EXHIBIT B TO RESOLUTION NO. 2013 -

FINDINGS AND DETERMINATION THAT CHANGES OR MODIFICATIONS TO THE INTERNATIONAL BUILDING CODE, AND THE CALIFORNIA BUILDING CODE, 2013 EDITION, ARE REASONABLY NECESSARY BECAUSE OF LOCAL CONDITIONS

1. In connection with the adoption by reference of the International Building Code, 2012 Edition, as amended by the State of California in that document entitled "The California Building Standards Code," it is hereby expressly found and determined that the following changes found in San Leandro Municipal Code Chapter 7-5, Article 1 are reasonably necessary because of local climatic, geological or topographical conditions:

Section 7-5-160: MODIFICATIONS TO 2013 CBC AND ASCE 7 is added to read as follows:

Section 1612.3 of the 2013 California Building Code is amended to read as follows.

1612.3 Establishment of flood hazard areas. To establish flood hazard areas, the governing body shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for City of Leandro, California, revision dated August 9, 2009, as amended, with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this Section.

Section 1613.6 is added to read as follows:

1613.6 ASCE 7, 12.2.3.1, Exception 3. Modify ASCE 7 Section 12.2.3.1 Exception 3 to read as follows:

3. Detached one and two family dwellings up to two stories in height of light frame construction.

Section 7-5-165: CONCRETE CONSTRUCTION

Section 1705.3 of the California Building Code, 2013 Edition is amended as follows:

1705.3 Concrete Construction. The special inspections and verifications for concrete construction shall be as required by this section and Table **1705.3**.

Exceptions: Special inspection shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less in height that are fully supported on earth or rock, *where the structural design of the footing*

is based on a specified compressive strength, f'c, no greater than 2,500 pounds per square inch (psi) (17.2 Mpa).

2. Continuous concrete footings supporting walls of buildings three stories or less in height that are fully supported on earth or rock where:

   2.1. The footings support walls of light-frame construction;

   2.2. The footings are designed in accordance with Table 1805.4.2; or

   2.3. The structural design of the footing is based on a specified compressive strength, f'c, no greater than 2,500 pounds per square inch (psi) (17.2 Mpa), regardless of the compressive strength specified in the construction documents or used in the footingconstruction.

3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 Mpa).

4. Concrete foundation walls constructed in accordance with Table 1805.5(5).

5. Concrete patios, driveways and sidewalks, on grade.

Section 7-5-170: STRUCTURAL OBSERVATIONS FOR SEISMIC RESISTANCE

Section 1704.5.1 of the 2013 Edition of the California Building Code is amended by adding new item 6 and exception to read as follows:

6. Structural observations of the lateral system shall be provided for all new commercial, industrial, and multifamily buildings and all new single family dwelling on hillsides.

Exception: Structural observations of the lateral system may be waived for one and two-story wood residential structure when such structures are in full compliance with conventional light frame construction of Chapter 23 of the California Building Code or the California Residential Code.

SECTION 7-5-175: SOILS AND FOUNDATIONS

Sections 1803.8, 1803.9 and 1803.10 are added to the 2013 California Building Code to read:

1803.8 Review. Before issuing a permit for a building where soil and foundation investigation is required, the Geotechnical Engineer or Civil Engineer in responsible charge of the soil investigation shall state in writing (must be signed and stamped):

1. The plans and specifications substantially conform to the recommendations in the soil investigation.

2. The Geotechnical Engineer or Civil Engineer in responsible charge of the soil investigation has been retained to provide soil site observation and provide periodic and final reports to the city.

1803.9 Field Report. Before requesting a foundation inspection from the City, the Geotechnical Engineer or Civil Engineer in responsible charge of the soil investigation shall provide a written field report stating:

1. The building pad was prepared and compacted in accordance with the soil report and specification.

2. The foundation or pier excavation, depth, backfill materials, and drainage (if applicable), substantially conforms with the soil report and approved plans.

1803.10 Final Report. Before final inspection for any building or structure, the Geotechnical Engineer or Civil Engineer in responsible charge of the soil investigation shall issue a final report stating the completed pad, foundation, finish grading, drainage, and associated site work substantially conforms to the approved plans, specifications, and investigation.

SECTION 7-5-180: CONCRETE AND MASONRY FOUNDATION WALLS

Section 1807.1.6 of the 2013 Edition of the California Building Code is amended to read as follows:

1807.1.6 Prescriptive design of concrete and masonry foundation walls. Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section. Prescriptive design of foundation walls shall not be used for structures assigned to Seismic Design Category D, E or F.

SECTION 7-5-185: MODIFICATIONS TO ACI 318

Section 1905.1 is amended to read as shown below and Sections 1905.1.10 thru 1905.1.12 is added to Chapter 19 of the 2013 Edition of the California Building Code:

The last paragraph of Section 1905.1.2 of the 2013 Edition of the California Building Code is amended to read as follows:

All special moment frames and special structural walls shall also satisfy 21.1.3 through 21.1.7. Concrete tilt-up wall panels classified as intermediate precast structural wall system shall satisfy 21.9 in addition to 21.4.2 and 21.4.3 for structures assigned to Seismic Design Category D, E or F.

1905.1.8 ACI 318, section 22.10 Delete ACI 318, section 22.10, and replace with the following:

22.10.1- Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

a. Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

   Exception: In detached one- and two-family dwelling three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.

b. Plain concrete footing supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing.-A minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

   Exception: In detached one- and two-family dwellings three stories or less in height and constructed with stud bearing walls, with at least two continuous longitudinal reinforcing bars not smaller than No. 4 are permitted to have a total area of less than 0.002 times the gross cross–sectional area of the footing

   .

Sections 1905.1.10 through 1905.1.12 are added as follows:

1905.1.10 ACI 318, Section 21.6.4. Modify ACI 318, Section 21.6.4, by adding Section 21.6.4.8 and 12.6.4.9 as follows:

21.6.4.8 Where the calculated point of contraflexure is not within the middle half of the member clear height, provide transverse reinforcement as specified in ACI 318 Sections 21.6.4.1, Items (a) through (c), over the full height of the member.

21.6.4.9 – At any section where the design strength, φP_n, of the column is less than the sum of the shears V_e computed in accordance with ACI 318 Sections 21.5.4.1 and 21.6.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 21.6.4.1 through 21.6.4.3 shall be provided. For beams framing into opposite sides of the column, the moment components are permitted to be assumed to be of opposite sign. For the determination of the design strength, φP_n, of the column, these moments are permitted to be assumed to result from the deformation of the frame in any one principal axis.

1905.1.11 ACI 318, Section 21.9.4. Modify ACI 318, Section 21.9.4, by adding Section 21.9.4.6 to read as follows:

21.9.4.6 – Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated shear strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.13.

1905.1.12 ACI 318, Section 21.11.6. Modify ACI 318, Section 21.11.6.1, as follows:

21.11.6.1 Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or 6 d_b in thickness, where d_b is the diameter of the largest reinforcement in the topping slab.

Section 7-5-190: CONVENTIONAL LIGHT-FRAME CONSTRUCTION

Section 2301.2, method 3 of California Building Code, 2013 edition is revised as follows:

Delete Exception.

Section 4.3.4 of SDPWS 2008 Edition is amended as follows:

Delete rows 5 & 6 and footnote 2 of Table 4.3.4

Section 2306.3 of the California Building Code, 2013 is amended as follows:

Section 2306.3 Wood –frame shear walls. Wood –frame shear walls shall be designed and constructed in accordance with AF&PA SDPWS. Where panels are fastened to framing members with staples, requirements and limitations of AF&PA SDPWS shall be met and the allowable shear values set forth in Table 2306.3(1), 2306.3(2) or 2306.3(3) shall be permitted. The allowable shear values in Tables 2306.3(1) and 2306.3(2) are permitted to be increased 40 percent for wind design. Panels complying with ANSI/APA PRP-210 shall be permitted to use design values for Plywood Siding in the AF&PA SDPWS. Shear walls sheathed with Portland cement plaster, gypsum lath, gypsum sheathing or gypsum board shall not be used to resist seismic forces in structures assigned to Seismic design Category D, E or F.

Section 2308.1 of the California Building Code, 2013 Edition is amended as follows:

Section 2308.1 General. The requirements of this section are intended for conventional light-frame construction. Other methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior non-load -bearing partitions, ceilings and curtain walls of conventional light-frame construction are not subject to the limitations of this section.

Section 2308.3.4 of the California Building Code, 2013 Edition is amended as follows:

Section 2308.3.4 Braced wall line support. Braced wall lines shall be supported by continuous foundations.

Exceptions:

1. One-story buildings with maximum plan dimension not exceeding 50 feet (15240 mm), may have continuous foundations located at exterior braced wall lines only.

2. Two-story buildings with a maximum plan dimension not exceeding 50 feet (15240 mm) may have braced wall lines supported on continuous foundations at the exterior walls only, provided:

    a. Cripple walls do not exceed 4 feet (1219 mm) in height.

    b. Where the first story is supported on a raised wood framed floor, the interior braced wall panels are directly supported by either doubled joists, continuous 4x blocking or minimum 4x floor beams.

Section 2308.12.4 of the California Building Code, 2013 Edition is amended as follows:

2308.12.4 Braced wall line sheathing. Braced wall lines shall be braced by sheathing prescribed by Table 2308.12.4 as shown in Figure 2308.9.3. The sum of lengths of braced wall panels at each braced wall line shall conform to Table 2308.12.4. Braced wall panels shall be distributed along the length of the braced wall line and start at not more than 8 feet (2438 mm) from each end of the braced wall line.. Sheathing shall be minimum of 3/8" thick and be fastened to studs, top and bottom plates and at panel edges occurring over blocking. Wall framing to which sheathing used for bracing is applied shall be nominal 2 inch wide [actual 1½ inch (38 mm)] or larger members, spaced a maximum of 16 inches on center. Nailing shall be minimum 8d common placed 3/8 inches from panel edges and spaced not more than 6 inches on center, and 12 inches on center along intermediate framing members. Cripple walls having a stud height exceeding 14 inches (356 mm) shall be considered a story for the purpose of this section and shall be braced as required for braced wall lines in accordance with Table 2308.12.4. Where interior braced wall lines occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the lengths required by Table 2308.12.4. Where the cripple wall sheathing type used is Type S-W and this additional length of bracing cannot be provided, the capacity of Type S-W sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) o.c.

Table 2308.12.4 of the California Building Code 2013 Edition is amended as follows:

TABLE 2308.12.4

WALL BRACING IN SEISMIC DESIGN CATEGORIES D AND E
(Minimum Length of Wall Bracing per each 25 Linear Feet of Braced Wall Line[a])

CONDITION	**SHEATHING TYPE[b]**	**$S_{DS} < 0.50$**	**$0.50 \le S_{DS} < 0.75$**	**$0.75 \le S_{DS} \le 1.00$**	**$S_{DS} > 1.00$**
One Story	S-W	5 feet 4 inches	8 feet 0 inches	9 feet 4 inches	12 feet 0 inches

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Section 7-5-195: REPAIRS. Section 3405 is amended as follows

3405.2.3 Extent of Repair for Noncompliant Buildings of the California Building Code, 2013 Edition is amended as follows:

3405.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the predamage building in accordance with Section 3405.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations, including wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction or as required by this code, whichever is greater. Earthquake loads for this rehabilitation design shall be those required for the design of the predamage building, but not less than 75 percent of the prescribed in Section 1613. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405.2.4 through 3405.2.4.2 and Tables 3405.2.4.1 and 3405.2.4.2 are added as follows:

3405.2.4 Seismic Evaluation and Design Procedures for Repairs. The seismic evaluation and design shall be based on the procedures specified in the California Building Code, ASCE 31 *Seismic Evaluation of Existing Buildings* (for evaluation only) or ASCE 41 *Seismic Rehabilitation of Existing Buildings*. The procedures contained in Appendix A of the *International Existing Building Code* shall be permitted to be used as specified in Section 3405.5.1.1.3.

3405.2.4.1 Compliance with CBC level seismic forces. Where compliance with the seismic design provisions of the California Building Code is required, the procedures shall be in accordance with one of the following:

1. One-hundred percent of the values in the California Building Code. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," the values of R, Ω_o, and C_d used for analysis in accordance with Chapter 16 of the California Building Code shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it is demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.

2. Compliance with ASCE 41 using both BSE-1 and BSE-2 earthquake hazard levels and the corresponding performance levels in Table 3405.2.4.1.

TABLE 3405.2.4.1

PERFORMANCE CRITERIA FOR CBC LEVEL SEISMIC FORCES

OCCUPANCY CATEGORY (BASED ON CBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note a	Note a
IV	Immediate Occupancy (IO)	Life Safety (LS)

a. Acceptance criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category II performance levels, but need not be less than the acceptance criteria specified for Occupancy Category IV performance levels.

3405.2.4.2 Compliance with reduced CBC level seismic forces. Where seismic evaluation and design is permitted to meet reduced California Building Code seismic force levels, the procedures used shall be in accordance with one of the following:

1. The California Building Code using 75 percent of the prescribed forces. Values of R, Ω_o, and C_d used for analysis shall be as specified in Section 3405.2.4.1 Item 1.

2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A of the *International Existing Building Code* as specified in Items 2.1 through 2.5 below shall be deemed to comply with this section.

   2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.

   2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A2.

   2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction

in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A3.

2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A4.

2.5. Seismic evaluation and design of concrete buildings in all Occupancy Categories are permitted to be based on the procedures specified in Appendix Chapter A5.

3. Compliance with ASCE 31 based on the applicable performance level as shown in Table 3405.2.4.2. It shall be permitted to use the BSE-1 earthquake hazard level as defined in ASCE 41 and subject to the limitations in item 4 below.

4. Compliance with ASCE 41 using the BSE-1 Earthquake Hazard Level defined in ASCE 41 and the performance level as shown in Table 3405.2.4.2. The design spectral response acceleration parameters S_{xs} and S_{x1} specified in ASCE 41shall not be taken less than 75 percent of the respective design spectral response acceleration parameters S_{DS} and S_{D1} defined by the *California Building Code* and its reference standards.

TABLE 3405.2.4.2
PERFORMANCE CRITERIA FOR REDUCED CBC LEVEL SEISMIC FORCES

OCCUPANCY CATEGORY (BASED ON CBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Life Safety (LS)
II	Life Safety (LS)	Life Safety (LS)
III	Note a, Note b	Note a
IV	Immediate Occupancy (IO)	Immediate Occupancy (IO)

a. Acceptance criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category II performance levels, but need not be less than the acceptance criteria specified for Occupancy Category IV performance levels.
b. For Occupancy Category III, the ASCE screening phase checklists shall be based on the life safety performance level.

3405.2.4.3 Referenced Standards

Standard Reference Number	Title	Referenced In Code Section Number
ASCE 31-03	Seismic Evaluation of Existing Buildings	3405.2.4.1, TABLE 3405.2.4.1 3405.2.4.2, TABLE 3405.2.4.2
ASCE 41-06 Including Supplement No. 1	Seismic Rehabilitation of Existing Buildings	3405.2.4.1, TABLE 3405.2.4.1 3405.2.4.2, TABLE 3405.2.4.2

3405.3.1 Lateral force-resisting elements is hereby deleted.

SECTION 7-5-200: CHANGE OF OCCUPANCY: SEISMIC.

Section 3408 is amended as follows.

3408.4 Seismic. When a change of occupancy results in a structure being reclassified, the structure shall conform to the seismic requirements for a new structure.

The text of the exception is not changed."

2. The aforesaid local amendments are reasonably necessary in order to lessen the threat to life, safety and property represented by certain local climatic, geographical and topographical conditions existing in the City of San Leandro.

3. The aforesaid local amendments are enacted pursuant to the authority of Section 17958.5 of the California Health and Safety Code, for the purpose of addressing the aforesaid conditions which are more specifically described as follows:

(a) The City of San Leandro lies in the near vicinity of the Hayward Fault and in fact, a substantial portion of the residential area of the City lies within the Alquist-Priolo Act Special Studies Zone, requiring special geologic studies prior to development.

(b) Recent earthquake activities, including the 1989 Loma Prieta and the 1994 Northridge earthquakes, have indicated the lack of adequate design and detailing as a contributing factor to damages that reduced the protection of the life-safety of building occupants.

(c) The underlying soils are subject to liquefaction and amplification of seismic energy. This increases the likelihood of seismic disturbances of substantial magnitude occurring and causing consequent damage. Such

damage is often accompanied by structural fire. The City contains a large percentage of existing structures constructed more than forty years ago.

(d) The travel time to a fire or other emergency within San Leandro may be impeded by the following conditions:

(1) Three major railway lines, the elevated BART line, three major freeways and a natural creek, divide the City into numerous sections, and equipment responding to emergencies face potential delays and obstruction of access in crossing these barriers.

(2) San Leandro lies in the path of two major water reservoirs which, upon failure, would inundate a large portion of the City, further delaying the response to a fire or other emergency.

(3) A growing community of single-family and multi-family dwellings presently exists on the easterly side of Highway 580, which is itself a potential physical barrier impeding response to a fire or other emergency.

(4) The two major north-south emergency response routes aside from the freeways are dependent upon bridges spanning San Leandro Creek. Failure of these bridges would isolate a heavily populated section of the City north of the creek.

4. In the event of a natural disaster inadequately fitted structures present a significantly greater threat to persons and property due to the increased likelihood that such structures or portions of such structures may collapse in the wake of the natural disaster. To allow previous structurally deficient structures to be reconstructed to such condition perpetuates the threat to persons and property upon the occurrence of a subsequent natural disaster.

5. The City Council hereby takes official notice of the General Plan (and all elements thereof) of the City of San Leandro, all documents on file with the City relating to the Alquist-Priolo Act Special Studies Zone and building standards related to seismic activity, and the findings and recommendations of the Board of Appeals in this matter.