



January 2, 2024

City of Nehalem  
P.O. Box 143  
Nehalem, OR 97131

Attn: City Manager, Lori Longfellow

**Re: Update on Additional Water Connections Services – Moratorium Extension**

Dear Ms. Longfellow,

On November 14, 2022, the City of Nehalem, Oregon passed Ordinance No. 2022-02 adopting a moratorium on new water connections to address the water system inadequacies and to declare a water system emergency. On January 9, 2023, the City adopted Resolution 2023-02, adopting a public facilities strategy identifying solutions to address these inadequacies. Installing improvements to address these inadequacies required extending the moratorium for an additional six months through the adoption of Ordinance 2023-04. As explained in greater detail below, additional improvements are necessary and for that reason, a second extension to the moratorium is necessary. To that end, in support of this second moratorium extension request, we offer the following analyses. Further, that through this letter, the City can demonstrate that reasonable progress is being made to alleviate the problem giving rise to the moratorium; and this extension will last no longer than six months.

As we have previously explained, an adequate water system is one that can maintain a pressure of at least 20 pounds per square inch (psi) at all service connections at all times and meets the City's minimum fire flow requirement for single family residential development of 1,000 gallons per minute (gpm) sustained for a minimum of 1-hour. OAR 333-061-0200(150) and 2015 Water Master Plan. A Technical Evaluation summary dated September 6, 2022 from this office summarized the existing water system deficiencies in the following finding:

“We know from 2 sets of recent hydrant flow tests, that while the hydrants along North Fork Road, McDonald Road or HWY 53 are operated, the pressure at nearby water services above elevation 110' are adversely affected and cannot sustain the required 20 psi. This includes all water services located in Riverview Meadows and other elevated services primarily west of North Fork Road. As mentioned above, these tests were conducted twice, once contracted by the City of Nehalem and once contracted by the developers of Riverview Meadows, with the same results of less than 20 psi for both sets of tests. These tests indicate that the system is currently operating beyond its capacity.”

In addition, the properties located along McDonald Road and Highway 53 currently have adequate pressures for residential use, approximately 75- 85 psi. Due to the length of the dead-end, non-looped water pipe, it is unlikely that new development will be able to meet the 1,000 gpm fire flow requirement.

## TASKS COMPLETED TO THE CITY'S WATER SYSTEM

Since the last extension of the Moratorium, the City has accomplished the following:

- Installed the pressure check valve near North Fork Road/Riverview Meadows Rd.
- Arranged for testing and validation of flows by Engineer of Record and Nehalem Bay Fire and Rescue (NBF&R). The following hydrants were tested on November 8, 2023 and NBF&R provided their previous testing results from November 10, 2015.

<b>FIRE HYDRANT LOCATION</b>	<b>FLOW: 11/10/15</b>	<b>FLOW: 11/8/23</b>
North Fork Road	718 GPM	1057 GPM
McDonald Road (Liars Lair)	529 GPM	907 GPM
HWY 53	362 GPM	376 GPM

## EVALUATION OF IMPACTS DUE TO SYSTEM UPGRADES

As stated above, a water pressure check valve was installed on Riverview Meadows Road, near the intersection of North Fork Road in the spring/summer of 2023. The check valve's purpose is to protect the water pressure in Riverview Meadows water system when high flows are introduced to the water main on North Ford Road, McDonald Road or HWY 53. Upon installation of the check valve, tests were performed on the system by opening up the existing fire hydrants on North Fork Road to its full capacity and watching the pressure gauges installed on the Riverview Road water main. The pressure gauge dropped significantly along the North Fork Road gauge, by the Riverview Meadows water main held its pressure as intended. This proved that the pressure check valve operates as designed and will now prevent the water pressure from dropping below 20 psi in Riverview Meadows, Unit 1 subdivision, for a duration of time. Once the flow along North Fork Road stopped, the pressure check valve automatically re-opened and regular water flow returned. Therefore, the Oregon Health Authority imposed obligation of maintaining a minimum water pressure of at least 20 psi is satisfied.

With the knowledge that the installed pressure check valve accomplished its intended function, we coordinated with NBF&R to see the impact on fire hydrant flows. As highlighted in the chart above, when compared with the 2015 data, hydrant flows have increased. The fire hydrants on North Fork Road are now consistently providing over the required 1,000 GPM. However, while flow has increased on all hydrants along McDonald Road and HWY 53, they are still below the required fire flow. These flows are not sufficient to meet the City's standard from the Water Master Plan, and the Oregon State Regulatory flows as outlined above.

## CONCLUSION

While the above testing and results are trending in the appropriate direction, additional improvements and subsequent measurements will need to be undertaken, which requires a further extension of the Water Moratorium.

The adopted public facilities program mentioned at the outset, highlights some of the recommended improvements, (in no order) as they have not changed:

- Riverview Meadows Phase 2/3 planned water system improvements. This includes a reservoir and pumping system on Tract A of RVM Phase 2

- Potential corrective improvements, such as a Fire Department Substation Reservoir on Highway 53
- Tidelands Water Main
- Development of the Coal Creek Micro Treatment Plant

After each improvement above is accomplished, testing, validated by the City Engineer and the Nehalem Bay Fire and Rescue Department will be done. The City will continue working and coordinating with the developers of Riverview Meadows, the NBF&R and internally to help push these solutions forward.

**KEY:** Additional water storage and adequate infrastructure to deliver water meeting pressure and flows to the areas of North Fork Road, McDonald Road and Riverview Meadows are required. Therefore, until the RVM Phase 2 reservoir and pumping system is installed, tested, and on-line, or the Fire Department Substation Reservoir is installed, tested and on-line, **the Moratorium should be extended for an additional 6 months.**

**Alternatively,** the Tidelands Water Main, or the Development of the Coal Creek Micro Treatment Plant could be developed. Either project should be able to provide the water and infrastructure necessary to deliver water to the areas of North Fork Road, McDonald Road and Riverview Meadows per water supply standards outlined above. The City should commit to meeting with affected stakeholders, including the Fire Department, during the next six month period to further these efforts.

Lifting of the Water Moratorium should only be done with the concurrence of the OHA-DWP, Nehalem Bay Fire and Rescue Service, City Water Department, and the Engineer of Record for the City.

Safe and adequate water service availability is always the goal.

Please feel free to reach out with any questions.

Sincerely,  
North Coast Civil Design, LLC



**Kyle Ayers, PE**  
**Principle in Charge**



# Nehalem Bay Fire & Rescue

## Flow Test for Hydrant N-60

Start Time: 2023-11-08 14:02:23

End Time: 2023-11-08 14:03:06

Tested By: Walsh , Jesse H

### Test Hydrant

Static Pressure:	90.0
Residual Pressure:	56.0
Desired Pressure:	20.0
Volume at Desired Pressure:	1057.0

### Flow Hydrants

Downstream Hydrant ID	Port Diameter	Friction Coefficient	Pitot Pressure	Flow (Calculated)
	2.0	1.3100000000000001	21.0	716.0



# Nehalem Bay Fire & Rescue

## Hydrant N-60

LOCATION
near 38000 North Fork Rd 38185 Northfork RD Nehalem, OR 97131

LATITUDE	LONGITUDE	MAP PAGE	NATIONAL GRID	PARCEL NUMBER
45.732692900000004	-123.87967399999999			

ZONE	DISTRICT	STATION
R3	Nehalem	

## Flow Tests for Hydrant N-60

Start Time	End Time	Static Pressure	Residual Pressure	Desired Pressure	Volume at Desired Pressure	Tested By
2023-11-08 14:02:23	2023-11-08 14:03:06	90.0	56.0	20.0	1057.0	Walsh , Jesse H
2022-03-16 13:54:42	2022-03-16 13:54:50	84.0	0.0	20.0	266.0	Knight III, Frank E.
2015-11-10 16:19:26	2015-11-10 16:20:04	86.0	38.0	20.0	718.0	Walsh , Jesse H

## Work Orders for Hydrant N-60

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No



# Nehalem Bay Fire & Rescue

## Flow Test for Hydrant N-74

Start Time: 2023-11-08 14:12:46

End Time: 2023-11-08 14:13:32

Tested By: Walsh , Jesse H

### Test Hydrant

Static Pressure:	88.0
Residual Pressure:	27.0
Desired Pressure:	20.0
Volume at Desired Pressure:	907.0

### Flow Hydrants

Downstream Hydrant ID	Port Diameter	Friction Coefficient	Pitot Pressure	Flow (Calculated)
	3.0499999999999998	1.3799999999999999	5.0	856.0



# Nehalem Bay Fire & Rescue

## Hydrant N-74

LOCATION
Liars Lair 15575 Liars Nehalem, OR 97131

LATITUDE	LONGITUDE	MAP PAGE	NATIONAL GRID	PARCEL NUMBER
45.73170389999999	-123.872179			

ZONE	DISTRICT	STATION
R3	Nehalem	

## Flow Tests for Hydrant N-74

Start Time	End Time	Static Pressure	Residual Pressure	Desired Pressure	Volume at Desired Pressure	Tested By
2023-11-08 14:12:46	2023-11-08 14:13:32	88.0	27.0	20.0	907.0	Walsh , Jesse H
2015-11-10 13:46:27	2015-11-10 13:53:16	86.0	28.0	20.0	529.0	Walsh , Jesse H

## Work Orders for Hydrant N-74

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No



# Nehalem Bay Fire & Rescue

## Flow Test for Hydrant N-82

Start Time: 2023-11-08 14:05:37

End Time: 2023-11-08 14:06:16

Tested By: Walsh , Jesse H

### Test Hydrant

Static Pressure:	79.0
Residual Pressure:	18.0
Desired Pressure:	20.0
Volume at Desired Pressure:	376.0

### Flow Hydrants

Downstream Hydrant ID	Port Diameter	Friction Coefficient	Pitot Pressure	Flow (Calculated)
	2.0	1.3100000000000001	6.0	383.0





# Nehalem Bay Fire & Rescue

## Hydrant N-82

LOCATION
Hwy 53 & McDonald Rd 16875 Camp Four RD Nehalem, OR 97131

LATITUDE	LONGITUDE	MAP PAGE	NATIONAL GRID	PARCEL NUMBER
45.728610600000003	-123.855211			

ZONE	DISTRICT	STATION
R3	Nehalem	

## Flow Tests for Hydrant N-82

Start Time	End Time	Static Pressure	Residual Pressure	Desired Pressure	Volume at Desired Pressure	Tested By
2023-11-08 14:05:37	2023-11-08 14:06:16	79.0	18.0	20.0	376.0	Walsh , Jesse H
2022-03-16 14:29:57		70.0	20.0	20.0	246.0	Knight III, Frank E.
2015-11-10 16:32:15	2015-11-10 16:32:34	76.0	14.0	20.0	362.0	Walsh , Jesse H

## Work Orders for Hydrant N-82

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No