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November 20, 2012

Via E-Mail: rick.donovan@redgate-re.com

Rick Donovan
Redgate Real Estate Advisors, LLC
100 Franklin Street
Boston, MA 02110

RE: Marina Bay Residential – Quincy, MA
Special Permit – Structural Peer Review Responses
Mc/Sal Project N: 12145.00

Dear Rick,

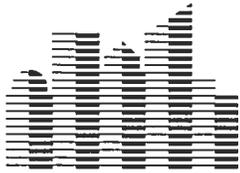
The purpose of this letter is to address the Peer Review comments as they relate to construction within the Coastal High Hazard and Flood Zones that were prepared in response to your application for Special Permit for the Marina Bay Residential Project in Quincy, Massachusetts. The structural Peer Review was prepared by Odeh Engineers in a report dated October 16, 2012. Attached is a copy of Odeh's Executive Summary where their Peer Review comments are summarized. Also attached for reference is a building section summarizing the structural basis of design and schematic intent. Complete stamped and signed structural design documents in accordance with the laws and regulations of the Commonwealth and the Massachusetts State Building Code will be provided along with the application for building permit. Following is a response to the structural Peer Review comments.

- A. The building footprint and finished floor elevations have been modified. Please reference revised Special Permit Documents as prepared by Elkus | Manfredi Architects. In general, the building has been re-sited to remove the Northwest corner from the VE zone and finished floor elevations have been increased by 1-foot throughout. Level P2, now set at Elevation 16.25', is 3.25' above the DFE for the AE zone. The Level P2 structure is intended to be concrete, flat plate. The bottom of structure will be well above the DFE for the AE zone.

Note, that while there is no longer any building footprint within the VE zone below the DFE, there are two building columns that are founded within the VE zone. The foundation elements for these columns will extend below the erosion and scour plane and the columns/piers will be designed in accordance with ASCE 24-05, Section 4.5.7.

Also within the VE zone is the boardwalk structure which will be designed as an independent element and in accordance with ASCE 24-05, Section 4.8. The wood plank, joists, and headers will be designed with hold-downs to minimize risk of floating and flood debris that can cause additional damage.

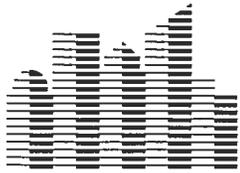
- B. The retail space is intended to be founded on a soil supported slab-on-grade. The structural fill will be confined within a perimeter frost wall on all sides that will extend below the erosion and scour plane and otherwise protect the integrity of the subgrade support. Finished floor elevation has been revised to 12.25', with average grade/boardwalk raised to match. The small amount of exposed foundation wall between grade and the BFE (El. 12') will be designed to resist breaking wave loading in accordance with ASCE 7-05, Section 5.4.4. The slab and walls will be designed for the hydrostatic pressure associated with the DFE (El. 13') in accordance with ASCE 7-05, Section 5.4.2.



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The retail space will be flood-proofed to the DFE utilizing a 9" curb with waterproofing and flood doors to protect the entry thresholds.

- C. The P1 level is set at El. 6.25' and is limited to parking, access, and storage. The top of the ramp at the garage is set at the DFE (El. 13'). The average grade/boardwalk has been revised to elevation 12.25'. The structural design intent is to keep water out of the below grade garage by designing the structure as waterproofed tub. No openings shall exist below the DFE. The foundation and foundation walls will be designed to resist the hydrostatic pressure associated with the DFE and in accordance with ASCE 7-05, Section 5.4.4. Any exposed foundation wall below the BFE (El. 12') will also be designed to resist breaking wave loading in accordance with ASCE 7-05, Section 5.4.4. The foundation walls are necessary to support the surrounding soil. With average grade being within a foot of the DFE, breakaway walls do not significantly relieve the loads imposed to the structure as water needs to almost reach the design elevation before the building begins to flood and equalize pressure. Adding breakaway walls would also compromise the integrity of the foundation wall and pose a greater risk to personal property. For this condition, adding breakaway walls adds more risk than it mitigates. Designing the water tight, structural tub is in effect raising the building out of the DFE.
 - D. The FIRM maps indicate that the shaded X zone is bound by the 0.2% annual chance flood plane. ASCE 24-05 does not apply to areas designated as having less than a 1% chance of flood in a given year, unless otherwise designated on a local community flood hazard map. The building elements (including structure) will be designed for the high water elevation as determined by the geotechnical engineer. The degree to which the building is flood-proofed above and beyond the requirements of the building code shall be a risk management decision by ownership with suggestions based on good building practice from the design team where may be appropriate.
 - E. Where the provisions of ASCE 24-05 apply through reference from the Massachusetts State Building Code (i.e. V and A zones), all structural elements below the DFE (foundations, columns, piers, walls, grade beams, etc) shall be designed in accordance with Sections 1.5 and 4.5.
 - F. Reference to ASCE 24-05, Section 7 dealing with the design of utilities is noted. The intent of this letter is to respond to questions and comments related to the design of structural elements. The design team will, however, coordinate with the Mechanical Engineer to incorporate any applicable requirements.
 - G. This is a very interesting and astute observation. It does appear as though the sea wall as shown on the FIRM maps is shifted West on both sides of the Marina. Assuming the boundary conditions between the VE, AE, and X zones follow this shift, it appears as though the entire site may fall outside of the VE and AE zones. This is an important distinction and should be reviewed with a local FEMA representative for interpretation.
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Redgate Real Estate Advisors, LLC
November 20, 2012
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Very truly yours,
McNamara/Salvia, Inc.

Benjamin B. Wild, P.E.
Principal

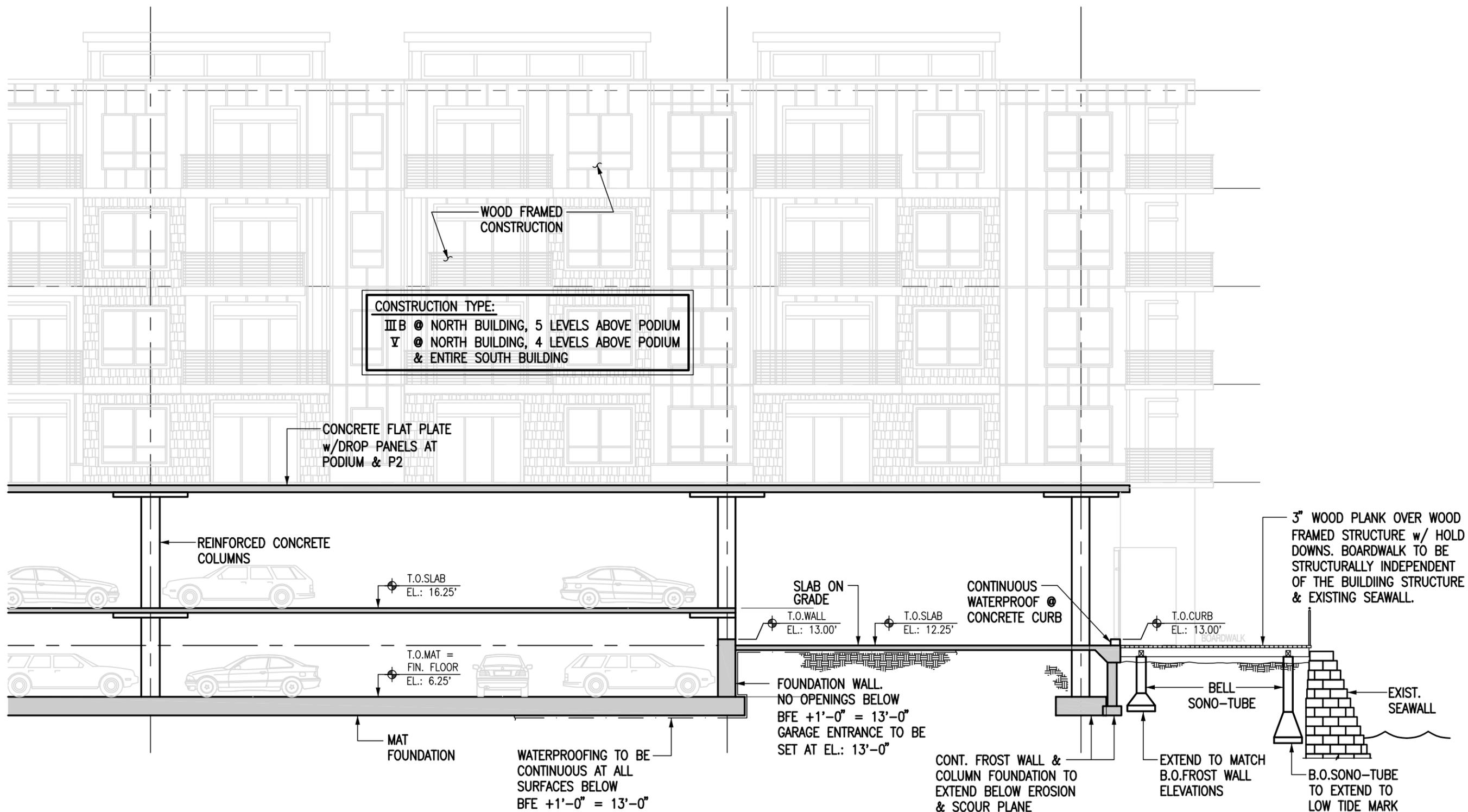
Att: 'Executive Summary' – Excerpt from *Marina Bay Structural Site Peer Review*, Odeh Engineers, October 16,
2012
SO.1 – Structural Basis of Design

EXECUTIVE SUMMARY

The purpose of this report is to provide H.W. Moore Associates with peer review comments identifying potential building code issues for the Marina Bay Residences project as it relates to construction within the Coastal High Hazard and Coastal Flood Zones. All comments are based solely upon the information provided in the “Special Permit Documents” dated September 24, 2012.

The following is a summary list of items that should be reviewed and addressed by the design team. Please see the body of the report for further explanation of each item.

- A. The bottom of the lowest supporting horizontal structural member of the lowest floor for the North Building must be above El. 13 ft in the AE zones and El. 15 ft in AE zones per ASCE 24, Table 4-1. Currently, the lowest floor of the North Building is set at -5'-6" (El. 5.75 ft), the ground level is set at 0'-0" (El. 11.25 ft), and Parking Level 2 (P2) is set at 4'-0" (El. 15.25 ft). Based upon these requirements, no floor areas at Ground Level can be framed. Any framing for Level P2 must be set such that the bottom of framing is above the DFE for the applicable flood zone.
- B. Several areas the North Building at ground level appear to be set on slabs-on-grade, which will most likely be set upon structural fill (aka slabs-on-fill). The Ground Level 0'-0" (El. 11.25 ft) appears to be set upon slabs-on-fill. The local building official could be contacted for direction on this issue. All Grade Level floor areas within AE and VE zones may be required to be framed such that the bottom of the lowest horizontal member is set at or above the DFE.
- C. The uses of the lowest level areas are limited to parking, building access, or storage. This includes areas at Ground Level 0'-0" (El. 11.25 ft.) which are located within AE and VE zones. All walls enclosing areas below the DFE in Zone VE must be designed as breakaway walls. All walls enclosing areas below the DFE in Zone AE must be designed as breakaway walls shall be designed as breakaway walls with flood openings to allow for the automatic entry and exit of floodwaters.
- D. The lowest level in the South Building is set at EL. 5.75 ft, which is below the BFE + 1 ft elevation. The use of these areas is limited to parking, building access, or storage. Exception: Dry floodproofing for non-residential areas of the buildings is allowed by ASCE 24 in Zone X provided that the depth of floodproofing extends to the BFE + 1 ft elevation. (ASCE 24, Section 6).
- E. Structural design of foundations and framing shall be performed to meet the requirements of ASCE 24 for areas of the buildings located in Coastal High Hazard Zones, Coastal A Zones, and other Flood Zones.
- F. Utility designs shall also be performed to meet the requirements of ASCE 24, especially Section 7.0 “UTILITIES”.
- G. There appears to be an error in the location of the seawall on both FIRMs related to this project site. The seawall appears to represent a significant barrier to separate the AE and VE zones from the X zones. Since the design requirements in X Zones (Other Flood Zones) are significantly less than those required for VE (Coastal High Hazard) zones and AE (Coastal A) zones, the local EMA and Building Code officials could be contacted to clarify the boundaries of the flood zones for this site.



CONSTRUCTION TYPE:
 III B @ NORTH BUILDING, 5 LEVELS ABOVE PODIUM
 V @ NORTH BUILDING, 4 LEVELS ABOVE PODIUM
 & ENTIRE SOUTH BUILDING

NORTH BUILDING SECTION
 SCALE: N.T.S.

Project:	MARINA BAY - RESIDENTIAL QUINCY MA	Project Number:	
Dwg Name:	NORTH BUILDING SECTION	Date:	2012 11 20
Dwg No.:	S0.1	Scale:	N.T.S.
		By:	M.A.W.

