last an additional 10 minutes.

Citron recessed the Executive Session and reconvened the Regular Session at 10:22 a.m. No action was taken.

Citron re-recessed the Regular Session to Executive Session for continuation of the same discussion at 10:22 a.m., estimating the discussion would last an additional 20 minutes.

Citron recessed the Executive Session and reconvened the Regular Session at 10:39 a.m. No action was taken.

With no further business, Citron adjourned the Regular Session at 10:39 a.m.

_____

Board President, Laura Abele

Attest: _____

Recording Secretary, Rachael Hope

Minutes approved by motion at ☐ Regular ☐ Special Board Meeting on _____

Date Minutes Approved

LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

SPECIAL SESSION OF THE BOARD OF COMMISSIONERS

Minutes

May 26, 2022

Board President Laura Abele called the Special Session to order at 6:00 p.m.

Attendees:

Commissioner Laura Abele
Commissioner Todd Citron
Commissioner John Carter
Commissioner Bruce Ford
Commissioner Leslie McRoberts

General Manager Justin Clary
District Engineer/Assistant GM Bill Hunter
District Legal Counsel Bob Carmichael

No public were in attendance. All attendees participated remotely by phone or video conferencing.

Action Taken
McRoberts moved, Citron seconded, entering an Executive session. Motion passed.

Executive Session Per RCW 42.30.110(1)(i)(iii): Legal Risks/Potential Litigation – 240 Minutes
Abele recessed the Special Session to Executive Session at 6:04 p.m. It was estimated that the Executive Session would take 240 minutes. The purpose of the Executive Session was to discuss matters related to litigation or legal risks of a proposed action or current practice that the agency has identified when public discussion of the litigation or legal risks is likely to result in an adverse legal or financial consequence to the agency.

Abele recessed the Executive Session and reconvened the Special Session at 7:47 p.m. No action was taken.

With no further business, Abele adjourned the Special Session 7:47 p.m.

_____
Board President, Laura Abele

Attest: _____
Recording Secretary, Rachael Hope

Minutes approved by motion at ☐ Regular ☐ Special Board Meeting on _____
Date Minutes Approved

CHECK REGISTER

PAYROLL

Lake Whatcom W-S District

Time: 12:01:25 Date: 05/31/2022

06/02/2022 To: 06/02/2022

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
1618	06/02/2022	Payroll	5	EFT		3,547.75	05/14/2022 - 05/27/2022 PR 11
1619	06/02/2022	Payroll	5	EFT		4,225.26	05/14/2022 - 05/27/2022 PR 11
1620	06/02/2022	Payroll	5	EFT		2,795.91	05/14/2022 - 05/27/2022 PR 11
1621	06/02/2022	Payroll	5	EFT		1,917.55	05/14/2022 - 05/27/2022 PR 11
1623	06/02/2022	Payroll	5	EFT		1,679.74	05/14/2022 - 05/27/2022 PR 11
1624	06/02/2022	Payroll	5	EFT		3,025.04	05/14/2022 - 05/27/2022 PR 11
1625	06/02/2022	Payroll	5	EFT		2,157.42	05/14/2022 - 05/27/2022 PR 11
1626	06/02/2022	Payroll	5	EFT		3,466.76	05/14/2022 - 05/27/2022 PR 11
1627	06/02/2022	Payroll	5	EFT		2,178.09	05/14/2022 - 05/27/2022 PR 11
1628	06/02/2022	Payroll	5	EFT		2,349.56	05/14/2022 - 05/27/2022 PR 11
1629	06/02/2022	Payroll	5	EFT		2,593.10	05/14/2022 - 05/27/2022 PR 11
1630	06/02/2022	Payroll	5	EFT		1,623.97	05/14/2022 - 05/27/2022 PR 11
1631	06/02/2022	Payroll	5	EFT		2,173.80	05/14/2022 - 05/27/2022 PR 11
1632	06/02/2022	Payroll	5	EFT		3,018.72	05/14/2022 - 05/27/2022 PR 11
1633	06/02/2022	Payroll	5	EFT		2,004.81	05/14/2022 - 05/27/2022 PR 11
1634	06/02/2022	Payroll	5	EFT		531.44	05/14/2022 - 05/27/2022 PR 11
1635	06/02/2022	Payroll	5	EFT		2,961.15	05/14/2022 - 05/27/2022 PR 11
1636	06/02/2022	Payroll	5	EFT		4,195.74	05/14/2022 - 05/27/2022 PR 11
1622	06/02/2022	Payroll	5	12914		1,485.60	05/14/2022 - 05/27/2022 PR 11
		401 Water Fund				14,908.51	
		402 Sewer Fund				33,022.90	
						47,931.41	Payroll: 47,931.41

I do hereby certify, under penalty of perjury, that the above is an unpaid, just, and due obligation as described herein, and that I am authorized to certify this claim.

Sign _____ **Date** 5/31/2022

General Manager, Justin Clary

Board Authorization - The duly elected board for this district has reviewed the claims listed and approved the payment by motion at the meeting listed below:

_____

Board President, Laura Abele

Attest : _____

Recording Secretary, Rachael Hope

Approved by motion at _____ **Regular** ____ **Special Board Meeting on** _____

Date Approved

CHECK REGISTER

BENEFITS

Lake Whatcom W-S District

Time: 12:10:27 Date: 05/31/2022

06/02/2022 To: 06/02/2022

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
1637	06/02/2022	Payroll	5	EFT	UNITED STATES TREASURY	18,181.61	941 Deposit for Pay Cycle(s) 06/02/2022 - 06/02/2022
1638	06/02/2022	Payroll	5	EFT	WA ST SUPPORT ENFORCEMENT REGISTERY	208.34	Pay Cycle(s) 06/02/2022 To 06/02/2022 - SUP ENF
1639	06/02/2022	Payroll	5	12915	AFLAC	354.85	Pay Cycle(s) 06/02/2022 To 06/02/2022 - AFLAC Pre-Tax; Pay Cycle(s) 06/02/2022 To 06/02/2022 - AFLAC Post-Tax
1640	06/02/2022	Payroll	5	12916	AFSCME LOCAL	379.20	Pay Cycle(s) 06/02/2022 To 06/02/2022 - Union Dues; Pay Cycle(s) 06/02/2022 To 06/02/2022 - Union Fund
1641	06/02/2022	Payroll	5	12917	DEPARTMENT OF RETIREMENT SYSTEMS	4,985.50	Pay Cycle(s) 06/02/2022 To 06/02/2022 - DCP
1642	06/02/2022	Payroll	5	12918	HRA VEBA TRUST (PAYEE)	590.00	Pay Cycle(s) 06/02/2022 To 06/02/2022 - VEBA
1643	06/02/2022	Payroll	5	12919	VANTAGEPOINT TRANSFER AGENTS - 306798	100.00	Pay Cycle(s) 06/02/2022 To 06/02/2022 - ICMA
1644	06/02/2022	Payroll	5	12920	WA ST HEALTH CARE AUTHORITY	16,618.74	Pay Cycle(s) 06/02/2022 To 06/02/2022 - PEBB Medical; Pay Cycle(s) 06/02/2022 To 06/02/2022 - PEBB ADD LTD; Pay Cycle(s) 06/02/2022 To 06/02/2022 - PEBB SMK Surcharge; Pay Cycle(s) 06/02/2022 To 06/02
1645	06/02/2022	Payroll	5	12921	WA ST PUBLIC EMP RET PLAN 2	9,188.69	Pay Cycle(s) 06/02/2022 To 06/02/2022 - PERS 2
1646	06/02/2022	Payroll	5	12922	WA ST PUBLIC EMP RET PLAN 3	3,141.93	Pay Cycle(s) 06/02/2022 To 06/02/2022 - PERS 3

401 Water Fund	39,886.29		
402 Sewer Fund	13,862.57		
	53,748.86	Payroll:	53,748.86

Trans Date	Type	Acct #	Chk #	Claimant	Amount	Memo

I do hereby certify, under penalty of perjury, that the above is an unpaid, just, and due obligation as described herein, and that I am authorized to certify this claim.

Sign _____ **Date** 5/31/2022

General Manager, Justin Clary

Board Authorization - The duly elected board for this district has reviewed the claims listed and approved the payment by motion at the meeting listed below:

_____

Board President, Laura Abele

Attest : _____

Recording Secretary, Rachael Hope

Approved by motion at _____ **Regular** ____ **Special Board Meeting on** _____

Date Approved

AGENDA BILL Item 7.A	**Eagleridge Water Booster Station Conversion Project Discussion**			
DATE SUBMITTED:	June 2, 2022	MEETING DATE:	June 8, 2022	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Pressure Contour Map with District-recorded Pressures during May 18 Test		
		2. Eagleridge HOA Test Response Packet		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

The Eagleridge neighborhood, located within the District's service area, is a subdivision of 63 single family residential homes situated on the north shore of Lake Whatcom just outside of Bellingham city limits. The District provides water service to Eagleridge residents via an intertie with the City of Bellingham's water system. The neighborhood's water and sewer infrastructure was constructed by the private developer of the subdivision in 1988 and dedicated to the District.

The Eagleridge Water System is classified as a Group A water system regulated by the Washington State Department of Health (DOH) and serves the entire Eagleridge neighborhood, as well as seven homes located immediately north of Donald Avenue (70 total homes). When the water system was originally designed and constructed, the City's water pressure at the location of the connection (intertie) between the two systems was not sufficient to serve the Eagleridge neighborhood. As a result, a booster pump station was constructed at the location of the intertie (2029 Northshore Road) that consists of a CMU (concrete masonry unit) building that houses three pumps for domestic (general) water service, two pumps for fire suppression, pump controls, and an auxiliary diesel generator (to ensure continuous water service throughout power outages).

At some point between infrastructure construction in 1988 and 2016, the City increased the water pressure in the service area the feeds the Eagleridge water system. During this same timeframe, the District began planning for replacement of the pump control system, which was approaching the end of its useful life. Based on this, a project was identified in the District's most recent Water System Comprehensive Plan update (approved by DOH in 2018) to study whether part or all of the pump station could be decommissioned. In 2020, the District requested that Wilson Engineering perform a detailed hydraulic analysis to

determine if the City's system pressure on their side of the intertie is sufficient to meet regulatory requirements in the Eagleridge system (Washington Administrative Code 246-290-230 requires that Group A water systems provide a minimum of 30 pounds per square inch [psi] pressure at service water meters).

Wilson Engineering's hydraulic analysis concluded that the domestic pumps are no longer necessary and can be removed from service, with the City's pressure being sufficient to meet regulatory requirements for the domestic demands of the Eagleridge system. However, the fire pumps must remain, as the analysis found that the City pressures were not sufficient to deliver the minimum required flow and pressure in a fire flow scenario. The hydraulic analysis did, however, find that the existing fire pumps are oversized, and concluded that the existing pump control valves for the fire pumps should be modified to add a pressure reducing function.

District Design and Construction Standards, as well as the District's Administrative Code establish a District-wide policy to provide a minimum of 30 psi under peak hour demand at all water meters. The intent of this policy is to meet minimum design criteria defined in the "Water System Design Manual" published by the DOH and WAC Chapter 246-290. Based upon this policy, the District submitted a report to DOH in August 2021 seeking approval for removal of the domestic pumps. DOH granted project approval in November 2021. With the District's determination that system pressures meet current District policy and DOH's approval of the project, the District then provided outreach to Eagleridge system customers via a letter dated December 6, 2021.

Since issuance of the December 6 letter, there has been ongoing dialogue with Eagleridge customers regarding the impacts of the proposed project. The Board has discussed the project during a regularly scheduled meeting held on January 12, a work session held on February 9, and a regularly scheduled meeting held on April 13.

Following discussion with the Eagleridge customers, the District and many of the customers participated in a water pressure test on May 18. The test consisted of shutting off the booster pump station and bypassing the pumps between 3:00 and 7:00 p.m. as a means of simulating water system conditions should the domestic pumps ultimately be removed. The purpose of the test was to: 1) allow the District to check pressures at various locations in the water system to confirm the validity of the hydraulic model, and 2) provide customers both quantitative (read the pressure at their home with a gauge) and qualitative (see how showers, faucets, sprinkler system, etc. function) information specific to their home.

During the test, the District recorded pressures throughout the test at three locations: at the booster station, at blow-off located adjacent to 1735 Eagleridge Drive, and at a fire hydrant located adjacent to 1724 Donald Avenue. District staff also spot-checked pressures at several water meters. The previously presented Water Pressure Contour Map is attached, with District-recorded water pressures superimposed. Pressures recorded aligned with the hydraulic model of the public water system, confirming its validity.

Many Eagleridge customers participated in the test, recording their observations (both quantitative and qualitative on forms developed by the HOA). Attached is the packet submitted by the HOA, which also includes responses received from customers located on Donald Avenue (including a letter from Mr. Rosenburg summarizing all Donald Avenue customer pressure impacts). Numeric pressures recorded by the customers varied in relation to anticipated pressures on the contour map (some were consistent with the map, while others deviated significantly). Potential reasons for the deviations could have been: issues within the private system (such as PRV malfunction); recording pressures with multiple fixtures open/operating; inaccurate gauges (District staff noted a 7 psi difference at one customer's hose bib between District gauge readings and the customer's gauge reading); or operator error. Regardless, the more critical issue for the District is addressing customer perception regarding a drop in pressure from which they have grown accustomed to (and made investments in their home appliances and systems around).

Prior Board discussion has included an analysis of a variety of potential alternatives associated with the project. Based upon past discussion, the alternatives have been winnowed down to three primary options:

1) Implement the Proposed Project (domestic pump removal)
2) Incorporate Pump System Replacement into the 6-Year Capital Improvement Program (funded by the Water Utility System Reinvestment Fund)
3) Incorporate Pump System Replacement into the 6-Year Capital Improvement Program (funded by a rate surcharge placed on benefiting customers)

<u>Alternative 1</u>
Domestic pump removal is the most readily implementable option with engineering and permitting being complete and the project constructable by District staff. It is also the lowest cost option (both capital and long-term operational) and aligns with the District's goal of Operational Optimization (removes workload obligations and operational costs associated with the pumps). However, from a customer satisfaction perspective, the pressure test feedback received overwhelming aligns with a desire to have current pressures maintained (even for several customers in the lower elevations of the water system that would still have relatively high pressures). In addition, there would most certainly be an impact to those in higher elevations of the system, as many would need to install and maintain private booster pump systems and associated appurtenances to maintain desired pressures.

<u>Alternative 2</u>
Booster pump system replacement would allow for maintenance of water system pressures that Eagleridge customers are accustomed to and align with the desires voiced by many since December (and most recently through the test day responses). The project cost would need to be incorporated into the 6-year CIP, thus bumping prior prioritized water system investments (with approximately $250,000/year dedicated to water system reinvestment projects, and required FEMA grant match obligations consuming the majority of reinvestment funds, there is a risk of project implementation being scheduled after system failure). Consideration of precedent setting should also be considered—District

financing of a capital improvement project that provides a level-of-service benefit in excess of District policy (and service currently provided to other portions of the District) could result in District financing of other future projects requested by specific areas/populations of the District.

Alternative 3

Alternative 3 benefits largely align with those summarized in Alternative 2 above. Though the District would need to finance the upfront costs of pump system replacement, the improvement would be financed by the benefiting customers, thus removing policy precedent setting issues identified associated with Alternative 2.

FISCAL IMPACT

The estimated cost to retrofit the fire pumps and replace the domestic pumps is $156,000 ($130,000 for construction/equipment with a 20 percent multiplier for engineering design), with operational costs of the 20-year planning horizon being $50,000. The estimated cost to retrofit the fire pumps and remove the domestic pumps is $13,000 with no associated operational costs anticipated. Therefore, removal of the domestic pumps would save the water utility approximately $143,000 in near-term capital costs and $50,000 in operational costs over the next 20 years.

APPLICABLE EFFECTIVE UTILITY MANAGEMENT ATTRIBUTE(S)

Product Quality
Customer Satisfaction
Operational Optimization
Financial Viability

RECOMMENDED BOARD ACTION

Implementation of the proposed project, while it aligns with operational optimization objectives, is inconsistent with customer desires. On the other hand, requiring all ratepayers to finance a project that provides a level-of-service above and beyond the level-of-service currently provided to other portions of the District may create a policy precedent with significant future financial impacts. Therefore, the recommended action is to authorize pump system replacement, but in a manner that allows that those benefiting in excess of current District policy finance the improvement.

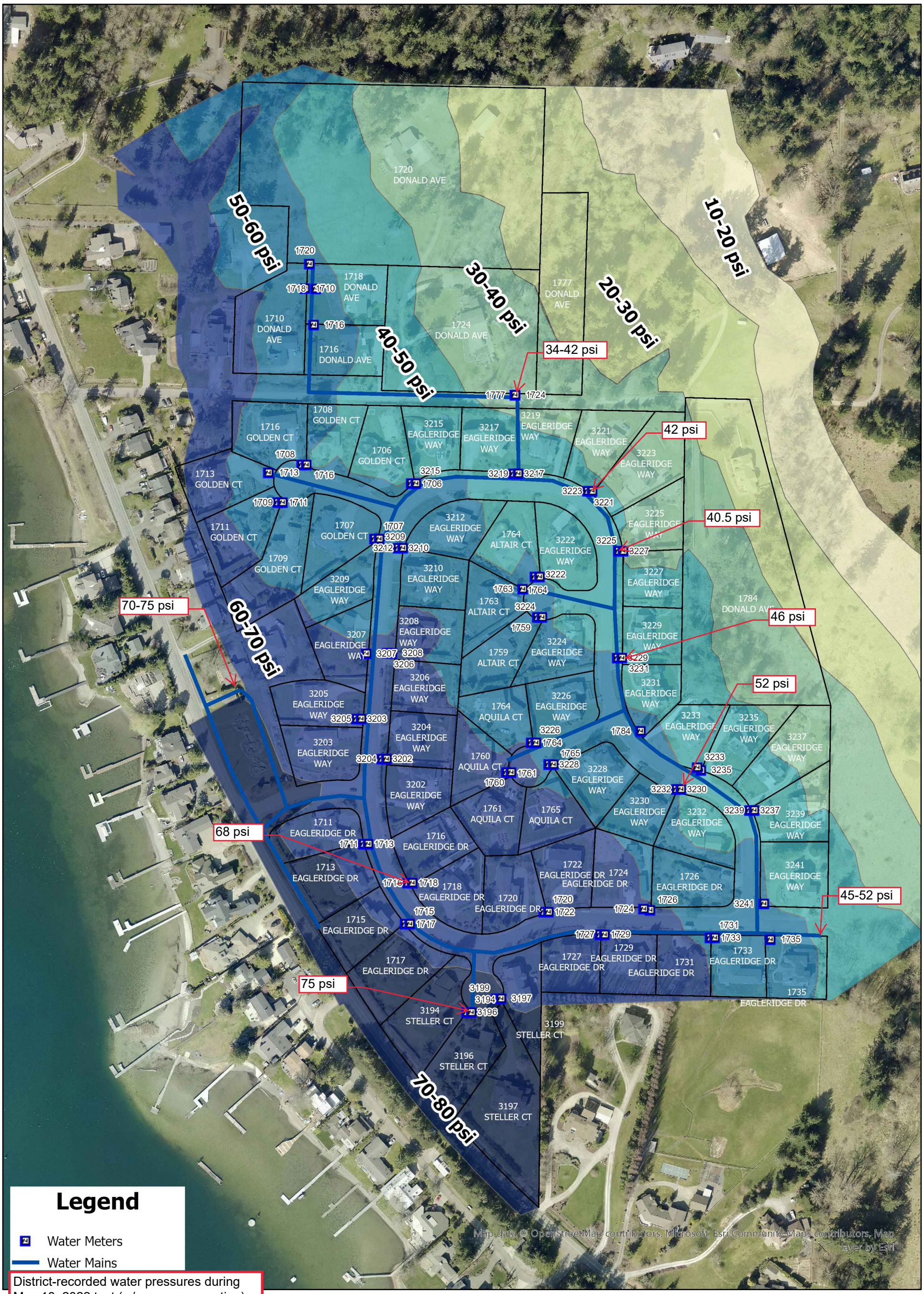
PROPOSED MOTION

If the Board wishes to proceed with direction during the June 8 meeting, following are possible motions that may be used, dependent upon the Board-defined approach forward.

> "I move to authorize District staff to proceed with implementation of the Eagleridge Booster Station Conversion project, as approved by the Washington State Department of Health."

“I move that replacement of the Eagleridge pump system be included in the District’s 6-year Capital Improvement Program during development of the next District budget.”

“I move that replacement of the Eagleridge pump system be included in the District’s 6-year Capital Improvement Program during development of the next District budget, and that staff develop a surcharge to finance the pump system replacement that will be placed on Eagleridge water system customers for Board consideration that is consistent with applicable state statutes.”



Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

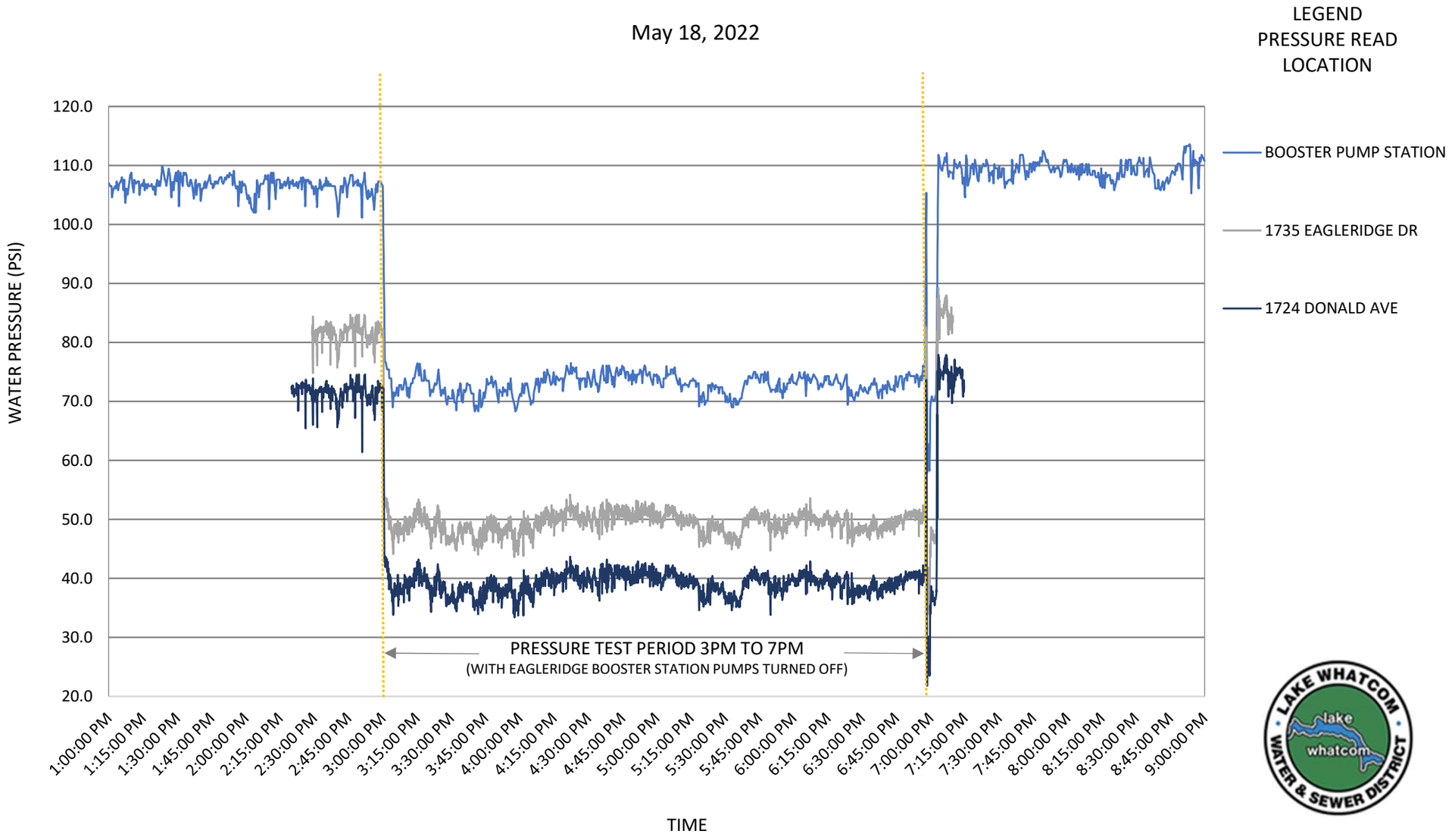
District Project #C2011

Map prepared by Lake Whatcom Water and Sewer District

2/16/2022

EAGLERIDGE WATER SYSTEM | WATER PRESSURE TEST EVENT

May 18, 2022



Monday, May 23, 2022

Dear Justin and Commissioners,

Thank you and your staff for participating in our temporary test shutdown. And, just for the record, I know you (Justin) have been asked if you suggested the test shutdown, but, I can take the "yeas and nays" for that idea. I asked you about the possibility of a trial shutdown in an early phone call with you in Jan.

Including Donald St., there are a total of **70** homeowners. There are **44** who completed the data forms and returned the forms to the HOA. That is a completion rate of 63%.

Of the **44** homeowners completing the data forms, **31** homes experienced water pressure of 45 PSI or less.

Of the **44** data forms that were completed, **36** circled **"very noticeable"** pressure drop in at least one category on the form.

Of those with "very noticeable" pressure change, most homeowners included hand written explanations explaining how this pressure was experienced.

The 4 data forms, labeled with orange stickers, also included personal letters to the District. These homeowners had more to say, and felt compelled to add more.

As expected, second floor homes experienced unacceptable pressure in upstairs bathrooms.

Also, many homeowners experienced unacceptable low pressure in the house when water was being used both outdoors and indoors. Several of our homeowners have organic vegetable gardens.

The overwhelming feedback from homeowners is that the projected water pressure, on the colored map, for "Average Day Demand" after removal of domestic booster pumps, was not what was experienced and recorded by many homeowners.

Also, it is the many "High Demand Hours" that are a concern, when 70 homes are demanding water at the same time.

Removing the pumps and not replacing them, is unacceptable. Water pressure at 18 psi is totally unacceptable. And Donald St. is unlivable without the pumps.

Two Houses in Eagleridge were sold to new buyers last month. One sold for $1,700.00 and the other sold for $1,600.00. These new home buyers paid for houses with better than "adequate" water pressure.

If the **31** homeowners with pressure 45 PSI or less, choose to install electric water booster pumps to maintain their lifestyles, it doesn't make sense to add more electricity demand to the power grid. How could that be cost effective for the homeowner and justifiable for the impact on the environment?

What are we doing?

Where are we going with this?

Can we take a "pause" and, "rethink"?

Our homeowners are trying to be cooperative, and, responsible.

And we know the District Commissioners are trying to do what is reasonable for all of District 10 homeowners.

But, again, please reconsider the replacement of the pressure pumps.

Respectfully,

HOA Board:

Joan McEachran, Julianna Roth, Tessa Rawitzer, Patty Ramsy, Jeremy Voigt

FYI EAGLERIDGE

Water District Temporary Water Pressure Test

70 homeowners (Eagleridge 63 & Donald St. 7) were included in the test and all were given evaluation forms.

44 homeowners completed the evaluation forms for the pump shutdown. (63%)

31 homeowners experienced water pressure drop to 45 PSI or less. (anything below 45 is considered low pressure)

36 circled "very noticeable" pressure drop in at least one category on the data form.

All data was delivered to the Water District 10 on May 23.

Eagleridge HOA and Tom Rosenburg, Donald St. resident, delivered letters to Justin Clary, Project Manager, and the five Water District Commissioners on May 23

Q & A

1. **Why was PSI 45 chosen for the lowest PSI level?**

Answer from "Plumbing Supply":

Residential water pressure tends to range between 45 and 80 psi. Anything below 40 psi is considered low and anything below 30 psi is considered too low. The minimum pressure required by most codes is 20 psi.---------Pressure Reducing Valve (PRV)...most are factory set at 45 psi because this is considered to be a reasonable lowest level.

So, if PRV valves are factory set at 45 psi for the lowest pressure, then, 45 is the standard lowest pressure and Eagleridge should expect that 45 psi or lower is unacceptable, and the water district should be held to this standard.

Answer from "Chas Roberts"

In general, residential water pressure ranges between 45-80 psi. If your water pressure is under 40 psi, it's considered low. A psi between 20-30 is considered very low, and under the minimum water pressure required by most building codes.

Answer from "The Homeowner's Guide to Water Pressure"

Standard Water Pressure Recommended = 50 psi **Many plumbing professionals suggest 50 psi as the ideal, which is also the default setting for most pressure regulators.**

Answer from "1st Home & Commercial Services"

Your home's water pressure typically ranges between 40 and 80 psi. Water pressure below 40 psi is considered low, -------

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Residential Water Pressure Explained

Good water pressure is something most homeowners take for granted. There's nothing worse than coming home from a hard day at work, looking forward to a nice shower, only to be met by trickling water due to low pressure. On the other hand, excessively high pressure can be a source of great stress and frustration. From joints to supply lines to faucets, damage can occur throughout the plumbing system; high pressure will also keep your water bill higher than it should be. Below, we'll take a look at how water pressure is generated, and why it matters.

How Is Water Pressure Created?

Most residential areas receive their water from a municipal water provider. Many areas utilize groundwater sources, but surface water - reservoirs, lakes and rivers - makes up the bulk of municipal supplies. Whatever the source, water is typically pumped to treatment facilities, and then to pressure tanks located at high points throughout the distribution area (in some communities, tall water towers are used). The height of these tanks relative to the distribution area - along with the weight of the water - is what generates pressure. The higher the tank, the greater the pressure.

The pressurized water moves from the tank to the water mains that feed the community. Depending on the circumstances of the area, booster stations may be located throughout, which use pumps to maintain pressure in the distribution system. In areas where pressure becomes too high, pressure reducing

stations transfer high-pressure water to low-pressure areas, maintaining manageable levels throughout the system.

Helpful Hint: Private residential wells use a pressure tank and switch to control the water pressure. These are most commonly set at 30-50 psi, turning on the pump at 30 psi and off at 50 psi.

What Should My Water Pressure Be?

Many factors influence the final water pressure you get in your home. The elevation of the building relative to both the height of the tank/tower and the location of the water main can make a significant difference, as can the size of the main and the number of homes connected to it. A service line (the pipe connecting the home to the main) not properly sized for the home's needs can also affect the final pressure at the tap.

*Pro Tip: Once water is in your home's plumbing system, there are many ways pressure can be **decreased** - blocked pipes, clogged filters or aerators, sediment-laden water heaters and plain old leaks are typical culprits.*

Residential water pressure tends to range between 45 and 80 psi (pounds per square inch). Anything below 40 psi is considered low and anything below 30 psi is considered too low; the minimum pressure required by most codes is 20 psi. Pressures above 80 psi are too high. Whereas low water pressure is more of a nuisance than a serious problem (some fixtures, like washing machines, have minimum pressure requirements), high water pressure carries with it a significantly increased risk of damage to pipes, joints, fixtures and seals - not to mention increased water waste.

How Do You Measure and Correct Water Pressure?

Water pressure can be easily measured and monitored with a simple, inexpensive water pressure gauge that threads onto any hose bibb. "Lazy hand" gauges feature an additional high-level indicator, which remains stuck at the highest pressure experienced until the gauge is reset. This type of gauge can let you know if you're experiencing any spikes of high pressure, which can also cause problems.

To reduce high pressure in a home, you'll need a Pressure Reducing Valve (PRV). In fact, these are often required by code for pressures beyond 80 psi. These devices do exactly what they say, reducing pressures of up to 400 psi down to a reasonable level of your choosing (most are factory set at 45 psi).

*Note: PRVs are typically installed just after the water meter. If the residence being served by the PRV has a water heater, **most codes require** that an expansion tank be added to the water heater. This is because PRVs have an internal check valve that only allows water to flow one way, preventing water on the house-side of the PRV from going back the other way. This is a problem with water heaters because of thermal expansion (the expansion of water as it's heated). In a non-PRV system, water is pushed back toward the main by increased pressure from the expansion. Since a PRV prevents that from happening, an expansion tank is necessary to accommodate the increased volume and pressure. Without the tank, pressure will build throughout the home plumbing system until a fixture is used, potentially leading to damage.*

More Resources: For those cursed with low water pressure, we have some helpful advice in our article "What You Can Do About Low Water Pressure".

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- Blog › (https://www.chasroberts.com/blog)
- How to Know If Your Home Has "Normal" Water Pressure

How to Know If Your Home Has "Normal" Water Pressure

When things are going well, you might not put much thought into your home's water pressure. After all, it's easy to take water pressure for granted—until you're dealing with trickling water in the shower or other problems. To help avoid the negative effects of low, or high, water pressure, here's how you can make sure your water pressure is just right.

Normal water pressure range

In general, residential water pressure ranges between 45-80 psi (pounds per square inch). If your water pressure is under 40 psi, it's considered low. A psi between 20-30 is considered very low, and under the minimum water pressure required by most building codes.

On the other side of the spectrum, water pressure above 80 psi is considered too high. Both extremely low and extremely high water pressure pose their fair share of risks and problems. Low water pressure can lead to poor performance and efficiency from any appliance in your home that uses water. High water pressure can damage pipes, joints, and fixtures, and waste a lot of water in the process.

All about functional flow

While water pressure refers to the amount of force that moves water throughout pipes and taps, functional flow refers to the volume of water that arrives at individual fixtures. In other words, your water pressure can be adequate, but if you have poor functional flow, you may still experience problems with trickling water in showers or sinks that take a long time to fill. Causes of poor functional flow include:

- Corrosion of galvanized pipe systems, commonly found in older homes
- Calcium or lime buildup in pipes, caused by hard water

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- Poorly installed plumbing systems
- A main water shutoff that's partially closed
- A kinked or restricted supply connector hose

Depending on the underlying cause, you may need to replace your pipes in order to fix problems with functional flow.

Measuring water pressure

Measuring your home's water pressure is easy, and only requires a few key tools. First, you'll need a pressure gauge. You can find this at most hardware stores—just make sure you pick one that measures in psi. Second, you'll need a pair of tongue and groove pliers, or a large adjustable wrench, to help you tighten the gauge onto the faucet you're testing.

1. Choose your location

Once you have your tools ready, it's time to find your testing location. In most cases, this will be the outdoor hose faucet connected to your home. If you have well water, choose whatever faucet is closest to the well's pressure tank.

2. Turn off running water

Before testing, make sure there's no water running inside or outside your home. That means no dishwashers, washing machines, sprinklers, refrigerators, showers, or sinks. If any water is running during the test, it may skew the results. This is because a pressure gauge is meant to measure static water pressure, which requires that water not be moving throughout the plumbing system.

3. Install the pressure gauge

If there's a hose attached to the faucet, remove it. Then, install the pressure gauge onto the faucet. You can use the rubber gasket inside the gauge to hand-tighten and get a strong seal. If not, you can use the pliers or wrench you brought along. In order to get an accurate reading, you'll need a good seal with no leaks. If there are any leaks during the test, stop the water and tighten the gauge again.

4. Start the pressure test

Turn the faucet all the way on and observe the pressure results on the gauge's dial. If the reading is between 40-80 psi, your water pressure is normal. But, if the reading indicates low or high water pressure, you have a few options. For low water pressure, you can troubleshoot the root of the problem before calling a plumber. For high water pressure, you can call a plumber and inquire about having regulator installed to bring the psi back down to normal range.

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Home Reference

The Homeowner's Guide to Water Pressure

By Henry Parker

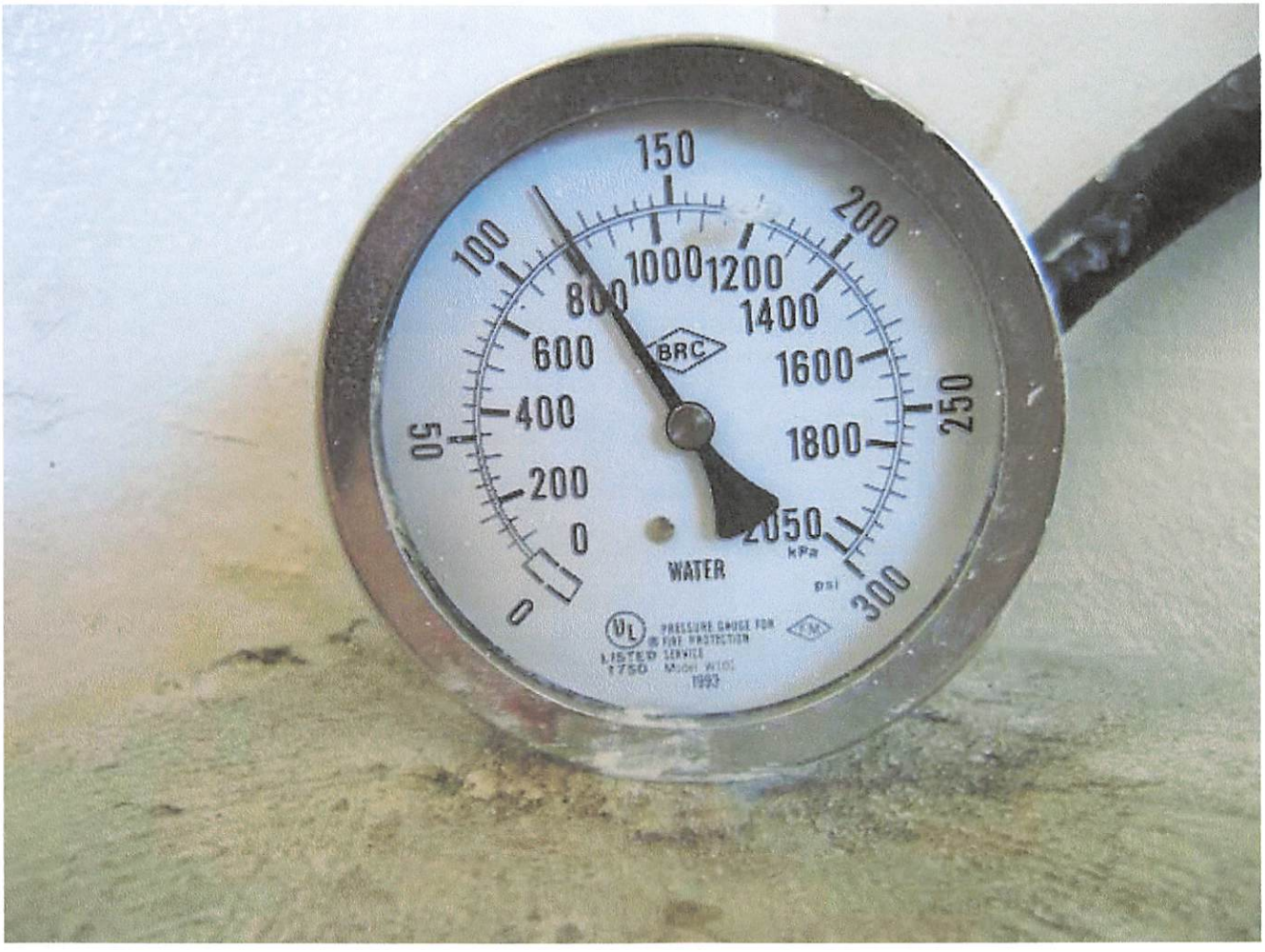
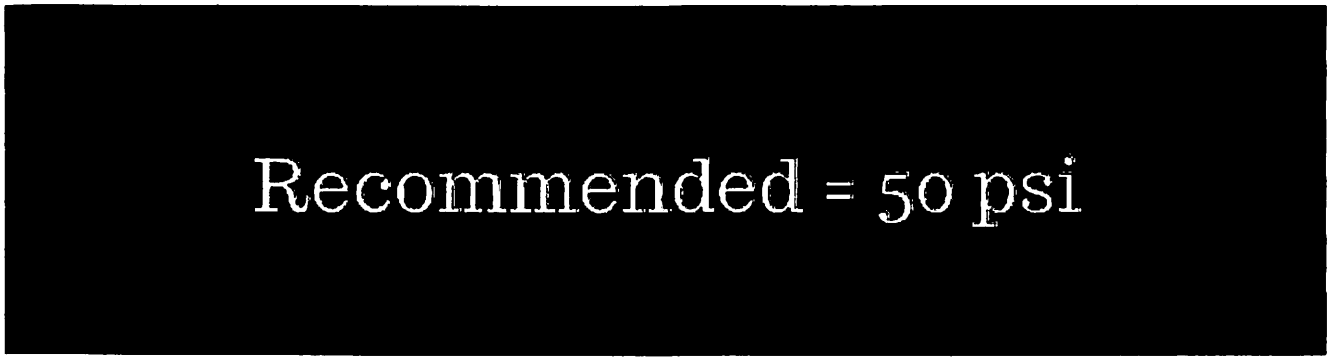


Photo Credit: Thomas Quine (https://www.flickr.com/photos/quinet/26351223272/)

Many plumbing problems in your home originate with water pressure issues. This may lead to low-pressure showers and toilet flushing issues on one end and damaged pipes or appliances on the other. Checking the water pressure yourself is not difficult, and may help you to identify

potential problems before they become costly.

Standard Water Pressure



Depending upon where you live, the water pressure could vary greatly as it comes in from the municipal supply lines. This can create problems, as the psi rating may range from 20 to as high as 100. The incoming water pressure should never be over 75 psi. Many plumbing professionals suggest 50 psi as the ideal, which is also the default setting for most pressure regulators.

Larger homes require a higher incoming pressure rating than small homes, as water will slow down slightly each time it encounters a bend in the pipes.

How to Test Water Pressure

Notice to our Customers: The safety of our customers and staff continues to be our #1 priority! Please click here to see our safety measures. If you have any questions or concerns, please don't hesitate to contact us

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What Should Residential Water Pressure Be?

Are you wondering whether your home's water pressure is what it should really be? There is nothing worse than coming home after a long day at work, only to be bet by

low water pressure in your shower. A high-powered shower feels great! The water pouring out on you as you relax after a long day or try to wake up early in the morning is a great feeling. However, did you know that high home water pressure can pose some issues? Let's talk a little bit about the way that water pressure is generated, as well as why it is important.

Your home most likely receives its water from a municipal water provider, and there are a number of factors that can contribute to the final water pressure that you receive. These factors include the height of the water tank or tower, as well as the size, location, and the number of homes that are connected to the water main (where your water is coming from).

Your home's water pressure typically ranges between 40 and 80 psi (pounds per square inch). Water pressure below 40 psi is considered low, and water pressure above 80 psi is considered too high. Having the water pressure set too high, over 80 psi

RULE DEVELOPMENT COMMITTEE ISSUE RESEARCH REPORT
DRAFT
- RESIDENTIAL FLOW RATES -

DOH Staff Researcher(s): Laura A. Benefield

Date Assigned: May 7, 2002

Date Completed: May 31, 2002

Research Requested by: ☐ RDC ☒ TRC ☐ Other:

Issue Subject: Technical ☒ Issue ID: Technical Issue #7b
Administrative ☐
Regulatory ☐
Definitions ☐

Specific WAC Section Reference, if WAC related: Section 246-272-11501

Topic & Issues:

Technical Issue 7b – Residential Flow Rates

1. Estimating Residential Flow Rates
2. Average Flow Rates vs. Peak Flow Rates
3. Infiltration and Inflow

Technical Review Committee Questions

1. Should daily flows for residential structures still be determined by number of bedrooms?
2. Is the quantity used for gallons per day per bedroom currently used appropriate?
3. Should the "minimum" gpd design flow (240 gpd) be changed?
4. Has there been any attempt to equate other factors other than bedrooms for flows – lifestyles, bedrooms, flows, square footage, etc.?
5. Should there be a link between design flows and actual flows?
6. Does daily design flow equal peak flow, peak-peak, or what?
7. Should inflow and infiltration be considered?
8. Should there be a link between square footage and daily design flows?
9. Should we consider a minimum square footage for a residential structure?
10. Should the information required for a permit be revised to include more information on flows?
11. Should there be a description of non-residential flows?

Summary:

This report summarizes the literature on the topic of residential flow rates of on-site sewage systems. The purpose of the report is to perform a review of the literature available on the topic of residential flow rates and ways of quantifying those rates.

On-site sewage system designs are based on potential flows and the ability of the soils to treat and dispose of the wastewater. Methods of estimating residential flow rates vary throughout the U.S. Estimated flows have been based on the number of persons, the number of bedrooms, and/or the size or square footage of the home. In Washington State, residential flow rates are based on 120 gallons per bedroom per day with a minimum design flow of 240 gallons per day.

Estimated residential flow rates need to account for not only averages, but peak flows. Peak flows of short duration may or may not have a deleterious affect, however peak flows that continue for days (i.e. weekend guests) can induce hydraulic failure. Accounting for these events will extend the life of the on-site sewage system. Researchers agree that peak flows must be accounted for and that a safety factor should be included when estimating design flows.

Keywords: Flow, gallons per day, bedroom, design, peak, residence, surge

Introduction:

Estimating potential flow rates (gallons per day) is a significant design consideration. Potential flow rates are used in combination with the hydraulic capacity of the soil profile in order to avoid hydraulic overloading of the on-site sewage system. Currently Chapter 246-272 WAC requires use of 120 gallons per bedroom per day for single family residences with a minimum of 240 gallons per day unless technical justification is provided to support calculations using a lower design flow. Some counties within Washington State have adopted the use of 150 gallons per day per bedroom. Non-residential sources are required to estimate flow rates using the "Design Manual: On-site Wastewater Treatment and Disposal Systems", United States Environmental Protection Agency, October, 1980; the Design Standards for Large On-site Sewage Systems", 1993, Washington State Department of Health, or the "Criteria for Sewage Works Design", October 1985, Washington State Department of Ecology.

The purpose of this review is to synthesize the literature available on the topic of residential flow rates so that the Technical Review Committee can make appropriate recommendations about residential flow rate requirements to the Rule Development Committee. 9 publications were reviewed, which include peer reviewed journal articles, conference proceedings, and government reports as well as 50 state on-site sewage regulations. Even though the conference proceedings are typically not peer reviewed, they provided useful information regarding studies of average residential and non-residential flow rates.

Estimating Residential Flow Rates:

Residential flow rates are traditionally based on a "gallons per person per day" rate or "gallons per bedroom per day". Residential flows can vary considerably and have been shown to be influenced primarily by (1) family size, (2) socio-economic status, and (3) source of water supply (Siegrist, Woltanski, and Waldorf, 1977). Additional influences appear to include, (1) type of dwelling unit, (2) geographic location, and (3) methods utilized for wastewater disposal (Siegrist, Woltanski, and Waldorf, 1977).

In Washington State, Chapter 246-272 WAC specifies the use of 120 gallons per bedroom per day for single family residences assuming 2 persons per bedroom (60 gals/pers/day). Residential occupancy is typically 1.0 to 1.5 persons per bedroom; recent census data indicate that the average household size is 2.7 people (USEPA, 2002). Nationally, the current onsite code practice is to assume that maximum occupancy is 2 persons per bedroom, which provides an estimate that might be too conservative if additional factors of safety are incorporated into the design (USEPA, 2002).

Many states have found alternatives to strictly using "gallons per bedroom" to account for a variety of contributing factors. When the "average gallons per bedroom per day" does not seem consistent with the possible flows from the structure, other parameters may need to be reviewed. Colorado applies 150 gallons per bedroom however the local health officer may require an increase of up to 100 gal/pers/day for large or more costly dwellings. North Carolina applies 120 gallons per bedroom however when a dwelling unit exceeds 2 persons/bedroom, the daily volume will be determined by 60 gal/pers/day. North Dakota applies 75 gal/pers/day for single family dwellings and 150 gal/pers/day for luxury homes or estates. Florida, Minnesota, and Texas make allowances for increasing volume dependent upon the square footage of building area (Appendix A, Summary of State Wastewater Flow Rates).

At the 2002 Washington On-Site Sewage Association annual meeting, a presentation was given entitled "Design and Installation Considerations for Large Homes", Bob Erickson of Sun Valley, Idaho discussed options for designs on larger homes (email from Steve Olsen, 2002). In Sun Valley for homes with less than 2,000 square feet a design flow of 75 gal/pers/day is used. For homes with greater than 2,000 square feet flows are calculated as follows:

# of bedrooms x 2 people/bedroom x gpd x 1.75 (peaking factor) = gpd.

For example, a 12,000 square foot home with 7 bedrooms is calculated thus:

(7 x 2) x 130 x 1.75 = 3185 gpd.

Multiplying the square footage of the home by a constant may also be used.

Example:

1200 square foot home x 0.20 gallons/square foot/day = 240 gpd

The USEPA estimates average daily wastewater flows of approximately 50 to 70 gallons per person per day being typical of residential dwellings built before 1994 (USEPA, 2002). This average is based on a number of recent studies summarized in Table 1. The U.S. Energy Policy Act (EPACT) standards went into effect to improve water use efficiency nationwide reducing the "typical" average daily wastewater flows to the 40 to 60 gallons/person/day range (USEPA, 2002).

Table 1 – Summary of average daily residential wastewater flows[a]

Study	Number of residences		Study duration (months)	Study average (gal/pers/day)[b]	Study range (gal/pers/day)[b]
Brown & Caldwell (1984)	210			66.2 (250.6)	57.3-73.0 (216.9-276.0)
Anderson & Siegrist (1989)	90		3	70.8 (268.0)	65.9-76.6 (249.4-289.9)
Anderson et al (1993)	25		3	50.7 (191.9)	26.1-85.2 (98.9-322.5)
Mayer et al. (1999)	1188		1[c]	69.3 (262.3)	57.1-83.5 (216.1-316.1)
Weighted Average	153			68.6 (259.7)	

[a] Based on indoor water use monitoring and not wastewater flow monitoring.
[b] Liters/person/day in parentheses.
[c] Based on 2 weeks of continuous flow monitoring in each of two seasons at each home.

Identified in the USEPA Onsite Wastewater Treatment Systems Manual, the Residential End Uses of Water Study (REUWS) was the largest number of residential water users ever characterized and provided an evaluation of annual water use at 1,188 homes in 12 metropolitan areas in North America derived from some 1 million residential wastewater activities. The mean daily per capita indoor use (gal/pers/day) of all 12 study sites was 69.3 with the median daily per capita indoor use (gal/pers/day) as 60.5. The mean per capita flow ranged from 54 to 67 gallons/person/day and probably provides a better estimate of average daily flow for most homes given the distribution of mean per capita flows (USEPA, 2002).

Unlike the USEPA's calculations that extrapolate a decrease in flows due to the water conserving devices implemented under the U.S. Energy Policy Act, estimates of average daily wastewater flows within the remainder of the research appear to have increased over time. Research reports from the 1960's to 1970's use estimates of 40-50 gpcd (Bennett, et al 1974; Jones, 1974; Witt, et al 1974; Siegrist, 1974; Siegrist, et al 1977; Siegrist, 1977). Beginning in the 1980's researchers found that average daily wastewater flows were higher and were also dependent on the types of dwellings. Rein Laak, in 1986, placed dwellings in

three categories: single family (50-75 gpcd), multiple family and apartments (40-60 gpcd), and luxury homes (100-150 gpcd). In 1991, Tchobanoglous and Burton further separated flows rates: typical home (45-90 gpcd), better home (60-100 gpcd), luxury home (75-150 gpcd), older home (30-60 gpcd), and summer cottage (25-50 gpcd). While in 1998, Crites and Tchobanoglous revised these to: newer home (40-100 gpcd), older home (30-80 gpcd), and summer cottage (30-60 gpcd).

Proper design must take into account the type of neighborhood and lifestyle (Kaplan, 1988). Kaplan points out that at the higher end of the economic scale, wealthy residences tend to have large bathtubs and large per capita discharges. Yet at the opposite end of the scale, a little house may have a dozen people living in it. Kaplan also points out the concern of leaky plumbing fixtures. The average per capita leakage measured in the Residential End Uses of Water Study (REUWS) was 9.5 gallons/person/day. This value was the result of high leakage rates at a relatively small percentage of homes. Ten percent of the homes monitored accounted for 58 percent of the leakage measured. The average leakage range for the 1,188 homes within the REUWS study was 3.4-17.6, with an average of 9.5 gallons/person/day. This result agrees with a previous end use study where average leakage rates were 4 to 8 gallons/person/day. These types of leakage rates could significantly increase the hydraulic load to an onsite wastewater system reducing performance (USEPA, 2002).

The research explained the benefits of using actual flow rates if available. For existing developments, flow rate data should be obtained by direct measurement (Tchobanoglous & Burton, 1991) Where possible, rates should be based on actual flow data from selected similar residential areas, preferably in the same locale (Tchobanoglous & Burton, 1991)

Average Flow Rates vs. Peak Flow Rates

The common practice of using discharge figures found in reference books (e.g., Metcalf and Eddy) tend to be gross averages, meaning half of the septic systems based on these averages are over-designed and half are under-designed (Kaplan, 1988). Maximum and minimum flows and instantaneous peak flow variations are necessary factors in properly sizing and designing system components (Tchobanoglous and Burton, 1991). The system should be capable of accepting and treating normal peak events without compromising performance (Tchobanoglous and Burton, 1991).

Because peak flows can occur for a number of days, it is recommended that a peaking factor of 2.5 be used for the design of downstream treatment processes from septic tanks (Crites and Tchobanoglous, 1998). Table 2 provides peaking factors for wastewater flows from individual residences, small commercial establishments, and small communities (Crites and Tchobanoglous, 1998).

Table 2

Peaking factors for wastewater flows from individual residences, small commercial establishments, and small communities

Peaking factor*	Individual residence		Small commercial establishment		Small community	
	Range	Typical†	Range	Typical	Range	Typical
Peak hour	4-10	4	6-10	4	3-6	4
Peak day	2-5	2.5	2-6	3.0	2-4	2.5
Peak week	1.25-4	2.0	2-6	2.5	1.5-3	1.75
Peak month	1.15-3	1.5	1.25-4	1.5	1.2-2	1.25

* Ratio of peak flow to average flow

† Higher values are often reported, but the given values are suitable for sizing onsite wastewater management facilities.

In many states it is quite common to use a flow allowance for design of 150 gpd per bedroom, which in theory accounts for peak flow (Crites and Tchobanoglous, 1998). These same authors recommend that a per capita design allowance, based on peak flow, be used for design. Table 3 provides a comparison of design flows based on a per capita allowance times a peaking factor versus design flows based on a per bedroom allowance (Crites and Tchobanoglous, 1998).

Table 3

Comparison of design flows based on a per capita allowance times a peaking factor versus design flow based on a per bedroom allowance

Number of bedrooms	Number of persons	Flowrate, * gal/capita · d	Peaking factor	Design flow based on peak per capita flow, gal/d	Design flow based on per bedroom allowance, gal/d
1	2	55	2.5	275	150
2	3	48	2.5	360	300
3	4	45	2.5	450	450
4	5	42	2.5	525	600

* Computed using Flow, gal/home·d = gal/home·d + gal/person·d x (number of persons/home)

Infiltration and Inflow

Infiltration/inflow (I & I) is the term used to describe the flow of extraneous water into wastewater collections systems. Most of the I & I research has been performed on municipal sewers, however the general concepts should also apply to on-site sewage systems. Infiltration is described as water entering a sewer system, including sewer service connections, from the ground through such means as defective pipes, pipe joints, connections, or manhole walls (Crites and Tchobanoglous, 1998). With inflow being described as water discharged from cellar and foundation drains to include stormwater runoff (Crites and Tchobanoglous, 1998). Infiltration/inflow is a variable part of the wastewater, depending on the quality of the material and workmanship in constructing the sewers and building connections, the character of the maintenance, and the elevation of the groundwater compared with that of the sewers. Most of the pipe sewers built during the first half of this century were laid with cement mortar joints or hot-poured bituminous compound joints. Deterioration of pipe joints, pipe-to-manhole joints, and the waterproofing of brickwork has resulted in a high potential for infiltration (Crites and Tchobanoglous, 1998). The use of high-quality pipe with dense walls, precast manhole sections, and joints sealed with rubber or synthetic gaskets is standard practice in modern sewer design. The use of these improved materials has greatly reduced infiltration into newly constructed sewers, and it is expected that the increase of infiltration rates with time will be much slower than has been the case with the older sewers (Crites and Tchobanoglous, 1998).

WAC 246-272-11501(2)(b) currently requires that all drainage from the surface, footing drains, roof drains, and other non-sewage drains be prevented from entering the OSS and the area where the OSS is located.

Cost Information:

Conclusions:

Residential Flow Rates

1. **Should daily flows for residential structures still be determined by number of bedrooms?**

   The current practice of assuming a maximum of 2 persons per bedroom is used in 34 of the 50 United States. Considering the 1998 U.S. Census results of 1.0 to 1.5 persons per bedroom, this may provide a limited factor of safety. Research does show that having additional criteria for square footage and/or increased predicted volume for actual population (whichever is greater) appears reasonable.

   Tchobanoglous and Burton recommend the use of gallons/person/day and peaking factors (See Tables 2 & 3). These researchers felt that the use of peaking factors instead of the traditional gallons/bedroom/day gave a greater safety factor.

2. **Is the quantity used for gallons per day per bedroom currently used appropriate?**

   The USEPA provided estimates from research using actual flows from residential dwelling units built prior to 1994 averaged daily flows of 50-70 gal/pers/day. The range given for dwelling units built after 1994 was calculated based on the EPACT standards implementation and assumed average daily flows of 40-60 gal/pers/day. Utilizing the practice of 2 persons per bedroom, new construction average daily flows would range from 80-120 gal/bedroom/day.

   The remainder of the research found average daily flows for typical single family dwellings to range from 40-100 gal/pers/day. Utilizing the practice of 2 persons per bedroom, new construction average daily flows would range from 80-200 gal/bedroom/day. One researcher found that in many states it is common to use a flow allowance for design of 150 gallons per day, which in theory accounts for peak flow. Some counties within Washington State currently use this practice.

3. **Should the "minimum" gpd design flow (240 gpd) be changed?**

   The scientific literature does not address this issue. The summary of state wastewater flow rates shows a range of minimum design flows of 75-400 gallons per day.

4. **Has there been any attempt to equate other factors other than bedrooms for flows – lifestyles, bedrooms, flows, square footage, etc.?**

   Researchers have divided flows by terms such as newer homes, older homes, summer cottage, typical home, better home, and luxury home however they do not provide definitions of these terms. States that have addressed other factors have commonly applied square footage limitations, additional gallons/pers/day in excess of 2 persons/bedroom, reductions for low-flow fixtures, and deed restrictions for senior citizen communities (See Appendix A).

5. **Should there be a link between design flows and actual flows?**

   Researchers agree that the use of actual flows is preferable to estimated flow rates and that design flows should be based on actual peak day flows not average flows. A number of states have included an allowance for the use of actual flows within their codes.

6. **Does daily design flow equal peak flow, peak-peak, or what?**

   Considering the USEPA average gal/capita/day flow of 40-60 gallons, it does not appear that the current use of 120 gallons per bedroom accounts for peak flow, leakage, or safety factors. Other researchers typically using 40-100 gallons per person per day which, at the upper end, does appear to include a safety margin.

7. **Should inflow and infiltration be considered?**

   Although not specifically addressed within the rule, WAC 246-272-11501 – Design, does state under subsection (2)(b):

   (2) The local health officer and the department shall require the following design criteria:

   (b) Drainage from the surface, footing drains, roof drains, and other non-sewage drains is prevented from entering the OSS and the area where the OSS is located;

   Researchers found the the use of high-quality pipe with dense walls, precast manhole sections, and joints sealed with rubber or synthetic gaskets have reduced infiltration rates.

8. **Should there be a link between square footage and daily design flows?**

   Researchers have discussed higher flow rates for more costly or luxury homes however the terms have not been defined. A few states have addressed this concern by increasing design flows when square footage increases (See Appendix A).

9. **Should we consider a minimum square footage for a residential structure?**

   Research has not been specific for square footage. Three states have addressed minimum square footage (See Appendix A).

10. **Should the information required for a permit be revised to include more information on flows?**

    WAC 246-272-09001 Permits for OSS Under 3500 Gallons per Day currently addresses flows under subsection (1)(d)(iii)(C), which states:

    (1) Prior to beginning the construction process, a person proposing the installation, repair, modification, connection to, or expansion of an OSS, shall develop and submit the following to the local health officer and obtain approval:

    (d) A detailed system design meeting the requirement under WAC 246-272-11501 including:

    (iii) Calculations and assumptions supporting the proposed design, including:

    (C) System's maximum daily flow capacity.

11. **Should there be a description of non-residential flows?**

    WAC 246-272-03001 Applicability addresses sources other than residential under subsection (1)(b) which states

(1) The local health officer and the department:

(b) May apply this chapter to OSS for sources other than residential sewage, excluding industrial wastewater, if pretreatment, siting, design, installation, and operation and maintenance measures provide treatment and effluent disposal equal to that required of residential sewage.

WAC 246-272-11501 Design addresses non-residential sewage in subsection (3) by stating:

When proposing the use of OSS for non-residential sewage, the designer shall provide to the local health officer:

(a) Information to show the sewage is not industrial wastewater;
(b) Information to establish the sewage's strength and identify chemicals found in the sewage that are not found in residential sewage; and
(c) A design providing treatment equal to that required of residential sewage.

References:

Bennett, E, Linstedt, K, Felton, J, 1974. Rural Home Wastewater Characteristics, Home Sewage Disposal, Proceedings of the National Home Sewage Disposal Symposium, American Society of Agricultural Engineers, Pages 74-78, 1974.

In order to understand potential septic tank problems, and to develop meaningful design criteria for alternative engineered systems, knowledge of the characteristics of home wastewater flow is imperative. For these reasons, studies have been initiated at the University of Colorado to evaluate the flow patterns and surge peaks of individual home sewage systems, and to define home waste strength characteristics by monitoring many of the sanitary engineering water quality parameters.

A statistical evaluation of short time surge flow was also made. It was found that the maximum surge flow was 60 gallons and this flow could occur in as short a period as seven minutes.

Crites, R, Tchobanoglous, G, 1998. Small and Decentralized Wastewater Management Systems, McGraw-Hill Series in Water Resources and Environmental Engineering, Chapter 4, Pages 169-239, 1998.

The sources of wastewater and the corresponding average flow rates in wastewater collection systems, and the flow rates from individual residences, are considered in this section.

Jones, E, 1974. Domestic Water Use in Individual Homes and Hydraulic Loading Of and Discharge from Septic Tanks, Home Sewage Disposal, Proceedings of the National Home Sewage Disposal Symposium, American Society of Agricultural Engineers, Pages 89-103, 1974.

Domestic wastewater production is closely related to domestic water use. Thus, information from domestic water use studies can provide valuable information on the hydraulic loading of septic tank systems. From 1961 to 1968, the author's primary research activities were determination of farmstead and rural home water requirements and development of improved design recommendations.

Kaplan, O, 1988. Septic Systems Handbook, Chapter 8. Factors Affecting Failure of Leachlines, Lewis Publishers, Inc., Chelsea, Michigan, Pages 93-106, 1988.

This chapter explains the factors affecting failure of leachlines. The author contends that average sewage flows may vary by a factor of (almost) 3 between different regions and that designers should never follow the common practice of using discharge figures found in reference books. Rather a designer should obtain information about residential sewage discharges from local water and/or sewer districts from actual meter reading at existing similar projects. Immigrants of various nationalities and also the natives' new ways of life have added variety and spice to sewage flows. Therefore, one should be wary of published flow data.

Laak, R, 1986., Wastewater engineering design for unsewered areas, Chapter 3, Characteristics and Quantity of Wastewater, Technomic Publishing, Inc., Lancaster, Pennsylvania, Pages 19-32, 1986.

This chapter explains the importance of estimating both wastewater quality and quantity. The sizing of onsite wastewater systems is based on two parameters – the pollutant characteristics and the wastewater flow rate. The pollutant characteristics should be known for the design of the pretreatment system, such as a septic tank. For other than domestic wastes (laundry, restaurant, etc.) and for sizing the sludge storage space in the septic tank, the treatability characteristics should be considered, as should the solids concentrations of the raw wastewater. Under certain circumstances it is important to evaluate the potential fluctuation in the wastewater characteristics to avoid biochemical oxygen demand (BOD) overloads on pretreatment units, along with pH and temperature shifts. Ignorance of peak loads can lead to treatment failure. Similarly the hydraulic loads or wastewater flow fluctuations should be known so that designs can be prepared to avoid washout of pretreatment tank solids, flooding of the system and reduction of the necessary biological and physical retention times. Understanding the causes of flow fluctuations and considering the particular design loads (pollutant characteristics and flow rates) will assure good design practice.

Siegrist, R, Woltanski, T, Waldorf, L. Water Conservation and Wastewater Disposal, Home Sewage Treatment, Proceedings of the Second National Home Sewage Treatment Symposium, American Society of Agricultural Engineers, Pages 121-136, 1977.

In this paper, one aspect of the broad and complex subject of water conservation and wastewater disposal is considered, that being residential water conservation and onsite wastewater disposal. A discussion of residential water conservation practices has been given and the impact of these practices on waste loads and various onsite wastewater treatment and disposal methods has been assessed.

Tchobanoglous, G, Burton, F, 1991. Wastewater Engineering Treatment, Disposal, and Reuse, Third Edition, Metcalf & Eddy, Incorporated, Pages 15-46, Chapter 2.

The purpose of this chapter is to develop a basis for properly assessing wastewater flowrates for a community. The subjects considered include (1) definition of the various components that make up the wastewater from a community, (2) water supply data and its relationship to wastewater flowrates, (3) wastewater sources and flowrates, (4) analysis of flowrate data, and (5) methods of reducing wastewater flowrates.

USEPA, 2002. USEPA Onsite Wastewater Treatment Systems Manual, Chapter 3, 2002.

Chapter 3 specifically addresses "Establishing Treatment Systems Performance Requirements" including estimating wastewater flows. The average daily wastewater flow from typical residential dwelling can be estimated from indoor water use in the home. Several study results were shown using indoor water use (not wastewater flow monitoring). A summary of averages (gal/pers/day) ranged from 50.7 – 70.8 for residential dwellings built before 1994.

The Residential End Uses of Water Study (REUWS) was the largest number of residential water users ever characterized and provided an evaluation of annual water use at 1,188 homes in 12 metropolitan areas in North America derived from some 1 million residential wastewater activities. The mean daily per capita indoor use (gal/pers/day) of all 12 study sites was 69.0 with the median daily per capita indoor use (gal/pers/day) as 60.5.

The average per capita leakage measured in the REUWS was 9.5 gallons/person/day. This value was the result of high leakage rates at a relatively small percentage of homes. Ten percent of the homes monitored accounted for 58 percent of the leakage measured. The average leakage range for the 1,188 homes within the REUWS study

was 3.4-17.6, with an average of 9.5. This result agrees with a previous end use study where average leakage rates of 4 to 8 gallons/person/day.

The intermittent occurrence of individual wastewater-generating activities can create large variations in wastewater flows from residential or nonresidential establishments. This variability can affect gravity-fed onsite systems by potentially causing hydraulic overloads of the systems during peak flow conditions. Wastewater flow can vary significantly from day to day. Minimum hourly flows of zero are typical for residential dwelling. Maximum hourly flows as high as 100 gallons are not unusual given the variability of typical fixture and appliance usage characteristics and residential water use demands. Hourly flows exceeding this rate can occur in cases of plumbing fixture failure and appliance misuse (e.g., broken pipe or fixture, faucets left running). The peak discharge rate from a given fixture or appliance is typically around 5 gallons/minute, with the exception of the tank-type toilet and possibly hot tubs and bathtubs. Although field data are limited, peak discharge rates from a single-family dwelling of 5 to 10 gallons/minute can be expected.

Witt, M, Siegrist, R, Boyle, W, 1974, Rural Household Wastewater Characterization, Home Sewage Disposal, Proceedings of the National Home Sewage Disposal Symposium, Pages 79-88, 1974.

This report provides a summary of field studies conducted at the University of Wisconsin to enhance a data base in order to characterize waste contributions from selected events within a home. Eleven sites were selected for the water use monitoring phase with a variety of family types and sizes. Data was collected for a total of 434 days. The water use monitoring yielded an average flow of 42.6 gpcd with a 90% confidence interval of 40.8 to 44.4 gpcd. As would be expected, the patterns for any given household were more extreme than the attenuated eleven site average patterns. For example, a flow pattern was shown as gallons/capita/hour with peaks as high as 3 g/c/h (72 g/c/d).

Appendix A

Summary of State Wastewater Flow Rates

This summary was compiled by review of all 50 state regulations via the Small Flows Clearinghouse link at http://www.nesc.wvu.edu/nsfc/nsfc_index.htm

State	Minimum design flow (gpd)	Gallons per bedroom	Lbs of BOD_5 per day	Other Alternatives
Alabama	300 gpd (2 bedroom or less)	150 gpd (3 bedrooms or more)	N/A	N/A
Alaska	N/A	N/A	N/A	N/A
Arizona	100 gpd/resident (2 residents/bedroom)	200 gpd	N/A	150 gal/bedroom/day for aerobic units
Arkansas	75 - 100 g/pers/day	N/A	N/A	N/A
California	N/A	N/A	N/A	N/A
Colorado	150 gpd (2 residents/bedroom) 75 gal/person/day	150 gpd	.20 BOD_5/person/day	The local Health Officer or designated agent may require an increase of average daily flow of up to 100 gal/person/day for large of more costly dwellings
Connecticut	N/A	150 gpd	N/A	N/A
Delaware	240 gpd	120 gpd	N/A	N/A
Florida	* See below	* See below	N/A	* See below
Georgia	N/A	N/A	N/A	N/A
Hawaii	200 gpd (2 persons/bedroom/day@ 100 g/pers/day)	200	0.17 lbs./person/day	N/A
Idaho	N/A	* (See Alternatives)	* (See Alternatives)	* 250/unit (3 bedroom) add/subtract 50 g/bedroom
Illinois	N/A	200 gpd	N/A	N/A
Indiana	N/A	N/A	N/A	N/A
Iowa	N/A	N/A	N/A	N/A
Kansas	N/A	150 gpd	N/A	N/A
Kentucky	N/A	120 gpd	N/A	Reductions for low-flow fixtures allowed
Louisiana	250 gpd (1 bedroom) 300 gpd (2 bedroom) 400 gpd (3 bedroom)	Each additional bedroom, add 100 gpd	.425 (1 bedroom) .51 (2 bedroom) .68 (3 bedroom) BOD_5 lbs./day	Homes in Subdivisions 400 gpd per dwelling

State	Minimum design flow (gpd)	Gallons per bedroom	Lbs of BOD_5 per day	Other Alternatives
Maine	180 gpd (2 bedrooms or less)	90 gpd	N/A	N/A
Maryland	N/A	N/A	N/A	N/A
Massachusetts	330 gpd * (See Alternatives)	110 gpd	N/A	* 220 gpd may be used if a deed restriction limiting use of the dwelling to two bedrooms is provided.
Michigan	N/A	N/A	N/A	N/A
Minnesota	* See below	* See below	* See below	* See below
Mississippi	N/A	N/A	N/A	N/A
Missouri	240 gpd	120 gpd	N/A	N/A
Montana	300 gpd (3 bedrooms unless otherwise approved)	1 bdrm = 150 2 bdrm = 225 3 bdrm = 300 4 bdrm = 350 5 bdrm = 400 addtl. = +50	N/A	N/A
Nebraska	200 gpd	100 gpd in excess of 1 bedroom	N/A	N/A
Nevada	N/A	N/A	N/A	N/A
New Hampshire	300 gpd	150 gpd in excess of 2 bedrooms	N/A	N/A
New Jersey	350 gpd/dwelling unit	200 (1 bedroom) 150 gpd (each additional bedroom)	N/A	Minimum volume reduced to 200 gpd w/deed restriction for senior citizens communities w/less than 500 sq. ft.
New Mexico	N/A	150 gpd for the first two bedrooms and 75 gpd for adtl. Bedrooms	N/A	N/A

State	Minimum design flow (gpd)	Gallons per bedroom	Lbs of BOD_5 per day	Other Alternatives
New York	N/A	* See Alternatives	N/A	gpd/bedroom dependent on fixtures Pre-1979 fixtures 150 gpd/bedroom New standard fixtures 130 gpd/bedroom Water-saving toilets 90 gpd/bedroom Waterless toilets 75 gpd/bedroom (greywaster only)
North Carolina	240 gpd	120 gpd	N/A	When dwelling unit exceeds 2 persons/bedroom, maximum volume will be determined by 60 gallons/person/day
North Dakota	75 gallons/person/day	N/A	N/A	Luxury houses and estates 150 gal/person/day
Ohio	N/A	N/A	N/A	N/A
Oklahoma	6,000 gal/month for 2 bedrooms or less	2,000 gal/month	N/A	N/A
Oregon	300 gpd	75 gpd for each bedroom in excess of 2 bedrooms	N/A	N/A
Pennsylvania	400 gpd (3 bedrooms or less)	100 gpd per bedroom in excess of 3	.90 lbs. BOD_5/dwelling/day	N/A
Rhode Island	75 gal/person/day	150 gpd	N/A	N/A
South Carolina	N/A	N/A	N/A	N/A
South Dakota	262.5 gpd * See Alternatives	120 gal/bedroom/day	N/A	* minimum of 3.5 person @ 75 gal/person/day, or 120 gallons/bedroom, whichever is greater
Tennessee	N/A	150 gpd	N/A	N/A

State	Minimum design flow (gpd)	Gallons per bedroom	Lbs of BOD_5 per day	Other Alternatives
Texas	225	2 persons/bedroom @ 60 g/person/day	N/A	* See below
Utah	N/A	N/A	N/A	N/A
Vermont	N/A	150 gpd	N/A	N/A
Virginia	150 gpd	150 gpd	0.2 lbs. BOD_5/person/day	N/A
Washington	240 gpd	120 gpd	N/A	N/A
West Virginia	N/A	N/A	N/A	N/A
Wisconsin	N/A	100 gpd	N/A	N/A
Wyoming	N/A	150 gpd	N/A	N/A

*** Florida** : Where the number of bedrooms indicated on the floor plan and the corresponding building area of a dwelling unit do not coincide, the criteria which will result in the greatest estimated sewage flow shall apply.

1 bedroom with 750 sq. ft. or less of building area	100 gpd
2 bedrooms with 751-1200 sq. ft. of building area	200 gpd
3 bedrooms with 1201-2250 sq. ft. of building area	300 gpd
4 bedrooms with 2251 – 3300 sq. ft. of building area	400 gpd

For each additional bedroom or each additional 750 square feet of building area, system sizing shall be increased by 100 gallons per dwelling unit.
Other per occupant 50 gpd

*** Minnesota:**

Average Design Flow (gallons per day)			
Number of Bedrooms	Classification of Dwelling		
	I	II	III
2 or less	300	225	180
3	450	300	218
4	600	375	256
5	750	450	294
6	900	525	332

*** Minnesota: (Cont'd)**

Classification I: The average design flow for classification I dwelling is determined by multiplying 150 by the number of bedrooms. Classification I dwelling are defined as having a total floor area of the dwelling divided by the number of bedrooms of more than 800 square feet per bedroom, or more than two of the following water-use appliances are installed or anticipated: automatic washer, dishwasher, water conditioning unit, whirlpool bath, garbage disposal, or self-cleaning humidifier in furnace.

Classification II: The average design flow for classification II dwelling is determined by multiplying 75 by the number of bedrooms plus one. Classification II dwelling are defined as having more than 500 square feet of total dwelling floor area per bedroom and no more than two of the water-use appliances listed in Classification I.

Classification III: The average design flow for classification III dwellings is determined by adding 66 to the product of 38 times the number of bedrooms plus one. Classification III dwellings are defined as having less than 500 square feet of total dwelling floor area per bedroom and no more than two of the water—use appliances listed in Classification I.

*** Texas:**

Sizing formulas are based on residential strength BOD_5. Commercial/institutional facility must pretreat their wastewater to 140 BOD_5.

Type of facility		Usage rate (gpd) (Without water saving devices)	Usage rate (gpd) (With water saving devices)
Single family dwelling	(one or two bedrooms) – less than 1,500 square feet	225	180
	(three bedrooms) – less than 2,500 square feet	300	240
	(four bedrooms) – less than 3,500 square feet	375	300
	(five bedrooms) – less than 4,500 square feet	450	360
	(six bedrooms) – less than 5,500 square feet	525	420
Greater than 5,500 square feet, each additional 1,500 square feet or increment thereof		75	60

Temporary Water Pump Test Shutdown

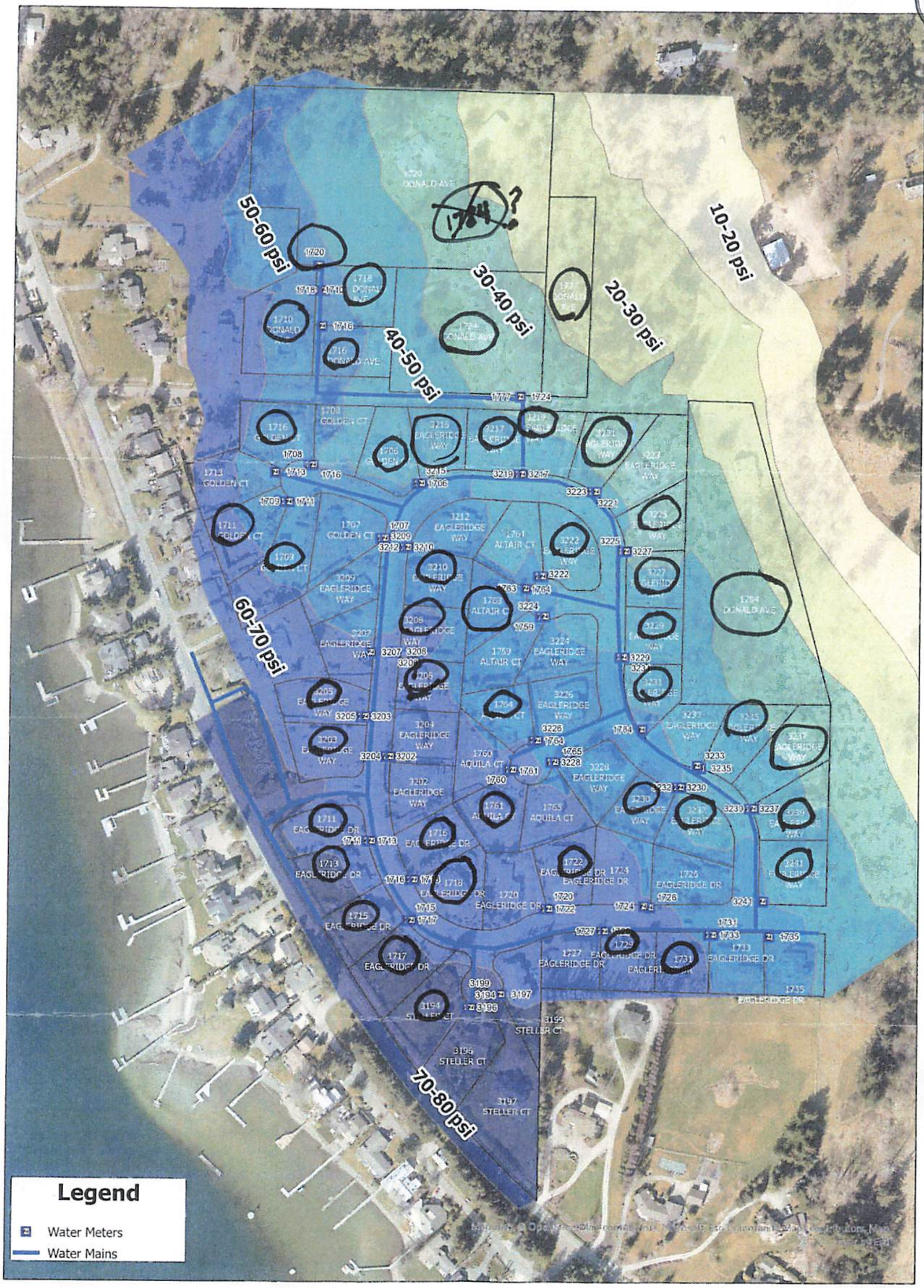
May 18, 2022

3:00pm - 7:00pm

Summary

1. Water pressure pumps were shut down at 3:00pm
2. Water District 10 staff and Justin Clary, Project Manager, were present in Eagleridge.
3. Homeowners tested their PSI prior to the shutdown and again during the shutdown
4. Homeowners recorded the effect of the shutdown on evaluation forms provided by the HOA Board.
5. Homeowners placed the completed evaluation forms into a neighborhood collection box.
6. Evaluation forms were compiled and organized by the HOA Board on May 19- 23.
7. The HOA highlighted and labeled data for presentation to the District Commissioners.
8. On May 24 the HOA delivered a three ring notebook of test data to Justin Clary and the Water District commissioners.

Total homes in test ~~43~~ ~~44~~ 46



N

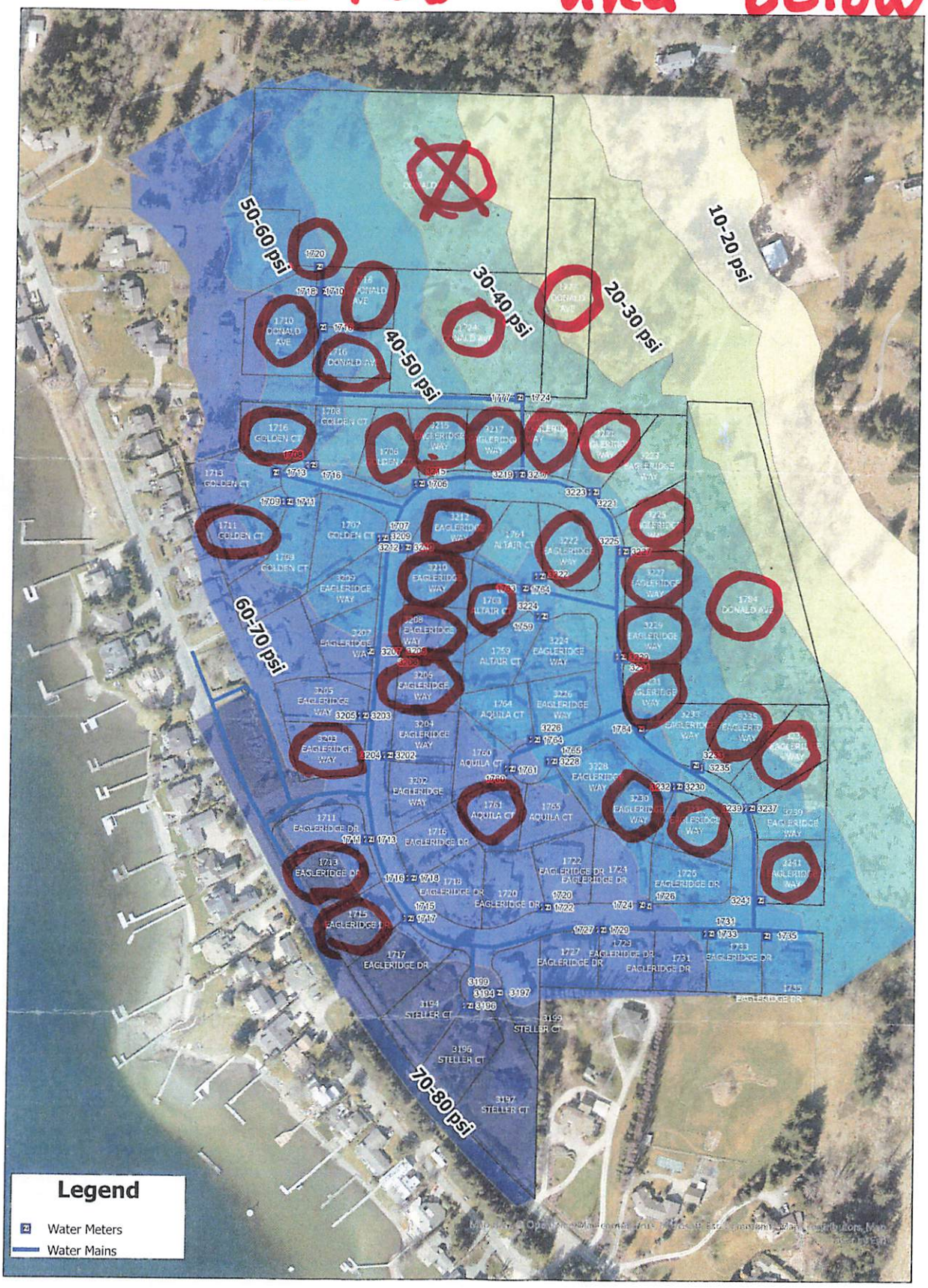
200 Feet

Eagleridge Water System

Calculated Water Pressure
for Average Day Demand
after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

45 PSI and below



N

200 Feet

Eagleridge Water System

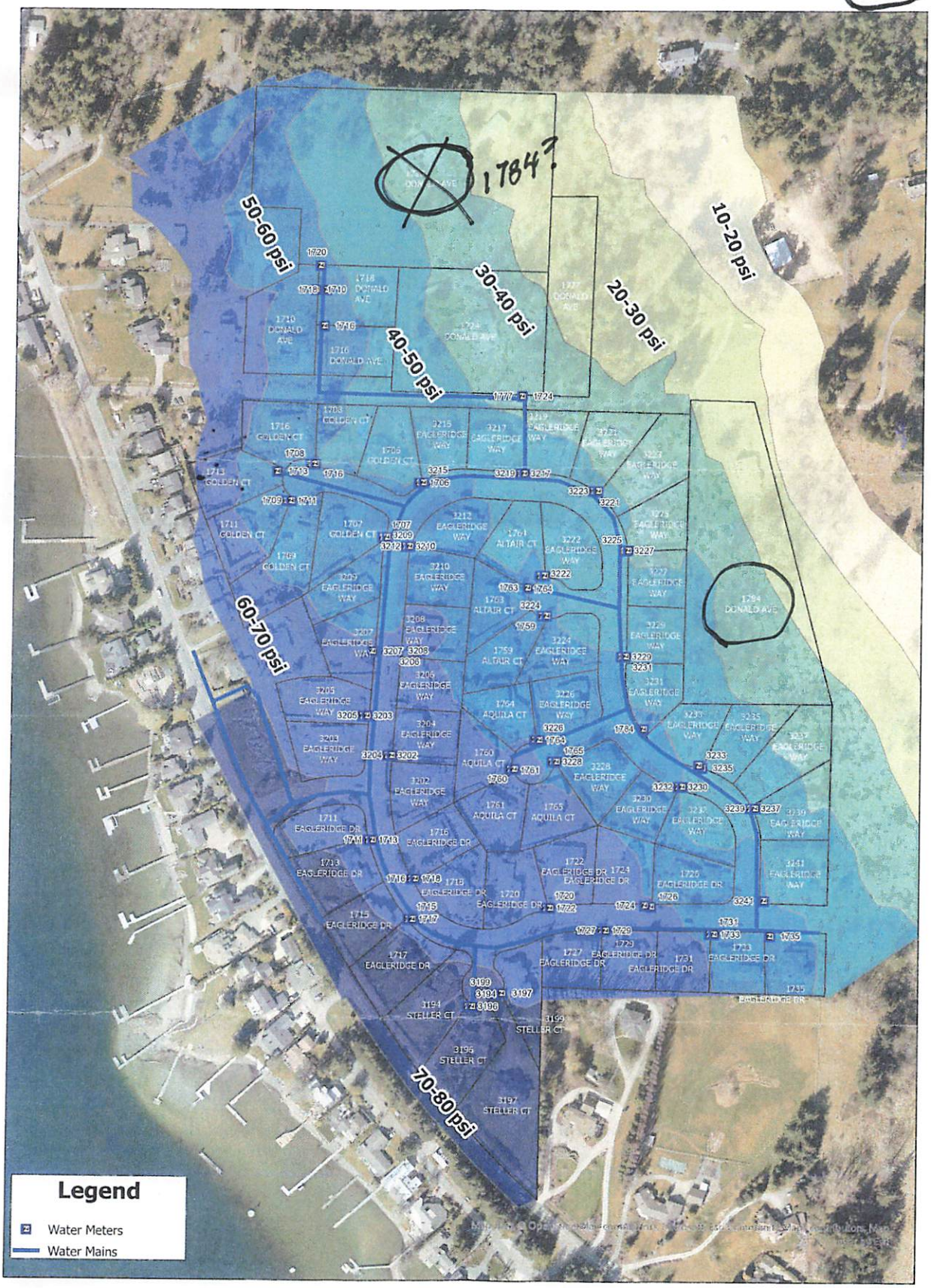
Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

31 ~~30~~ Homes

18 psi – 45 psi

Donald St. PSI 52 PSI (18)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Heathers

Homeowner Address: 1784 Donald Ave

Homeowner Phone: 831-419-3221

Personal experience with the pumps turned off:

As anticipated, we saw a strong loss of pressure across our faucets, toilets, and showers. The pressure would be unacceptable for daily life.

1784 Donald Ave Heathers

Water Pressure Test Data

PSI 52 **Pressure at the outside water faucet prior to the test**

PSI 18 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

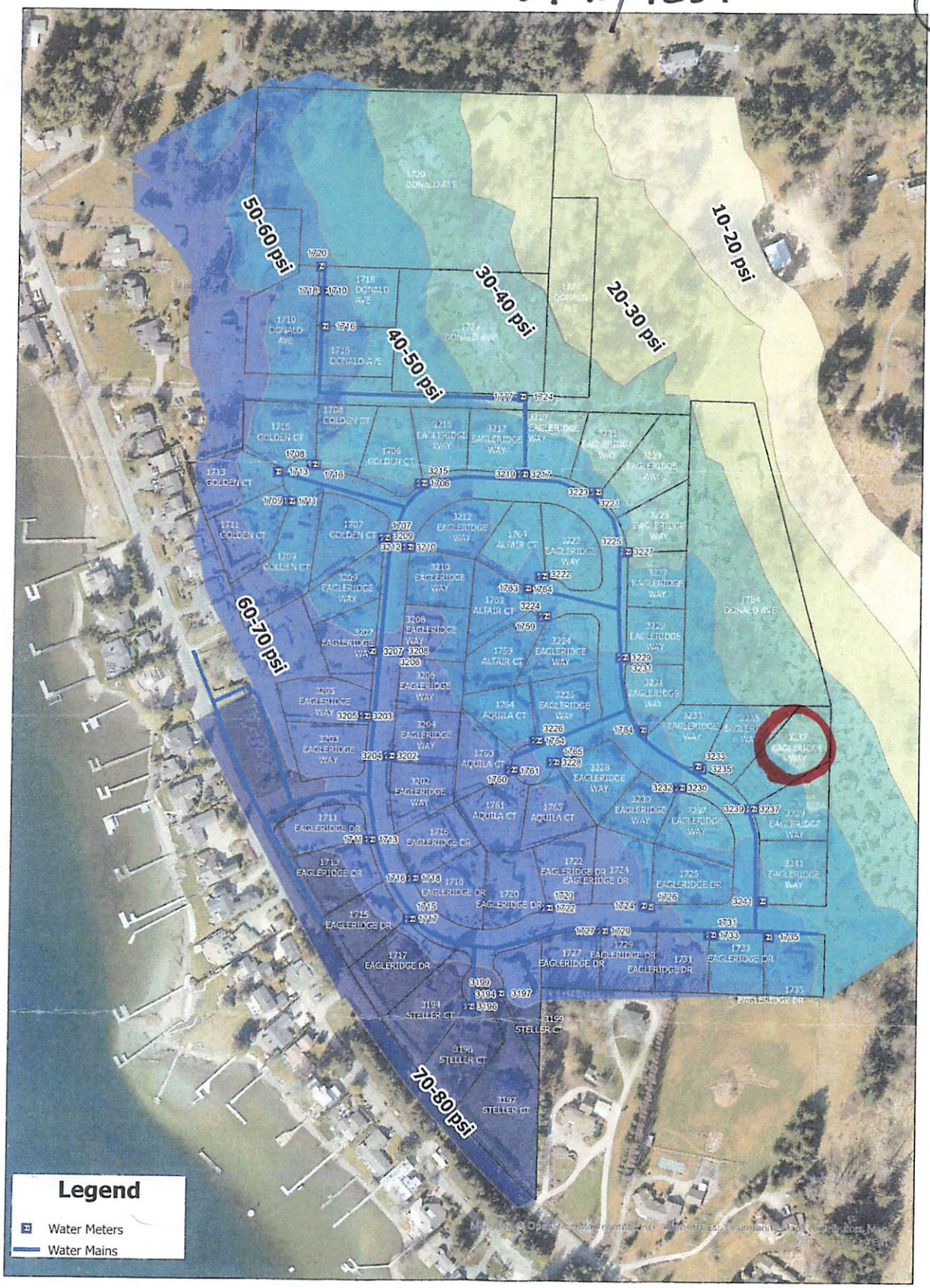
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 18-37 w/test

37



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

ATT

Water Pressure Evaluation

Homeowner Name: Sullivan

Homeowner Address: 3237 Eagleridge Way

Homeowner Phone: C 510 693-7129
Maureen

Personal experience with the pumps turned off:

Our PSI + GPM flow dropped 40-50% During the test, LLWSD personnel were asked to come to our residents to see effect in person. We also video'd our results. PSI dropped well below LLWSD's models at ALL 4 grade levels of our property. Operationally, our home will not function w/o significant impact to property (and) wear + tear on appliances, HE, Energy Star on demand water + circulation pumps. without the pumps. Our home has 5 Bedrooms, 3½ baths over Approx 4400 Sqft. It was permitted based on a PSI in the 70's.

Water Pressure Test Data

May 6th

PSI____ **Pressure at the outside water faucet prior to the test** 4 Grade levels 60\65\75\70

PSI ~~[illegible]~~ **Pressure at the outside water faucet during the test** 4 Grade levels

May 19th 18\28\31\37

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

not acceptable for normal usage

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

not acceptable for normal usage

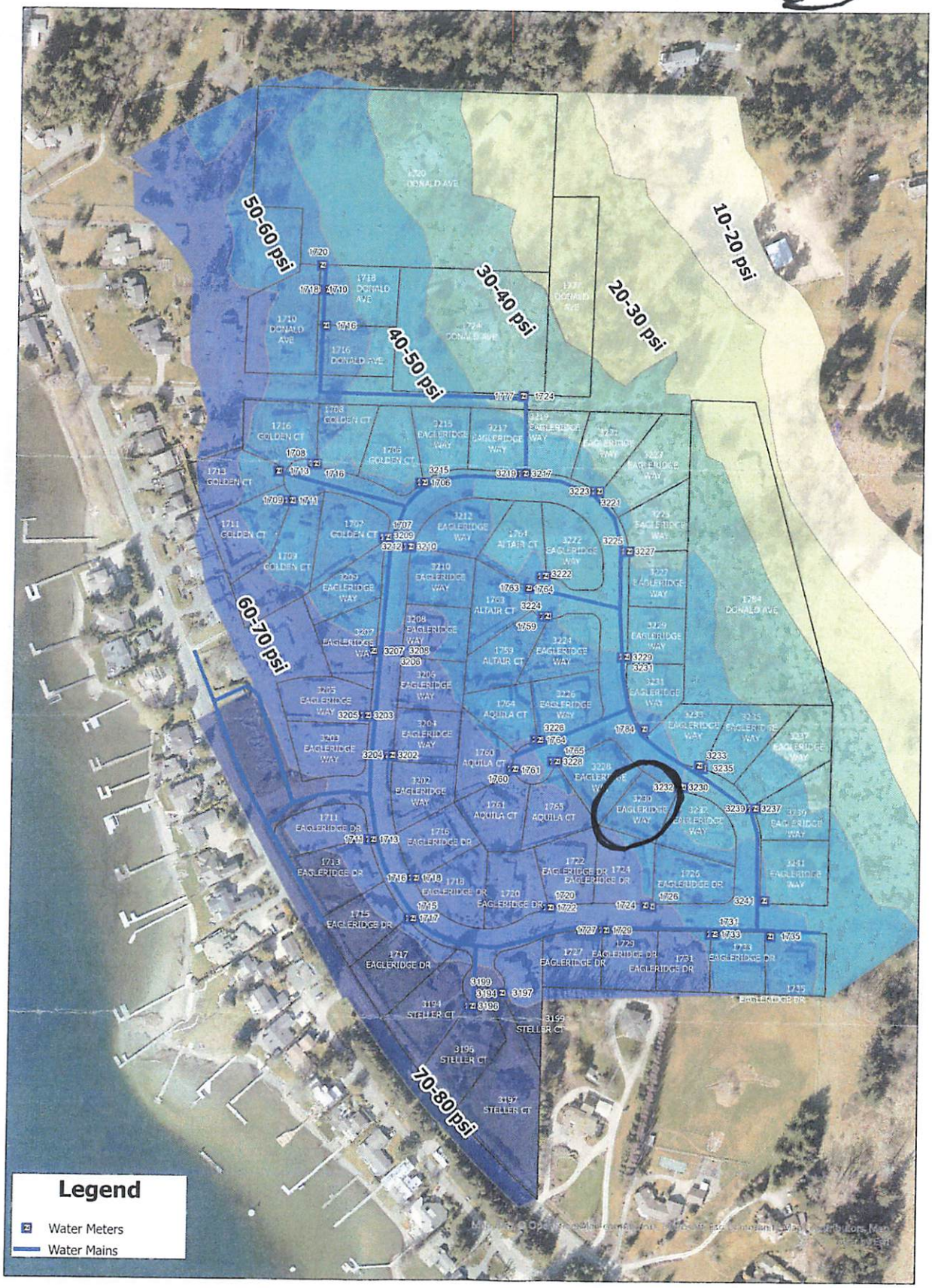
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Top Lot Hose (not operational)
Raised Bed (not operational)
Automatic Sprinklers (Less than 24in throw vs 15ft!)
Main floor PSI dropped to 28 when outdoor irrigation was on!

PSI 61 PSI 21



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Stephen Malone

Homeowner Address: 3230 Eaglerdge Way

Homeowner Phone: 360 - 671 - 0973

Personal experience with the pumps turned off:

kitchen & bathroom sink flow is unacceptable with pump off

outside faucet- pressure dropped from 61 psi → 21 psi.

Water Pressure Test Data

PSI 61 **Pressure at the outside water faucet prior to the test**

PSI 21 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	~~Very noticeable~~
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	~~Very noticeable~~
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	~~Very noticeable~~

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	~~Very noticeable~~
Pressure for the toilet	Same as always	Slight less pressure	~~Very noticeable~~
Pressure for the shower	Same as always	Slight less pressure	~~Very noticeable~~

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

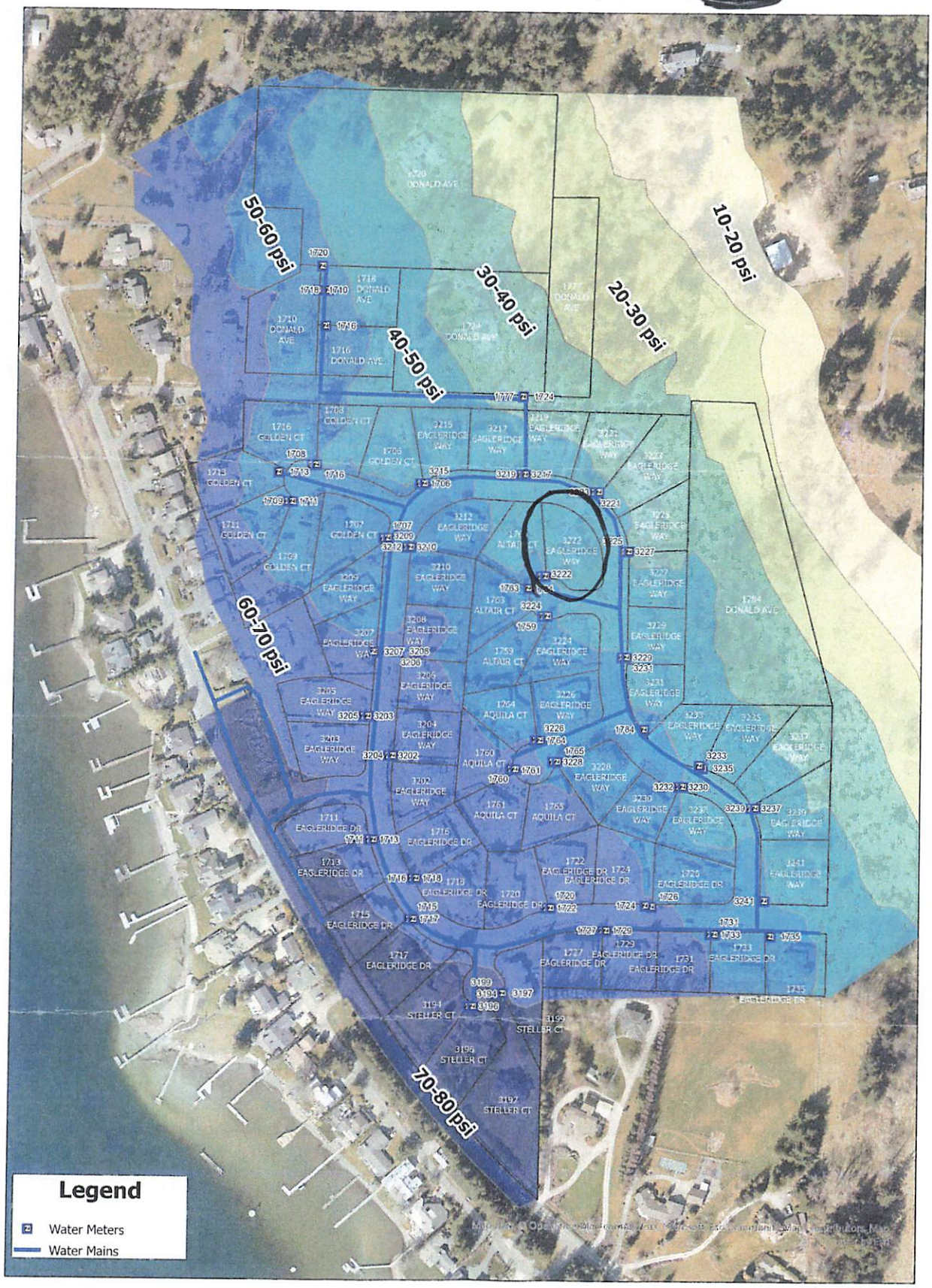
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	~~Very noticeable~~

Respond with a short sentence

kitchen & bathroom sink flow unacceptable

PSI 76 PSI (29)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Aaron + Sarah Brown

Homeowner Address: 3222 Eagleridge Way

Homeowner Phone: 360.303.6692

Personal experience with the pumps turned off:

Browns
3222 Eaglerjdge Way.

Water Pressure Test Data

PSI 76 **Pressure at the outside water faucet prior to the test**

PSI 29. **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Very Noticeable

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

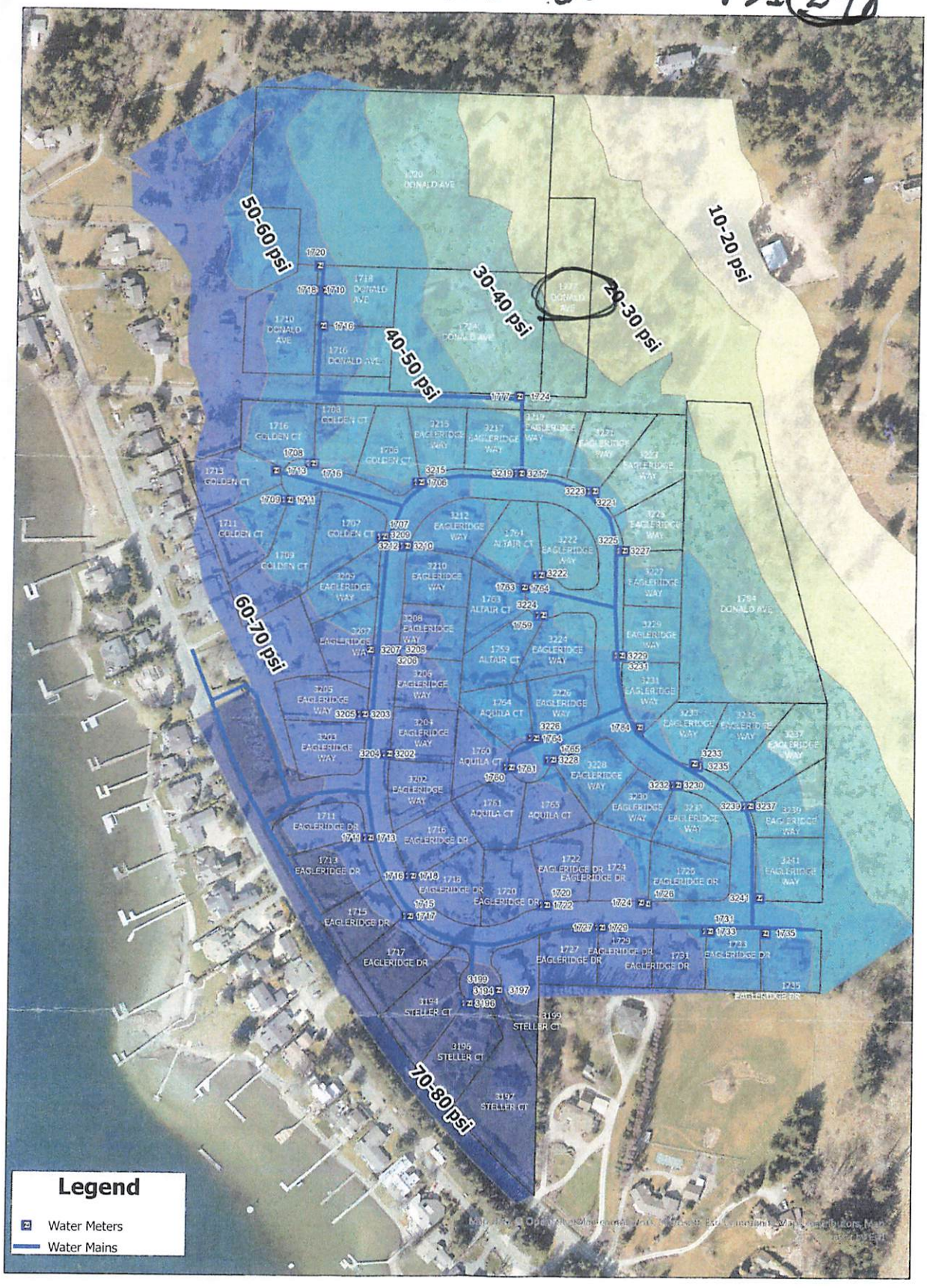
Very Noticeable

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Donald St PSI 60 PSI 29



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Sandy Colkman

Homeowner Address: 1777 Donald Ave

Homeowner Phone: 360 671-5793

Personal experience with the pumps turned off:

It will be difficult to live with low water pressure. Please reconsider. Also it is a financial hardship to put in a pump. Years ago we (my husband has since pasted away) had to put a pump in the sewer system to pump up hill. The electric bill reflects this and also pump replacements when they burn out. Thank you for reading my side of this problem.

Sincerely Sandy Collman

1777 Donald Ave Coffman

Water Pressure Test Data

PSI 60 **Pressure at the outside water faucet prior to the test**

PSI 29 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

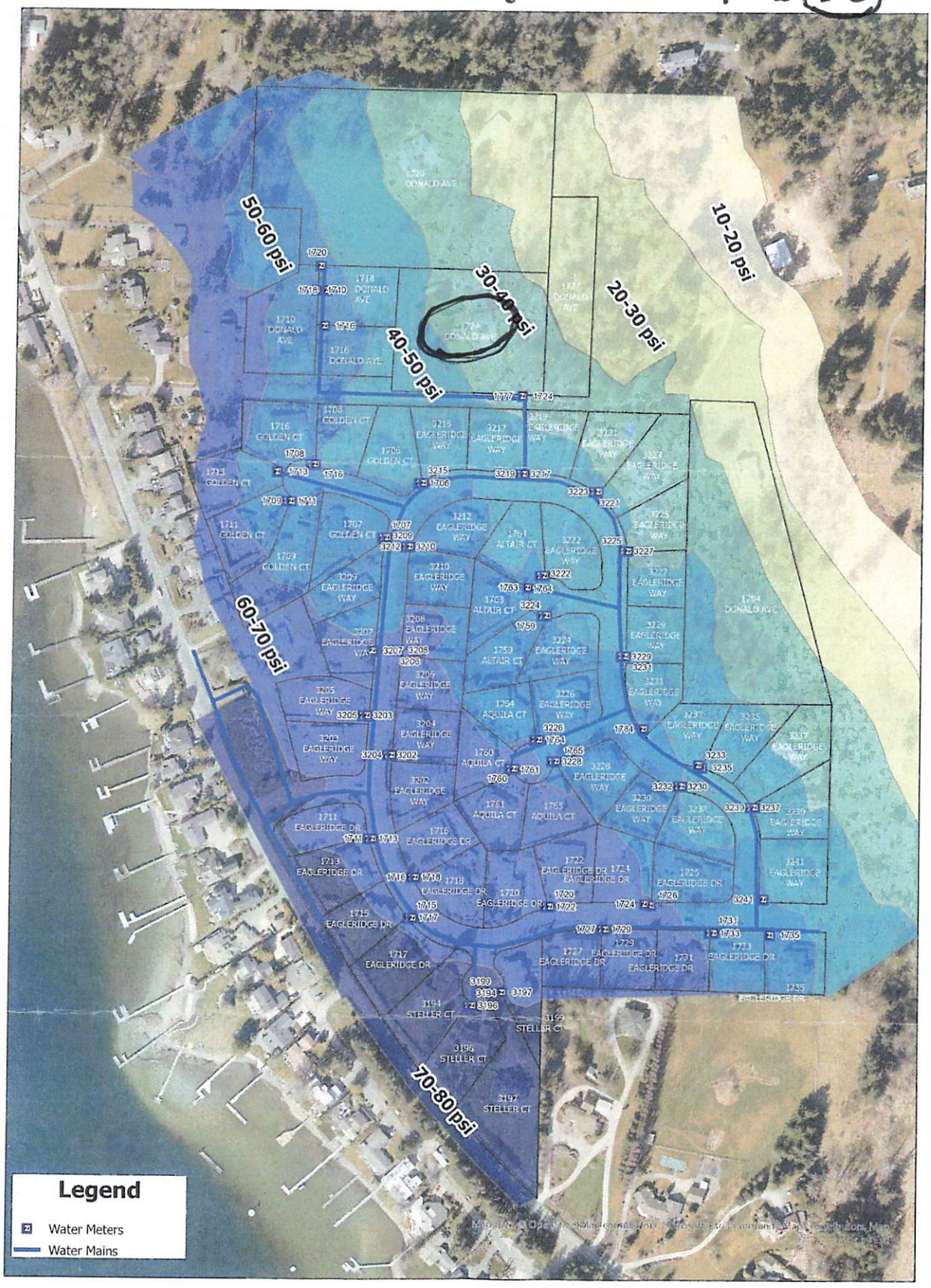
---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Donald St. PSI 65 PSI (30)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Levenson

Homeowner Address: 1724 Donald Ave

Homeowner Phone: 3608155210

Personal experience with the pumps turned off:

Pumps off is utterly unacceptable.

The pressure is so low... who knows how long it would take to wash shampoo out of our hair?

Pumps off = misery!

1724 Donald Ave Levenson

Water Pressure Test Data

PSI 65 **Pressure at the outside water faucet prior to the test**

PSI 30 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

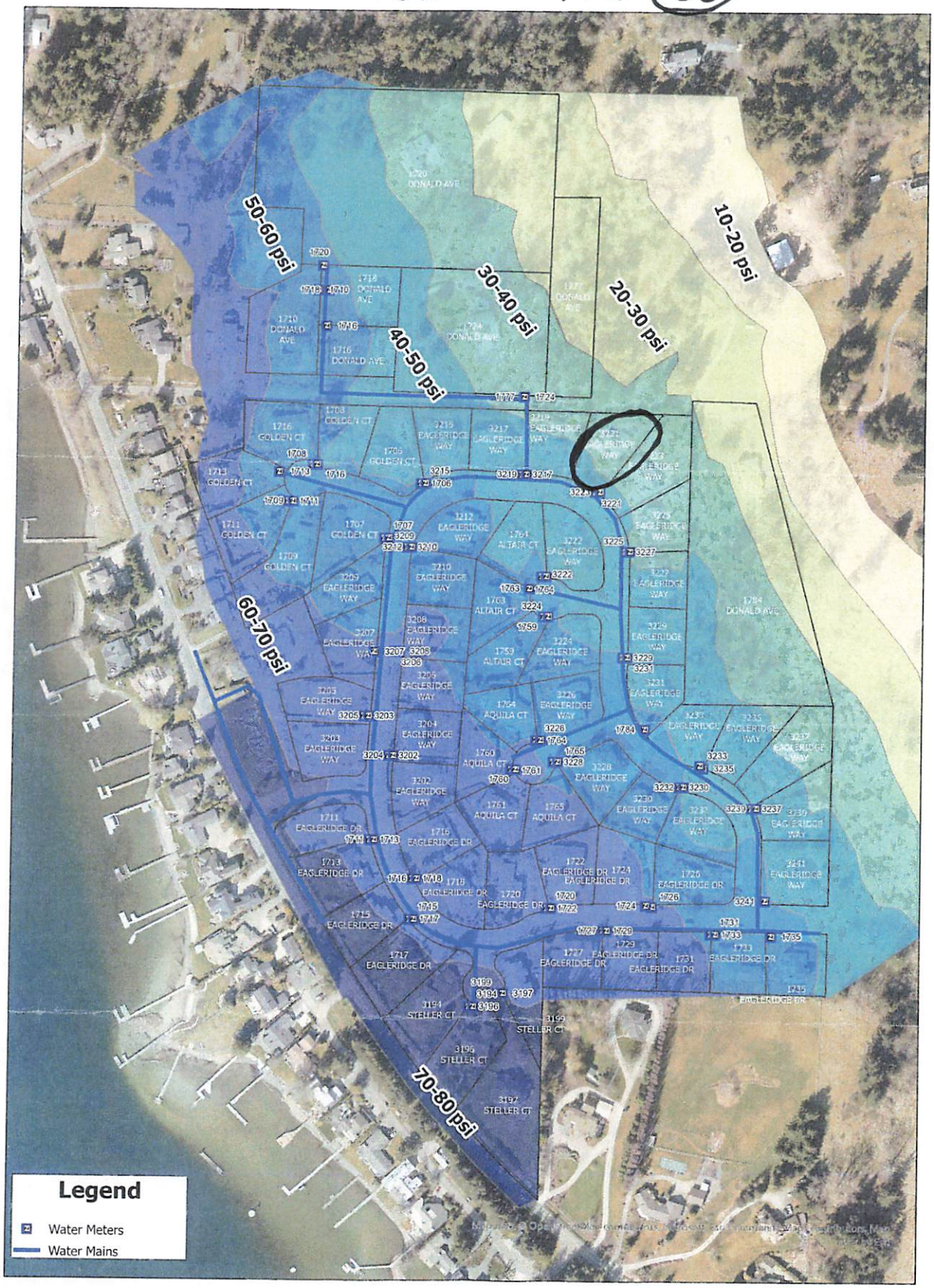
---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 82 PSI 30



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

ATT

Water Pressure Test Data

PSI 82 **Pressure at the outside water faucet prior to the test**

PSI 30 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor (Ground)

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

WAS 82 NOW 28

Second Floor (Main)

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

50 NOW 25

Third Floor (MSTr Bedroom)

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

50 NOW 18

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

drip irrigation system no longer functional as it requires 40 PSI

Water Pressure Evaluation

Homeowner Name: Mike and Susie Gale

Homeowner Address:_3221 Eagleridge Way

Homeowner Phone: 360.733.0542

Personal experience with the pumps turned off:

Ridiculously low

I'm a 3 level home with finished basement

Lower floor dropped 36% from 82 to 30 PSI then to 28 PSI with washing machine running (with any addition faucets or appliances running

Main Floor dropped from 60 to 25 PSI again without any additional water running

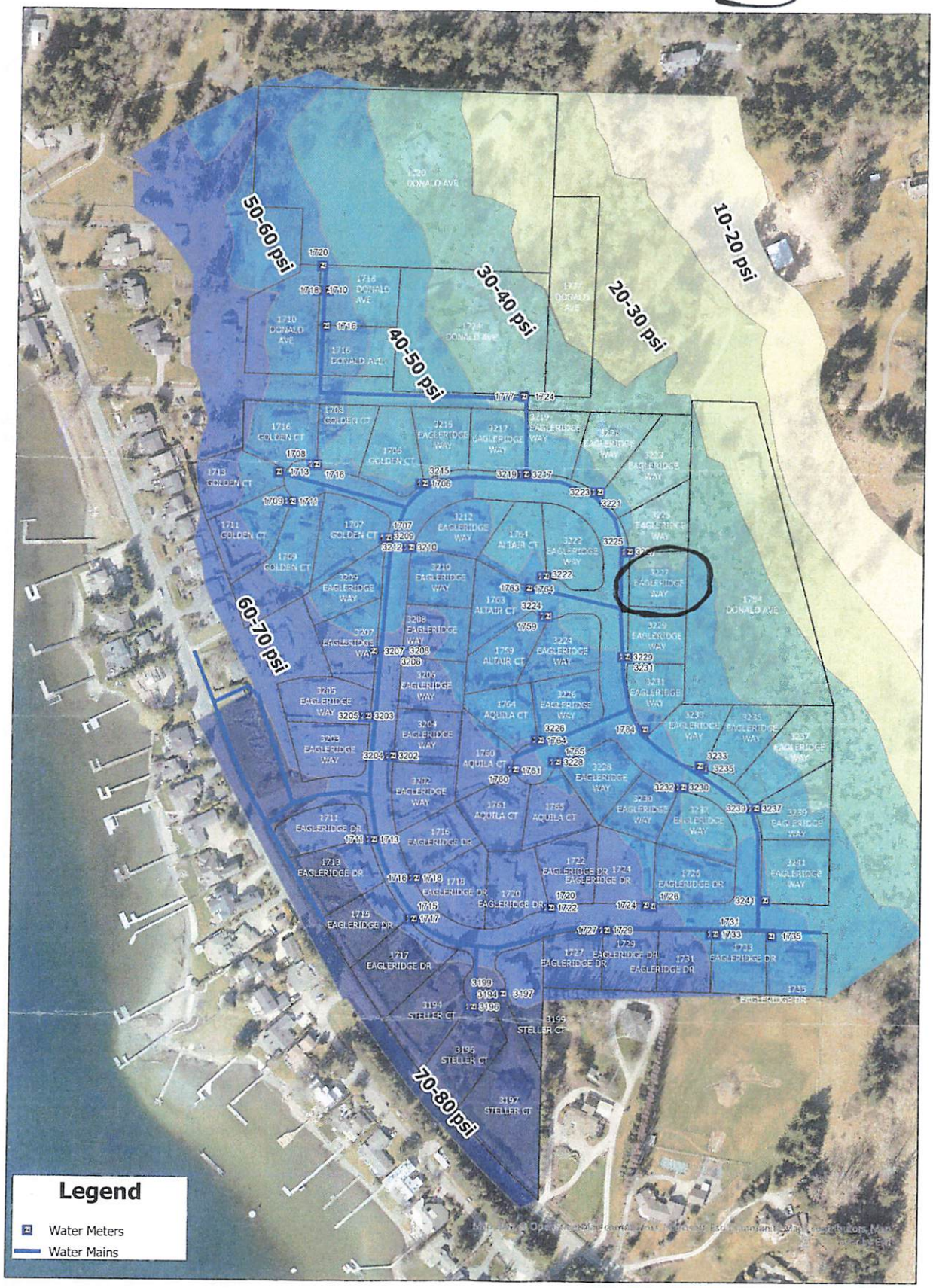
Third floor (master bdrm) dropped from 58 PSI to 20 PSI then to 18 PSI with bathroom sink running

Overall, all faucets and toilets have noticeably lower in water pressure.

We entertain with family often. Can't imagine a full home with children and grandchildren and having even remotely adequate water pressure.

The calculated water pressure map is off by 30% to 50% based on their findings. And, might I add this was an internally produced study done by the District, so I would question validity and methodology.

PSI 70 PSI 30



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

5/18/22

3227 Eagleridge

Water Pressure Evaluation

Homeowner Name: Kim Koyamatsu / Alan Chang

Homeowner Address: 3227 Eagleridge Way

Homeowner Phone: 360-756-2380

Personal experience with the pumps turned off:

Weak stream thruout. Irrigation system was severely affected and upstairs toilets need better pressure to work properly.

3727 Eagleridge

Water Pressure Test Data

PSI 70 **Pressure at the outside water faucet prior to the test**

PSI 30 **Pressure at the outside water faucet during the test**

At outside hose bib (coming out of house - the one facing Eagleridge way

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

not good - very poor

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

* one toilet did not fill, another took 20 min

shower water not adequate for shower.

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

not good - very poor

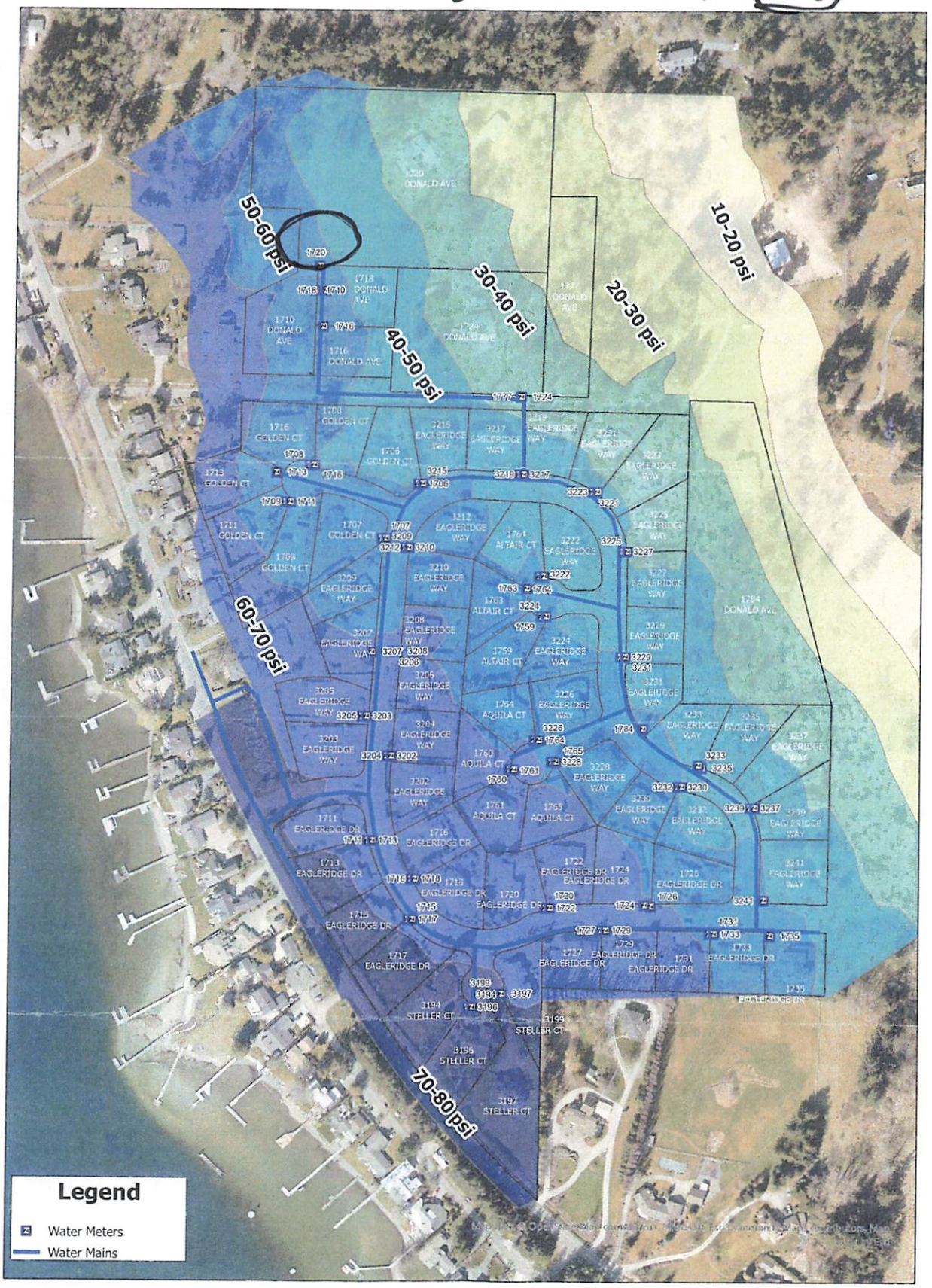
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Irrigation did not work (some sprinkler heads didn't pop up & the rest were only at 1/2 coverage compared to what they were before test)

Donald St. PSI 63 7SI (30)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure
for Average Day Demand
after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

ATT

Water Pressure Evaluation

Homeowner Name: Rosenberg / Beiser

Homeowner Address: 1720 Donald Ave

Homeowner Phone: 360-671-3579

Personal experience with the pumps turned off:

THE REDUCTION OF 33 PSI TRANSFORMS THE HOUSE TO A SUBSTANDARD LEVEL OF OPERATION. THERE IS A SUBSTANTIAL REDUCTION IN THE FLOW RATE OF WATER WHICH IS EXTREMELY NOTICEABLE. IF MORE THAN ONE INTERNAL FAUCET IS OPENED IT IMPACTS ANY OTHER TO THE POINT IT ISN'T VERY FUNCTIONAL. OPENING UP AN OUT SIDE FAUCET TO WATER THE GARDEN JUST ABOUT MAKES IT IMPOSSIBLE TO USE ANY WATER INSIDE THE HOUSE.

1720 Donald Ave Rosenberg / Beiser

Water Pressure Test Data

PSI 63 **Pressure at the outside water faucet prior to the test**

PSI 30 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

TAKES VERY LONG TIME TO FILL GLASS OF WATER, WASH HANDS, FILL TOILET, SHOWER IS ALMOST IMPOSSIBLE.

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

SHOWER IS BARELY USABLE
TOILET TAKES LONGTIME TO REFILL FROM FLUSH

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

ENTIRE HOME DOES NOT FUNCTION WELL.
CAN'T USE SEVERAL FIXTURES AT SAME TIME

22 May 2022

Dear Mr. Clary and LWWSD Commissioners,

First, I would like to thank you and your staff for temporarily turning off the District booster pumps last week in order to give your Eagleridge and Donald Avenue customers an idea of what it would be like if the pumps were permanently decommissioned. The test has been very revealing.

Along with the Eagleridge neighborhood, we collected information and documented data based on our actual experiences. We measured the static pressures at each home before the pumps were turned off and during the time the pumps were off. Below are the measured static pressures (psi) in order of the highest to lowest house elevation:

	Pumps On	Pumps Off
1784 Donald (Heathers)	52	18
1777 Donald (Collman)	60	29
1724 Donald (Levenson)	65	30
1720 Donald (Rosenberg/Beiser)	63	30
1718 Donald (Dentinger)	47	37
1716 Donald (Laska)	48	38
1710 Donald (Sayre)	50	39

For the households where the pressure was in the mid to upper thirties, turning on a single water faucet inside the house would create a pressure loss of 5 psi. If more than one faucet or appliance was turned on, the pressure would decrease even more. For the households where the pressures were 30 psi and below, one water faucet turned on would drop the pressure almost 8 psi. I have enclosed a photo of a pressure gauge on my house showing the pressure with one faucet on. It's easy to see that water pressure at this low level diminishes greatly with demand and creates adverse effects to performance.

Consistently the feedback I received and my own experience showed that showering was very difficult, filling a container with water was extremely slow and the effects of operating more than one water faucet or appliance created extremely low working pressure to the point of dysfunction. You can review this yourself on the Water Pressure Evaluation forms that will be delivered by the Eagleridge HOA.

The test results prove that with elimination of the District's booster pumps our homes perform very poorly, if at all. Some of our homes, those with 30 psi and below, would have to install booster pumps or totally change our way of living by compensating for the extremely low water pressure. For the Heathers household at the top of Donald Avenue, there would be no choice but to install a booster pump system including a stand-by electrical generator to cope with power outages.

It seems clear from the test results that the elimination of the booster pumps would create a very difficult situation in many customers' homes. It isn't fair that some customers would have to bear such extreme and costly consequences while others would not.

We appeal to you to reconsider this proposal. There is too much collateral damage created by this action. It would be divisive and discriminate between the customers whom are all currently being treated equally and have been for over 30 years. Just because it is legally defensible to maintain the water pressure at 30 psi at the meter does not mean it is the right thing to do. We have been paying very high rates for many years and expect the District to continue to provide the same level of service. We understand that our rates are high partly because we support maintenance and improvements in other parts of the District. We expect that when we need improvements in *our* part of the District, they should be paid for as well.

With all due respect, please don't put us through any more stress. Replace the pumps and move on. Going forward with the elimination of the District's pumps results in a terrible burden to the customers which is not only impractical, it just isn't right. The current situation with the pumps is working well for everyone. Why go forward with this project when the costs to keep the pumps going are fairly modest? How could this cost-savings possibly be worth the trouble it would cause to so many customers?

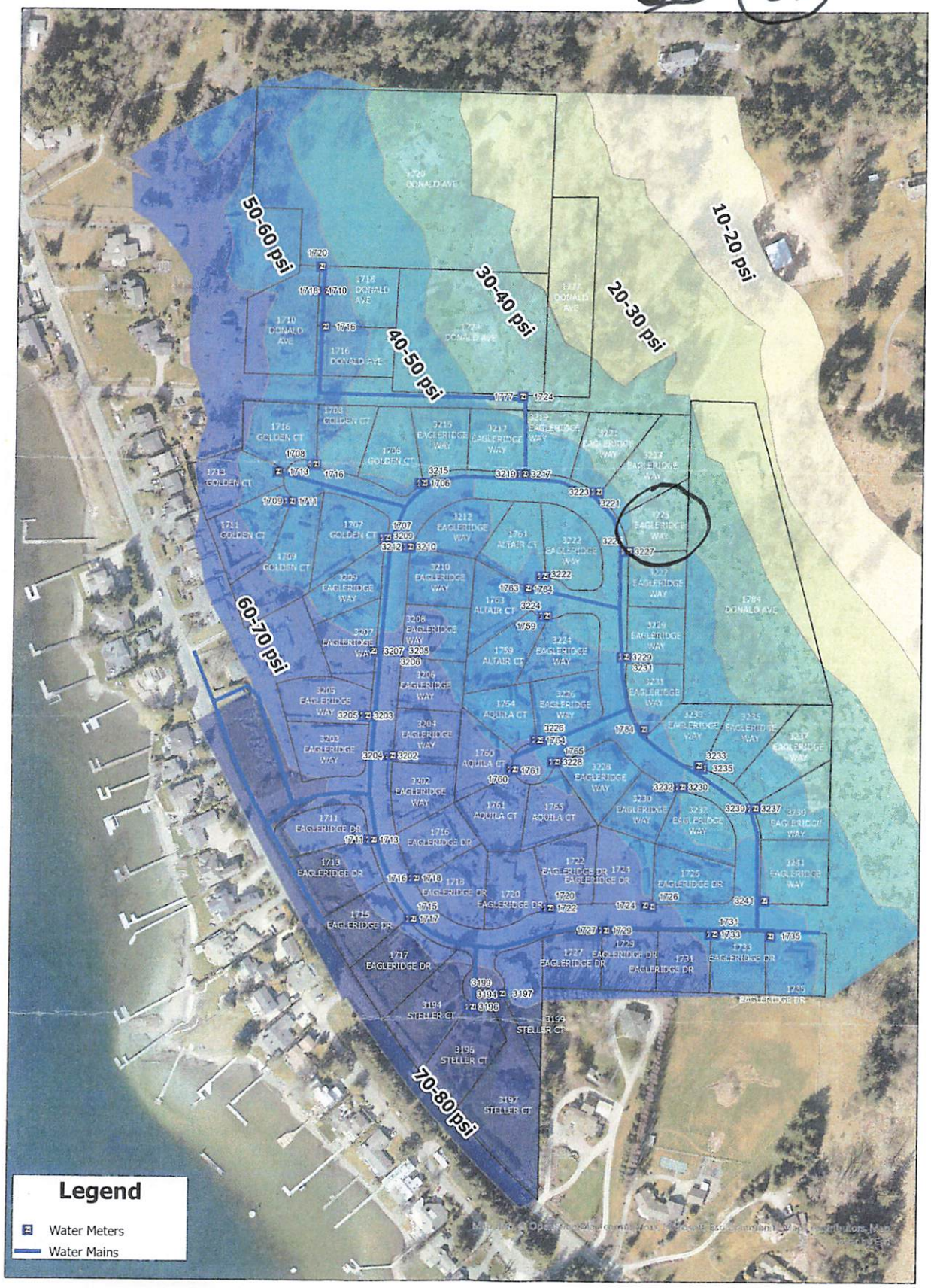
Thank you for your attention.

Respectfully,

Tom Rosenberg, representing the Donald Avenue customers

120
150
90
PSI
60
30
0

PSI 48 PSI 32



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Steven Nelson

Homeowner Address: 3225 Eagleridge Way
Blaine, WA 98226

Homeowner Phone: 360-676-8042

Personal experience with the pumps turned off:

Going from an everyday water PSI of 48 to an extremly Low PSI of 32 on 5-18-22 @ 4:30 pm is Absolutely Unacceptable!

Water Pressure Test Data

5-13, 5-17, 5-19

PSI_____ **Pressure at the outside water faucet prior to the test** 48psi, 48psi, 48psi

PSI 32psi **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence It took 22% Longer to fill a 1 gal container Than it took on 5-13+17.

Pressure for all of the above if water is needed at the same time

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence It took 29% Longer to fill a 1 gal container Than it took on 5-13 & 17.

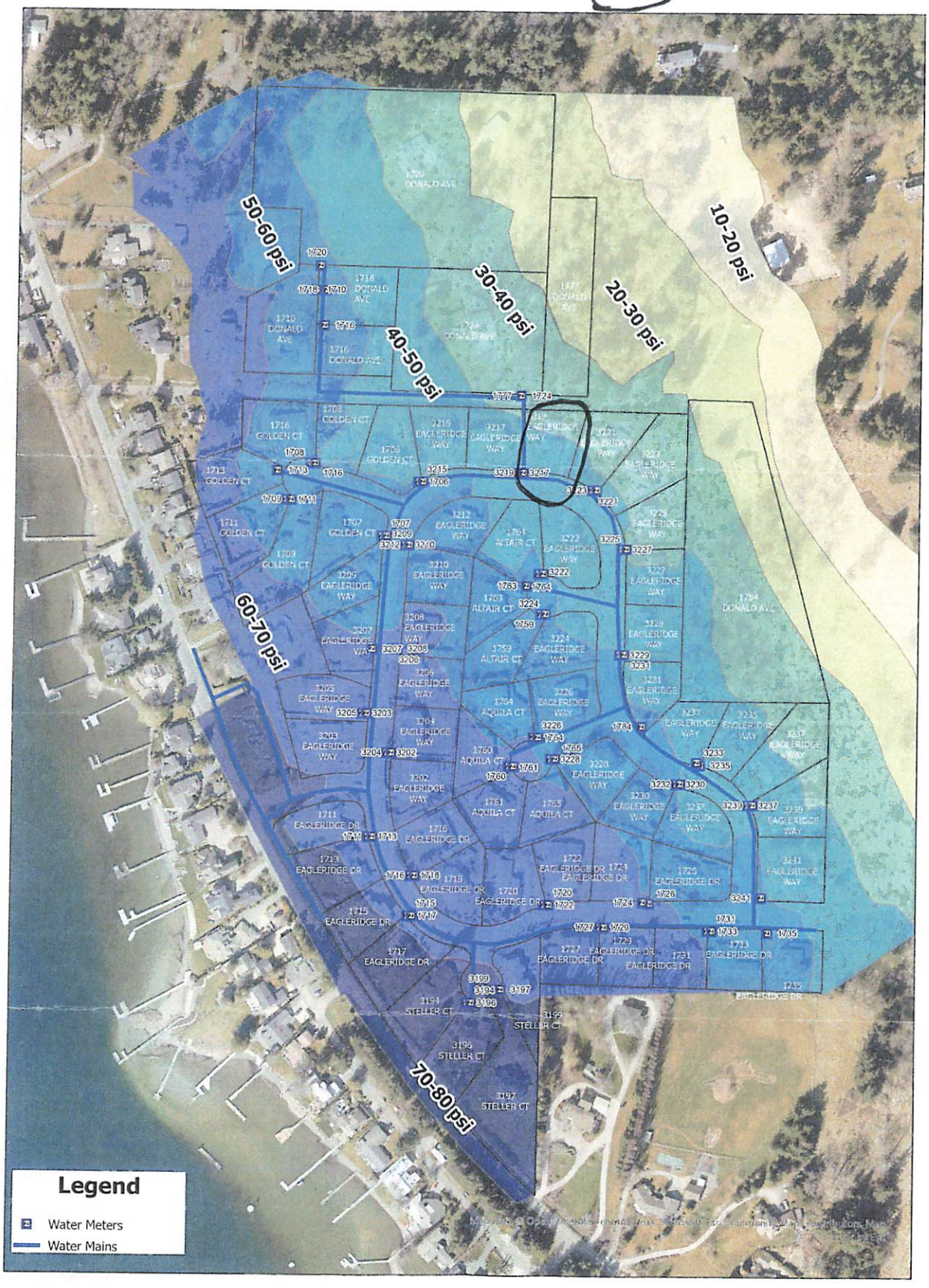
Pressure for all of the above if water is needed at the same time

Outdoor faucet

Pressure for hose/sprinkler/irrigation Same as always Slight less pressure (Very noticeable)

Respond with a short sentence Facet in the yard went from 16 psi (5-13 & 17-22) to 32 psi on 5-18-22

PSI 10 PSI 32



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

3219 EAGLERIDGE WAY

1.360.319.0845 MATHERS-SCHMIDT, SCHMIDT

Water Pressure Test Data

PSI 63-84 **Pressure at the outside water faucet prior to the test**

PSI 32-38 **Pressure at the outside water faucet during the test**

70-72 AFTER

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet — Same as always / Slight less pressure / Very noticeable

Pressure for the bathroom sink faucet — Same as always / Slight less pressure / Very noticeable

Pressure for the toilet — Same as always / Slight less pressure / Very NOTICEABLE

Pressure for the shower — Same as always / Slight less pressure / Very NOTICEABLE

Respond with a short sentence

Pressure for all of the above if water is needed at the same time·

Second Floor

Pressure for the bathroom sink faucet — Same as always / Slight less pressure / Very noticeable

Pressure for the toilet — Same as always / Slight less pressure / Very noticeable

Pressure for the shower — Same as always / Slight less pressure / Very NOTICEABLE

Respond with a short sentence

Pressure for all of the above if water is needed at the same time 20-24 PSI

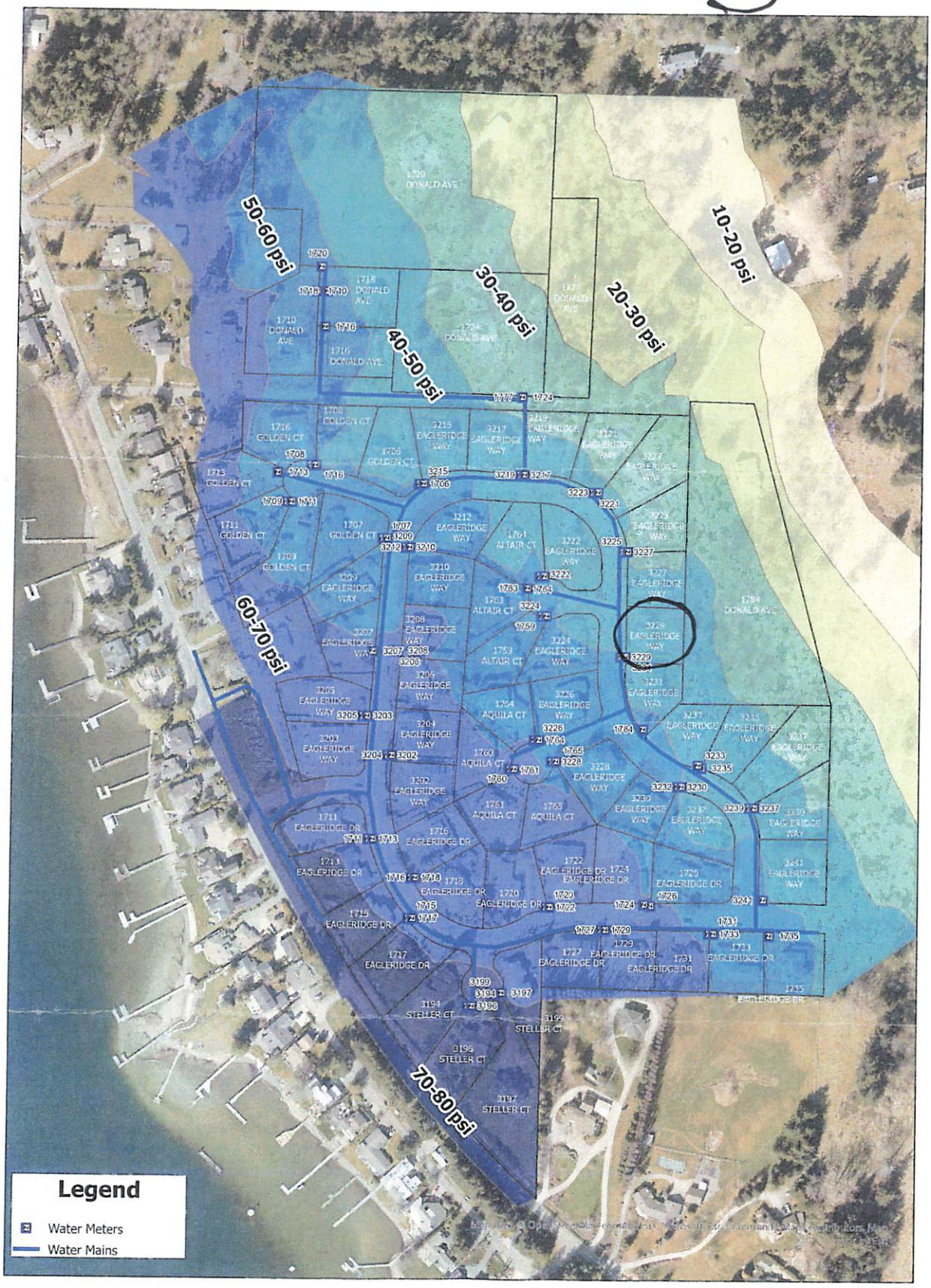
Outdoor faucet

Pressure for hose/sprinkler/irrigation — Same as always / Slight less pressure / Very noticeable

Respond with a short sentence

In an area where we have paid exorbitant water bills for 31 years we expect to be able to have adequate water pressure throughout our home -- especially in the showers.

Psi 50 Psi 32



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Eileen Turk

Homeowner Address: 3229 Eaglerdge Way

Homeowner Phone: (360) 715-0053

Personal experience with the pumps turned off:

There was very little noticible difference.

5/18/2022

3:40 pm

Water Pressure Test Data

PSI 50 **Pressure at the outside water faucet prior to the test**

PSI 32 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

Kitchen is on ~~First Floor~~ Second floor.

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	~~Slight less pressure~~	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Slight decline in pressure.

1st ~~Second Floor~~

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

no noticible change

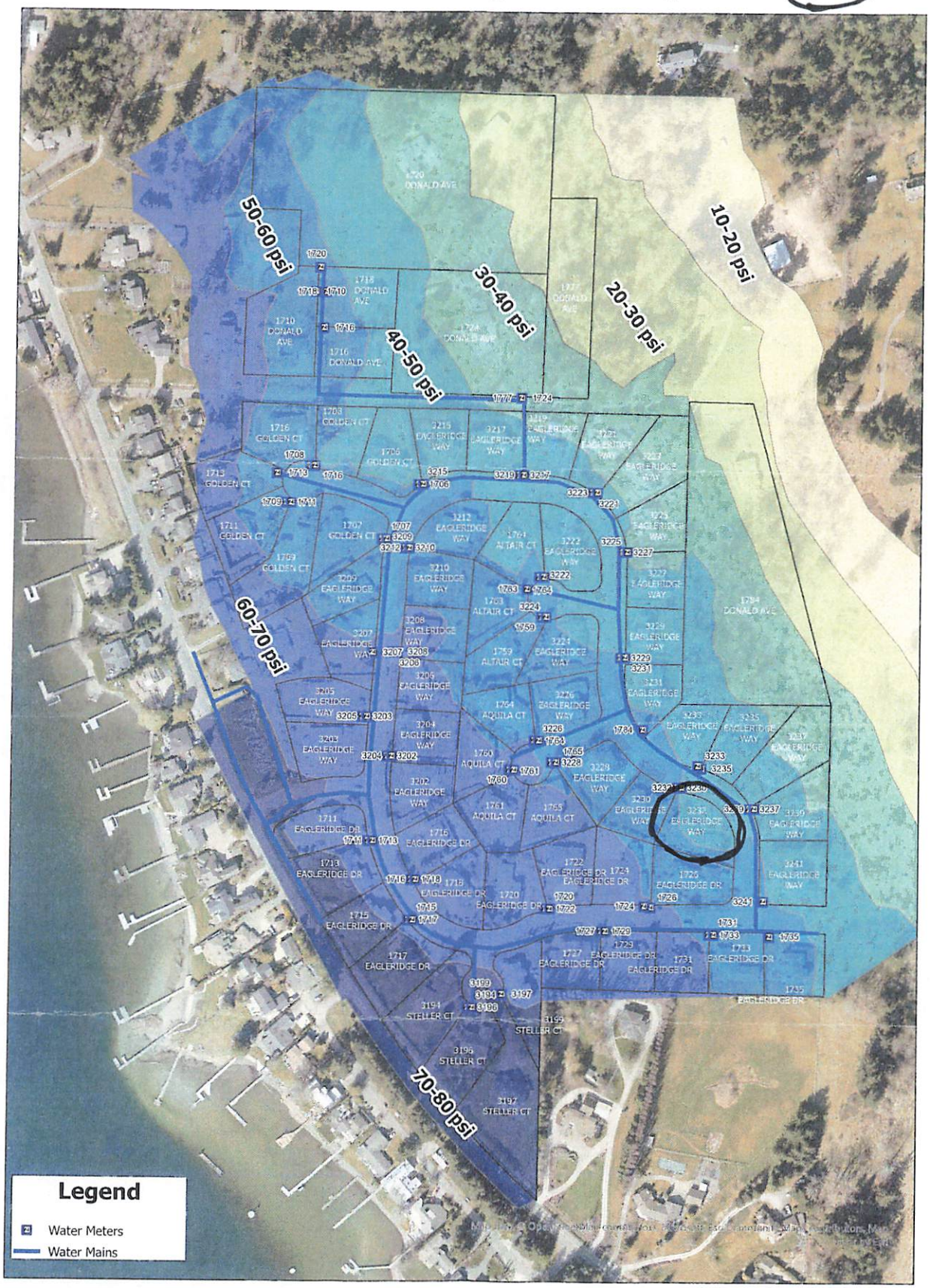
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

We have always had lower pressure.

PSI 60 PSI 35



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Karen Sage-Stockwell

Homeowner Address: 3232 EAGLERIDGE WAY

Homeowner Phone: 360-671-2728

Personal experience with the pumps turned off:

OUR WATER PRESSURE WAS ALMOST HALVED WHEN THE PUMPS WERE TURNED OFF. A DROP FROM 60 to 35 IS NOT GOOD.

Water Pressure Test Data

PSI 60 **Pressure at the outside water faucet prior to the test** – W/ DISHWASHER ON

PSI 35 **Pressure at the outside water faucet during the test** W/ DISHWASHER ON

During the test, run water at an outside faucet to simulate a "high demand time". ALL ANSWERS VERY NOTICABLE

First Floor

Pressure for the kitchen sink faucet	Same as always	~~Slight~~ less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	~~Slight~~ less pressure	Very noticeable
Pressure for the toilet	Same as always	~~Slight~~ less pressure	Very noticeable
Pressure for the shower	Same as always	~~Slight~~ less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

IF EVERYTHING WAS RUNNING AT SAME TIME - THERE WOULD BE A DEFINITE PRESSURE PROBLEM.

Second Floor

Pressure for the bathroom sink faucet	Same as always	~~Slight~~ less pressure	~~Very noticeable~~
Pressure for the toilet	Same as always	~~Slight~~ less pressure	Very noticeable
Pressure for the shower	Same as always	~~Slight~~ less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

IF EVERYTHING WAS RUNNING AT THE SAME TIME THERE WOULD BE A DEFINITE PROBLEM.

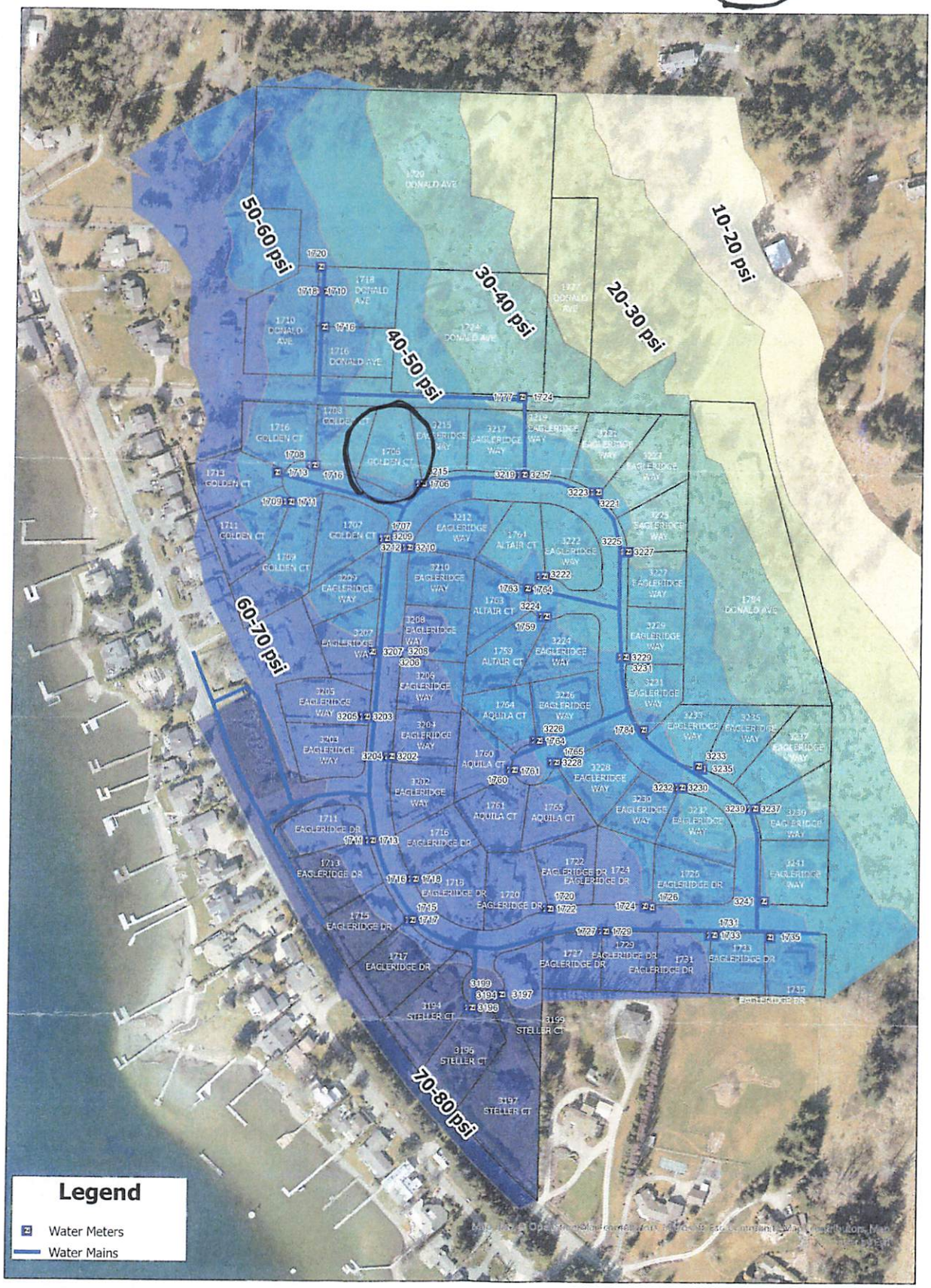
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	~~Slight~~ less pressure	Very noticeable

Respond with a short sentence

DON'T WANT TO START IRRIGATION IF NOT NEEDED PREFER TO USE AS LITTLE AS POSSIBLE. SOME YEARS - DON'T TURN SPRINKLERS ON. HOSE PRESSURE DOWN.

PSI 85 PSI (35)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Adam & Samira Rustad

Homeowner Address: 1706 Golden Ct

Homeowner Phone: (360) 510-2243 (Adam) & (360) 500-7567 (Samira)

Personal experience with the pumps turned off:

Water pressure was noticeably lower in all sources throughout the house (indoor and out). Water output during testing was dissapointing.

Water Pressure Test Data

PSI 85 **Pressure at the outside water faucet prior to the test**

PSI 35 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet		Same as always	Slight less pressure	(Very noticeable)
Pressure for the bathroom sink faucet		Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet		Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	N/A	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Less than ideal

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Incredibly poor output / flow

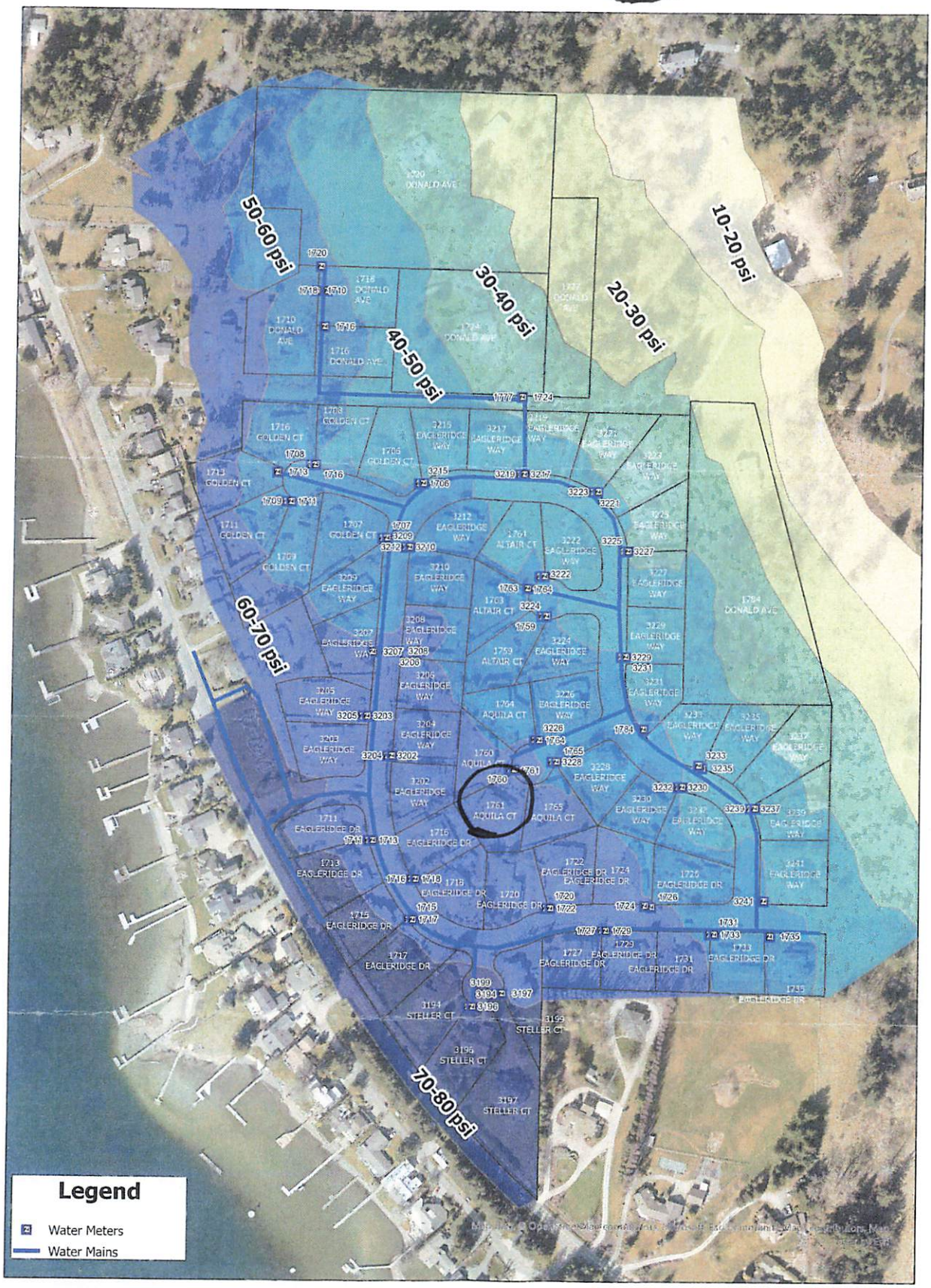
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Not ideal

Psi 40 Psi (36)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Kelly & Mark Hoffmann

Homeowner Address: 1761 Aquila CT

Homeowner Phone: 927-4889

Personal experience with the pumps turned off:

- Acceptable on 1st floor.
- Decreased shower flow noticeable on 2nd floor Bathrooms.
- Main concern if will have enough psi pressure to run low H_2O vegetable garden drip irrigation. I do not water my lawn. If too low a pressure, I could change to sprinklers, which will increase my water ~~use~~ use & H_2O bill.

Thank you for all that you do, delivering quality H_2O!

Mark Hoffmann

Water Pressure Test Data

PSI 40 **Pressure at the outside water faucet prior to the test**

PSI 36 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the toilet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

1st floor fine & acceptable

Second Floor

Pressure for the bathroom sink faucet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the toilet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the shower	Same as always	(Slight less pressure)	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

2nd- Decreased pressure in 2nd floor Showers

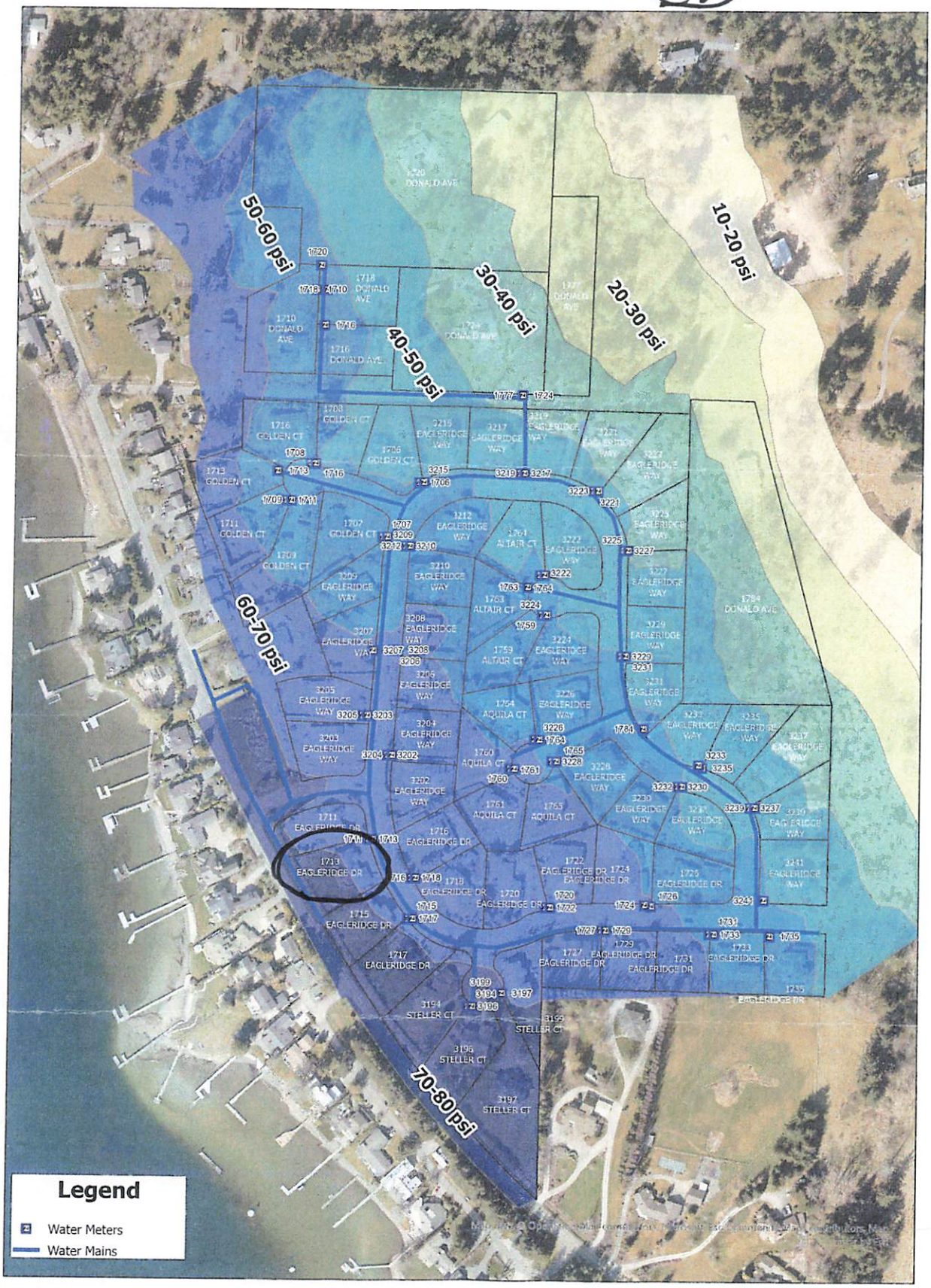
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Concern if enough pressure to run low flow drip irrigation to garden.

PSI 60 PSI 36



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

A11

Water Pressure Evaluation

Homeowner Name: Barbara Williams

Homeowner Address: 1713 Eagleridge Dr.

Homeowner Phone: (360) 715-2366

Personal experience with the pumps turned off:

See attached

May 18, 2022

Today we performed a water pressure test in our home during the time the Water District shut down the water pumps which have been servicing the Eagleridge Development for approximately 20 years, and which were paid for entirely by the Eagleridge Development.

There is not enough water pressure in our showers to be able to normally use the showers. The water just flows almost straight down in a greatly reduced flow. The water in kitchen and bathroom sinks are similarly reduced. In fact, it will take at least an additional 15 minutes of running the water in order to bring hot water to the faucet. This is a waste of water. The diminished water flow will affect our washing machine in that it will take longer to do a load.

I purchased my home in 2011 assuming an acceptable water pressure. Based on what I have researched from plumping companies, a PSI of no less than 50 is preferred. It would appear to me that if the Eagleridge Development purchased the pumps during the initial development in order to meet acceptable water pressure standards, that the water company has an obligation to continue this service.

My hope is that there will be a resolution in the best interests of the homeowners in the Eagleridge Development, i.e., the water district replacing the pumps. If property values are reduced because we have less than optimal water pressure, or we are forced to purchase additional equipment in order to bring water pressure to an acceptable standard, then the water district should cover these direct homeowner costs since the water company is the one mandating this arbitrary low water pressure.

Barbara Williams
1713 Eagleridge Drive
(360) 715-2366

Water Pressure Test Data

PSI 60 **Pressure at the outside water faucet prior to the test**

PSI 36 **Pressure at the outside water faucet during the test**

only upstairs water - 36
upstairs & downstairs 30

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

30 showers are almost unusable

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

30

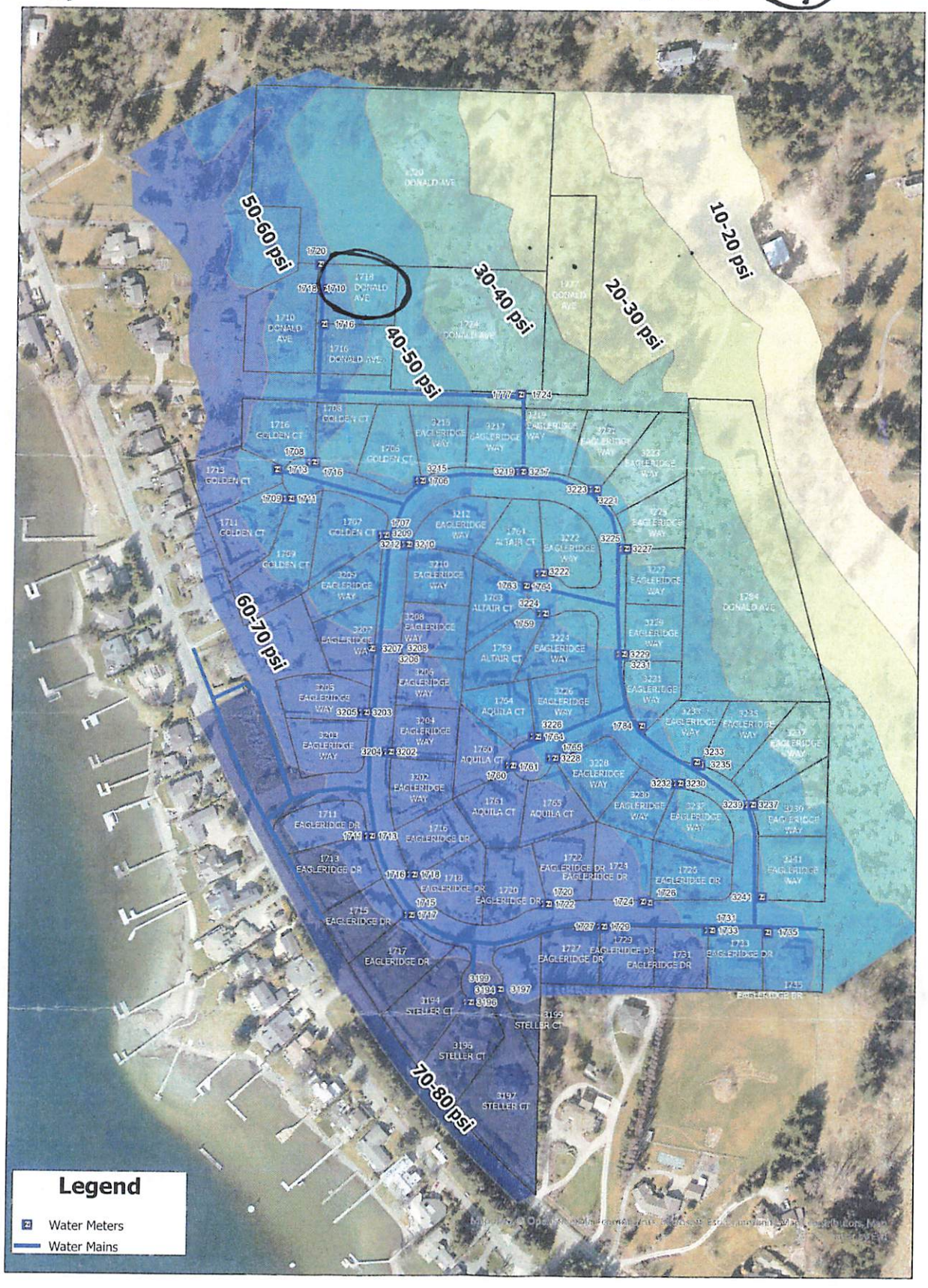
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Do not have a sprinkler system so did not test

Donald St. PSI 47 PSI (37)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Fred + Sandy Dentinger

Homeowner Address: 1718 Donald Ave

Homeowner Phone: 360-961-1101

Personal experience with the pumps turned off:

OUR house pressure prior to TEST WAS Fine AS SET AT 47 psi by REGULATOR. BEFORE Adjusting regulator TEST pressure Dropped TO 38 AND WITH LOADS - 2 showers which IS Typical OF our mornings dropped further TO 31.5 & The showers were ANemic. Tried ADJUSTing Regulator WITH NO change SO probably WIDE open Trying TO reach 47. REGULATOR removed Might help WITH DROOP IN Pressure

ADJUSTED REGULATOR TO MAX & GOT 44# STATIC. DID NOT RESET. Thursday NOTICED TOILETS refilling FREQUENTLY. & campers Friday AM NOTICED WET FLOORS DOWN STAIRS FROM toilet LEAK. INVESTIGATING TO REPAIR These houses & FITTINGS ARE 25+ YEARS OLD AND change SOCKS.

Toilet connector failed

1718 Donald Ave Dentinger

Water Pressure Test Data

PSI 47 **Pressure at the outside water faucet prior to the test**

PSI 37 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

MAIN ~~First Floor~~ MAIN FLOOR = 2ND FLOOR

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet (slow filling – But who cares?)	Same as always	Slight less pressure	Very noticeable ?
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Pressure w 2 showers = 31.5 PSI

1ST FLOOR ~~Second Floor~~ LOWER FLOOR

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet SLOWER	Same as always	Slight less pressure	Very noticeable
Pressure for the shower N/A	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

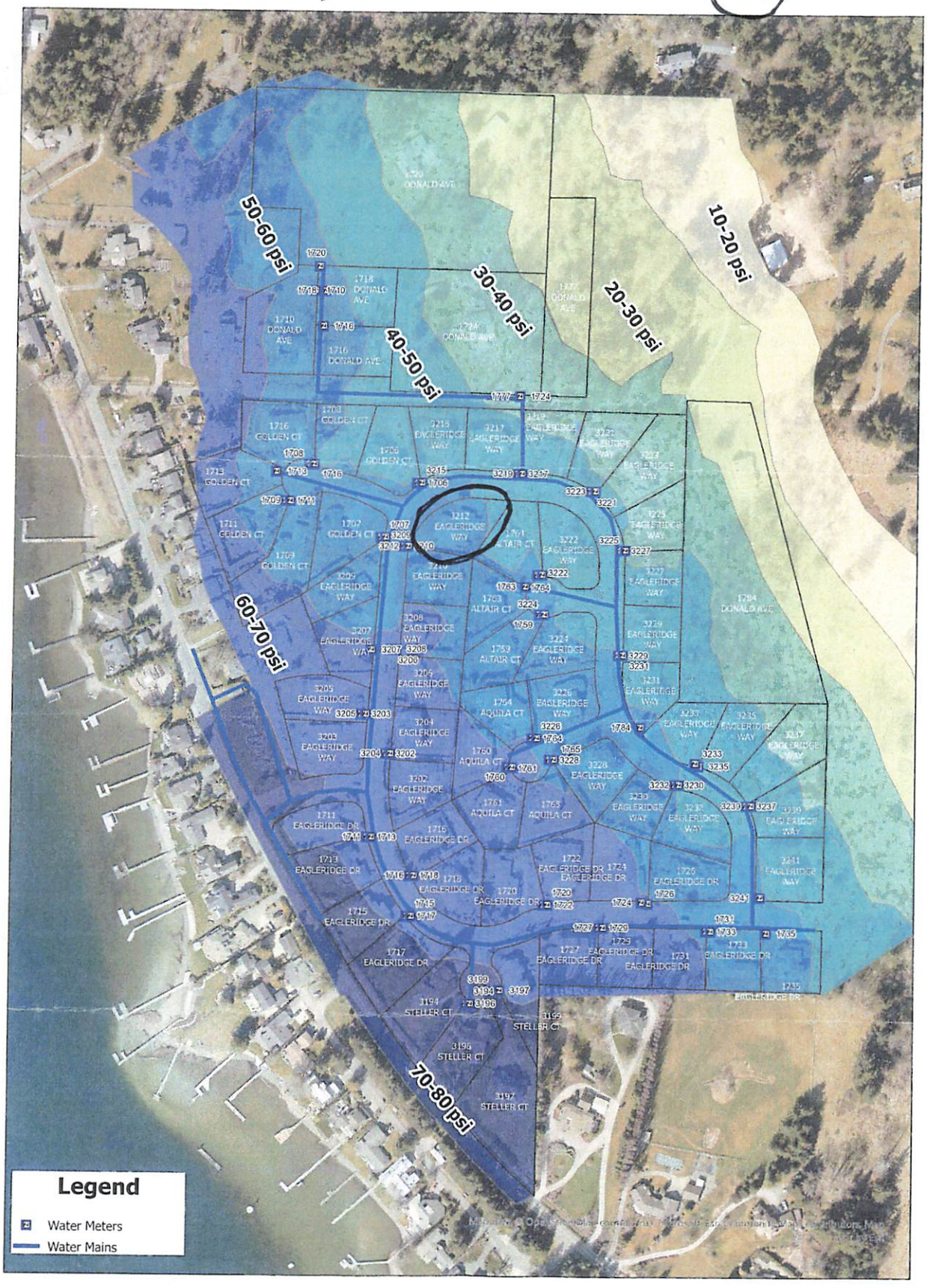
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

WE ARE NOT HAPPY WITH THIS WATER Pressure

PSI 47 PSI (38)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Guy Newsted

Homeowner Address: 3212 Eagleridge Way

Homeowner Phone: 360-671-5113

Personal experience with the pumps turned off:

All water fixtures slowed very noticable reductions in flow

Outside pressure at hose connection dropped to 37 psi from a pretest pressure of 47 psi

Water Pressure Test Data

PSI 47 **Pressure at the outside water faucet prior to the test** 47

PSI_____ **Pressure at the outside water faucet during the test** 38

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor NOT APPLICABLE

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

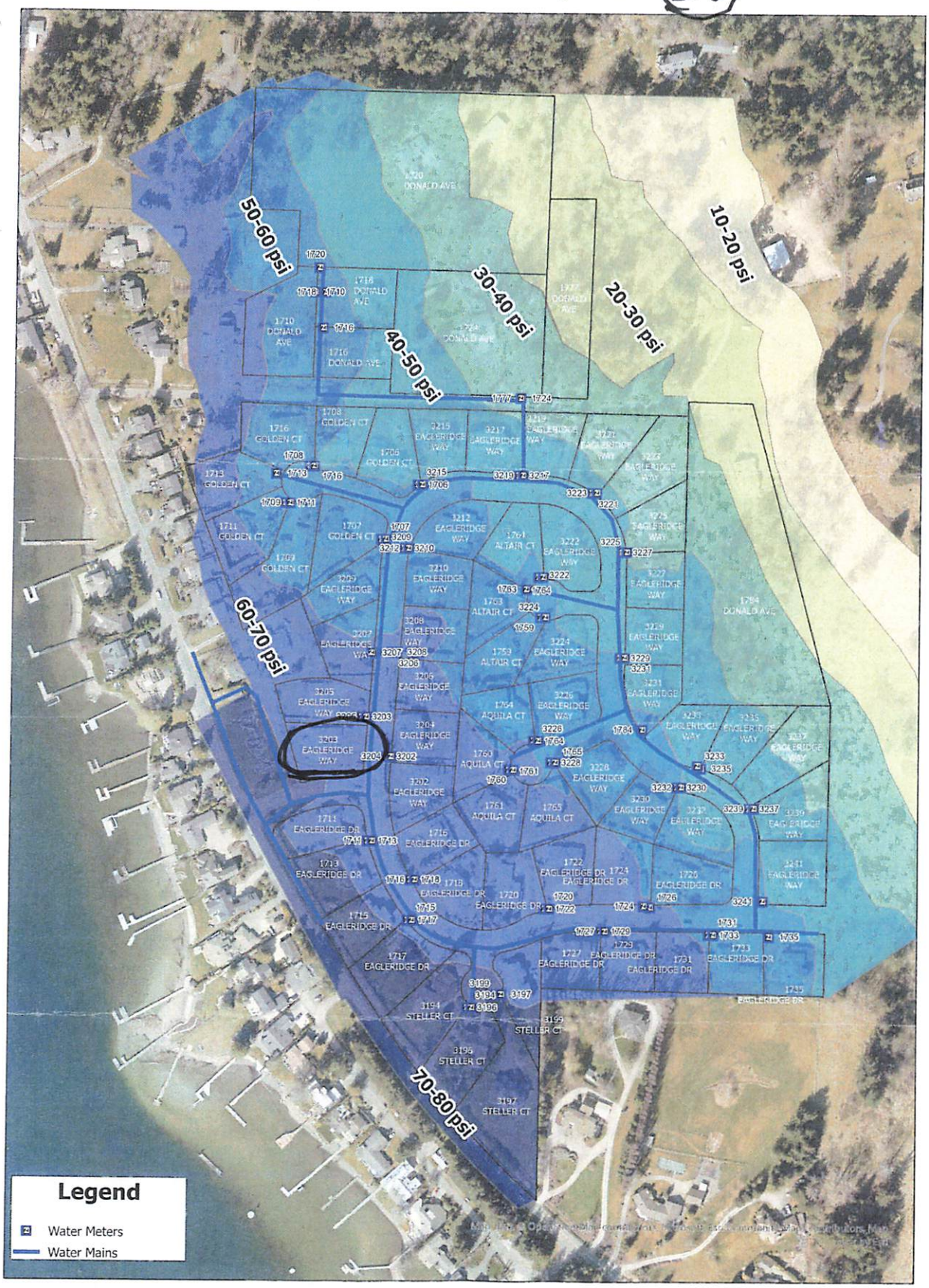
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

IF THE TEST CONDITIONS BECOMES THE REALITY, MY WATER FLOW WITH INADEQUATE

PSI 100 PSI 38



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011

Map prepared by Lake Whatcom Water and Sewer District

2/16/2022

Water Pressure Evaluation

Homeowner Name: James & Carol Richwagen

Homeowner Address: 3203 Eagleridge Way

Homeowner Phone: 360-392-8911

Personal experience with the pumps turned off:

Water pressure dropped significantly.

Water Pressure Test Data

5/15

PSI 110 **Pressure at the outside water faucet prior to the test**

38 PSI

PSI _____ **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

38 PSI (Not Adequate)

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence NA / Single Story

Pressure for all of the above if water is needed at the same time

---

Outdoor faucet

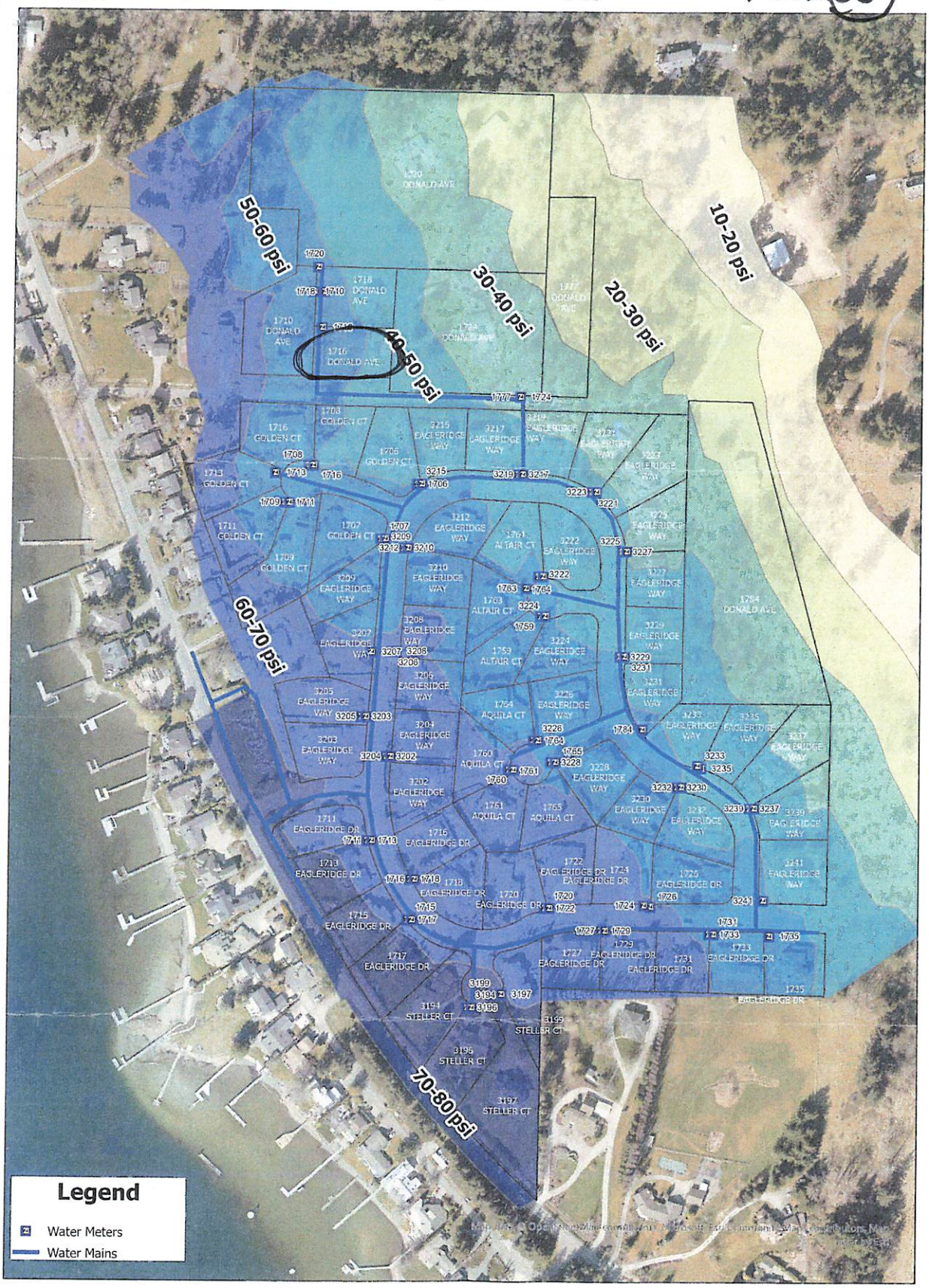
Pressure for hose/sprinkler/irrigation Same as always Slight less pressure Very noticeable

Respond with a short sentence

Drop in water pressure Significant

3203 Eagleridge Way

Donald St. PsI 48 PsI (38)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Michael + Barbara Laska

Homeowner Address: 1716 Donald Ave

Homeowner Phone: 603 - 340 - 5226

Personal experience with the pumps turned off:

We noticed a considerable drop in water pressure. We have two kids and often have one multiple people having showers in the morning. The lower water pressure would make this difficult. Feels more like the level of water pressure you would expect or experience at a cottage or camp!

1716 Donald Ave Laska

Water Pressure Test Data

PSI 48 **Pressure at the outside water faucet prior to the test**

PSI 38 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Results in a significant/noticeable decrease in pressure.

Second Floor

Pressure for the bathroom sink faucet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Even worse than the first floor. Would not want to be in the shower.

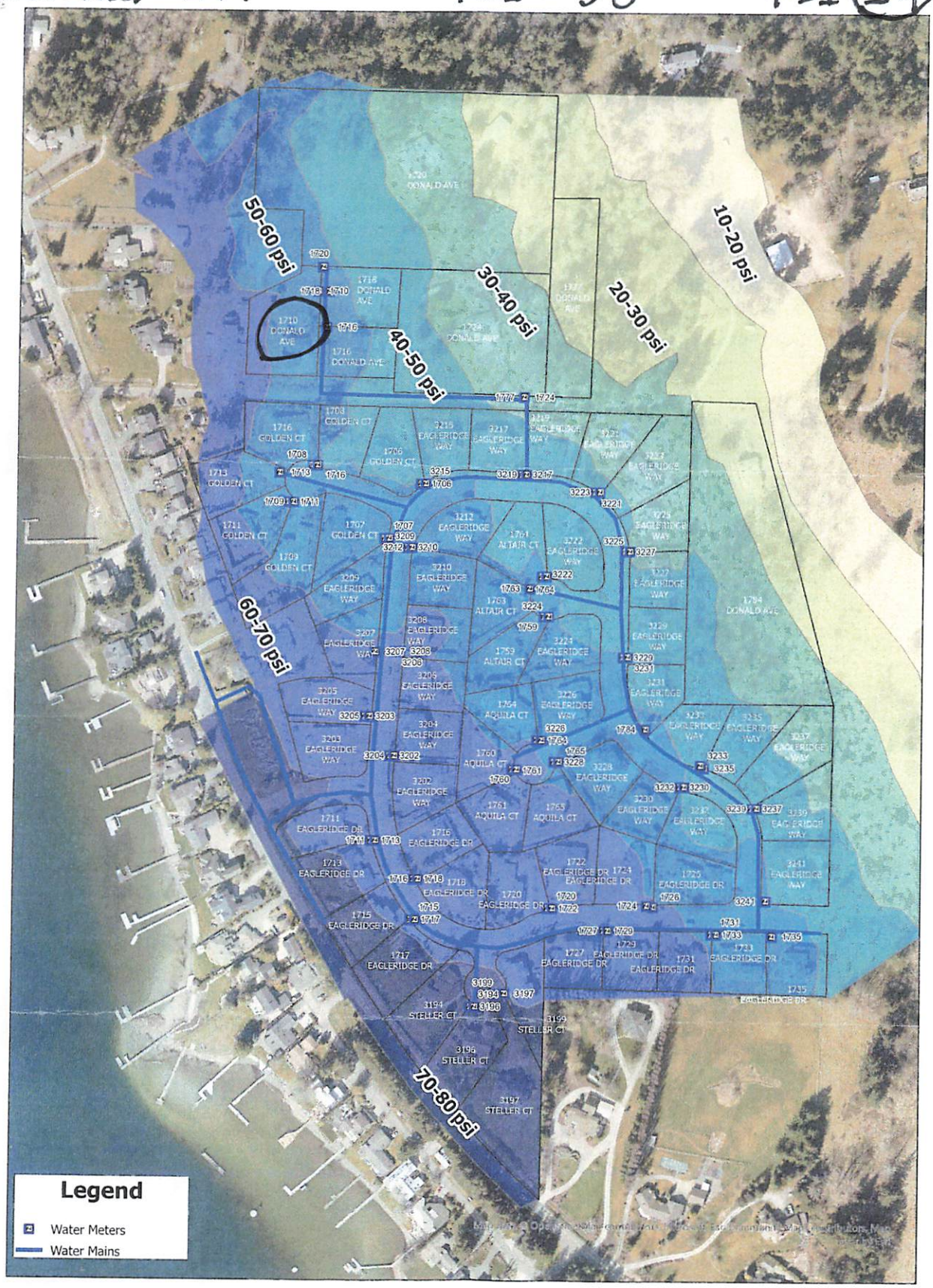
Outdoor faucet

Pressure for hose/sprinkler/irrigation Same as always (Slight less pressure) Very noticeable

Respond with a short sentence

Less pressure/flow at the faucet.

Donald st. PSI 50 PSI (39)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Sayre

Homeowner Address: 1710 Donald Ave

Homeowner Phone: _____

Personal experience with the pumps turned off:

pressure has dropped from 50 psi to 39 psi

waterflow in sinks significantly less

1710 Donald Ave Sayre

Water Pressure Test Data

PSI 50 **Pressure at the outside water faucet prior to the test**

PSI 39 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	✓ Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	✓ Very noticeable
Pressure for the toilet	✓ Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	✓ Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

pressure decreases as multiple taps open

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	✓ Very noticeable
Pressure for the toilet	✓ Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	✓ Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

pressure decreases as multiple taps open

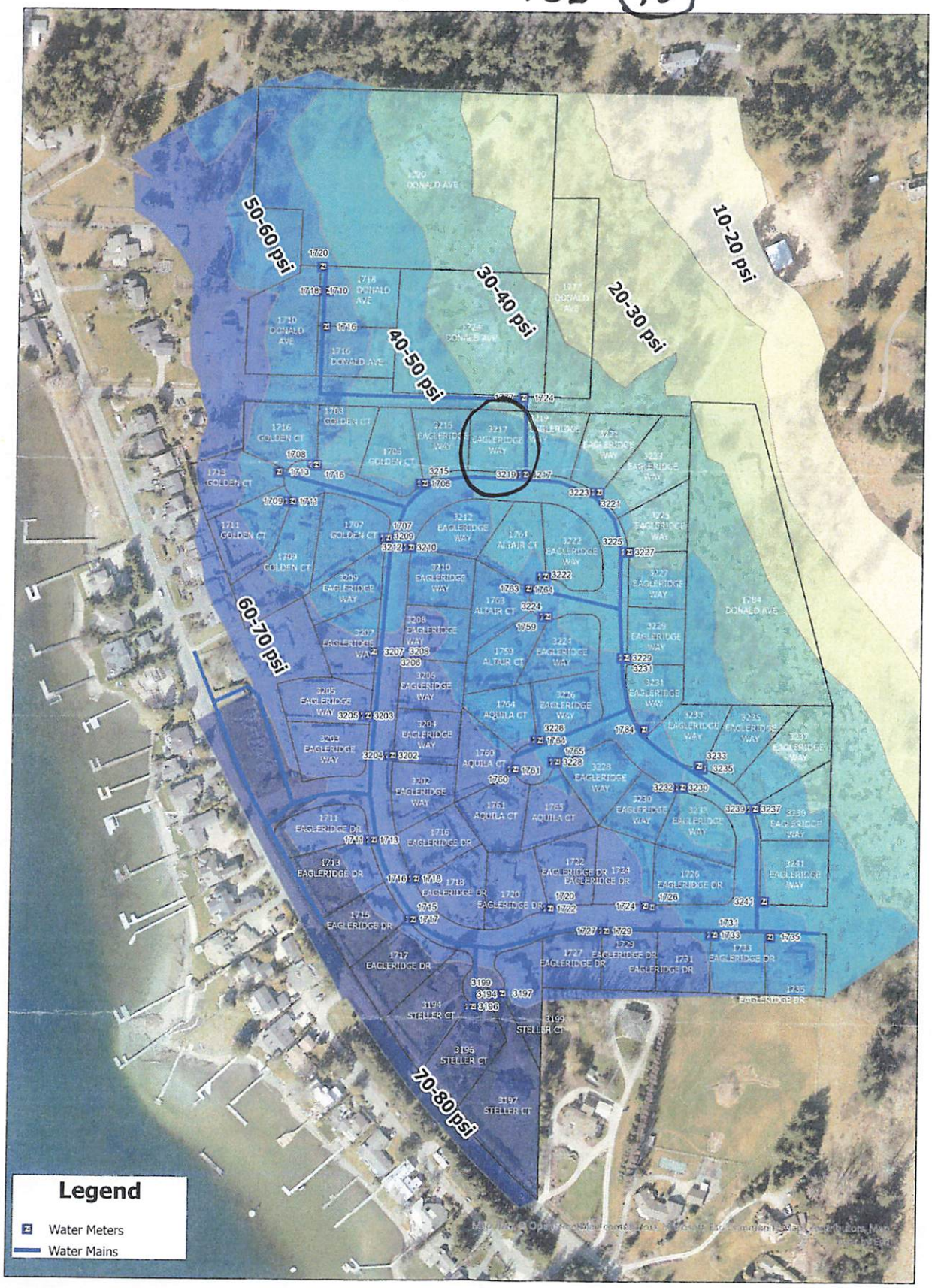
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	✓ Very noticeable

Respond with a short sentence

stream of water much less forceful

PSI 70 PSI (40)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: ARTHURS

Homeowner Address: 3217 EAGLERIDGE WAY

Homeowner Phone: 360-647-8691

Personal experience with the pumps turned off:

Much weaker pressure in kitchen

Water Pressure Test Data

PSI 70 **Pressure at the outside water faucet prior to the test**

PSI 40 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

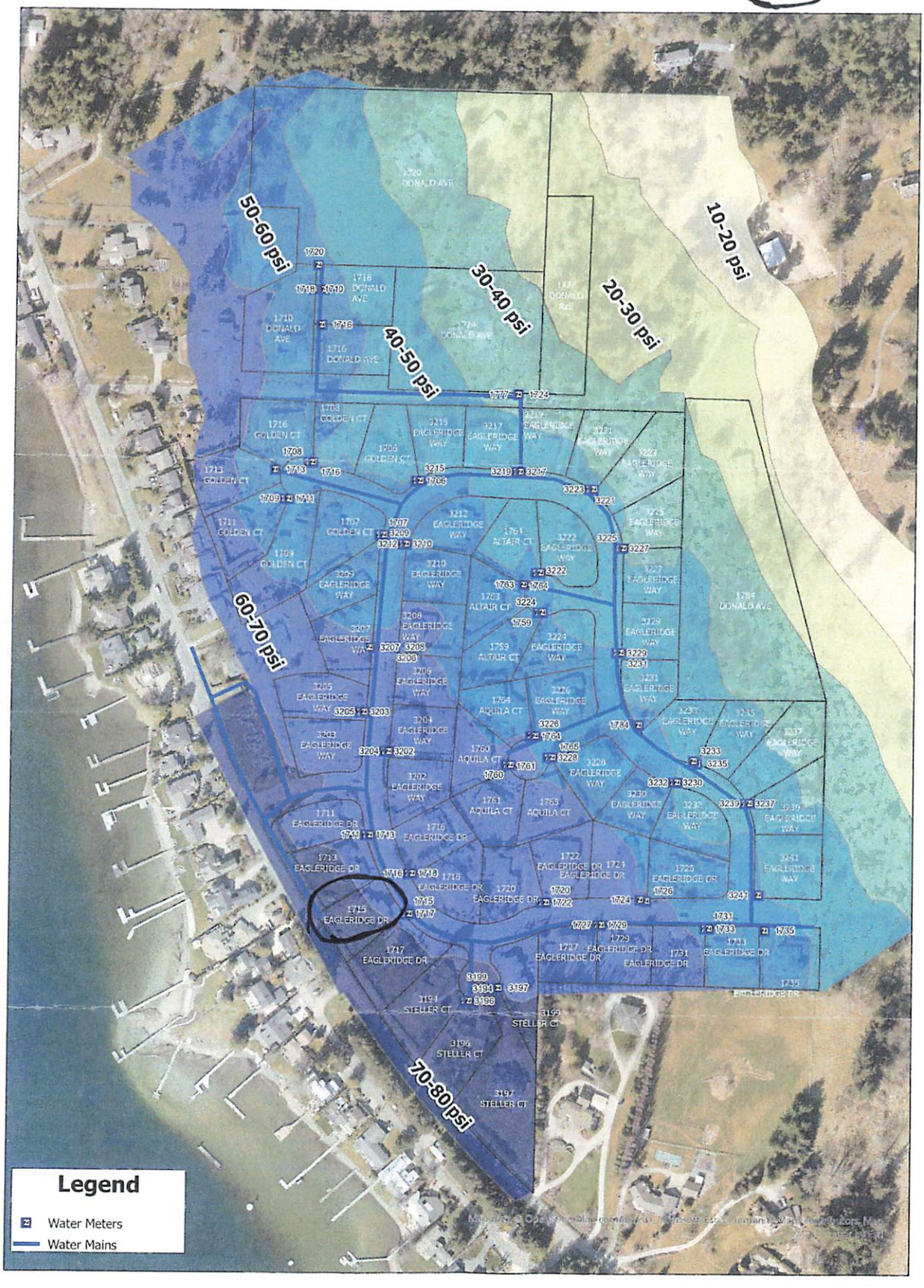
---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 80 PSI 40



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Jeremy + Amanda Voigt

Homeowner Address: 1715 Eagleridge Dr.

Homeowner Phone: 360-671-1822

Personal experience with the pumps turned off:

We have 5 people living in our household. We frequently have multiple items that use water running at the same time. There was ~~quite~~ a drop in pressure in one of our upstairs showers whenever we had even one other item going. I am concerned that if we are watering the yard or doing dishes while the washing machine is going, one of our showers might not be useable.

Water Pressure Test Data

PSI 80 **Pressure at the outside water faucet prior to the test**

PSI 40 **Pressure at the outside water faucet during the test**

read wrong line

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

When more than one thing was going there was slightly less pressure than normal.

Second Floor

2 bathrooms

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

one bathrom / the other bathroom

Pressure for all of the above if water is needed at the same time

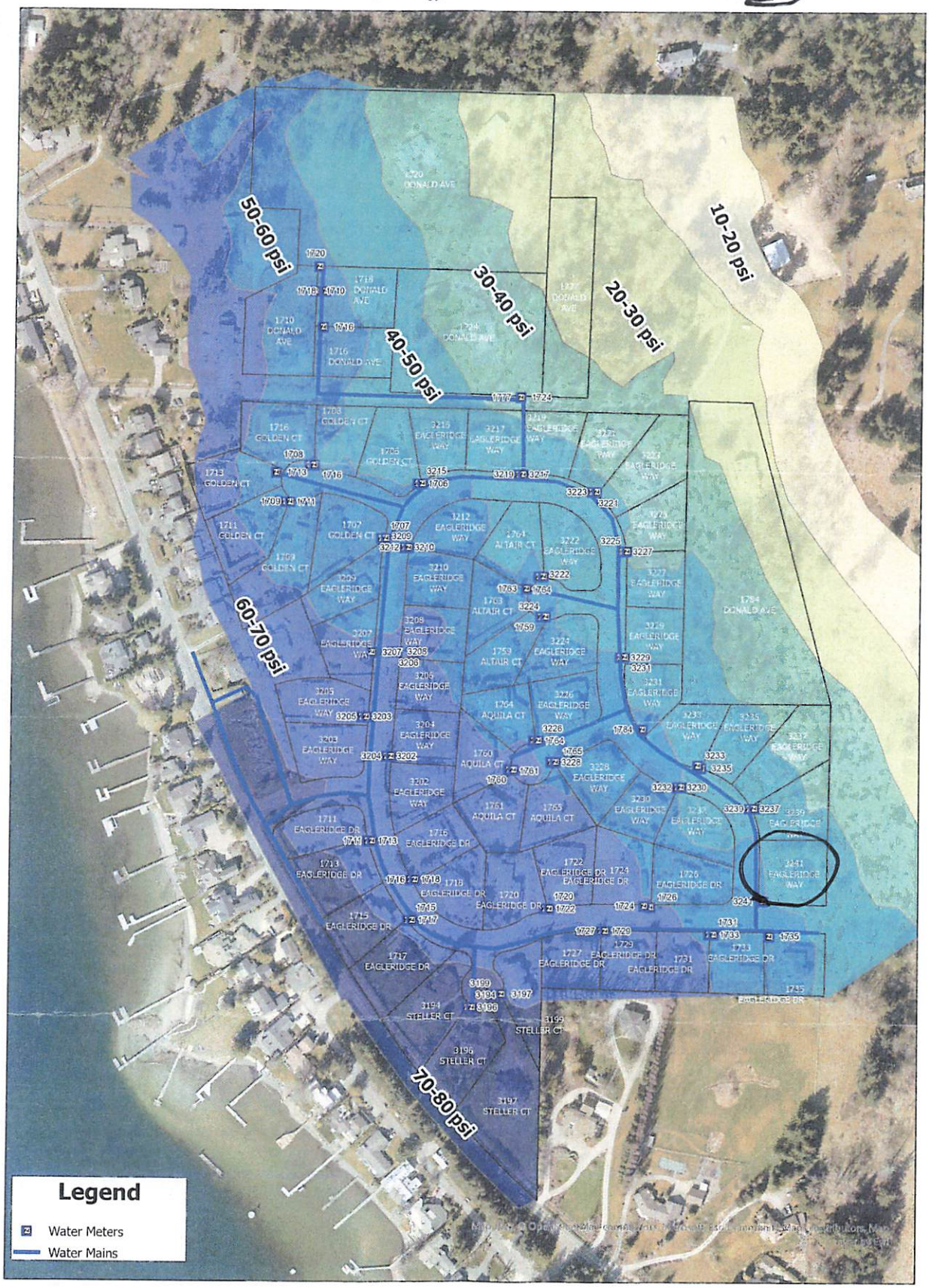
When we had the washing machine going, the upstairs shower had low pressure.

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 62 PSI 41



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Jennifer Hine

Homeowner Address: 3241 Eagleridge Way

Homeowner Phone: 360-223-2687

Personal experience with the pumps turned off:

Water pressure was reduced. Did not run washing machine or other appliances - not home for most of the time.

Water Pressure Test Data

PSI 62 **Pressure at the outside water faucet prior to the test**

PSI 41 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower & tub !	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

did not test all at once

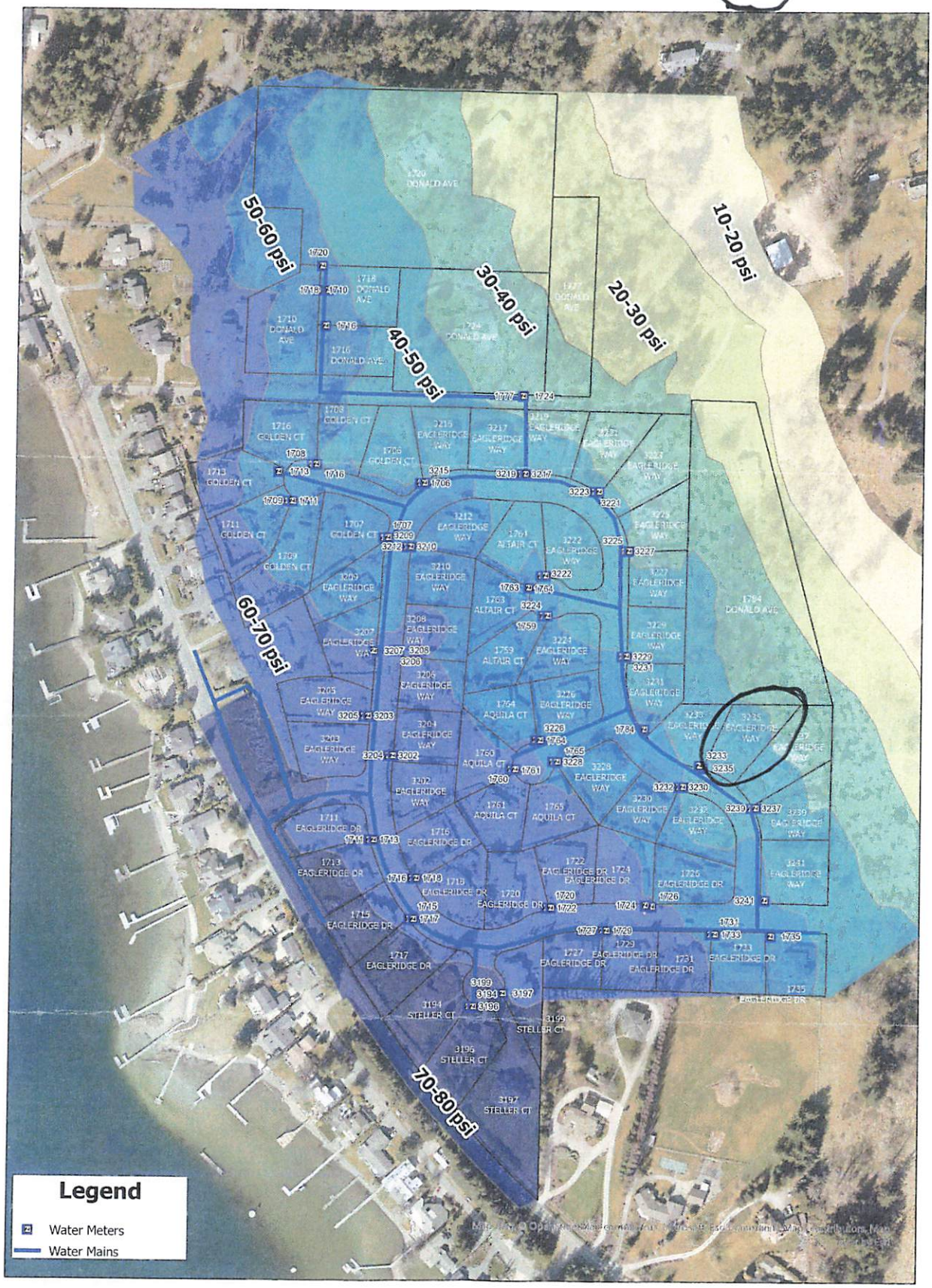
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

did not test

PSI 59 PSI 41



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Hector & Kristina Wald

Homeowner Address: 3235 Eagleridge Way.

Homeowner Phone: 615-495-0512

Personal experience with the pumps turned off:

Quite a substatial change in our water pressure, especially with our kitchen faucet & shower/tub's. Very little flow when more than one faucet is running.

Water Pressure Test Data

PSI 59 **Pressure at the outside water faucet prior to the test**
PSI 41 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet Same as always Slight less pressure (Very noticeable)
Pressure for the bathroom sink faucet Same as always (Slight less pressure) Very noticeable
Pressure for the toilet Same as always (Slight less pressure) Very noticeable
Pressure for the shower Same as always Slight less pressure (Very noticeable)
Respond with a short sentence
Pressure for all of the above if water is needed at the same time
Very little flow (Kitchen sink just a trickle) When bath tub & sink both running.

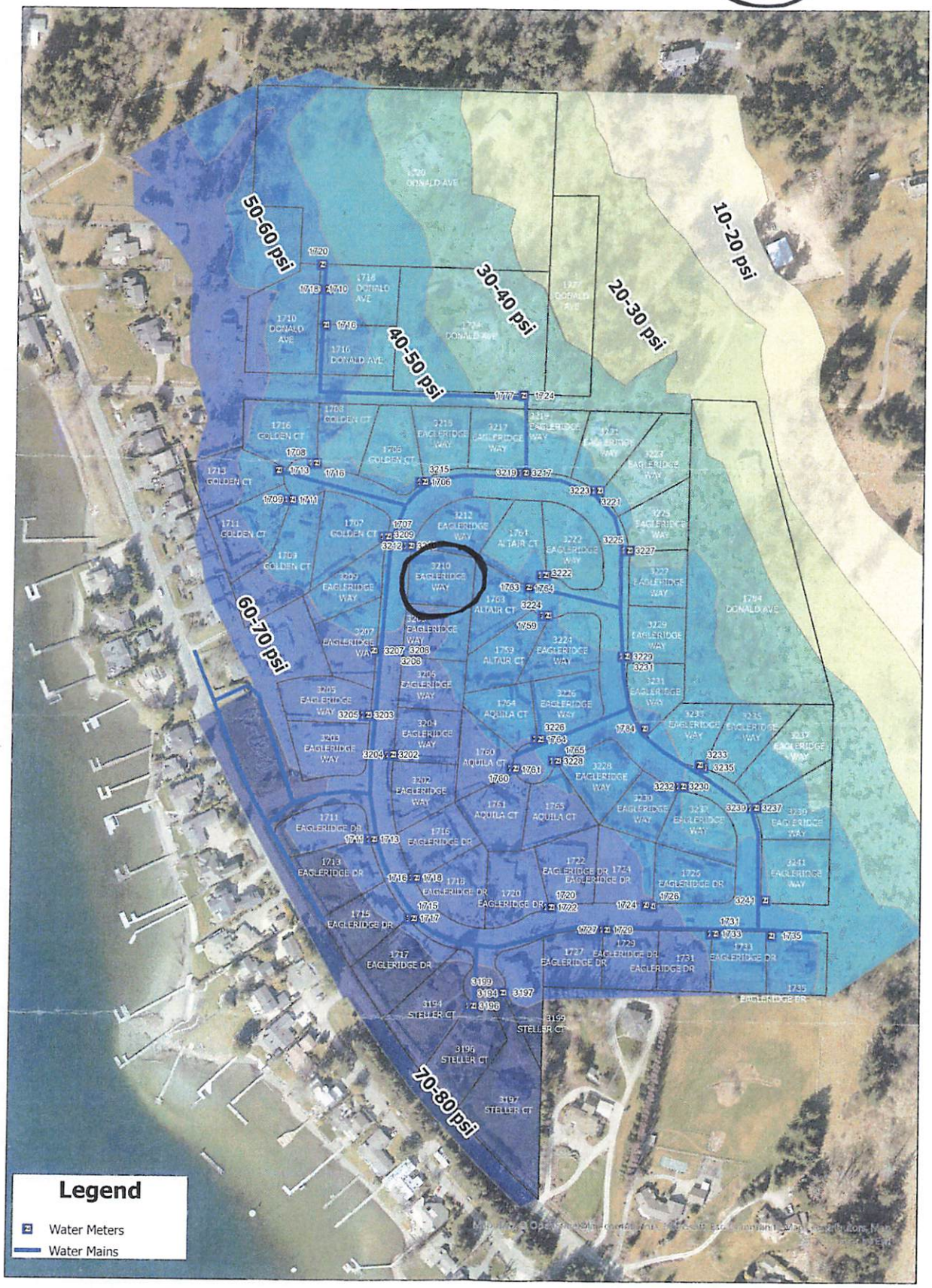
Second Floor

Pressure for the bathroom sink faucet Same as always (Slight less pressure) Very noticeable
Pressure for the toilet Same as always (Slight less pressure) Very noticeable
Pressure for the shower Same as always Slight less pressure (Very noticeable)
Respond with a short sentence
Pressure for all of the above if water is needed at the same time

Outdoor faucet

Pressure for hose/sprinkler/irrigation Same as always (Slight less pressure) Very noticeable
Respond with a short sentence

PSI 66 PSI (42)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: M. Vercammen

Homeowner Address: 3210 Eagleridge Way

Homeowner Phone: 360 647 3881

Personal experience with the pumps turned off:

Noticeable water pressure difference up
out of outdoor faucets
Indoors all the same.

Water Pressure Test Data

PSI 66 **Pressure at the outside water faucet prior to the test**

PSI 42 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

with outdoor faucets on — slight less pressure when " off — same as before

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

same as above

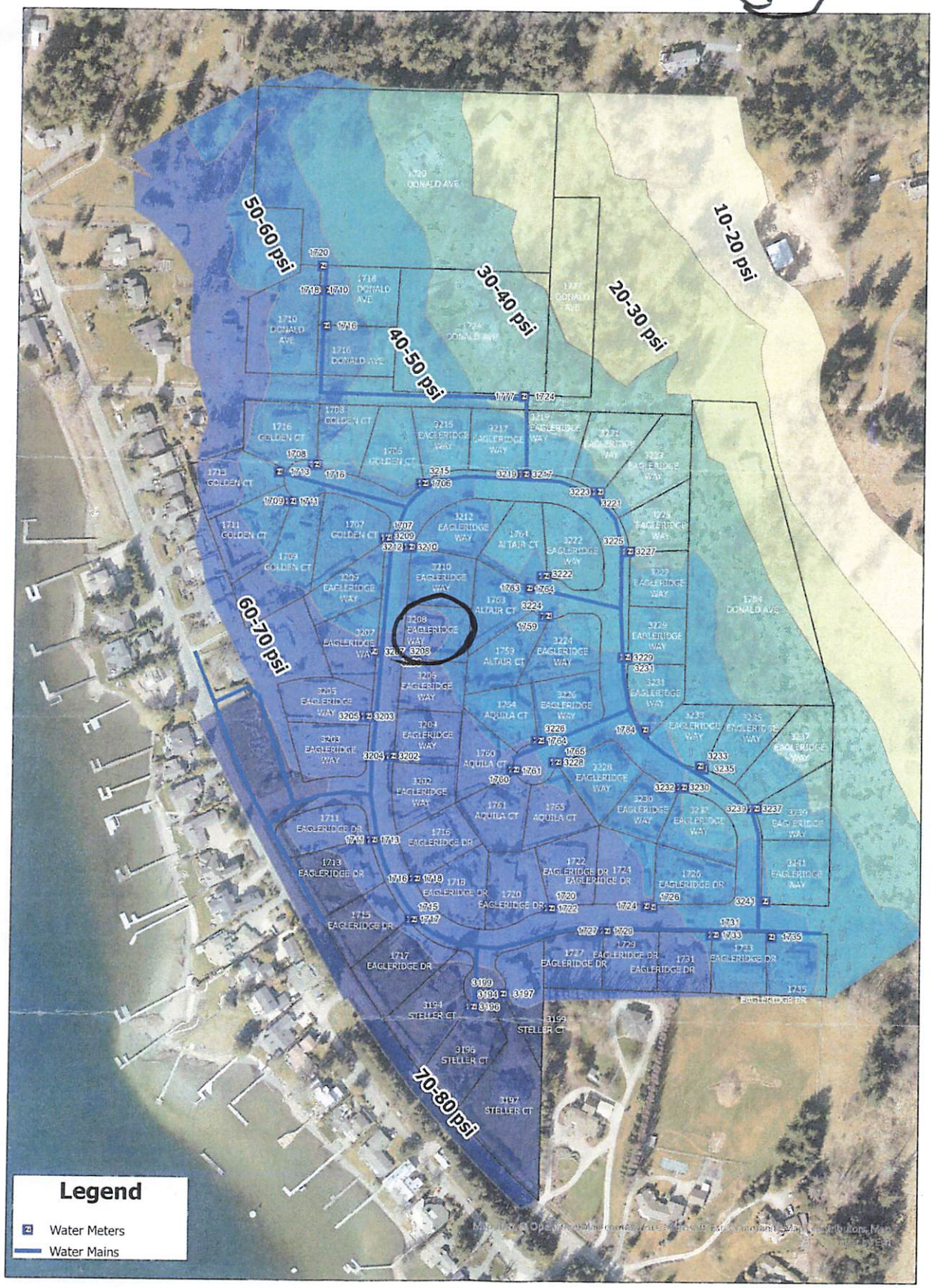
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

This was quite noticeable w/ lower pressure

PSI 64 PSI 42



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Rawitzer

Homeowner Address: 3208 Eastlands Way

Homeowner Phone: 310-510-7414

Personal experience with the pumps turned off:

The Shutdown was effectively done with clear instruction & sharing of gauges —

Water Pressure Test Data

PSI 64 **Pressure at the outside water faucet prior to the test**

PSI 42 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower N/A	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 80 PSI (42)

Water Pressure Evaluation

Homeowner Name: Ha/Fitzgerald

Homeowner Address: 1763 Altair Ct

Homeowner Phone: 360-389-7122

Personal experience with the pumps turned off:

We had a considerable drop in our pressure (80 to 42). and a noticable drop in the upstairs shower pressure

Due to the time of day of the water pressure challenge, we were only able to dash home for a brief time to check the faucets/showers. We remain very concerned at what could potentially happen later at night when we would be home simultaneously running showers, the washing machine, dishwasher, preparing dinner, etc. Is there any way that we could have a 24hr challenge and better estimate the affect on our homes?

Water Pressure Test Data

PSI 80 **Pressure at the outside water faucet prior to the test**

PSI 42 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the toilet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Was only able to evaluate one shower, the other is still under construction

Pressure for all of the above if water is needed at the same time

---

Second Floor (DOWNSTAIRS)

Pressure for the bathroom sink faucet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the toilet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	(Slight less pressure)	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

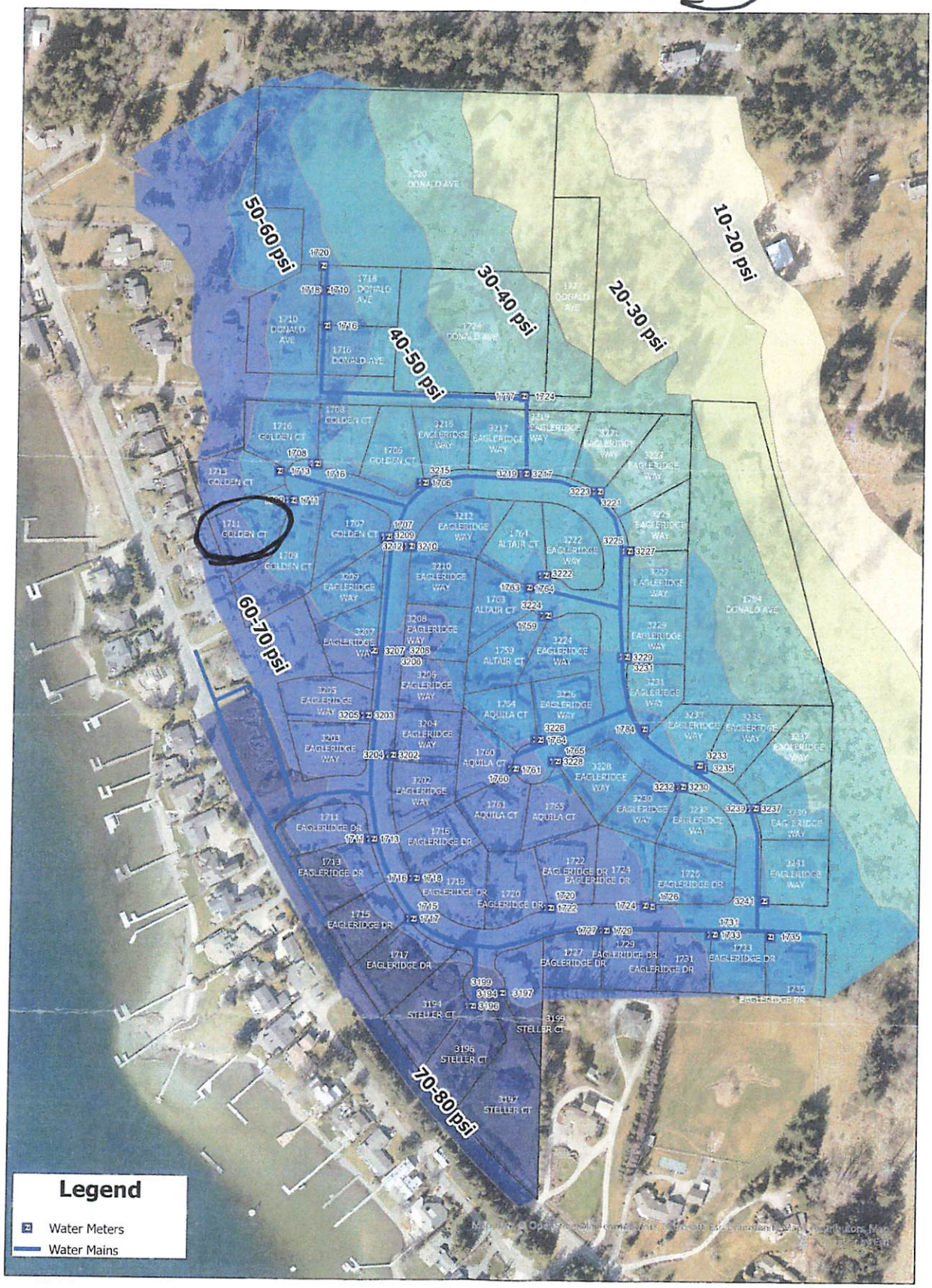
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

unable to evaluate

PSI 58 PSI (44)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluatio1.docx Open with Google Docs

Water Pressure Evaluation

Homeowner Name: DORLENE ROOT

Homeowner Address: 1711 GOLDEN CT.

Homeowner Phone: 360-733-3546

Personal experience with the pumps turned off:

I noticed a slight difference in pressure.

However - I live at the bottom of the development.

Water Pressure Data(1).docx Open with Google Docs

Water Pressure Test Data

PSI 58 **Pressure at the outside water faucet prior to the test**

PSI 44 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 72 PSI 44

Water Pressure Evaluation

Homeowner Name: AMY HERICH COSGROVE

Homeowner Address: 3215 EAGLERIDGE WAY

Homeowner Phone: 360-220-0260

Personal experience with the pumps turned off:

Water Pressure Test Data

PSI 72 **Pressure at the outside water faucet prior to the test**

PSI 44 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

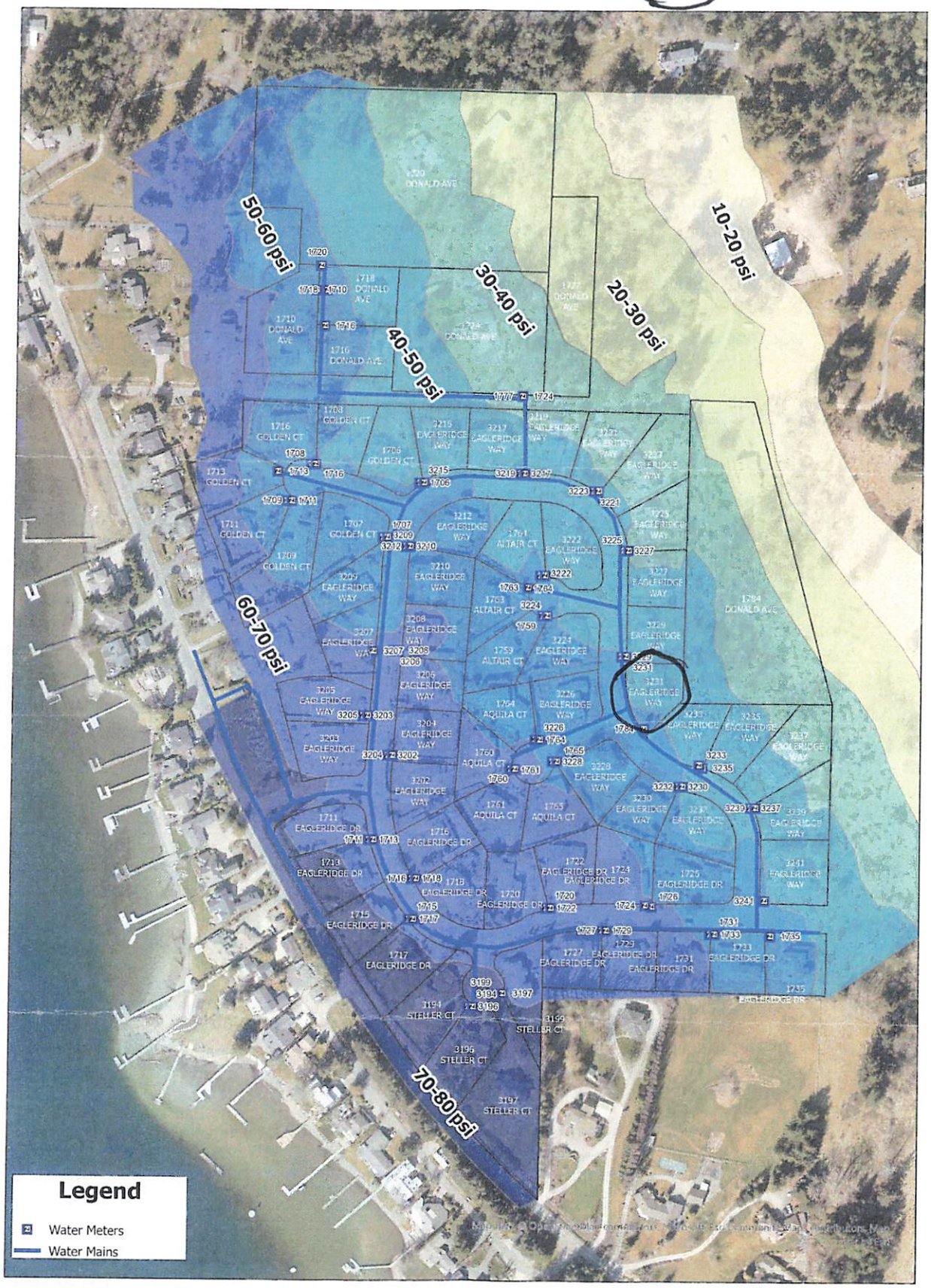
---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 75 PSI (45)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Doug Swanson

Homeowner Address: 3231 Eagleridge Way

Homeowner Phone: 360-319-3220

Personal experience with the pumps turned off:

Outside was the most noticeble difference. Could only run one sprinkle and it was half the spray as before. Before I could run three different sprinklers at the same time with full coverage of the lawn. Inside was less egregious, but was very noticeable on all water fixtures. My kitchen faucet and master bathroom shower were unacceptable for regular use. I will definitely have to install a booster pump.

Water Pressure Test Data

PSI 75 **Pressure at the outside water faucet prior to the test**

PSI 45 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the bathroom sink faucet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the toilet	(Same as always)	Slight less pressure	Very noticeable
~~Pressure for the shower~~	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

no difference

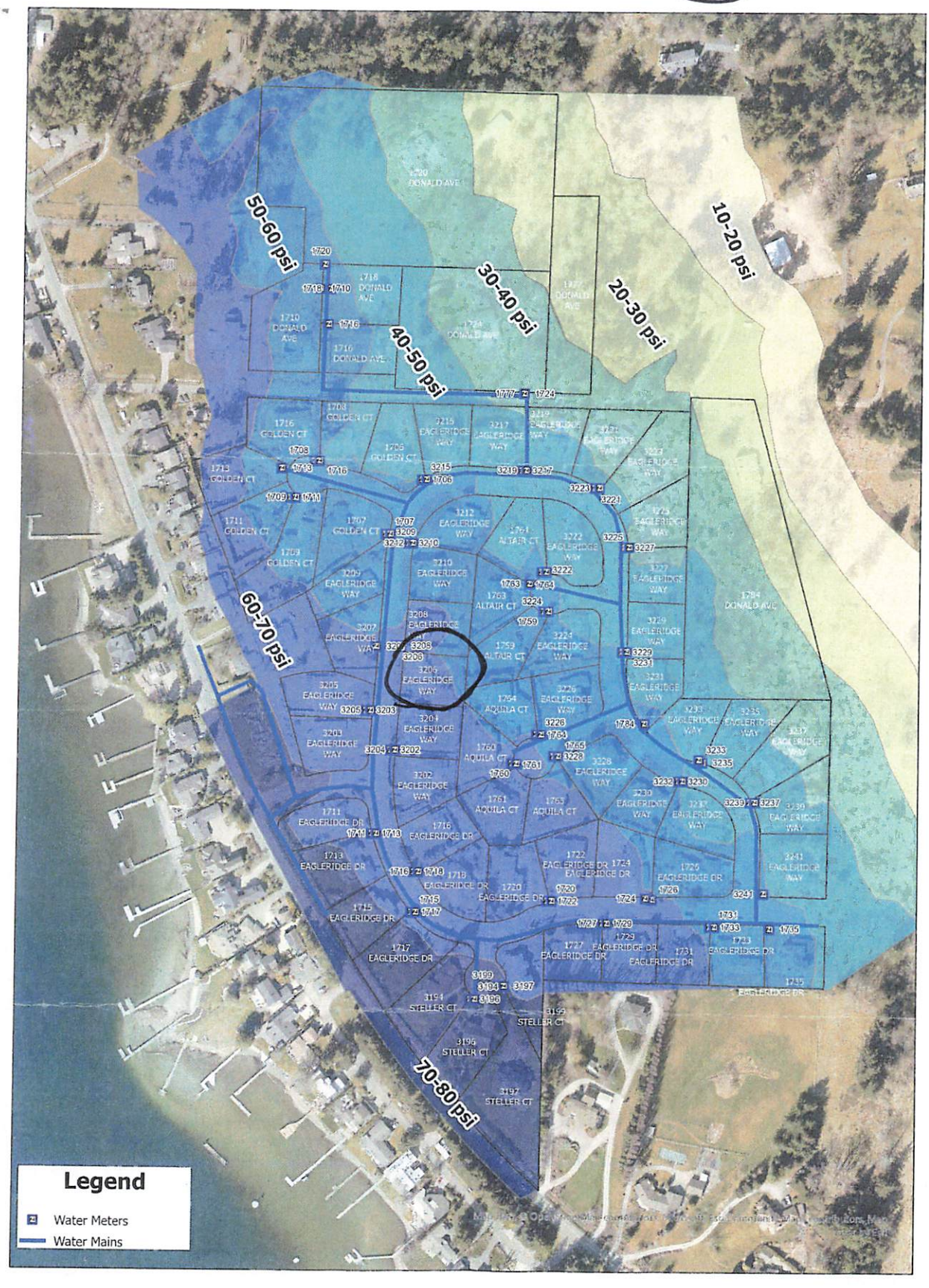
Outdoor faucet

Pressure for hose/sprinkler/irrigation Same as always Slight less pressure (Very noticeable)

Respond with a short sentence

with one faucet running other faucet dropped to 29 PSI.

PsI 50 PsI (45)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Marcy Schneck

Homeowner Address: 3206 Eagleridge Way Bellingham 98226

Homeowner Phone: 631-513-5843

Personal experience with the pumps turned off:

Negligible difference in pressure before + during pumps turned off. PSI measured on two floors. Finished basement near water line entry highest, main floor @ 5-7psi less. Rang of 45-50psi throughout shutdown period. On a normal day our psi averages 55. It was higher before we adjusted the PRV. a couple 5 years ago.

Schneck 3206 Eagleridge Way, Bellingham WA 98226

Water Pressure Test Data

Before:
At faucet farthest from water service entry.
= 50 psi main
55 psi basement

PSI 50-55 **Pressure at the outside water faucet prior to the test**

PSI 45 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor (Finished Walkout basement)

~~Pressure for the kitchen sink faucet~~	Same as always	Slight less pressure	Very noticeable	N/A
Pressure for the bathroom sink faucet	(Same as always)	Slight less pressure	Very noticeable	
Pressure for the toilet	(Same as always)	Slight less pressure	Very noticeable	
Pressure for the shower	(Same as always)	Slight less pressure	Very noticeable	

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Lower level OK - closest to water service shutoff
45 psi.

Second Floor

Pressure for the bathroom sink faucet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the toilet	(Same as always)	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	(Slight less pressure)	Very noticeable
" " kitchen sink		(Slight less pressure)	

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Ran also w/washing machine = 45 psi

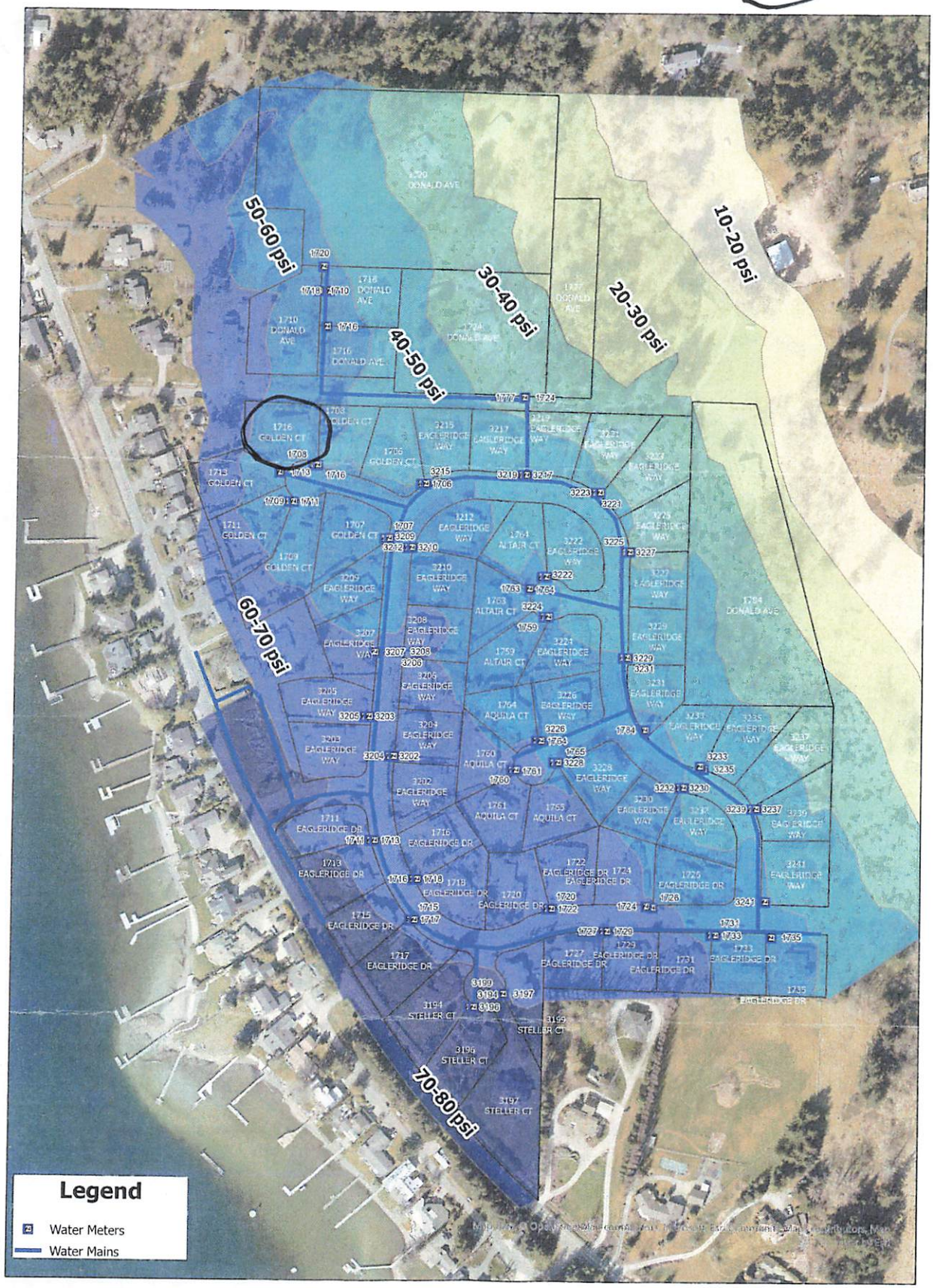
Outdoor faucet

Pressure for hose/sprinkler/irrigation (Same as always) Slight less pressure Very noticeable

Respond with a short sentence

No issues with hoses. Irrigation not tested

PSI 85 PSI 45



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Roger + Barb Mills DeSpain

Homeowner Address: 1716 GOLDEN COURT

Homeowner Phone: 360 676-8139
Home PHONE

Personal experience with the pumps turned off:

I THINK THERE WAS A CHANGE WITH OUR PSI. WE ARE MANY FEET BELOW ~~most~~ MAY EAGLE RIDGE HOMES. THE HOMES ABOVE US ~~MAY~~ MAY HAVE BIGGER ISSUES FOR MORE PSI AT THEIR HOSE BIBS AND HOMES.
THANK YOU BOARD MEMBERS FOR THIS PSI TEST.

Water Pressure Test Data

PSI 85 **Pressure at the outside water faucet prior to the test**

PSI 45 **Pressure at the outside water faucet during the test**

WHAT A BIG DIFFERENCE 40% !

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

COULD TELL THERE WAS A DIFFERENCE

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

DOWNSTAIRS WAS THE SAME AS NORMAL

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

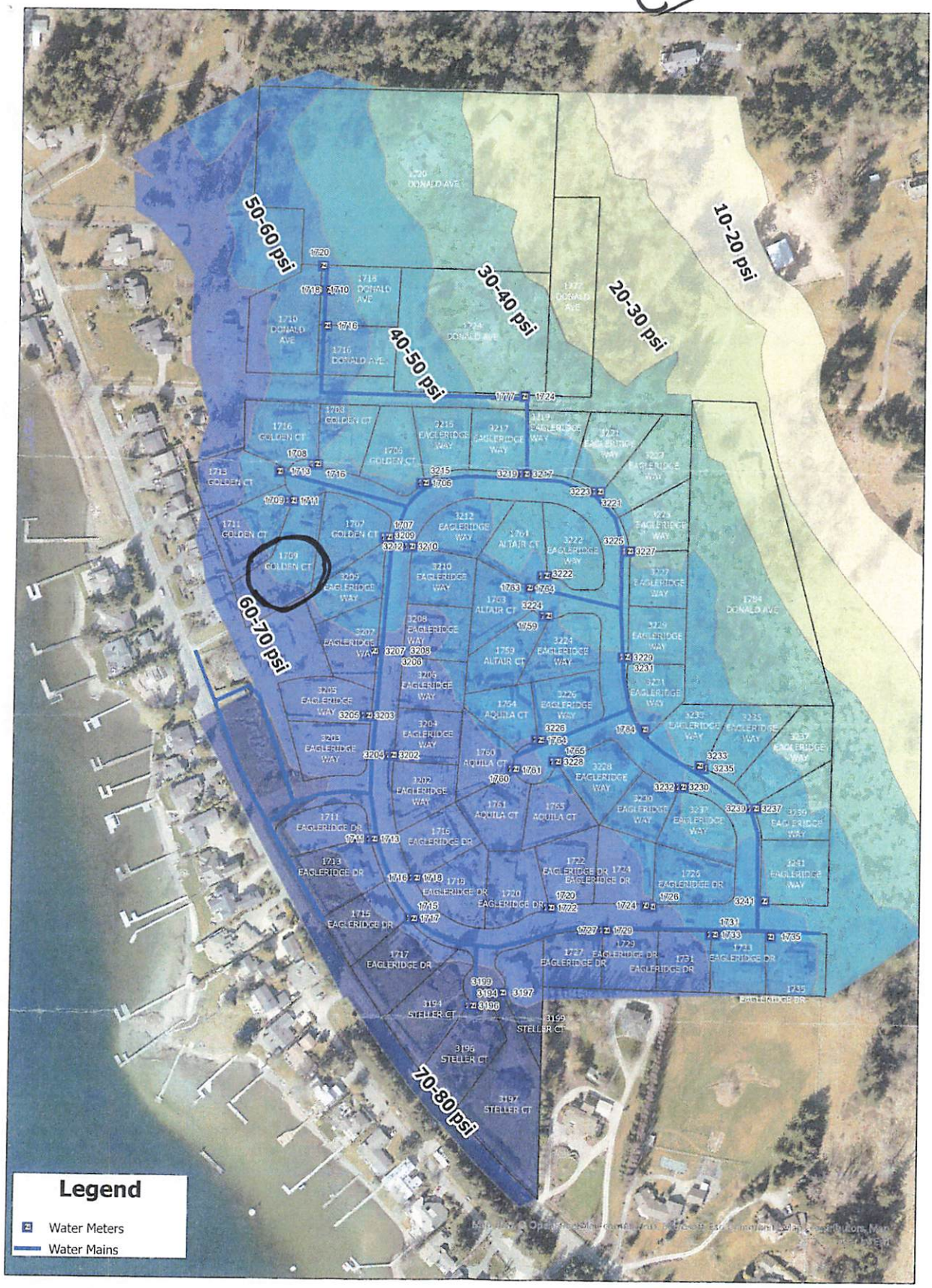
Respond with a short sentence

SEEM TO BE THE SAME WITH 50 FOOT HOSE

9 Homes

52 psi – 70 psi

Psi 80 Psi 52



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: DCRS LLC / PAPAGEORGE

Homeowner Address: 1709 GOLDEN CT

Homeowner Phone: 360 671 9074 (Chuck)

Personal experience with the pumps turned off:

BROWN WATER !! - Didn't They Just Flush System?? --

LOWER PRESSURE

Noticeable EVEN more with more than

one Faucet on @ A time

Water Pressure Test Data

PSI 80 **Pressure at the outside water faucet prior to the test**

PSI 52 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Running all @ Same time Low And Brown water

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

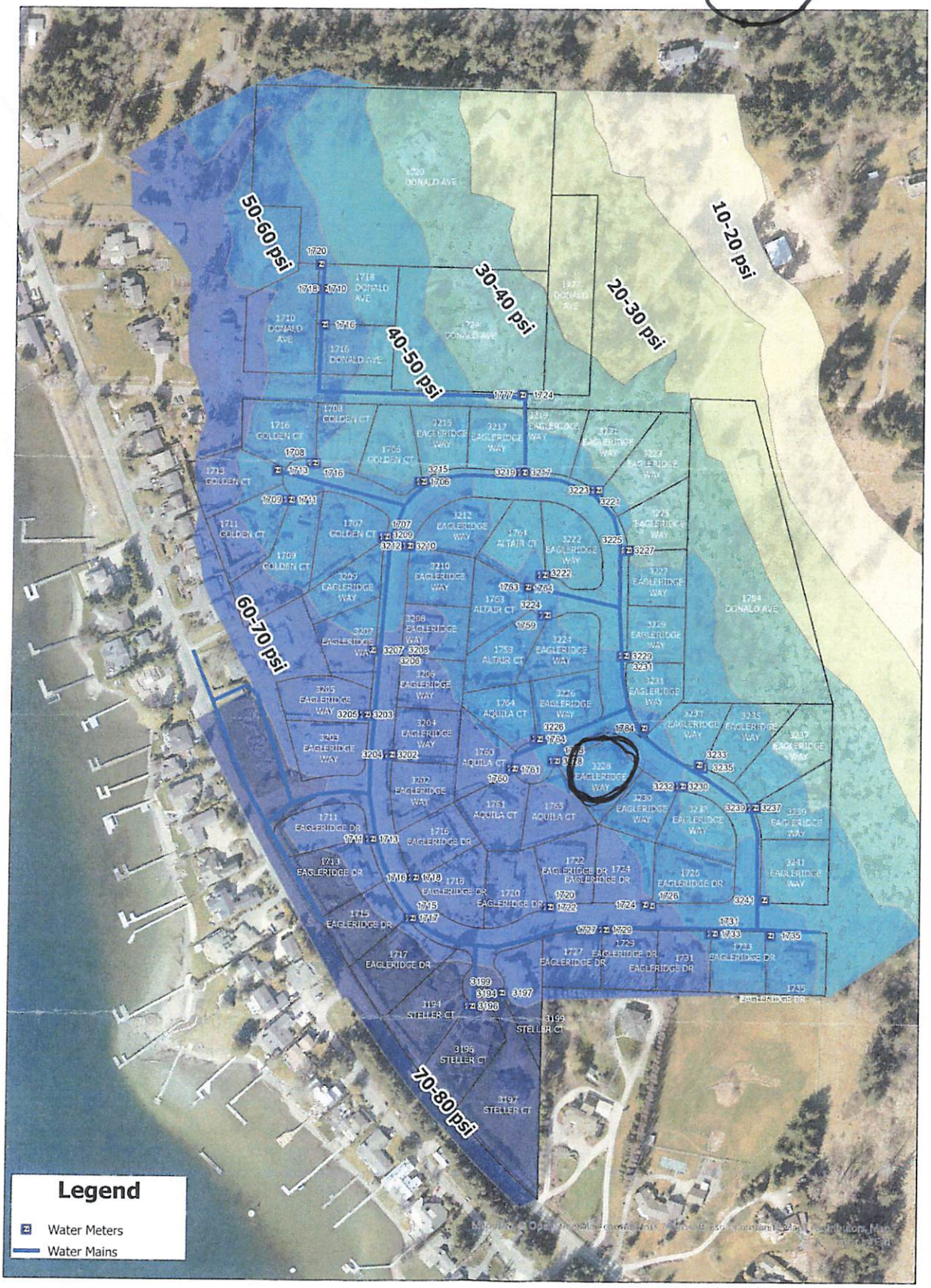
Very Low Brown Water

Outdoor faucet

Pressure for hose/sprinkler/irrigation Same as always Slight less pressure Very noticeable

Respond with a short sentence Not Able to do At this time

PSI 90 PSI 55



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Barbara & Tom Stackhouse

Homeowner Address: 3228 Kayleridge Way

Homeowner Phone: 360-739 9749

Personal experience with the pumps turned off:

Very noticeable upstairs throughout house especially at showers upstairs. Less noticeable but definitely a difference in kitchen and bathroom downstairs.

Thank you for taking the time to evaluate these forms.

Barbara

Water Pressure Test Data

PSI 90 **Pressure at the outside water faucet prior to the test**

PSI 55 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Noticeable but not horrible on main floor

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure (Between)	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

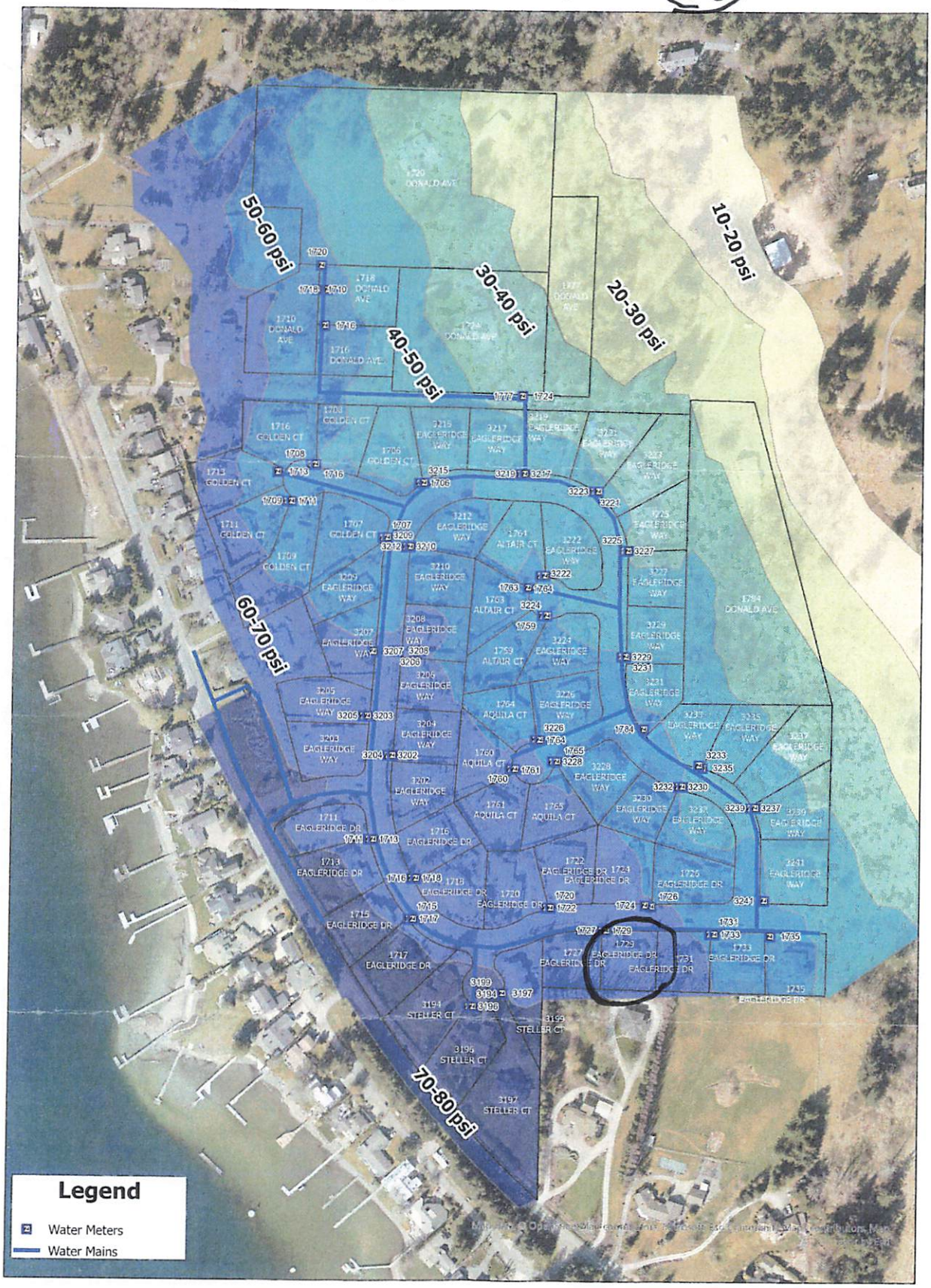
Very noticeable upstairs Everywhere.

Outdoor faucet

Pressure for hose/sprinkler/irrigation Same as always Slight less pressure Very noticeable

Respond with a short sentence

75I 63 PSI 58



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: KULDEEP PARMAR

Homeowner Address: 1729 Eagleridge Drive

Homeowner Phone: 360-223-2949

Personal experience with the pumps turned off:

Low pressure.

Water Pressure Test Data

PSI 63 **Pressure at the outside water faucet prior to the test**

PSI 58-76 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Low

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Very low

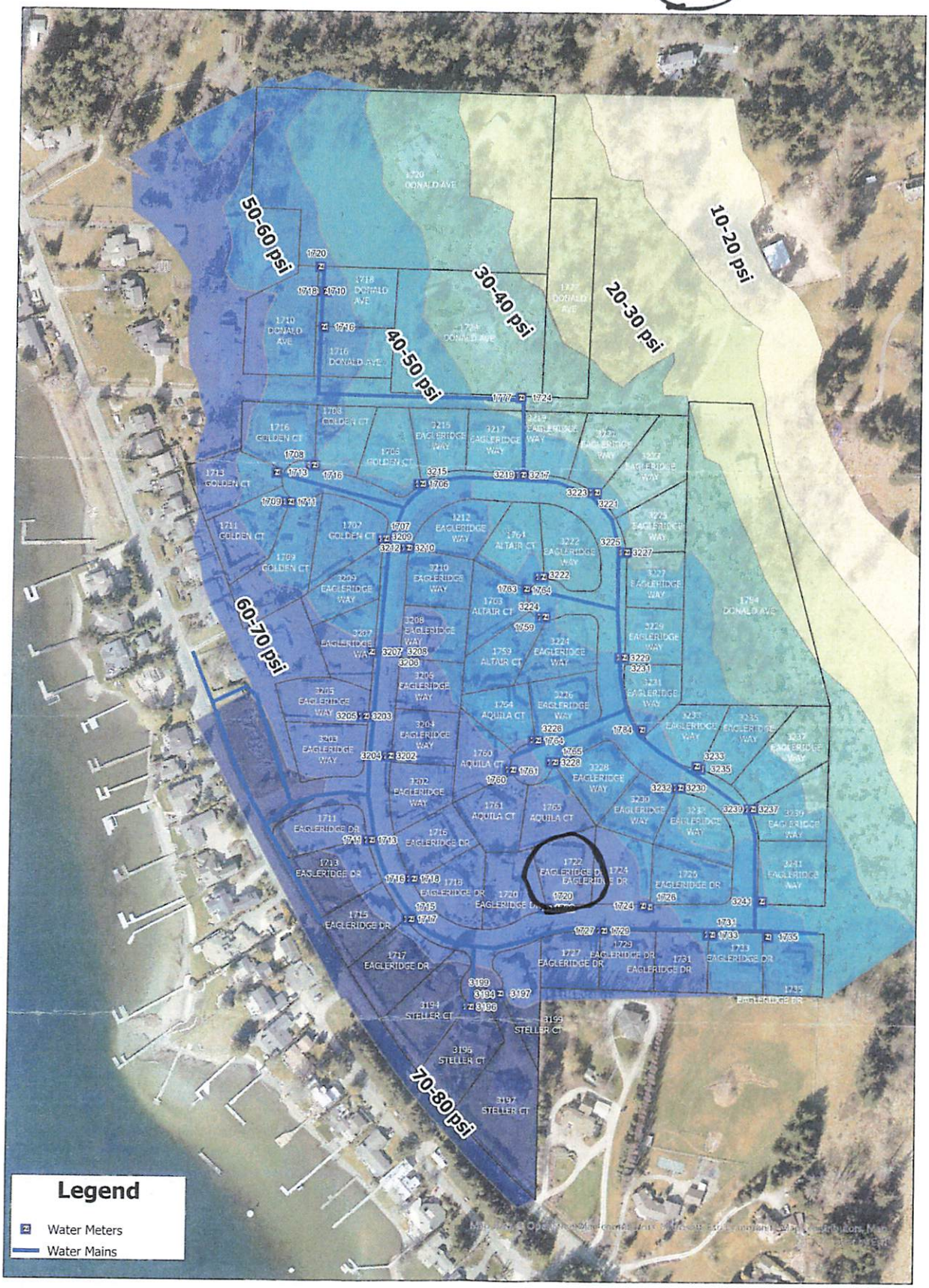
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

low

PsI 90 PsI 60



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011

Map prepared by Lake Whatcom Water and Sewer District

2/16/2022

Water Pressure Evaluation

Homeowner Name: LOUISE MCCARTNEY

Homeowner Address: 1722 EAGLERIDGE DR.

Homeowner Phone: 360 734 2852

Personal experience with the pumps turned off:

NO PROBLEM FOR ME BEING A SINCLE PERSON HOME.
I AM NOT SURE MY WATER PRESSURE TESTER
IS GOOD AS THE INSIDE FILLED 1/2 WAY WITH WATER.

Water Pressure Test Data

PSI 90 **Pressure at the outside water faucet prior to the test**

PSI 60 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

W/O OUTSIDE FAUCET (BEING ON) – SLIGHT LESS PRESSURE

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

NO SECOND FLOOR

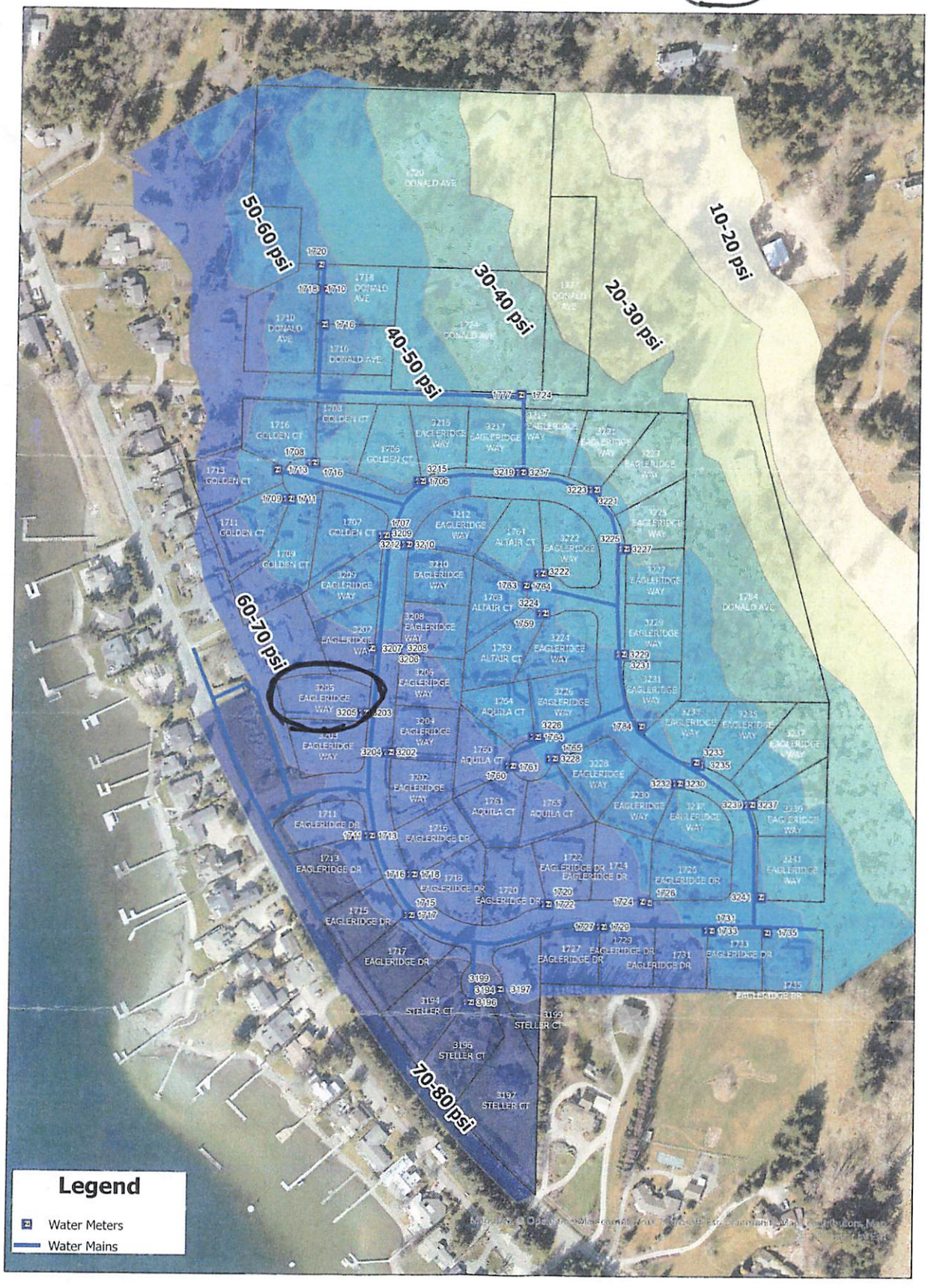
Outdoor faucet

Pressure for hose/sprinkler/irrigation	(Same as always)	Slight less pressure	Very noticeable

Respond with a short sentence

SPRINKLER / IRRIGATION SYSTEM NOT ON YET.
HOSE SEEMS THE SAME BUT THE NOZZLE IS HIGH PRESSURE.

PsI 70 PsI 60



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: John and Sue Howe

Homeowner Address: 3205 Eaglenidge Way

Homeowner Phone: 360-676-1717 Cell-360-303-9304

Personal experience with the pumps turned off:

One would hardly notice

Water Pressure Test Data

PSI 70 **Pressure at the outside water faucet prior to the test** 2:05 PM

PSI 60 **Pressure at the outside water faucet during the test** 3:40 PM

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Slightly less

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

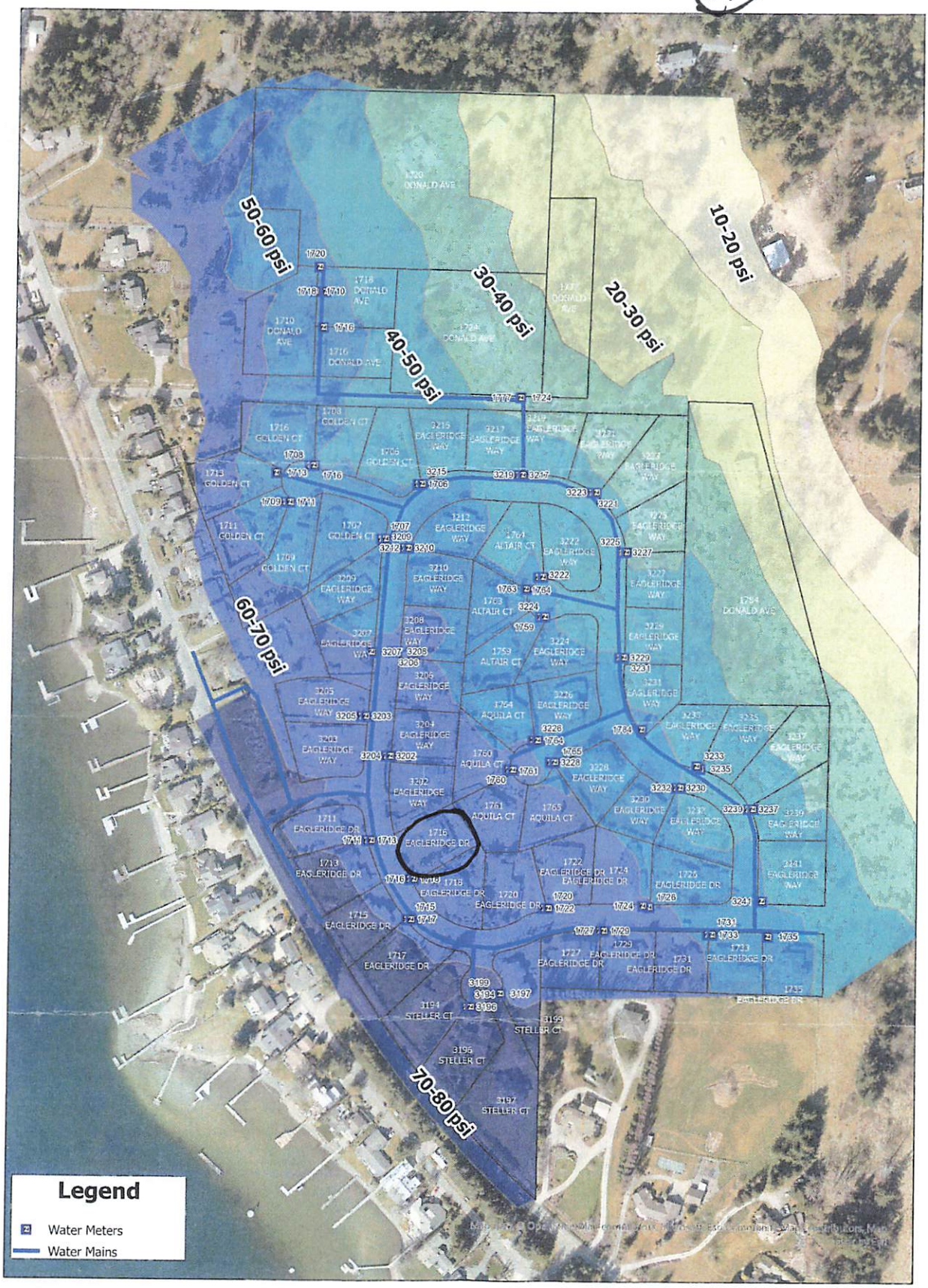
Pressure for all of the above if water is needed at the same time

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 75 PSI (61)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011

Map prepared by Lake Whatcom Water and Sewer District

2/16/2022

Water Pressure Evaluation

Homeowner Name: DAVE + JOAN MCEACHRAN

Homeowner Address: 1716 EAGLERIDGE DRIVE

Homeowner Phone: (360) 734-6405

Personal experience with the pumps turned off:

HARDLY ANY DIFFERANCE UNLESS OUTSIDE WATER WAS BEING USED & UPSTAIRS FAUCETS + WASHING MACHINE WERE ALSO ON. THEN THERE WAS A PERCEPTIBLE DECREASE IN UPSTAIRS SHOWER WATER PRESSURE.

Water Pressure Test Data

8:15am PSI 75 **Pressure at the outside water faucet prior to the test**

3:38pm PSI 61-65 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

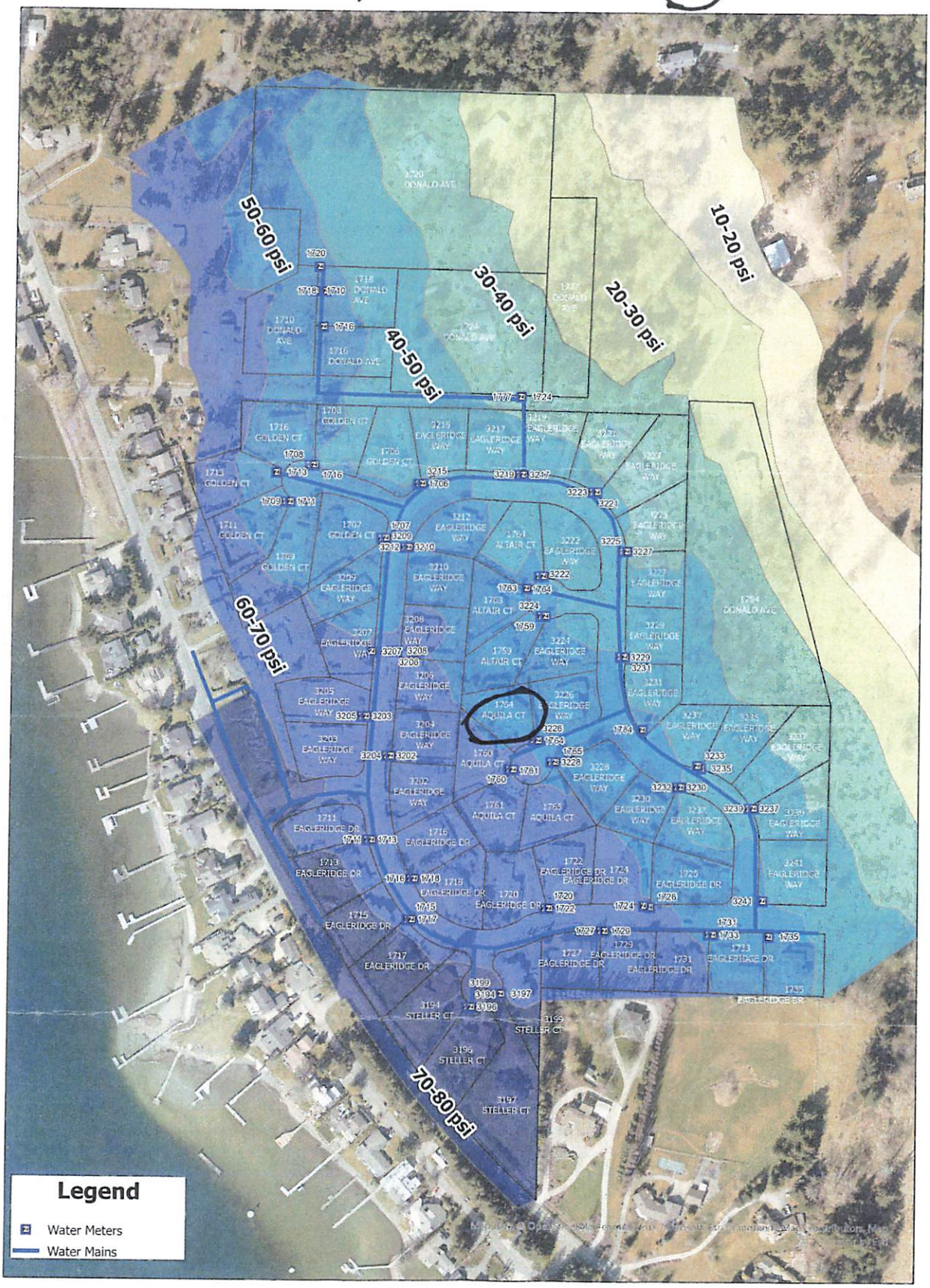
---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 90 PSI (62)



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Patricia Ramsey

Homeowner Address: 1764 Aguila Court

Homeowner Phone: 505-920-2825

Personal experience with the pumps turned off:

Last year, we remodeled a bathroom and put in a pretty elaborate shower system. With the lower water pressure, the spray heads are down instead of flow straight.

Also we have a tankless hot water system, which need a psi of 70 to operate effectively. Very concerned about that.

We have made some very expensive decisions based on a higher water pressure. ~~Now, we will likely have to~~ Wish we had known this was even a possibility that our pressure would be reduced so much.

Water Pressure Test Data

PSI 90 **Pressure at the outside water faucet prior to the test**

PSI 62 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Reduced pressure with each faucet added to the demand

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

If all upstairs faucets are running, the pressure diminished ~~noticeably~~ noticeably.

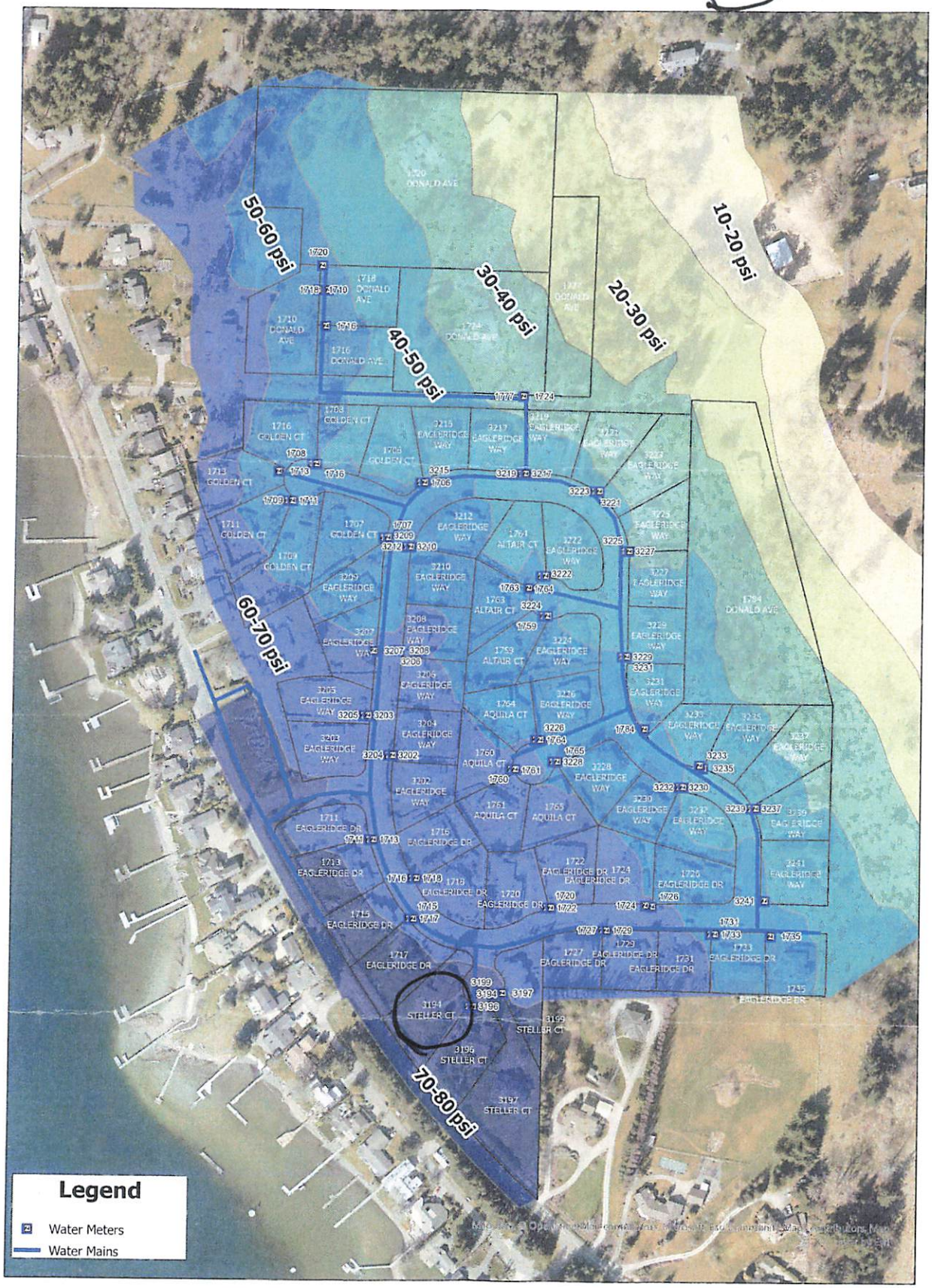
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Did not test my irrigation system

PSI 100 PSI 64



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: BRAD COLLINS

Homeowner Address: 3194 STELLER CT

Homeowner Phone: 360-820-3951

Personal experience with the pumps turned off:

WITH PUMPS TURNED OFF WATER PRESSURE DROPPED 36 PSI

Water Pressure Test Data

PSI 100 **Pressure at the outside water faucet prior to the test**

PSI 64 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the bathroom sink faucet	Same as always	(Slight less pressure)	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor ONLY 1 FLOOR HOUSE

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

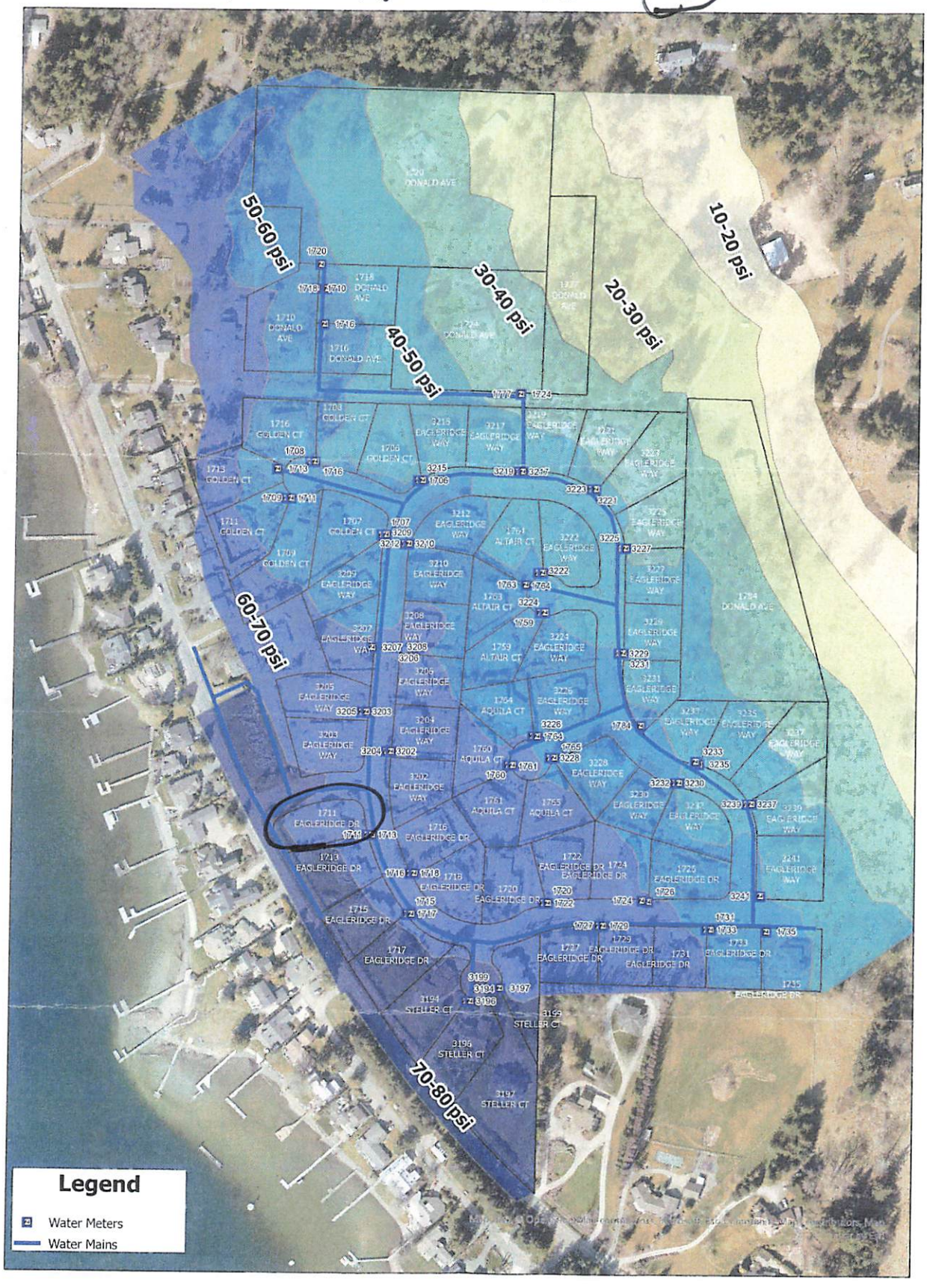
---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

PsI 96 PsI 70



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: Chung & Hing Wu

Homeowner Address: 1711 Eagleridge Dr

Homeowner Phone: 360-746-7151

Personal experience with the pumps turned off:

We would prefer to keep what we have been having.

Water Pressure Test Data

PSI 96 **Pressure at the outside water faucet prior to the test**

PSI 70 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

If outside faucet is not run, then pressure inside the house is OK

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the toilet	Same as always	Slight less pressure	(Very noticeable)
Pressure for the shower	Same as always	Slight less pressure	(Very noticeable)

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

same

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	(Very noticeable)

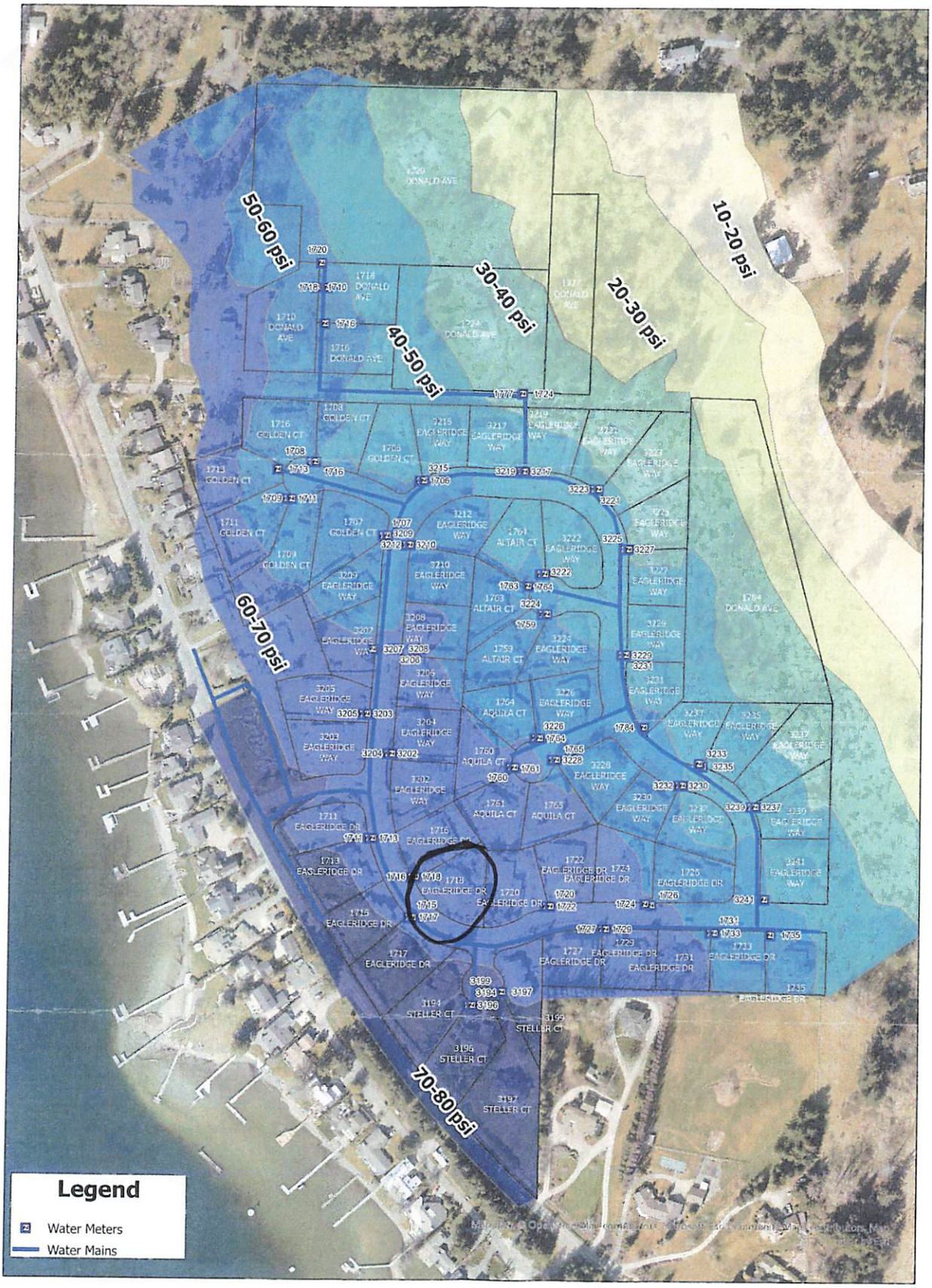
Respond with a short sentence

Would prefer our normal pressure. for the hose.

4 Homes

Unrecorded psi

PSI 100 PSI - not available "very noticeable drop in pressure



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: RASMUSSEN

Homeowner Address: 1718 EAGLE RIDGE DR

Homeowner Phone: 360-319-9219

Personal experience with the pumps turned off:

THE TEST WAS PERFORMED OUTSIDE OF PEAK HOURS FOR OUR HOME. WE TYPICALLY SHOWER, DO LAUNDRY, ETC IN THE MORNING. SO WE DIDN'T HAVE A "REAL WORLD" IDEA OF HOW MUCH THIS WILL ACTUALLY EFFECT US WHEN THE WHOLE NEIGHBORHOOD IS GETTING READY FOR WORK/SCHOOL.

Water Pressure Test Data

PSI 100 PSI **Pressure at the outside water faucet prior to the test**

PSI 70 **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

N/A

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Pressure Lowers Noticably

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Very Noticeable

Outdoor faucet

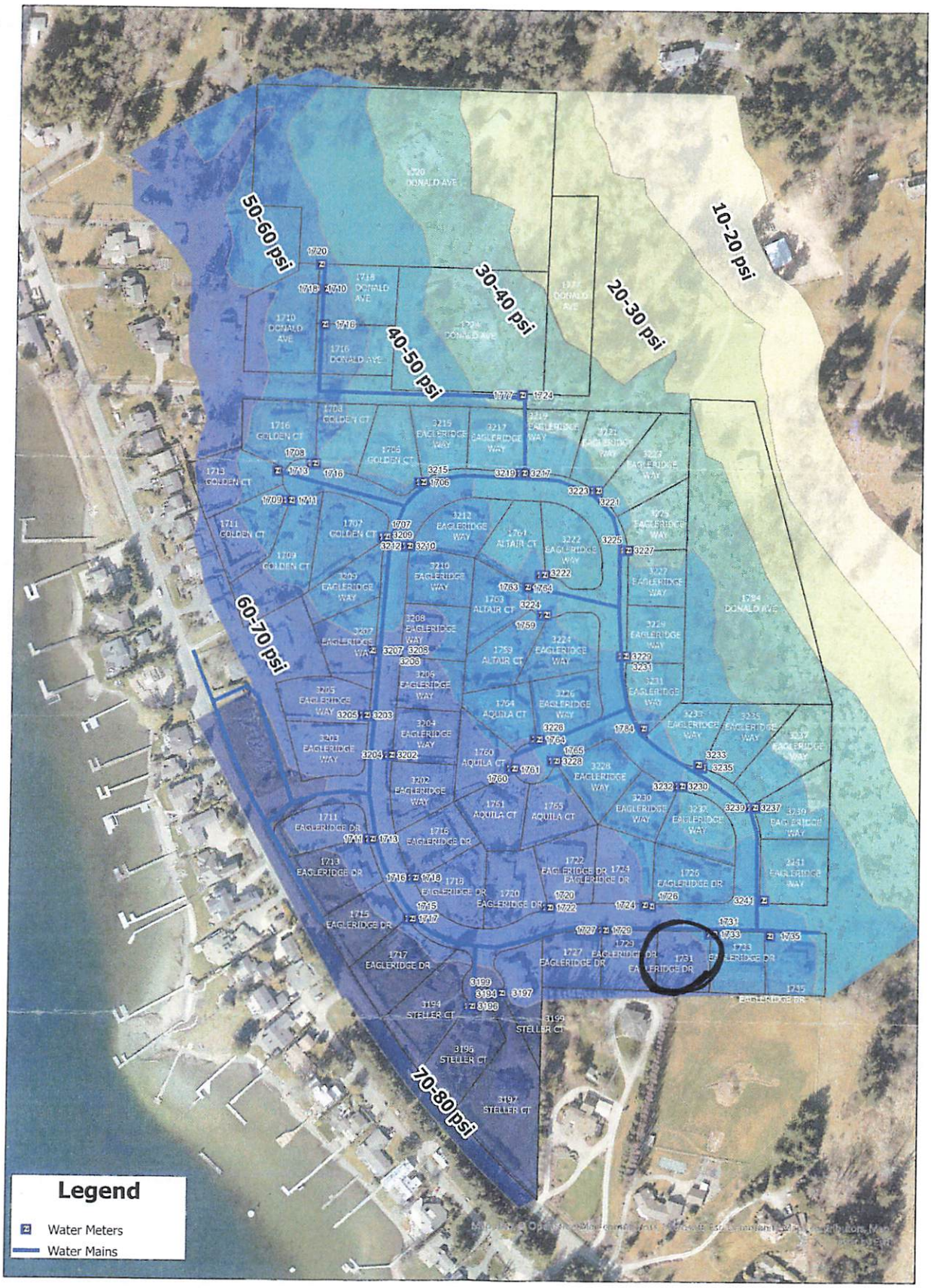
Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

PSI 65

PSI - not available

"very noticeable drop in pressure"



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011

Map prepared by Lake Whatcom Water and Sewer District

2/16/2022

Water Pressure Evaluation

Homeowner Name: Roth

Homeowner Address: 1731 Eagleridge Dr

Homeowner Phone: 360-961-8205

Personal experience with the pumps turned off:

- The sprinklers did not cover the area that was reached before.
- kitchen faucet could not dislodge food on plates.
- Shower had less pressure and over all ability to wash out shampoo was reduced
- Bathroom faucets were reduced and had what seemed half the pressure

Over all we are very unhappy with the reduced pressure and poor preformance.

Water Pressure Test Data

Ruth

PSI 65 **Pressure at the outside water faucet prior to the test**

PSI _____ **Pressure at the outside water faucet during the test**

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable N/A

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

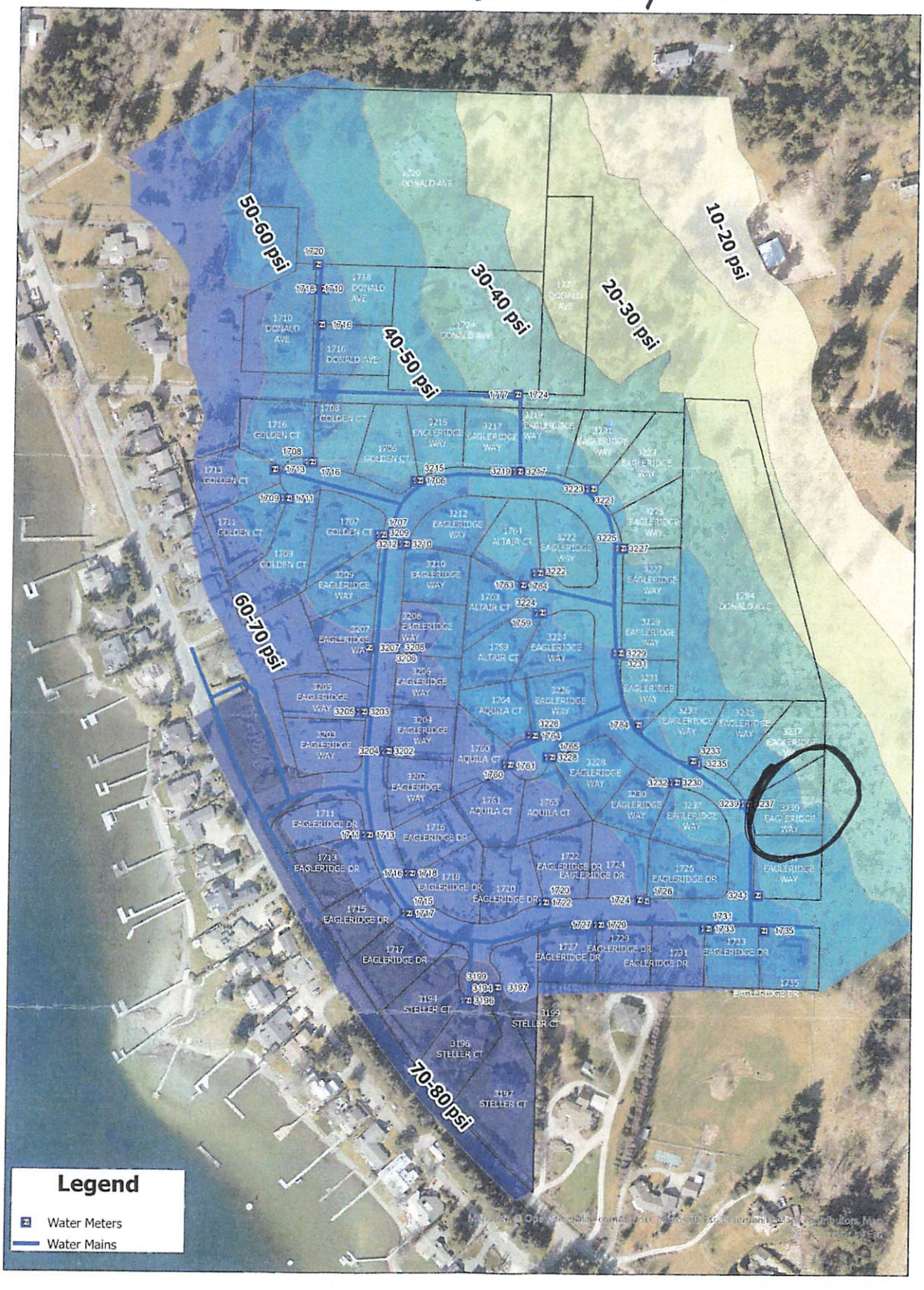
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

---

no reading "very noticeable" drop in presure



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

~~1716 Eagleridge Drive~~

Water Pressure Evaluation

Homeowner Name: Joe Speicher & Ellen Christensen

Homeowner Address: 3239 Eagleridge Way

Homeowner Phone: 360 778-2830

Personal experience with the pumps turned off:

We observed A very dramatic reduction in water pressure. Some faucets reducted to a trickle. It took 2x longer to fill the coffe pot to make coffee

Water Pressure Test Data

PSI_____ **Pressure at the outside water faucet prior to the test**

PSI_____ **Pressure at the outside water faucet during the test** Did NOT MEASURE

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

Some faucets reduced to a trickle

Second Floor Not applicable

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

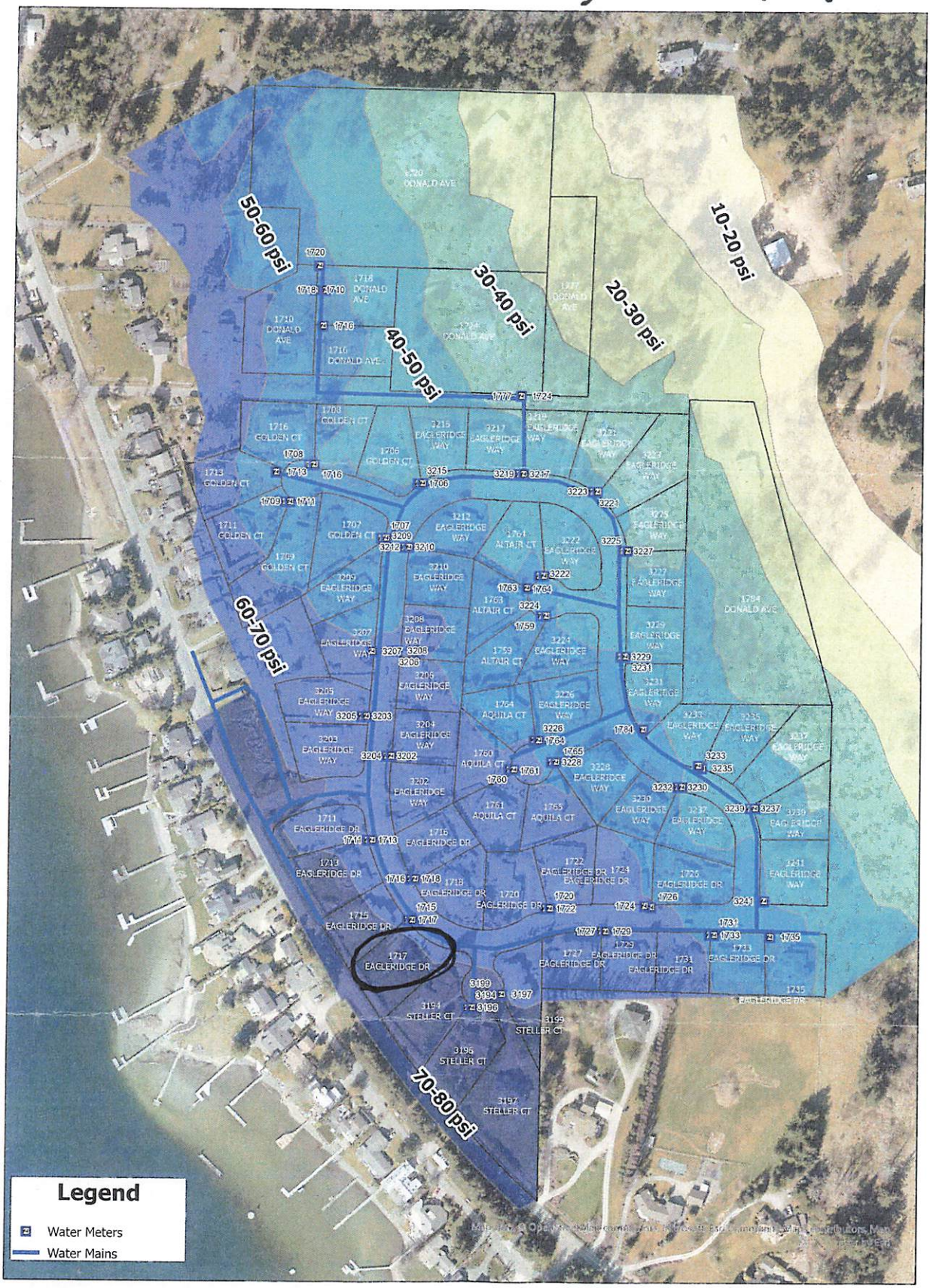
Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Very noticeable reduction in pressure

no reading "slightly lower" pressure



N

200 Feet

Eagleridge Water System

Calculated Water Pressure for Average Day Demand after Removal of Domestic Booster Pumps

District Project #C2011
Map prepared by Lake Whatcom Water and Sewer District
2/16/2022

Water Pressure Evaluation

Homeowner Name: BAKER

Homeowner Address: 1717 EAGLERIDGE DRIVE

Homeowner Phone: 360-393-3029

Personal experience with the pumps turned off:

Slightly lower pressure in upstairs shower and at kitchen sink. Otherwise no change.

Water Pressure Test Data

PSI_____ Pressure at the outside water faucet prior to the test

PSI_____ Pressure at the outside water faucet during the test

During the test, run water at an outside faucet to simulate a "high demand time".

First Floor

Pressure for the kitchen sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Second Floor

Pressure for the bathroom sink faucet	Same as always	Slight less pressure	Very noticeable
Pressure for the toilet	Same as always	Slight less pressure	Very noticeable
Pressure for the shower	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

Pressure for all of the above if water is needed at the same time

---

Outdoor faucet

Pressure for hose/sprinkler/irrigation	Same as always	Slight less pressure	Very noticeable

Respond with a short sentence

AGENDA BILL Item 9.A		**General Manager's Report**		
DATE SUBMITTED:	June 02, 2022	MEETING DATE:	June 08, 2022	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. General Manager's Report		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information from the General Manager in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

LAKE WHATCOM WATER AND SEWER DISTRICT

General Manager's Report

Upcoming Dates & Announcements

Regular Meeting – Wednesday, June 8, 2022 – 6:30 p.m.

Important Upcoming Dates

Lake Whatcom Water & Sewer District			
Regular Board Meeting	Wed June 29, 2022	8:00 a.m.	Remote Attendance
Employee Staff Meeting	Thu June 9, 2022	8:00 a.m.	Remote Attendance Commissioner Abele to attend
Investment Comm. Meeting	Wed Jul 27, 2022	10:00 a.m.	Remote Attendance
Safety Committee Meeting	Thu June 23, 2022	8:00 a.m.	Remote Attendance
Lake Whatcom Management Program			
Policy Group Meeting	Wed Sep 7, 2022	3:00 p.m.	Remote Attendance
Joint Councils Meeting	March 2023	TBD	TBD
Other Meetings			
WASWD Section III Meeting	Tue June 14, 2022	6:15 p.m.	Bob's Burgers, 8822 Quil Ceda Pkwy, Tulalip, WA
Whatcom Water Districts Caucus Meeting	Wed June 15, 2022	2:00 p.m.	Remote Attendance
Whatcom County Council of Governments Board Meeting	Wed Oct 12, 2022	3:00 p.m.	Remote Attendance

Committee Meeting Reports

Safety Committee:

- No committee meeting has been held since last board meeting.

Investment Committee:

- No committee meeting has been held since last board meeting.

Upcoming Board Meeting Topics

- Biennial budget discussion
- Lakewood/Rocky Ridge Sewer Lift Stations Improvement project presentation
- Division 7 Reservoir Replacement project presentation (No. 2)
- Commissioner Protocol Manual review
- Glen Cove Water Association consolidation
- DISH Wireless proposed cell tower public hearing/resolution consideration

2022 Initiatives Status

Administration and Operations

Capital Improvement Project Financing Plan

- Develop a financial plan that proactively prepares the District for significant capital projects on the near-term horizon while maintaining Board-defined operational levels-of-service.
  The board adopted an updated rate structure in 2021 and a review of general facilities charges is underway, both of which incorporate anticipated CIP costs over the next decade. Related efforts include meeting with Cathi Read of the state Department of Commerce's Small Communities Initiative to discuss funding strategies, application for a FEMA Hazard Mitigation Grant for the Sudden Valley WTP chlorine contact basin replacement; and ongoing dialogue with city of Bellingham staff regarding financing the Post Point WWTP resource recovery project.

General Facilities Charges Review

- Conduct a review of District water and sewer general facilities (connection) charges (GFCs) to ensure appropriate fees are being assessed to new development.
  Project kick-off presentation was provided during the April 27 meeting; staff are compiling data for the consultant.

Records Management System Overhaul

- Complete transition of the District's current records management system to a more robust system that ensures compliance with statutory requirements and gains efficiencies in document management.
  A District-consultant meeting was held on April 28. The next step is to develop a procurement plan for records management software.

Safety Program Update

- Continue systematic review and revision of District's safety programs by updating nine programs in 2022.
  The safety committee has finalized updates to four programs (PPE, safety responsibilities, and slips, trips and falls, and the heat-related illness) and is currently reviewing the respiratory protection program.

Capital Improvement Program Support

- Support the Engineering Department through management of specific capital improvement project(s).
  The general manger is managing the Eagleridge Water Booster Station Conversion (District Project No. C2011) and Division 30 Reservoir Hazardous Tree Removal (District Project No. M2226) projects, and completed the Commissioner Boundary update (District Project No. A2116).

Emergency Response/System Security

Emergency Readiness

- Re-engage with Whatcom County Department of Emergency Management to hold tabletop emergency response exercises, as well as a field exercise (pandemic-dependent).
  District held a tabletop exercise May 25 at the Whatcom County Division of Emergency Management facility—topic was cybersecurity awareness.
  Whatcom Conservation District staff conducted facility audits (SVWTP, Division 30 reservoir, Beaver sewer lift station) on May 16 regarding wildfire resilience preparedness. Lessons learned will be applied to other District facilities.

Cybersecurity Assessment

- Hire an IT-service provider to perform a third-party assessment of the District's vulnerability to cybercriminal attack.
  To be initiated.

Community/Public Relations

General

- Website
  The District's web content is reviewed and updated on a regular basis.
- Social Media
  Posts are made to District Facebook and LinkedIn pages regularly; Nextdoor is regularly monitored for District-related posts.
- Press Releases
  Press releases were issued on March 2 (commissioner redistricting public hearing) and March 21 (sewage overflow at North Point lift station).

Intergovernmental Relations

- *J Clary attended meeting with Representative Rule and Senator Sefzik at the Birch Bay Water and Sewer District facilities on May 24.*

Lake Whatcom Water Quality

Lake Whatcom Management Program

- Participate in meetings of Lake Whatcom Management Program partners.
  J Clary attended a meeting a meeting regarding Lake Whatcom TMDL modeling with LWMP members on May 24 and the Policy Group meeting on June 1.

Onsite Septic System Conversion Program

- Pursue connection of the one remaining septic-served parcel located within 200 feet of District sewer system identified in the memorandum to the Board dated April 9, 2020.
  To be initiated.