

HMC *Harris-McMonagle*

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8740 SW Scoffins Street • Tigard, Oregon 97223-6226
Tel. (503) 639-3453 • Fax (503) 639-1232 • www.h-mc.com

December 8, 2008

Peter Spir
City of West Linn Planning Department
22500 Salamo Road
West Linn, Oregon 97068

Project: Ralston Residence, 18490 Nixon Avenue

Subject: Flood Plain Encroachment

Peter:

Attached is a flood plain certification map for 18490 Nixon Avenue showing the existing house, the proposed porch enclosure improvements, and the 100 year flood plain elevation.

REQUESTED APPROVAL

Habitable floor area is defined as any floor usable for living purposes, which includes working, sleeping, eating, cooking or recreation, or a combination thereof. A floor used for storage purposes is not a “habitable floor.” The applicant requests approval to construct a new front entry, covered concrete deck, open wood deck and concrete stair entry onto the existing home. All improvements proposed to the house are considered non-habitable areas. The proposed improvements will also be constructed outside the floodway boundary limits and outside of the special flood hazard boundary as shown on the Flood Plain Certification exhibit which has been prepared and stamped by a licensed Civil Engineer.

The written narrative to the City of West Linn Chapter 27, Flood Management Areas, is as follows:

27.060 APPROVAL CRITERIA

The Planning Director shall make written findings with respect to the following criteria when approving, approving with conditions, or denying an application for development in flood management areas.

- A. *Development, excavation, and fill shall be performed in a manner to maintain or increase flood storage and conveyance capacity and not increase design flood elevations.*

Response: The proposed addition on the front/west side of the of the existing residence will not have an impact on the conveyance of the Willamette River during the 100 year flood, as the proposed improvement is a considerable distance from the floodway conveyance boundary as shown on the Flood Plain Certification Map and referenced from FIRM Map #41005C0019D. The proposed building addition will not cause an increase the design flood elevation because it is entirely outside of the flood hazard areas and floodway boundary limits as detailed on the exhibit submitted with this narrative.

- B. *No net fill increase in any floodplain is allowed. All fill placed in a floodplain shall be balanced with an equal amount of soil material removal. Excavation areas shall not exceed fill areas by*

more than 50 percent of the square footage. Any excavation below bankful stage shall not count toward compensating for fill.

Response: Soil fill is not proposed to be placed in the floodplain as a part of the proposed building addition.

C. *Excavation to balance a fill shall be located on the same parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation shall be located in the same drainage basin and as close as possible to the fill site, so long as the proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis.*

Response: An excavation balance is not required within the floodplain as no soil filling is proposed.

D. *Minimum finished floor elevations must be at least one foot above the design flood height or highest flood of record, whichever is higher, for new habitable structures in the flood area.*

Response: As shown on the Flood Plain Certification exhibit the finished floor of all habitable area within the house is 46.55 feet a minimum of 1-foot higher than the 100 year flood plain elevation which is 45.5 feet.

E. *Temporary fills permitted during construction shall be removed.*

Response: No temporary fills are proposed.

F. *Prohibit encroachments, including fill, new construction, substantial improvements, and other development in floodways unless certification by a professional civil engineer licensed to practice in the state of Oregon is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.*

Response: As demonstrated on the Flood Plain Certification the proposed addition is a considerable distance from the floodway conveyance boundary line. The proposed building addition will not result in any increase in flood levels during the occurrence of the base flood discharge.

G. *All proposed improvements to the floodplain or floodway which might impact the flood carrying capacity of the river shall be designed by a professional civil engineer licensed to practice in the state of Oregon.*

Response: The proposed addition will not impact the flood carrying capacity of the river, as it is located a considerable distance from the floodway conveyance boundary limits, and the improvement is located in a "backwater" section of the floodplain specifically zone "X" where the river conveyance is minimal. Zone X is defined by FEMA as Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. The 1996 flood pictures provided by Martin Ralston showed a calm backwater around the west side of the existing structure, with no evidence of significant movement/conveyance.

H. *New culverts, stream crossings, and transportation projects shall be designed as balanced cut and fill projects or designed not to significantly raise the design flood elevation. Such projects shall be designed to minimize the area of fill in flood management areas and to minimize erosive velocities. Stream crossings shall be as close to perpendicular to the stream as practicable. Bridges shall be used instead of culverts wherever practicable.*

Response: No culverts, stream crossings, or transportation projects are proposed as a part of the building addition.

- I. *Excavation and fill required for the construction of detention facilities or structures, and other facilities, such as levees, specifically shall be designed to reduce or mitigate flood impacts and improve water quality. Levees shall not be used to create vacant buildable land.*

Response: No detention facilities, levees, or other storm drainage facilities are proposed as a part of the building addition.

- J. *The applicant shall provide evidence that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required. (ORD 1522)*

Response: Federal or State Permits are not required for the proposed building addition. If required prior to construction the applicant will obtain building permits from the City of West Linn for the proposed improvements.

27.65 INTERPRETATION OF FLOOD BOUNDARIES

The Planning Director shall make interpretations, where needed, as to exact location of the boundaries of the flood hazard area (for example, where there appears to be a conflict between mapped boundaries and the actual filed condition). Any person contesting the location of the boundary may appeal the Planning Director's interpretation pursuant to Section 01.060 of this Code.

Response: Refer to the Flood Plain Certification Map for the location 100 year flood plain elevation (45.5 feet) and Floodway boundary limits. This information was referenced directly from FIRM Map #41005C0019D and field tied prior to submittal of this application.

27.070 CONSTRUCTION MATERIALS AND METHODS

- A. *All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage using methods and practices that minimize flood damage.*

Response: The building materials will be flood resistant. Utility equipment is not proposed as a part of the addition.

- B. *Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.*

Response: Electrical, heating, ventilation, and other service facilities will be designed or elevated so as to prevent water from entering or accumulating within the components during conditions of flooding.

- C. *New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.*

Response: No new or replacement water supply systems are included with the proposed addition.

- D. *New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.*

Response: No new or replacement sanitary sewage systems are proposed with the proposed addition.

E. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Response: No onsite waste disposal systems are proposed to be constructed with the proposed addition.

F. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

Response: The details for anchoring the proposed addition will be shown on the future building addition plans.

27.080 RESIDENTIAL CONSTRUCTION

A. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to at least one foot above the base flood elevation.

Response: The proposed addition is not new construction and should not be considered a substantial improvement.

B. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a professional civil engineer or architect licensed to practice in the state of Oregon, and must meet or exceed the following minimum criteria:

- 1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.*
- 2. The bottom of all openings shall be no higher than one foot above grade.*
- 3. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry or exit of floodwaters.*
- 4. Fully enclosed areas below the base flood elevation shall only be used for parking, access, and limited storage.*
- 5. Service equipment (e.g., furnaces, water heaters, washer/dryers, etc.) is not permitted below the base flood elevation.*
- 6. All walls, floors, and ceiling materials located below the base flood elevation must be unfinished and constructed of materials resistant to flood damage.*

Response: Prior to final building permit approval the future building addition plan set will specify the openings and material types for the new entry way, in conformance with this Section.

C. Crawlspace. Crawlspace are a commonly used method of elevating buildings in Special Flood Hazard Areas (SFHAs) to or above the Base Flood Elevation (BFE), and are allowed subject to the following requirements:

- 1. The building is subject to the Flood-Resistant Construction provisions of the Oregon Residential Specialty Code.*
- 2. They shall be designed by a professional engineer or architect licensed to practice in the State of Oregon to meet the standards contained in the most current Federal Emergency Management Agency's (FEMA) Technical Bulletin.*
- 3. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.*
- 4. Flood vent openings shall be provided on at least two sides that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. The total area of the flood vent openings must be no less than 1 square inch for each square foot of enclosed area.*

The bottom of each flood vent opening can be no more than 1 foot above the lowest adjacent exterior grade. For guidance on flood openings, see FEMA Technical Bulletin 1-93, Openings in Foundation Walls.

5. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls (studs and sheathing), but also any, joists, insulation, or other materials that extend below the BFE. For more detailed guidance on flood-resistant materials see FEMA Technical Bulletin 2-93, Flood-Resistant Materials Requirements.

6. Utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters. For further guidance on the placement of building utility systems in crawlspaces, see FEMA 348, Protecting Building Utilities From Flood Damage. Flood-resistant materials and utilities, access, and ventilation openings in crawlspaces are further addressed in this bulletin.

7. The interior grade of a crawlspace below the BFE must not be more than 2 feet below the lowest adjacent exterior grade (LAG).

8. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed 4 feet at any point. This limitation will also prevent these crawlspaces from being converted into habitable spaces.

9. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. Possible options include natural drainage through porous, well-drained soils and drainage systems such as low-point drains perforated pipes, drainage tiles, or gravel or crushed stone drainage by gravity.

10. The velocity of floodwaters at the site should not exceed 5 feet per second for any crawlspace. For velocities in excess of 5 feet per second, other foundation types should be used.

11. For more detailed information refer to FEMA Technical Bulletin 11-01 or the most current edition.

12. The use of below grade crawlspaces to elevate the building to 1-ft. above the BFE may cause an increase in flood insurance premiums which, are beyond the control of the City. (ORD. 1565)

Response: The future building addition plan set will specify the design of any proposed crawl space, in conformance with this Section.

D. A poured slab placed over fill can be used to elevate the lowest floor of a structure above the base flood elevation. However, when a building site is filled, it is still in the floodplain and no basements are permitted.

Response: The proposed addition will not include a slab poured over a fill.

E. Placing a structure on piers, piles, and posts is allowed provided supporting members are designed to resist hydrostatic and hydrodynamic forces.

Response: The future building plan addition plan set will specify the type of construction for the proposed addition.

27.090 NON-RESIDENTIAL CONSTRUCTION

New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall either have the lowest floor, including basement, elevated to at least one foot above the level of the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

Response: The proposed addition will be residential construction. This Section does not apply.

Please call me with any questions regarding the narrative, or attached plan.

Sincerely,
James (Jay) O. Harris, PE #15,988

FLOOD PLAIN CERTIFICATION FOR MR. MARTIN RALSTON

FOR AN EXISTING PORCH TO BE CONVERTED INTO AN ENCLOSED COVERED DECK AND NEW ENTRY

SUBJECT PROPERTY IS LOCATED AT 18490 NIXON AVE. SITUATED IN THE SW 1/4 OF SECTION 13, TOWNSHIP 2-SOUTH, RANGE 1-EAST, WILLAMETTE MERIDIAN, CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

100-YEAR FLOOD PLAIN ELEVATION FOR SITE: 45.5 ELEVATION INTERPOLATED FROM F.E.M.A. MAP NUMBER 41005C0018D, AS SHOWN AT RIGHT

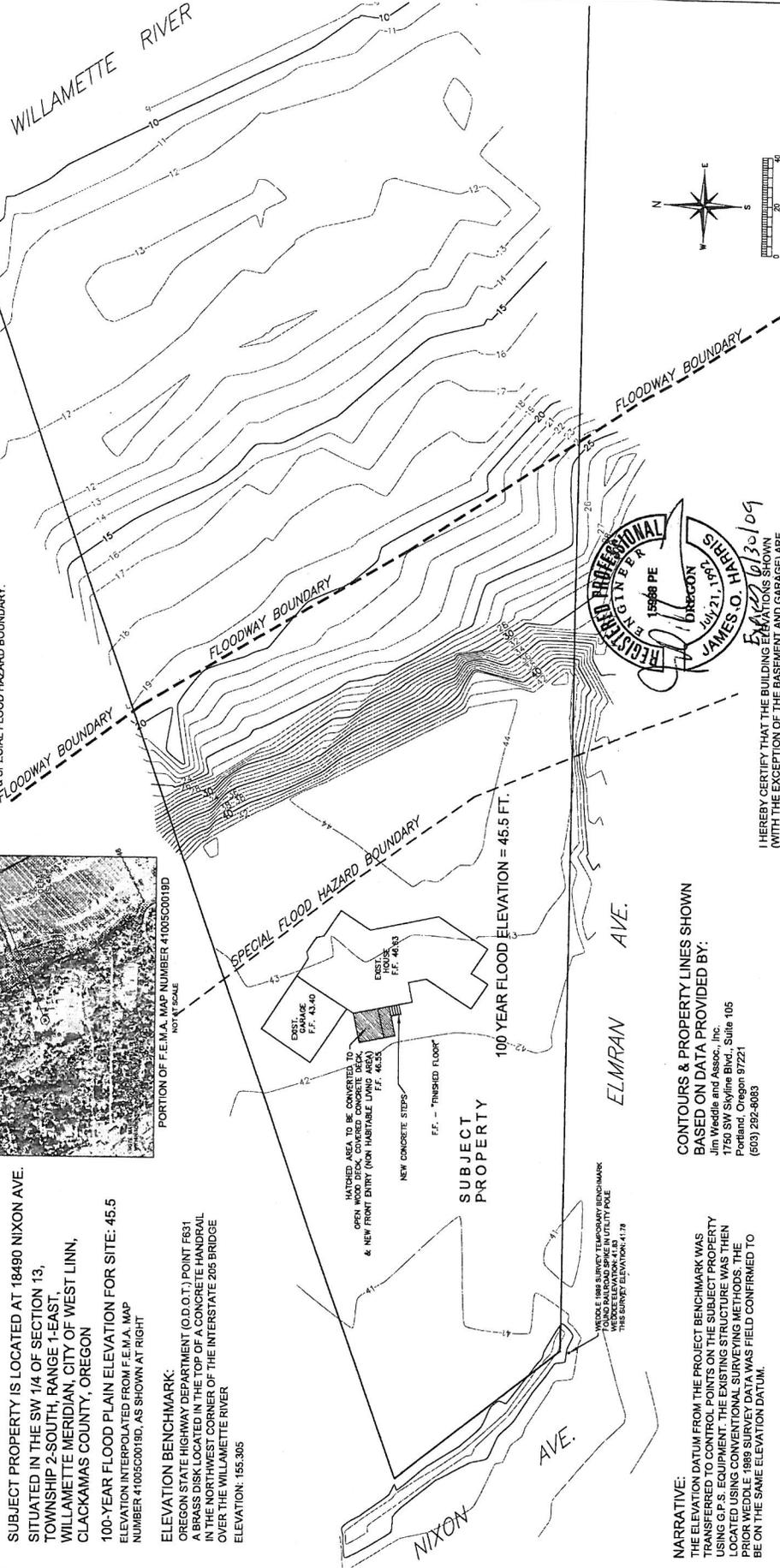
ELEVATION BENCHMARK:

OREGON STATE HIGHWAY DEPARTMENT (O.D.O.T.) POINT FB31 A BRASS DISK LOCATED IN THE TOP OF A CONCRETE HANDRAIL IN THE NORTHWEST CORNER OF THE INTERSTATE 205 BRIDGE OVER THE WILLAMETTE RIVER ELEVATION: 155.305



PORTION OF F.E.M.A. MAP NUMBER 41005C0018D NOT TO SCALE

NOTES:
 THE ENTIRE HOUSE IS LOCATED IN ZONE (X)
 AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVG. DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE.
 AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.
 ALL PROPOSED IMPROVEMENTS ARE OUTSIDE THE FLOODWAY BOUNDARY LIMITS.
 & SPECIAL FLOOD HAZARD BOUNDARY.



REGISTERED PROFESSIONAL ENGINEER
 JAMES O. BIRSON
 July 21, 1971
 OREGON
 1988 PE
 6030104

CONTOURS & PROPERTY LINES SHOWN BASED ON DATA PROVIDED BY:
 Jim Weddle and Assoc., Inc.
 1750 SW Skyline Blvd., Suite 105
 Portland, Oregon 97221
 (503) 292-8083

NARRATIVE:
 THE ELEVATION DATUM FROM THE PROJECT BENCHMARK WAS TRANSFERRED TO CONTROL POINTS ON THE SUBJECT PROPERTY USING G.P.S. EQUIPMENT. THE EXISTING STRUCTURE WAS THEN LOCATED USING CONVENTIONAL SURVEYING METHODS. THE POINTS WERE THEN USED TO INTERPOLATE THE 100-YEAR FLOOD PLAIN. THE 1989 SURVEY DATA WAS FIELD CONFIRMED TO BE ON THE SAME ELEVATION DATUM.

I HEREBY CERTIFY THAT THE BUILDING EVALUATIONS SHOWN (WITH THE EXCEPTION OF THE BASEMENT AND GARAGE) ARE THAT OF THE 100-YEAR FLOOD PLAIN, AS SHOWN ON F.E.M.A. MAP NUMBER (FHM 1005C0018D) DATED JUNE 17, 2008.

REVISIONS		REFERENCE INFORMATION		SCALE	
NO.	DESCRIPTION	APPR.	DATE	DRAWING NAME	AS SHOWN
				18490 NIXON AVE.	1
				WEST LINN, OREGON	
				FLOOD PLAIN CERTIFICATION	
				HMC Harris-McMonagle Associates, Inc.	
				ENGINEERING - SURVEYING - PLANNING	
				8740 SW Scoville Street, Tigard, Oregon 97223	
				Tel: (503) 639-3453 Fax: (503) 639-1232	
				MARTIN RALSTON	
				18490 NIXON AVE.	
				WEST LINN, OR 97068	
				TCM	
				PREPARED BY	
				CHECKED BY	
				DATE	11/28/08