



McSweeney Associates, Inc.

Environmental Engineering Services

RFA Calculations:

In table below shows S.F. taken from Hoyt Land Surveying.

<u>RIVER FRONT AREA IMPERVIOUS SURFACE AND DISTURBED GROUND AREA TABLE (OVERALL)</u>	
<u>EXISTING</u>	<u>PROPOSED (NEW WORK)</u>
0-100' RIVER FRONT AREA	0-100' RIVER FRONT AREA
20 S.F. (STONE STEPS)	0 S.F.
<u>EXISTING</u>	<u>PROPOSED (NEW WORK)</u>
100'-200' RIVER FRONT AREA	100'-200' RIVER FRONT AREA
5,182 S.F. (LIST A)	1,224 S.F. (LIST B)
<u>LOT AREA WITHIN RIVER FRONT AREA</u>	
0-100' RIVER FRONT AREA	
44,676 S.F.	
100'-200' RIVER FRONT AREA	
34,437 S.F.	

<u>LIST A</u>	
PAVED DRIVEWAY	2,222 sq. ft.
PATIO	91 sq. ft.
PATIO	23 sq. ft.
STONE STEPS	61 sq. ft.
SHED	104 sq. ft.
GARAGE	506 sq. ft.
REAR PAVING	333 sq. ft.
HOUSE	1,842 sq. ft.

<u>LIST B</u>	
COVERED ENTRY	36 sq. ft.
COVERED PATIO	160 sq. ft.
ADU	896 sq. ft.
CHIMNEY	6 sq. ft.
BULKHEAD	28 sq. ft.
PORCH	97 sq. ft.

Below shows the total percentage of alteration to Riverfront Area on lot.

$((\text{Total Existing}) + (\text{Total Proposed})) / (\text{Total Lot Area Within River Front Buffers}) \times 100\% = \% \text{Alteration}$

$((5,202) + (1,224)) / (79,113) \times 100\% = 8.12\%$

These calculations prove that we are under the 10% degraded area of the riverfront area.

Since under the 10% degraded area no mitigation needs to be proposed, but in order to improve existing areas within the Riverfront area the concrete behind the Garage is being proposed to be removed.

Lot Before August 1st, 1996:

Attached is a Deed From previous owner for the lot dated 01-21-93, as well as the USGS topo map showing the lot (note all USGS topo maps were produced before 1996).

Alternative Analysis:

All work is outside the flood zone and 100' wetland buffer but within the 200' Riverfront area. There is no portion of the lot that is outside the 200' Riverfront area so there is no alternative to achieve that. All other places in the lot would push the proposed work close to any resource area. The system designed is flipping a bedroom from the main structure which is adding no additional flow to the lot which is the best case for a system being added with an ADU. To reduce impact no pathways have been proposed to the ADU. The ADU is situated near the end of the existing driveway and garage but set away from existing structure to produce privacy. Any alternatives on the lot would not have these factors unless the ADU was pushed closer to the Riverfront. Most work is being proposed within lawn area, which was the most viable alternative to reducing tree cutting and ground coverage disturbance. Only work not in lawn is the new water line being proposed that cuts through existing bit. concrete.

Staff also recommend installing a roof runoff system, the following is our reasoning for not doing this.

- Under the Hingham Board of Health Supplementary Rules and Regulations, a “drain” is defined as
“Drain: Any conduit used for the conveyance of water including, but not limited to: curtain Drains, French Drains, under Drains, leaching catch basins, or stormwater management measures such as retention or detention ponds and infiltration swales.”
- This definition includes roof and paved surface runoff collection and disposal system. All portions of a Title V system (the Sewage Disposal System, or SDS) must be either 25' or 50' away from a “drain” depending on if the drain is higher or lower than breakout.
- A roof runoff infiltration system needs to be installed lower than breakout for it to function properly, and therefore all piping associated with this system would need to be at least 50' away from the SDS. By definition, the SDS includes the building sewer line where it exits the foundation.

Since the proposed structure is less than 50' long, it would not be possible to place all components of the roof runoff infiltration system at a distance in compliance with the Hingham BoH rules. The only way to achieve this would be to make the building bigger and allow for that 50' separation. We find this to be counter intuitive to the resource area so instead proposed to remove some concrete up behind the garage allowing more area for infiltration.